City of Dayton
Local Water Supply Plan Template
Third Generation for 2016-2018

Revised April 10, 2017

Formerly called Water Emergency & Water Conservation Plan

DEPARTMENT OF NATURAL RESOURCES

Cover photo by Molly Shodeen

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

This information is available in an alternative format upon request.

Equal opportunity to participate in and benefit from programs of the Minnesota Department of Natural Resources is available to all individuals regardless of race, color, creed, religion, national origin, sex, marital status, public assistance status, age, sexual orientation, disability or activity on behalf of a local human rights commission. Discrimination inquiries should be sent to Minnesota DNR, 500 Lafayette Road, St. Paul, MN 55155-4049; or the Equal Opportunity Office, Department of the Interior, Washington, DC 20240.

Table of contents

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

INTRODUCTION TO WATER SUPPLY PLANS (WSP)

Who needs to complete a Water Supply Plan

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

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

Groundwater Management Areas (GWMA)

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

Benefits of completing a WSP

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

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

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

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

WSP Approval Process

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

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

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

Table 1. General information regarding this WSP

Requested Information	Description
DNR Water Appropriation Permit Number(s)	**2001-6076**
Ownership	☒ Public or ☐ Private
Metropolitan Council Area	☒ Yes or ☐ No (Hennepin)
Street Address	**12260 South Diamond Lake Road**
City, State, Zip	**Dayton, MN 55327**
Contact Person Name	Marty Farrell
Title	Public Works Director
Phone Number	612-751-8847
MDH Supplier Classification	Municipal

PART 1. WATER SUPPLY SYSTEM DESCRIPTION AND EVALUATION

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

A. Analysis of Water Demand

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

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

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

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	Whole sale 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)
2007*															
2008*															
2009**	815	286	19.75	6.819			26.569	17.997		0%	0.073	0.289	20-Oct	66.39	89.32
2010**	963	338	25.15	8.961			34.111	22.389		0%	0.093	0.305	20-Apr	71.55	97.05
2011**	1074	377	23.554	7.916			31.47	26.481		0%	0.086	0.334	10-Oct	60.09	80.28
2012	1522	534	44.888	11.836	1.484		58.208	31.901		0%	0.159	0.271	9-Oct	80.80	104.78
2013	1519	533	44.887	12.434	0.81		58.131	30.028		8%	0.159	0.285	16-Apr	80.96	104.79
2014	1573	552	47.221	11.048	3.174		61.443	29.162		1%	0.168	0.227	15-Apr	82.25	107.02
2015	1667	585	55.848	14.724	1.449		72.021	38.35		8%	0.197	0.354	12-Oct	91.79	118.37
2016	1878	659	63.636	12.086	1.879		77.601	45.149		9%	0.213	0.323	3-Jul	92.84	113.21
Avg. 2011-2016			51.296	12.426	1.753		65.475	34.918		6.5%	0.179	0.292		86	109

* No information available through search of records and current systems.
** Information obtained from previous Water Supply Plan submitted in 2011.
*** Reflects water delivered via Maple Grove System and City of Dayton System.
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.

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

Table 3. Large volume users

Customer	Use Category (Residential, Industrial, Commercial, Institutional, Wholesale)	Amount Used (Gallons per Year)	Percent of Total Annual Water Delivered	Implementing Water Conservation Measures? (Yes/No/Unknown)
1. DAYTON PARK PROPERTIES	RESIDENTIAL	18,747,000	28.3	NO
2. CEMSTONE	COMMERCIAL	7,078,000	10.8	NO
3. CITY OF DAYTON PARKS	OTHER	2,131,000	3.2	NO
4. KING SOLUTIONS	COMMERCIAL	1,574,000	2.3	NO
5. LIBERTY PROPERTIES	COMMERCIAL	1,255,000	1.9	NO
6. ANOKA SCHOOLS	INSTITUTIONAL	743,000	1.1	NO
7. QUAM CONSTRUCTION	COMMERCIAL	655,000	1.0	NO
8. JACE AND AMY REED	RESIDENTIAL	322,000	0.5	NO
9. ICA CORP	COMMERCIAL	298,000	0.4	NO
10. K-LAND MFG	COMMERCIAL	125,000	0.2	NO

B. Treatment and Storage Capacity

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

Table 4. Water treatment capacity and treatment processes

Treatment Site ID (Plant Name or Well ID)	Year Constructed	Treatment Capacity (GPM)	Treatment Method	Treatment Type	Annual Volume of Residuals	Disposal Process for Residuals	Do You Reclaim Filter Backwash Water?
Well 1	2000	300	Chemical Injection	Polyphosphate, Chlorine, fluoride	NA	NA	NA
Well 2	2007	800	Chemical Injection	Polyphosphate, Chlorine, fluoride	NA	NA	NA
Total		1450					

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)
NE Water Tower	Elevated storage	2009	Steel	500,000
Well 1 Pressure Tank	Pressure Tank	2000	Steel	1,000
Total	NA	NA	NA	

Treatment and storage capacity versus demand

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

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

The City of Dayton has a unique water distribution system that cannot simply compare the average daily flow to storage capacity to determine if the storage volume for the city is sufficient. This is because the City currently has three separate distribution systems which all must be looked at independently. Currently the 500,000 gallon elevated water storage tank is located in the NE system and as you can see from the future growth projections, would be adequate to serve a majority of the future growth on its own. The NW water system currently only has a pressure tank located within the well house which does not provide sufficient storage for the service area if a well interruption were to occur. Because of this, the City currently has a backup well for this area planned in 2018 and a future storage tank is included in the CIP. The southern distribution area which is served via the City of Maple Grove currently has adequate capacity via the City of Maple Grove system and this supply is capable of providing an average daily demand of 2.8 Mgal per day with a peak demand of 5.0Mgal. This as well would be sufficient for the projected growth in the area for the foreseeable future if determined necessary. However, the City of Dayton will eventually supply a portion of the southern distribution network someday and at that time additional storage capacity will be required for the service network.

C. Water Sources

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

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

Table 6. Water sources and status

Resource Type (Groundwater, Surface water, Interconnection)	Resource Name	MN Unique Well # or Intake ID	Year Installed	Capacity (Gallons per Minute)	Well Depth (Feet)	Status of Normal and Emergency Operations (active, inactive, emergency only, retail/wholesale interconnection))	Does this Source have a Dedicated Emergency Power Source? (Yes or No)
Groundwater	CTCW-Tunnel City-Wonewoc	611054	2000	350	385	Active	No (Portable Backup Generator Available)
Groundwater	CTCW-Tunnel City-Wonewoc	752128	2007	1100	404	Active	No (Portable Backup Generator Available)

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.

There are no current limitations on the use of the wells or the emergency interconnects. The City has a water service agreement between itself and the City of Maple Grove. In that agreement the City of Maple Grove will furnish and deliver sufficient quantity of water to meet an average daily demand not to exceed 2.8 Million Gallons per Day and a maximum daily demand of 5.0 Million Gallons per Day.

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

Water Use Trends

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

The water use information for the City of Dayton is limited in availability prior to 2012 as the data software currently used to track water usage is unable to track prior information effectively. A previous Water Supply Plan update from 2011 was used which included data from 2009 through 2011. That information is included in the report but shows water usage demands which are significantly different than what was calculated from the currently available data. The information from the 2011 Water Supply Plan update was included in the tables but our analysis is primarily based on data from 2012 to present. The data presented in table 2 provides a recent snapshot of how the City of Dayton is trending in their water usage. The City of Dayton is a growing community who is experiencing a current boom in new home construction throughout the community. While the population of the town may be growing at a more gradual pace when compared to the total population, the population being served via the public water system is growing at a much faster rate when looked at as a percentage basis as the vast majority of the new home builds are within the water service areas. As discussed later in the report, this growth rate is expected to continue for the foreseeable future as the interest in single family residential homes within the city continues to be strong. Over the last 5 years, the water usage on a per capita basis has average to be 86 gpcpd. This number is higher than

the 75 gpcpd goal usage rate as the portions of Dayton which are being serviced are primarily single family homes with a fair amount of new home growth. It has been the cities observation that typically the new home constructions include irrigated lawns and new home owners who tend to use more water than older non irrigated homeowners.

We have seen the average daily demand increase in proportion to the service growth. The maximum daily demand shown in Table 2 is based off of automated pumping information available from Dayton Wells 1 and 2. Because no metering exists on the service line between Maple Grove and Dayton, the maximum daily demand only reflects the water pumped via the two Dayton wells. This number has fluctuated slightly but not to the same degree as the average daily demand has grown. It was noted that the maximum daily demand has typically occurred on days in which the City of Dayton Flushes the hydrants which uses a significant amount of water compared to the average consumer usage. As the service area grows, it is expected that the hydrant flushing will have a less notable impact on the maximum daily demand.

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)
2017	5309	2226	109	0.243	0.631
2018	5505	2422	108	0.262	0.680
2019	5701	2618	107	0.280	0.728
2020	5900	2817	106	0.299	0.776
2021	6100	3017	105	0.317	0.824
2022	6300	3217	104	0.335	0.870
2023	6500	3417	102	0.349	0.906
2024	6700	3617	101	0.365	0.950
2025	6900	3817	99	0.378	0.982
2026	7100	4017	98	0.394	1.024
2030	7900	4817	98	0.472	1.227
2040	10400	7317	98	0.717	1.864

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

Projection Method

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

The population projections used for the future water demand were based on population forecasts published by the Metropolitan Council. It was assumed that every new resident to Dayton will be added to the water supply area so the population served was increased incrementally with the added population.
The residential projected per capita water usage was determined by looking at what the residential water use has been over the last 5 years. This has averaged at 86 gpcpd which we set as our starting point. Additionally, the industrial usage of the city is approximately 23 gpcpd. For this exercise it is assumed that the city will grow and develop both industrial and residential service areas to the same approximate ratio which currently exists. The city has set forth the goal of reducing the residential per capita usage to 75 gpcpd in 10 years. For this projection it is assumed that the residential reduction usage will be linear over that time and that the C/I/I usage per capita will remain the same.

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 # or Surface Water ID	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
611054	☒ production well ☐ observation well ☐ source water intake ☐ source water reservoir	☒ routine MDH sampling ☐ routine water utility sampling ☐ other	☒ continuous ☐ hourly ☐ daily ☐ monthly ☐ quarterly ☐ annually	☒ SCADA ☐ grab sampling ☐ steel tape ☐ stream gauge
752128	☒ production well ☐ observation well ☐ source water intake ☐ source water reservoir	☒ routine MDH sampling ☐ routine water utility sampling ☐ other	☒ continuous ☐ hourly ☐ daily ☐ monthly ☐ quarterly ☐ annually	☒ SCADA ☐ grab sampling ☐ steel tape ☐ stream gauge
27065	☐ production well ☒ observation well ☐ source water intake ☐ source water reservoir	☒ routine MDH sampling ☐ routine water utility sampling ☐ other	☒ continuous ☐ hourly ☐ daily ☐ monthly ☐ quarterly ☐ annually	☒ SCADA ☐ grab sampling ☐ steel tape ☐ stream gauge

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
611054	CTCW-Tunnel City-Wonewoc	NA	☐ Falling ☒ Stable ☐ Rising	Individual reading not taken but continuous readings available in graphs in Appendix 3
752128	CTCW-Tunnel City-Wonewoc	NA	☐ Falling ☒ Stable ☐ Rising	Individual reading not taken but continuous readings available in graphs in Appendix 3
27065	Jordan Sandstone	Approx 1.5'	☐ Falling ☒ Stable ☐ Rising	

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
☒ River or stream	Mississippi River, Diamond Creek, Elm Creek	☐ None anticipated ☒ Flow/water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☒Proximity (<1.5 miles) ☒ Other: Elm Creek Watershed Management Plan and DNR Groundwater Technical Review (Jan 23, 2019)	☐ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ No data available ☒ Other: Unexplained decrease in flow rate	☐Not applicable ☐ Change groundwater pumping ☒ Increase conservation ☐ Other: _____	☐Not applicable ☒ Newly collected data will be analyzed (monitoring of Diamond Creek and Elm Creek flows) ☐ Regular check-in with these partners: ____ ☒ Other: _ Notification from Elm Creek Watershed Management Commission or DNR
☐ Calcareous fen	None	☐ None anticipated ☐ Flow/water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed Report ☒Proximity (<5 miles) ☐ Other: _____ ☐ Other: ___	☐ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ Other: _____	☐Not applicable ☐ Change groundwater pumping ☐ Increase conservation ☐ Other: _____	☐Not applicable ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☐ Other: _____

☒ Lake	Diamond Lake, unnamed small lakes	☐ None anticipated ☒ Flow/water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☒Proximity (<1.5 miles) ☐ Other: _____	☐ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☒ Other: Unexplained decrease in lake level	☐Not applicable ☐ Change groundwater pumping ☒ Increase conservation ☐ Other: _____	☐Not applicable ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☒ Other: Notification from DNR or Elm Creek Watershed Commission
☒ Wetland	Unnamed wetlands within 1.5 miles of production wells	☐ None anticipated ☒ Flow/water level decline ☒ Degrading water quality trends ☒ Impacts on endangered, threatened, or special concern species habitat (rare species and native plant communities identified within 1.5 miles of Well 2) ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☒Proximity (<1.5 miles) ☐ Other: _____	☐ Not applicable ☒ Additional data is needed to establish ☐ See report: _____ ☒ Other: Wetland health deterioration identified by monitoring programs (such as the Wetland Health Evaluation Program)	☐Not applicable ☐ Change groundwater pumping ☒ Increase conservation ☐ Other: _____	☐Not applicable ☒ Newly collected data will be analyzed ☐ Regular check-in with these partners: ☒ Other: Notification by land owner, Hennepin County, DNR, Elm Creek Watershed Commission

☐ Trout stream	None	☐ None anticipated ☐ Flow/water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (< 5 miles) ☐ Other: _____	☐ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ Other: _____	☐Not applicable ☐ Change groundwater pumping ☐ Increase conservation ☐ Other: _____	☐Not applicable ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☐ Other: _____
☒ Aquifer	Tunnel City - Wonewoc	☐ None anticipated ☒ Flow/water level decline ☒ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☒ Monitoring ☒ Aquifer testing ☐Proximity (obwell < 5 miles) ☒ Other: __DNR Groundwater Technical Review (Jan 23, 2019)_____	☐ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☒ Other: loss of 50% of the available head in the aquifer as measured in production wells; upon completion of observation well, the mitigation threshold may be re-evaluated with assistance from DNR	☐Not applicable ☒ Change groundwater pumping ☒ Increase conservation ☐ Other: _____	☐Not applicable ☒ Newly collected data will be analyzed (a new monitoring well will be installed in the source aquifer as directed by the DNR. Water level will be measured hourly and monthly.) ☐ Regular check-in with these partners: _____ ☒ Other: _Routine MDH water quality testing

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

Complete Table 11 to provide status information about WHP and SWP plans.

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

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

Plan Type	Status	Date Adopted	Date for Update
WHP	☒ In Process ☐ Completed ☐ Not Applicable	WHPP Part I approved April 27, 2017	November 2017
SWP	☐ In Process ☐ Completed ☒ Not Applicable		

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

F. Capital Improvement Plan (CIP)

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

Adequacy of Water Supply System

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

The assessment can be the general status by category; it is not necessary to identify every single well, storage facility, treatment facility, lift station, and mile of pipe.

Please attach your latest Capital Improvement Plan as **Appendix 4**.

Table 12. Adequacy of Water Supply System

System Component	Planned action	Anticipated Construction Year	Notes
Wells/Intakes	☐ No action planned - adequate ☐ Repair/replacement ☒ Expansion/addition	2018 NW 2023 NE 2030 South	Anticipated backup well installed in NW District in 2018. NE well in 2023 and Southern well in 2030 dependent on growth.
Water Storage Facilities	☐ No action planned - adequate ☐ Repair/replacement ☒ Expansion/addition	2021 NW 2027 South	South Water tower dependent on future growth

System Component	Planned action	Anticipated Construction Year	Notes
Water Treatment Facilities	☒ No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		
Distribution Systems (Pipes, valves, etc.)	☒ No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		Several project included in CIP but all are expected to be driven and constructed by future development
Pressure Zones	☒ No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		
Other:	☒ No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		

The City currently has a 10-year capital improvement plan which projects out to the year 2027. The city does not currently know if any other projects between 2027 and 2040. The City annually updates their capital improvement plan.
However, based on the projected water demand and the current capital improvement plan, the Capital improvements planned related to water storage would be sufficient for the projected need. The city would likely install a secondary well in the southern service area between 2027 and 2040 to provide a backup source and ensure sufficient pumping capacity is available.

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	Northwest	Tunnel City – Wonewoc	850	2018	NA
Groundwater	Northeast	Tunnel City – Wonewoc	850	2023	NA
Groundwater	South	Tunnel City-Wonewoc	1010	2030	NA

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
☐ Groundwater	NA					
☐ Surface Water	NA					
☐ Reclaimed stormwater	NA					
☐ Reclaimed wastewater	NA					
☐ 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? _Currently less than the 3,300 people served threshold

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	MARTY FARRELL	612-751-8847	mfarrell@cityofdaytonmn.com
Alternate Emergency Response Lead	TINA GOODROAD	763-421-3487	tgoodroad@cityofdaytonmn.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 ☒

Emergency telephone list included in Appendix 5.

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
City of Champlin	NA	NA	NO FORMAL AGREEMENT IN PLACE
City of Maple Grove	2.8MGD AVG. 5.0MGD PEAK	CAPACITY	HARD CONNECTION. NO ADDITONAL SERVICES.
City of Rogers	NA	NA	CURRENTLY SINGLE SERVICE IN ROGERS BEING SERVED VIA DAYTON NETWORK. IF FUTURE ROGERS SYSTEM EXPANDS TO THIS AREA, SERVICE WILL BE OPERATED AT EMERGENCY INTERCONNECT. NO FORMAL AGGREEMENT IN PLACE FOR EMERGENCY INTERCONNECT OPERATIONS.

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				
NA				

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

No emergency connection in place for NW water service area. Currently plan would be to provide temporary potable water to residents until permanent source can be established. New secondary/emergency well in area is in CIP for 2018.

Allocation and Demand Reduction Procedures

Complete Table 18 by adding information about how decisions will be made to allocate water and reduce demand during an emergency. Provide information for each customer category, including its priority ranking, average day demand, and demand reduction potential for each customer category. Modify the customer categories as needed, and add additional lines if necessary.

Water use categories should be prioritized in a way that is consistent with Minnesota Statutes 103G.261 (#1 is highest priority) as follows:

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

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

Table 18. Water use priorities

Customer Category	Allocation Priority	Average Daily Demand (GDP)	Short-Term Emergency Demand Reduction Potential (GPD)
Residential	1	86	68
Institutional	2	1535	1400
Commercial	3	1535	1400
Industrial	3	1535	1400
Irrigation	6	NA	NA
Wholesale	6	NA	NA
Non-Essential	6		
TOTAL	NA	NA	

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)

Northeast Service Area

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

Southern Service Area

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

Northwest Service Area

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

Notification Procedures

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

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

Notification Trigger(s)	Methods (select all that apply)	Update Frequency	Partners
☒ Short-term demand reduction	☒ Website ☐ Email list serve	☐ Daily ☐ Weekly ☒ Monthly	

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

Enforcement

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

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

Important Note:

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

Does the city have a critical water deficiency restriction/official control in place that includes provisions to restrict water use and enforce the restrictions? (This restriction may be an ordinance, rule, regulation, policy under a council directive, or other official control) Yes ☐ No ☒

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

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

Critical Water Deficiency Ordinance is currently in development and will be enacted prior to plan finalization.

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 ☒

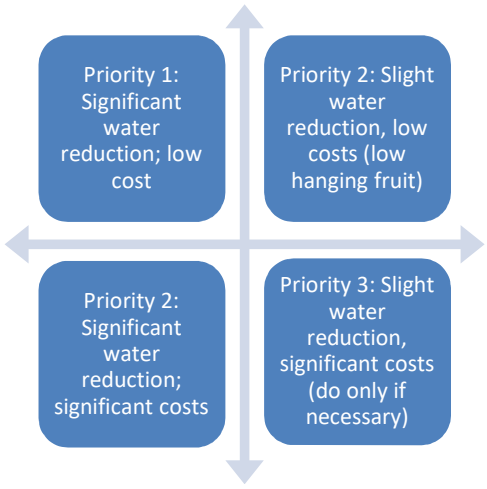
If yes, cite the regulatory authority reference: _____.

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

In the critical water deficiency ordinance in draft form, the mayor would have authority to implement water use restrictions during an emergency.

PART 3. WATER CONSERVATION PLAN

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



There are many incentives for conserving water; conservation:

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

2007 Plan Commitments	Action Taken?
Change water rates structure to provide conservation pricing	☒ Yes ☐ No
Water supply system improvements (e.g. leak repairs, valve replacements, etc.)	☐ Yes ☐ No
Educational efforts	☐ Yes ☒ No
New water conservation ordinances	☐ Yes ☒ No
Rebate or retrofitting Program (e.g. for toilet, faucets, appliances, showerheads, dish washers, washing machines, irrigation systems, rain barrels, water softeners, etc.	☐ Yes ☐ No
Enforcement	☐ Yes ☒ No
Describe other	☐ Yes ☒ No

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

City of Dayton water distribution system is relatively new (most less than 10 years old) with a rapidly growing service network. The new rate structure was adopted in the spring of 2017 and not enough information is available to adequately access its impacts.

A. Triggers for Allocation and Demand Reduction Actions

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

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

Objective	Triggers	Actions
Protect surface water flows	☐ Low stream flow conditions ☐ Reports of declining wetland and lake levels ☐ Other: _____	☐ Increase promotion of conservation measures ☐ Other: _____
Short-term demand reduction (less than 1 year	☐ Extremely high seasonal water demand (more than double winter demand) ☒ Loss of treatment capacity ☒ Lack of water in storage ☒ State drought plan ☒ Well interference ☐ Other: _____	☒ Adopt (if not already) and enforce the critical water deficiency ordinance to restrict or prohibit lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☒ Supply augmentation through various interconnects the city has dependent on location of required demand reduction. ☐ Water allocation through____ ☒ Meet with large water users to discuss user's contingency plan.
Long-term demand reduction (>1 year)	☒ Per capita demand increasing ☒ Total demand increase (higher population or more industry). ☐ Other: _____	☐ Develop a critical water deficiency ordinance that is or can be quickly adopted to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☒ Enact a water waste ordinance that targets overwatering (causing water to flow off the landscape into streets, parking lots, or similar), watering impervious surfaces (streets, driveways or other hardscape areas), and negligence of known leaks, breaks, or malfunctions. ☒ Meet with large water users to discuss user's contingency plan. ☒ Enhanced monitoring and reporting: audits, meters, billing, etc.
Governor's "Critical Water Deficiency Order" declared	☒ If enacted.	☒ Enforced by city as required by statute

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 (2005-2014) unaccounted Water Use in Table 2 higher than 10%?

Yes ☐ No ☒

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

Infrastructure is relatively new (less than 20 years old) compared to the expected life and no leak detection schedule has been established. This may be considered as the pipe approaches its expected life.

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? NA

Frequency of water audits: ☐ **yearly** ☒ **other (specify frequency) As Needed**
Leak detection and survey: ☐ **every year** ☐ **every other year** ☒ **periodic as needed**
Year last leak detection survey completed: NA. None completed as infrastructure is new compared to expected life. This will be performed as needed.

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

The last 2 years, the unaccounted for water usage within the City of Dayton Service Area has been 6.5%. This is well below the 10% and is expected to remain so as the infrastructure within the City is relatively new. The unaccounted for water usage from the City of Maple Grove cannot be calculated as there is no meter between the two cities to determine the amount of water which was delivered.

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	851	851	851	15	10/ 15+
Irrigation meters	3	3	2	15	10/15+
C/I/I	25	25	25	15	10/15+
Public facilities	2	2	2	15	10/15+
Other					___ / ___
TOTALS	881	881	880	NA	NA

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

Table 24. Water source meters

	Number of Meters	Meter testing schedule (years)	Number of Automated Meter Readers	Average age/meter replacement schedule (years
Water source (wells/intakes)	4	1	2	13 / 30+

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 2012-2016 residential per capita water demand in Table 2 more than 75? Yes ☒ No ☐

What was your 2012 – 2016 five-year average residential per capita water demand? 90 g/person/day

Describe the water use trend over that timeframe:

The residential water use trend over the last 5 Years within the City of Dayton has seen the water usage start at near 81 gpcpd in 2012. In 2013 and 2014 the residential water usage increased slightly but remained in the low 80's gpcpd. The last two years the City has seen its residential water rate rise above the 90gpcpd. As the City of Dayton continues to grow, they forsee their largest obstacle to manage residential water usage being new home construction. Many new homes are constructed with new sod and irrigation systems, and the City has noticed a trend of excessive watering at times. The city recognizes that education on this topic will be one of the key opportunities to try to manage water use within the city.

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

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

Strategy to reduce residential per capita demand	Timeframe for completing work
☐ Revise city ordinances/codes to encourage or require water efficient landscaping.	
☒ Revise city ordinance/codes to permit water reuse options, especially for non-potable purposes like irrigation, groundwater recharge, and industrial use. Check with plumbing authority to see if internal buildings reuse is permitted	3 years
☒ Revise ordinances to limit irrigation. Describe the restricted irrigation plan: An odd/even watering plan will be discussed.	3 years
☐ 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.	
☐ Make water system infrastructure improvements	
☐ Offer free or reduced cost water use audits for residential customers.	
☒ Implement a notification system to inform customers when water availability conditions change.	Currently any changes to water conditions are included in the water bills.
☐ 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.)	
☐ 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.)	
☐ Identify supplemental Water Resources	
☒ Conduct audience-appropriate water conservation education and outreach.	5 years. Specifically educate residential customers on impacts of irrigation systems.
☐ 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 used to continue reducing non-residential customer use demand and project a likely timeframe for completing each checked strategy (add rows for additional strategies).

Where possible, substitute recycled water used in one process for reuse in another. (For example, spent rinse water can often be reused in a cooling tower.) Keep in mind the true cost of water is the amount on the water bill PLUS the expenses to heat, cool, treat, pump, and dispose of/discharge the water. Don't just calculate the initial investment. Many conservation retrofits that appear to be prohibitively

expensive are actually very cost-effective when amortized over the life of the equipment. Often reducing water use also saves electrical and other utility costs. Note: as of 2015, water reuse, and is not allowed by the state plumbing code, M.R. 4715 (a variance is needed). However, several state agencies are addressing this issue.

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

Strategy to reduce total business, industry, agricultural demand	Timeframe for completing work
☐ Conduct a facility water use audit for both indoor and outdoor use, including system components	
☒ Install enhanced meters capable of automated readings to detect spikes in consumption	Currently installing on new services and will be phasing in these meters as replacements needed on existing meters without this capability.
☐ Compare facility water use to related industry benchmarks, if available (e.g., meat processing, dairy, fruit and vegetable, beverage, textiles, paper/pulp, metals, technology, petroleum refining etc.)	
☐ Install water conservation fixtures and appliances or change processes to conserve water	
☐ Repair leaking system components (e.g., pipes, valves)	
☐ Investigate the reuse of reclaimed water (e.g., stormwater, wastewater effluent, process wastewater, etc.)	
☐ Reduce outdoor water use (e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.)	
☐ Train employees how to conserve water	
☒ Implement a notification system to inform non-residential customers when water availability conditions change.	Large C/I/I users will be notified when availability conditions change when ordinance is completed.
☐ 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	
☐ Describe other plans:	

Objective 4: Achieve a Decreasing Trend in Total Per Capita Demand

Include as **Appendix 8** one graph showing total per capita water demand for each customer category (i.e., residential, institutional, commercial, industrial) from 2005-2014 and add the calculated/estimated linear trend for the next 10 years.

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

Residential: The City has seen a rise in the residential water use per capita over the last 8 years with the exception of 2011 in which the water usage per capita dropped. The City has set a goal of reducing its

residential per capita water usage to 75 gpcpd in 10 years. The city assumed a starting point of 86 gpcpd which is the average usage over the last 5 years.

C/I/I: The per capita C/I/I usage within the city has seen a declining trend over the past 8 years. Over the last 5 years specifically the usage within this category has fluctuated some but generally remained the same. However, the population over that same time period has seen steady growth which is resulting in a lower per capita usage rate. When projecting the next 10 years the City does anticipate some additional commercial activity occurring but no specific projects or users are identified. For this reason, a linear growth was assumed which would put the C/I/I growth in the same projection as the residential.

Non-Essential: The primary users of this category are the City Parks and Buildings. The per capita usage of this category has been highly variable which is due to the relative small amount of usage and the dependence on watering needs of the parks. Again this category was projected to maintain a steady usage rate on a per capita basis.

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

Is the ratio of average 2007-2016 maximum day demand to average 2007-2016 average day demand reported in Table 2 more than 2.6? Yes ☒ No ☐

Calculate a ten-year average (2007 – 2016) of the ratio of maximum day demand to average day demand: 3.29 (this is the average of the last 4 years as this is the only information available for the City of Dayton only supply area)

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: 0 gallons or ____ cubic feet ___ other

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

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

Date of last rate change: March, 2017

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

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

Customer Category	Conservation Billing Strategies in Use *	Conservation Neutral Billing Strategies in Use **	Non-Conserving Billing Strategies in Use ***
☐ Other			

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

- **Monthly billing:** is encouraged to help people see their water usage so they can consider changing behavior.
- **Increasing block rates (also known as a tiered residential rate structure):** Typically, these have at least three tiers: should have at least three tiers.
    - The first tier is for the winter average water use.
    - The second tier is the year-round average use, which is lower than typical summer use. This rate should be set to cover the full cost of service.
    - The third tier should be above the average annual use and should be priced high enough to encourage conservation, as should any higher tiers. For this to be effective, the difference in block rates should be significant.
- **Seasonal rate:** higher rates in summer to reduce peak demands
- **Time of Use rates:** lower rates for off peak water use
- **Bill water use in gallons:** this allows customers to compare their use to average rates
- **Individualized goal rates:** typically used for industry, business or other large water users to promote water conservation if they keep within agreed upon goals. **Excess Use rates**: if water use goes above an agreed upon amount this higher rate is charged
- **Drought surcharge:** an extra fee is charged for guaranteed water use during drought
- **Use water bill to provide comparisons**: simple graphics comparing individual use over time or compare individual use to others.
- **Service charge or base fee that does not include a water volume** – a base charge or fee to cover universal city expenses that are not customer dependent and/or to provide minimal water at a lower rate (e.g., an amount less than the average residential per capita demand for the water supplier for the last 5 years)
- **Emergency rates** -A community may have a separate conservation rate that only goes into effect when the community or governor declares a drought emergency. These higher rates can help to protect the city budgets during times of significantly less water usage.

****Conservation Neutral****

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

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

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

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

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

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

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

☐	Participate in the GreenStep Cities Program, including implementation of at least one of the 20 "Best Practices" for water
☒	Prepare a master plan for smart growth (compact urban growth that avoids sprawl)
☒	Prepare a comprehensive open space plan (areas for parks, green spaces, natural areas)
☐	Adopt a water use restriction ordinance (lawn irrigation, car washing, pools, etc.)
☒	Adopt an outdoor lawn irrigation ordinance
☐	Adopt a private well ordinance (private wells in a city must comply with water restrictions)
☐	Implement a stormwater management program
☐	Adopt non-zoning wetlands ordinance (can further protect wetlands beyond state/federal laws-for vernal pools, buffer areas, restrictions on filling or alterations)
☐	Adopt a water offset program (primarily for new development or expansion)
☐	Implement a water conservation outreach program
☐	Hire a water conservation coordinator (part-time)
☐	Implement a rebate program for water efficient appliances, fixtures, or outdoor water management
☐	Other

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

The City of Dayton will continue to monitor water the city wide usage rates and their per capita water usage rates. As there are relatively few commercial/industrial users within the service area, the primary category which will be monitored for improvement will be the residential usage. The City will monitor usage before and after any ordinances to help understand if any tangible impacts can be identified from the ordinance being implemented.

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

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
☐ Low flush toilets, ☐ Toilet leak tablets, ☐ Low flow showerheads, ☐ Faucet aerators;	☐ Education about ☐ Free distribution of ☐ Rebate for ☐ Other	☐ Gas company ☐ Electric company ☐ Watershed organization
☐ Water conserving washing machines, ☐ Dish washers, ☐ Water softeners;	☐ Education about ☐ Free distribution of ☐ Rebate for ☐ Other	☐ Gas company ☐ Electric company ☐ Watershed organization
☐ Rain gardens, ☐ Rain barrels, ☐ Native/drought tolerant landscaping, etc.	☐ Education about ☐ Free distribution of ☐ Rebate for ☐ Other	☐ Gas company ☐ Electric company ☐ Watershed organization

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

Currently none apply

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			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Consumer Confidence Reports	Water quality information for the water supplied via the City of Dayton Wells.	1	☒ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Press releases to traditional local news outlets (e.g., newspapers, radio and TV)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Social media distribution (e.g., emails, Facebook, Twitter)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Paid advertisements (e.g., billboards, print media, TV, radio, web sites, etc.)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Presentations to community groups			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Staff training			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Facility tours			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Displays and exhibits			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Marketing rebate programs (e.g., indoor fixtures & appliances and outdoor practices)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Community news letters	Any new ordinances as well as water conservation info/tips for residents	1	☒ Ongoing ☐ Seasonal ☐ Only during declared emergencies

Education Methods	General summary of topics	#/Year	Frequency
Direct mailings (water audit/retrofit kits, showerheads, brochures)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Information kiosk at utility and public buildings			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Public service announcements			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Cable TV Programs			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Demonstration projects (landscaping or plumbing)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
K-12 education programs (Project Wet, Drinking Water Institute, presentations)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Community events (children's water festivals, environmental fairs)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Community education classes			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Water week promotions			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Website (include address: www.cityofdaytonmn.com)	Water quality info, water conservation pamphlets, consumer confidence reports, flushing schedules	variable	☒ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Targeted efforts (large volume users, users with large increases)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Notices of ordinances	Critical Water Deficiency Ordinance as well as future watering control ordinance.	variable	☒ Ongoing ☐ Seasonal ☐ Only during declared emergencies

Education Methods	General summary of topics	#/Year	Frequency
Emergency conservation notices	If required		☐ Ongoing ☐ Seasonal ☒ Only during declared emergencies
Other:			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies

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

Considering adding some water conservation videos to community on-demand website.

PART 4. ITEMS FOR METROPOLITAN AREA COMMUNITIES

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

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

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

A. Water Demand Projections through 2040

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

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

B. Potential Water Supply Issues

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

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

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

C. Proposed Alternative Approaches to Meet Extended Water Demand Projections

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

Complete Table 14 in Part 1F by checking each approach your community is considering to meet future demand. For each approach your community is considering, provide information about the amount of

future water demand to be met using that approach, the timeframe to implement the approach, potential partners, and current understanding of the key benefits and challenges of the approach.

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

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

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

Source Water Protection Strategies

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

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

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

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

Technical assistance

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

☐ Coordination of state, regional and local water supply planning roles
☐ Regional water use goals
☐ Water use reporting standards
☐ Regional and sub-regional partnership opportunities
☐ 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.

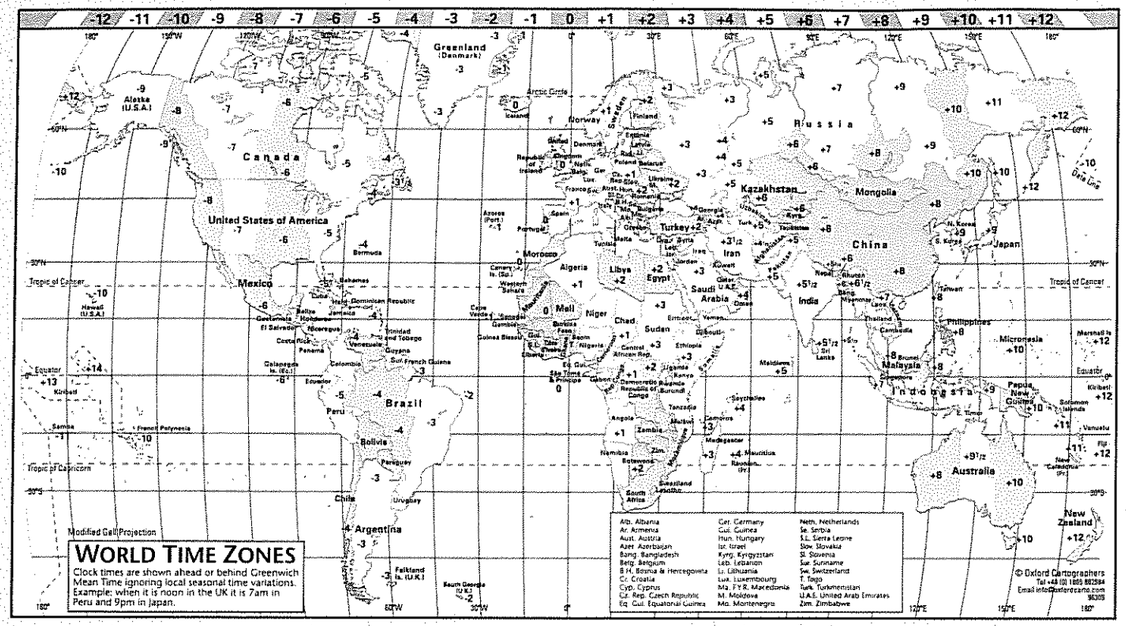
Appendix 1

Well Records and Maintenance

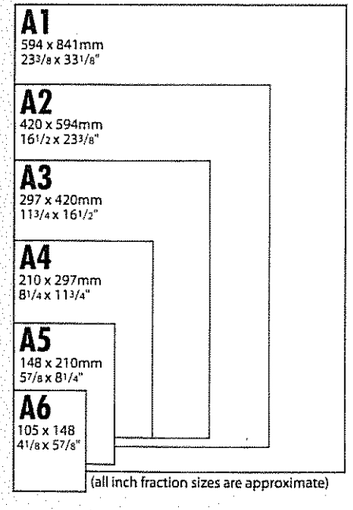
Useful Information

Black n' Red

World time zones

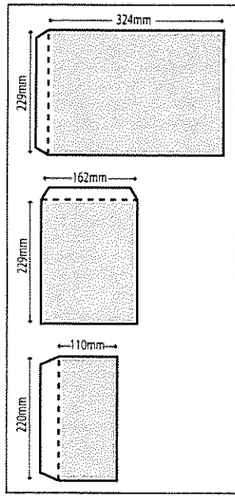


European paper sizes



(all inch fraction sizes are approximate)

European envelope sizes



C4 size envelopes hold an A4 sheet unfolded

C5 size envelopes hold an A4 sheet folded once or an A5 sheet unfolded

DL size envelopes hold an A4 sheet folded twice or an A5 sheet folded once

US paper sizes

Description	Size mm	inches
Junior Legal	127 x 203	5 x 8
Executive	190 x 254	7 1/2 x 10
Letter	216 x 279	8 1/2 x 11
Legal	216 x 356	8 1/2 x 14
Ledger/Tabloid	279 x 432	11 x 17

US envelope sizes (commercial)

Description	Size (inches)
#6 1/4	3 1/2 x 6
#6 1/4	3 1/2 x 6 1/4
#6 3/4	3 5/8 x 6 1/2
#7	3 3/4 x 6 3/4
Check (Official)	3 5/8 x 8 5/8
#9	3 7/8 x 8 7/8
#10	4 1/8 x 9 1/2
#14	5 x 11 1/2

Conversion tables (figures may be rounded)

1in	=	2.54 cm
1cm	=	0.3937 in
1ft	=	0.3048 m
1m	=	3.2808 ft
1yd	=	0.9144 m
1m	=	1.0936 yd
1mile	=	1.6093 km
1km	=	0.6214 mile

1in²	=	6.4516cm²
1cm²	=	0.155 in²
1ft²	=	0.0929 m²
1m²	=	10.7639 ft²
1mile²	=	2.5900 km²
1km²	=	0.3861 miles²
1acre	=	0.4047 ha
1ha	=	2.471 acres

1in³	=	16.387 cm³
1cm³	=	0.06102 in³
1ft³	=	0.02832 m³
1m³	=	35.3147 ft³
1yd³	=	0.76456 m³
1m³	=	1.30795 yd³
1US gal	=	3.7854 litre
1litre	=	0.2642 US gal
1US gal	=	0.8327 UK gal

1UK gal	=	4.546 litre
1litre	=	0.22 UK gal
1oz	=	28.3495 g
1g	=	0.03527 oz
1lb	=	453.59 g
1g	=	0.002205 lb
1kg	=	2.2046 lb
1t (long)	=	1016.0469 kg
1kg	=	0.00098 t (long)

Speed

Temperature

10/26/11 Fluoride tanks replaced.
Scales set under tank

11/15/11 Jerry Aljet inspected Well pump and motor, Suggested that we need to replace pump + motor. A.S.A.P.
Ordered parts and tentatively scheduled replacement for 11/28/11

11/28/11 · Motor and Pump replaced successfully. Hydrants flushed and Service resumed by 6:30 p.m. Approximately 30,000 gals pumped.

12-1-11 Repaired feed line elbow from booster pump for Chlorine feed in Mechanical room Schedule 80 PVC 90° elbow had a pinhole in it

12-6-11 7a.m. Power Failure - Hooked generator and resumed service.

12-20-11 Installed new chemical room heater and ran through 2 full cycles. Noting that the thermostat Control is out of adjustment to actual inside room temperature. Keep an eye on this maybe for future replacement. Vic + Mark Johnson

4/27/12. Replaced air compressor on Water tank.

5/10/12. Larsco out to check Poly feed, discovered failed valve on pump Lead. Replacement ordered.

5/29/12 Larsco replaced Poly Feed valve re-primed and in-service.

8/25/12. Replace section of pipe between well and tank Renner on-site to perform replacement. This section of pipe was also replaced in 8/25/07. Work started @ 5:10. 6:33 back-up and running . . .

10-8-12 8:20AM Hydrant Flushing 1006239/105278 vm/mc
12:18PM Finish Day1 1006275/105312
10-9-12 8:24AM START Day 2 105340/1006303 vm/mc
FINISH 105399/1006364

4-15-13 8:44AM Start Hydrant Flushing 108930/108960 vm/mc
4-16-13 8:15AM Day 2 Finished Flushing 108972-109035 vm/mc

9-4-13 Noticed that there was no chlorine being pulled into the system water sample verified 9-5-13

9-5-13 Took apart & replaced 2 gaskets still nothing happening will probably call Larsco out to look at

9/6/13 Jason Larson w/ Larsco out to get chlorine feed back up and running. After a couple hours about 3 got call from Jason stating everything back up and OK 11:30AM

10/7/13 Day #1 Flushing 113878/113909 31,000 8:45-12:30
10/8/13 Day #2 113924/113989 65,000 8:15-2:45
Vic + Mark C. 96,000 total

4/15/14 8:00A.M Day #1 Flushing 117761/117798 37,000 gals
12:15P.M. finish Day #1 mc/vm

4/16/14 8:00 A.M. Day #2 Flushing 117811/117870 59,000 gals
2:15 P.M. finish Day #2 mc/vm
total 96,000 gallons

5/14/14 Chlorine Alarm in chemical room meter read 0.0 ppm. Reset monitor.

8/ /14 Must out for water samples

9/8/14 Hawkins out to refill all chemicals & New chlorine bottle dropped off. Larry

10/6/14 Start flushing vm/mc 8AM - DONE NOONISH 32,000
10/7/14 " " " " 8 " " 3:40pm 71,000
122689 - 122721 - 122738 - 122809 103,000

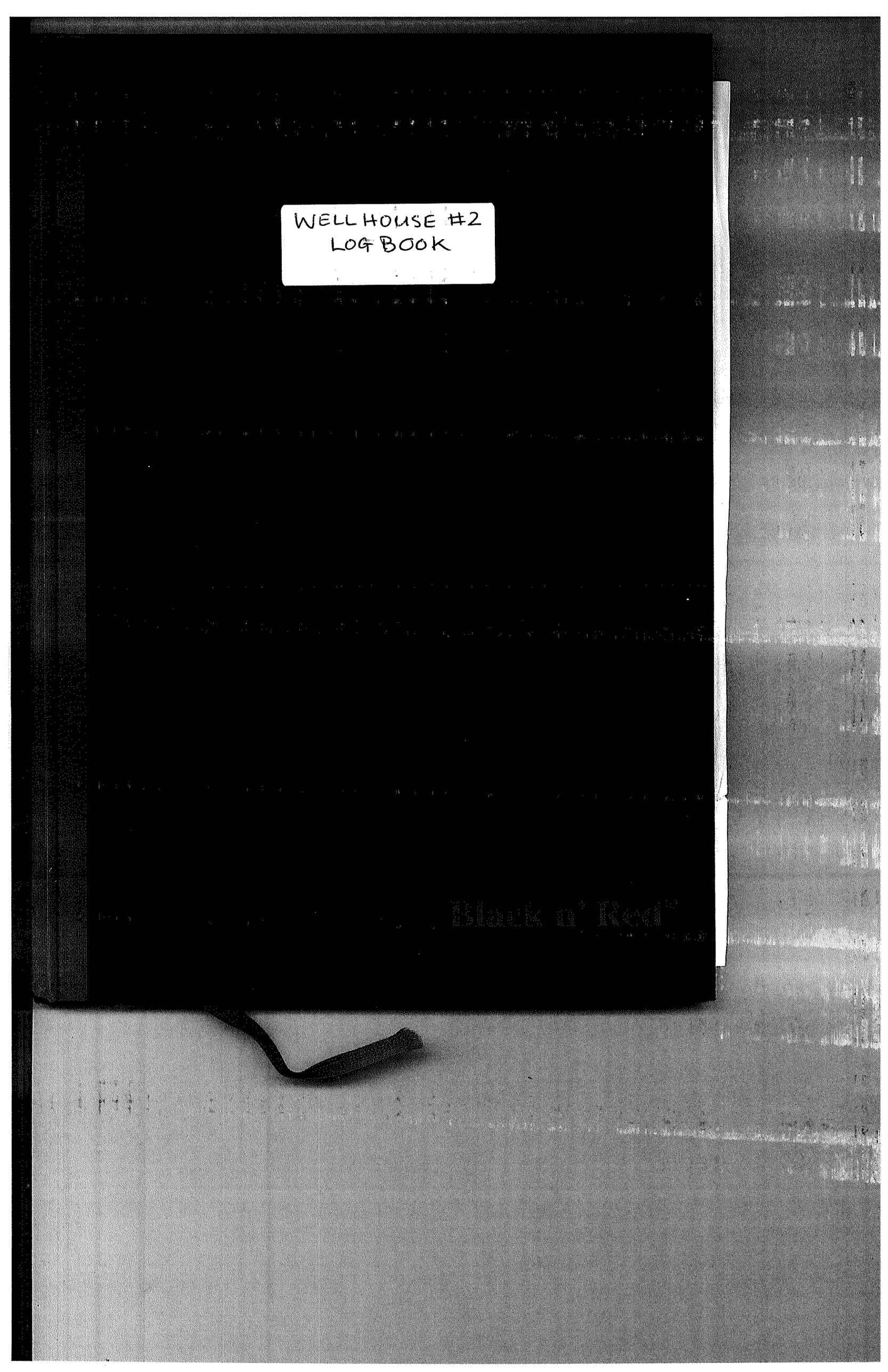
2/5/15 Jason from Larsco out to look at Chlorine feed system not feeding, very dirty flow receptor in well room. Need cleaning & parts
2/17/15 Jason out put new parts on chlorine line 12540/

4-13-15 Start Flushing mc + VM 8:05 a.m. Start 126490
Day 1 11:55 a.m. Finish 126579
29,000 gals
4-14-15 + 66000
Day 2 Start 7:45 a.m. 126535 2-Day total
Finish 3:00 p.m 126601 95,000 total gals
Done Flushing mc/VM 66,000 gals

4-13-15 Total Fill on Chemicals + New Chlorine bottle
Hawkins

2016.

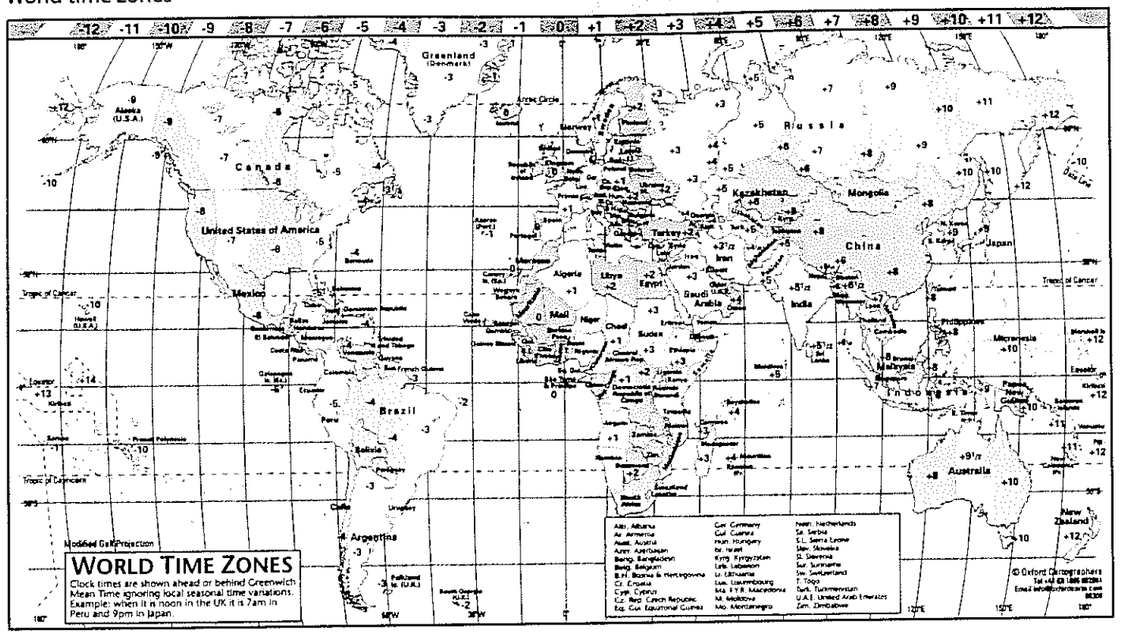
9-13-16 Chlorine Feed no vacuum in feed, no chlorine feed. Jason Larson, diagnosing problem and formulating solution, and costs.


WELLHOUSE #2
LOG BOOK

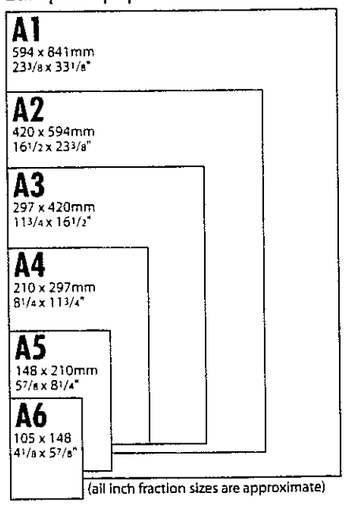
Useful Information

Black n' Red

World time zones

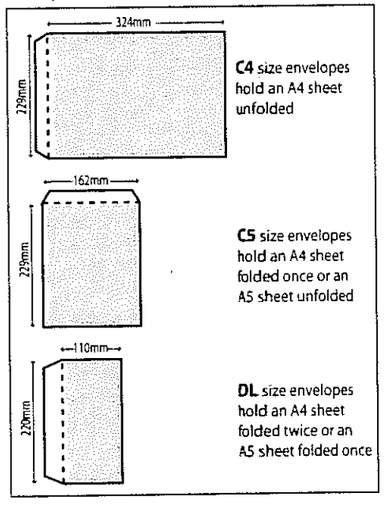


European paper sizes



(all inch fraction sizes are approximate)

European envelope sizes



US paper sizes

Description	Size mm	inches
Junior Legal	127 x 203	5 x 8
Executive	190 x 254	7 1/2 x 10
Letter	216 x 279	8 1/2 x 11
Legal	216 x 356	8 1/2 x 14
Ledger/Tabloid	279 x 432	11 x 17

US envelope sizes (commercial)

Description	Size (inches)
#6 1/4	3 1/2 x 6
#6 1/4	3 1/2 x 6 1/4
#6 3/4	3 5/8 x 6 1/2
#7	3 3/4 x 6 3/4
Check (Official)	3 5/8 x 8 5/8
#9	3 7/8 x 8 7/8
#10	4 1/8 x 9 1/2
#14	5 x 11 1/2

Conversion tables (figures may be rounded)

1in	=	2.54 cm
1cm	=	0.3937 in
1ft	=	0.3048 m
1m	=	3.2808 ft
1yd	=	0.9144 m
1m	=	1.0936 yd
1mile	=	1.6093 km
1km	=	0.6214 mile

1in²	=	6.4516cm²
1cm²	=	0.155 in²
1ft²	=	0.0929 m²
1m²	=	10.7639 ft²
1mile²	=	2.5900 km²
1km²	=	0.3861 miles²
1acre	=	0.4047 ha
1ha	=	2.471 acres

1in³	=	16.387 cm³
1cm³	=	0.06102 in³
1ft³	=	0.02832 m³
1m³	=	35.3147 ft³
1yd³	=	0.76456 m³
1m³	=	1.30795 yd³
1US gal	=	3.7854 litre
1litre	=	0.2642 US gal
1US gal	=	0.8327 UK gal

1UK gal	=	4.546 litre
1litre	=	0.22 UK gal
1oz	=	28.3495 g
1g	=	0.03527 oz
1lb	=	453.59 g
1g	=	0.002205 lb
1kg	=	2.2046 lb
1t (long)	=	1016.0469 kg
1kg	=	0.00098 t (long)

Speed

Temperature

Date

3/11/2011 Fluoride pump lost prime called LARSCO they replaced pump head. Pump keeping primed. Check regularly to see if maintaining prime.

3/30/2011 Fluoride pump lost prime.

3/31/2011 Installed back pressure valve and gauge. Seems to have helped in retaining Prime. Continue to monitor.

4/6/2011 Mixer turned ~~to~~ to Auto at Tower.

4/7/2011 Fluoride pump not drawing product from tank. Pump in auto mode shows green light but not pumping switch it to hand and it pumps.

Pump 2 not pumping product from break out tank to injector although pump is running no visual sigls of product being pumped.

Switched pump #1 to run by hand. Bled pump #2 to clear airlock. Adjusted back pressure valve.

9/15 Chlorine pumps booster upped to 4 in SCADA system. Reason continued low readings in water sample.

9/20 Lavsco called in to look at Chlorine booster pumps. Will return on 9/21 to check out diaphragms on dials on chlorine tanks.

9/21 Lavsco replaced dial on chlorine tank took 2 dials to clean and service. Re-calibrated feed system. Checked Chlorine @ spigot after feed. read 0.57.
Monitor with water tests in week.

10/12 CPU Failure: Rebooted and re-install SCADA data from August 20th back-up.
Kraig from Total Controls to come and check CPU.

~~10/26 LARSCO~~
10/14 LARSCO replaced regulators and re-calibrated for Chlorine feed.

10/26 LARSCO replaced ball valve and piping on seperator. Also cleaned Chlorine injector assembly.

10/27/11 Hawkins delivery:
146 Gals LPC-5 (Fluoride)
3x 150lb Chlorine Cylinders
120 Gals Hydrofluosilic Acid
combined Totals for WH#1 + WH#2.

11/8/11 Adjusted Chlorine Booster pump Auto factor up from 1.5 to 2.0.
(water sample read 0.01 before adjustment).

11/28/11. V.F.D drive balanced by Renner.

12/15/11 Kraig from Total Controls adjusted SCADA reading frequency for WH1 Fluoride Scales.
Need to monitor adjustment for accuracy.

2012

1/26/12. C.P.U. computer switch failure.
@ 7.00 Rebooted C.P.U. discovered switch had failed Kraig from Total Controls replacing switch this A.M.
Note may lose some data on report.
Radio controller damaged replaced and sent for service :. $300
UPS replaced.

March 20 2012.
Mixer turned off @ Tower.

Monday June 18 2012.
Radio fail on all lift stations Wells, and Water Tower.
Solution: borrowed radio frequency for short term fix between WH#2 and Water Tower.
Dayton frequency back on and running p.1.

Tuesday June 19 2012.
V.F.D @ WH2 not responding When below set points both local (p.s.i) and Tower (feet). Called Total controls.
Solution. Software glitch from previous days programming blocker left in preventing software calling for well to run.

Wednesday July 4 2012.
Radio Fail 5-10 — 1-10.
disarmed dialer Re-armed Thursday 5 July A.M.

Sunday 8 July 2012.
Radio Fail 8.30 A.m — 1.23 p.m.

Tuesday 10 July 2012
Radio Fail 7-31 a.m — 9-36 a.m.

Wednesday 25 July 2012
Well #2 Phase fail 7/24/12 10:56 p.m.
Well #2 Control Power fail 10:56 p.m.
Rivers Bend Radio fail 11:06 p.m.
Well #2 fail 7/25/12 6:50 a.m.

Friday 28 September 2012.
altered chlorine feed to 0 from 2-50 - to conserve. chlorine before delivery on Friday 5 October.

Wednesday 3 April 2013.
Fluoride injector cleaned of sand debris & Teflon ball damaged, new part ordered from LARSCO ...

Trimble To view collected data on screen

GPS Pathfinder.

View – Map.

File – Open.

Double click on feature to get info about the feature.

Tuesday June 10 2013

Radio Fail: All liftstations and WH1 between 7-56 pm + 3.13 a.m 6/11/13. Disabled Dialer, will manually check every morning (Radio Fail - only disabled)

Monday June 17 2013

Radio Fail: All liftstations but not WH1, WH2 or Water Tower. Between. 7-16 a.m + 8-06 a.m.

Tuesday June 18 Radio fail
Between 7-17 A.M + 7-54 A.M
Dayton Avenue Liftstation

June 27 Radio Fail
Dayton Ave liftstation 4.20a.m – 8.05a.m

Monday 1 July Radio Fael
Tower, Well #1, C.S.A.H 12, Dayton Ave, DNR, N. Diamond Lk, Rivers Bend, Natchrer Crossing.
5.24 A.M – 9-52 A.M.

Tuesday 2 July
Chlorine Booster pump adjusted to 3-00. Water sample reading at 0-00 for second week after bottles switched over. bottle weighed 141-6 lbs.

Wednesday 3 July
8.07
Radio Fail – 6-46 a.m → 8-52 A.M

Tuesday 9 July
Radio Fail - 2-25 A.M → 2-46 A.M,
DNR sls, Rivers Bend sls, Natures Crossing, C.A.S.H 12, Dayton Ave,

Thursday 8 August 2013.

Chlorine injector not sealed leaking water when well not running. When under pressure and chlorine pump running seals up no leak.

Call Lavsco to order replacement part...

Monday 12 August 2013

Replaced injector with rebuilt unit. Re calibrated chlorine delivery system.

Monday 21 October 2013

Replaced packing on V.F.D.

10 October 2013.

Upgraded. Fluoride Feed pump Auto Factor to 3.00 from 2-00 Check after 1 week.

Chemical analysis reading showed 0.2. would like 1-1. Maybe replace injector nozzle

New chemicals delivered to both well houses

22 October 2013. Fluoride tank at WH#2 SCADA reading 0.0.

31 October 2013: Fluoride water sample reading 2-2. Feed system was re-primed last week, Booster pump reset Auto Factor reset to 2-00 from 3-00.

6 November 2013.

Backed auto factor down to 1-00 Fluoride. Upped auto factor on chlorine to 2-50.

Readings. Cl^2 0-0 Fl 2-2.

2014

15 January 2014 adjusted chlorine booster pump ↓ 0200, sample reading bet 0.48.

11 February 2014: Not running for short bursts, and often. Probable cause ice in water tower.

Run well by hand 2-3 times a day to melt ice.

16 February: Spoke to Craig to alter Stop point on VFD and slow VFD down to 50 gpm to help

get Total Control Invoice.

6/25/2014 C.S.A.H 12 Liftstation Control Panel switched out and replaced with,

9/8/2014 Chlorine leak on cylinder head feeder, re-routed while head is re-built.

* Chemicals delivered, Bottle well houses today.

2015.

CK 7/1/2015

Chlorine leak on cylinder crown. Ran Exhaust fan cleared area. Closed Shut off testing cylinder.

The problem was exacerbated when Chlorine being drawn from cylinder.

7/2/2015
Replaced testing cylinder.

*7-28-15.

WH#2 High pressure alarms when well running 107 psi. Slowed pumping rate to 450 gpm (82 psi).

Contractor working on Pineview h/u maybe culprit.

Radio fail between WH#2 + water tower.
Craig installed Verizon device and pr. wrote code, communication re-established.

Rebooted radio server. disconnected cable on compact logix box - re-connected then disconnected power cable on radio receiver, reconnect power (up and running).

2016

Jan. 27th 2016 MC+VM drained oil from well pump and filled with new. Greased 3317.2 hrs 138516 gals

2/5/16 Water in chlorine feed, backed up into Regulators, vacuum sight glass. Dismantled system to dry out and diagnose problem and order parts
No chlorine being fed.

2/8/16 Re-assemble (purg rig) still waiting on New Regulator.
Fluoride feed line ordered new parts to repair.

2/23/16 New Regulator, install, discovered problem with Booster pump not operating to full capacity.
Order kit to replace Impellers and O rings.
Water samples cl 0.5 (high).

2/24/16 Installed new regulator.

3/14/2016 - Jason Larson rebuild chlorine booster pump, Impellers O rings etc.

2 Replaced fluoride feed pipe in/out mainline different ejector nozzle to prevent sand flowing back into impeller

3 Put new regulator on

4 Replaced packing on V.F.D.

7/25/16 MC added 1 strip of packing to well

8-1-16 Low temp chemical Room. disabled alarm called Kraig @ Total Controls.

General Note. Repeated Radio fail alarms July —

10-25-16
Sunpeer chlorine feeding from 2 bottles turned Bottle #2 off @ 112 lbs -
Monitor feed

11-21-16
Adjusted start stop heights to 20/22 @ WH#2 to increase number of starts pumping warm water into tower, to help with keeping tower ice free.

12/13/16 MC/VM Replaced broken Honeywell Low Temp Sensor. Also New @-Mark 30,000 BTU

12/14/16- Adjusted Start setpoint to 21-0
Stop setpoint remains @ 22-0
(cold weather 4° for High).

2/23/17 Replaced Chlorine injector, site glass clogged
Replaced head on tank

3/15/17 Replaced UPS Battery Backup for
computer

3/29/17 Rebuild WH#2 motor and
shaft.

3/31/17 Motor Balanced.

4/12/17 Installed check valve on
Cl feeed. (Jasen Larson)

2-3-15 During sampling of Water Noticed no Chlorine at test sight. At well house turned on Manually Chlorine feed on Control panel, walk to Chemical room to see if anything was noticable & the Chlorine was not being sucked into the system. Clogged at box in well room. Need to call Larsco!!

Appendix 2

Water Level Monitoring Plan

Water Level Monitoring Plan

Prepared for:
City of Dayton

CITY OF DAYTON
All the seasons of life.

WENCK ASSOCIATES
Responsive partner.
Exceptional outcomes.

Prepared by:

WENCK Associates, Inc.
1800 Pioneer Creek Center
Maple Plain, MN 55359
Phone: 763-479-4200
Fax: 763-479-4242

Table of Contents

APPENDICES

1.0 Summary

This Water Level Monitoring plan has been developed for the City of Dayton as Appendix 2 of the Water Supply Plan. The purpose of this plan is to outline the City Groundwater Source locations and provide an outline to how water level information will be collected from these locations. This Plan was prepared with effort from the following groups: The City of Dayton and Wenck Associates.

2.0 Monitoring Plan

2.1 MONITORING LOCATIONS

Water levels are monitored at the two active wells within the City of Dayton water supply system. The two wells that currently provide water service to the City of Dayton are Well 1 located in the NW portion of town which serves the Historic Village neighborhood and Well 2 which is located and serves the NE portion of town.

Water levels will be monitored in Well 3 after the Dayton water appropriations permit has been revised and the well is brought on-line. Well 3 will serve the NW portion of Dayton and is expected to begin supplying water in 2020.

The City of Dayton plans to install an observation well in 2021 to monitor the Tunnel City-Wonewoc aquifer levels. The observation well will be located east of Well 3, in Goodin Park.

If for any reason wells are added to the water supply system or decommissioned from the system, the wells will be included or removed from the Water Level Monitoring Plan based on the date of operation or abandonment.

2.2 DATA COLLECTION AND FREQUENCY

The City of Dayton will collect water level information from their wells on an hourly basis via their SCADA datalogging system. The SCADA system will be modified to download the water level data to a .csv file quarterly and automatically submit a copy of the file to the DNR.

In addition to the automated information collected, the City will collect hand measurement of water levels in the wells on a minimum monthly basis. The hand measurements will be taken after the pumps have been shut off and within five minutes of the datalogging system level reading. A water tape will be lowered into the well via an existing port on the pump housing and the reading will be recorded. In addition to the hand reading, the automated transducer reading on the pump will be recorded as well for the data calibration. This will be recorded on a form in the wellhouse along with the date and time and the operator will quarterly update those readings into a data spreadsheet to be sent to the DNR.

2.3 DOCUMENTATION

Water level information will be collected on the Ground Water Level Measurement Form provided in Appendix A to this plan. Data will be provided to the DNR as required by the appropriations permit held by the City of Dayton.

Appendix A

Ground Water Level Measurement Form

Ground Water Level Measurement Form for Minnesota DNR Ground Water Permit Approp

Please submit to gwlevelcoor.dnr@state.mn.us as required by your appropriations permit

DNR Permit Number:

Permittee Name:

Permittee Well Number:

MDH Unique Well Number:

Well Address:

Measuring Point Height Above Ground Surface (ft):

Measuring Point Description (top of casing, top of inner casing, etc):

Method of measurement (steel tape, SCADA reading, pressure transducer, etc.)

Date of Measurement (MM/DD/YYYY)	Time of Measurement (24 hour time)	Depth to water (feet)

Responsive partner.
Exceptional outcomes.

Toll Free: 800-472-2232 **Email: wenckmp@wenck.com** **Web: wenck.com**

MINNESOTA
Maple Plain
763-479-4200
Golden Valley
763-252-6800
Windom
507-831-2703
New Hope
800-368-8831
Woodbury
651-294-4580

COLORADO
Denver
800-472-2232
Fort Collins
970-223-4705

GEORGIA
Roswell
678-987-5840

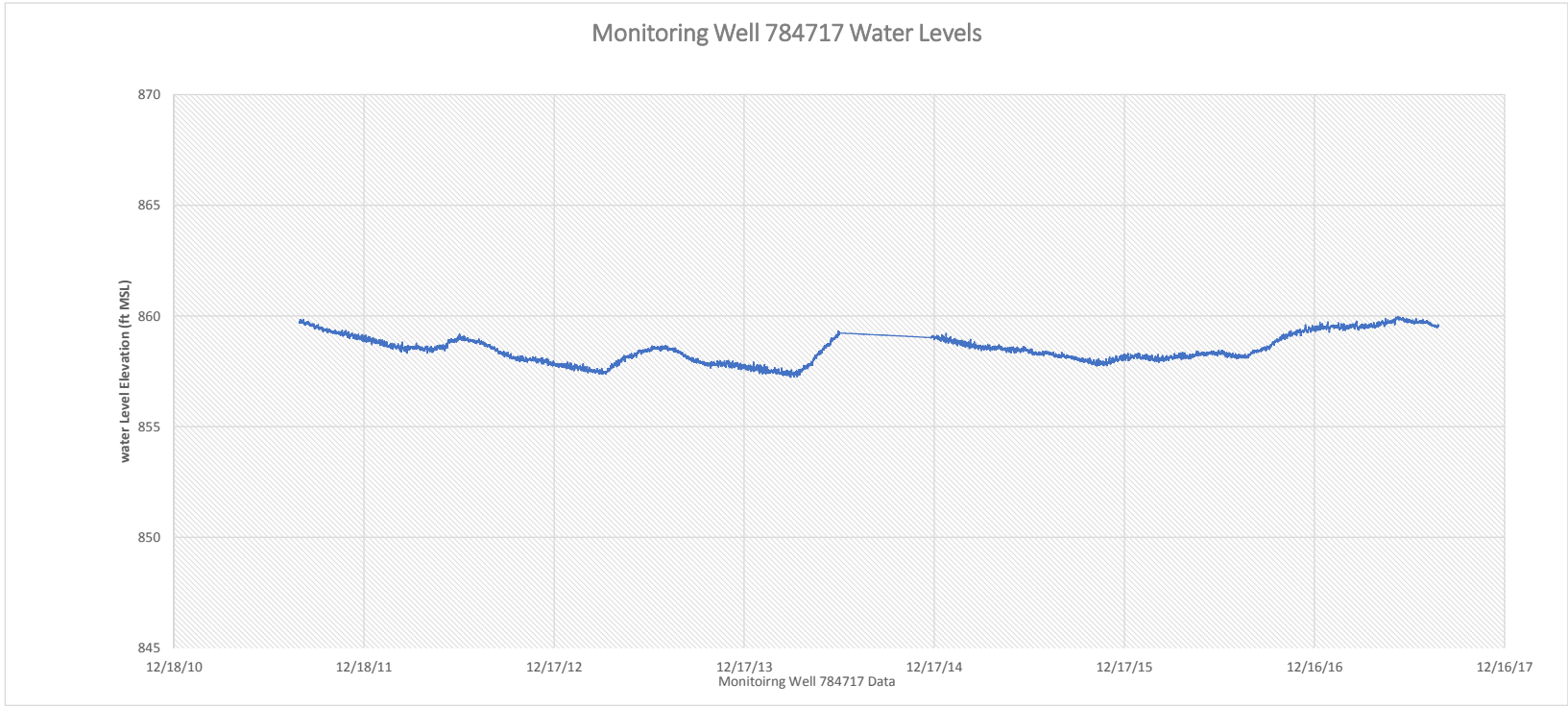
NORTH DAKOTA
Fargo
701-297-9600
Mandan
701-751-3370
Dickinson
800-472-2232

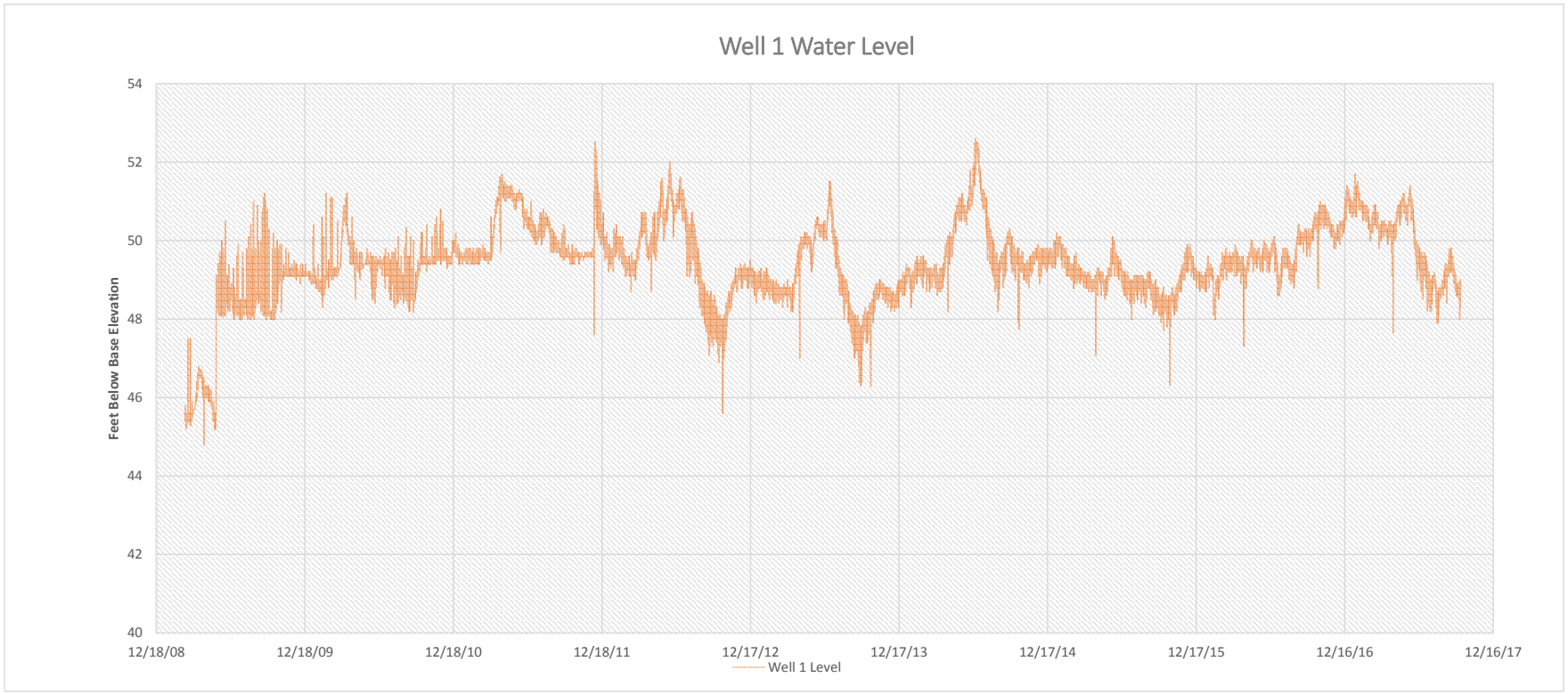
SOUTH DAKOTA
Pierre
605-222-1826

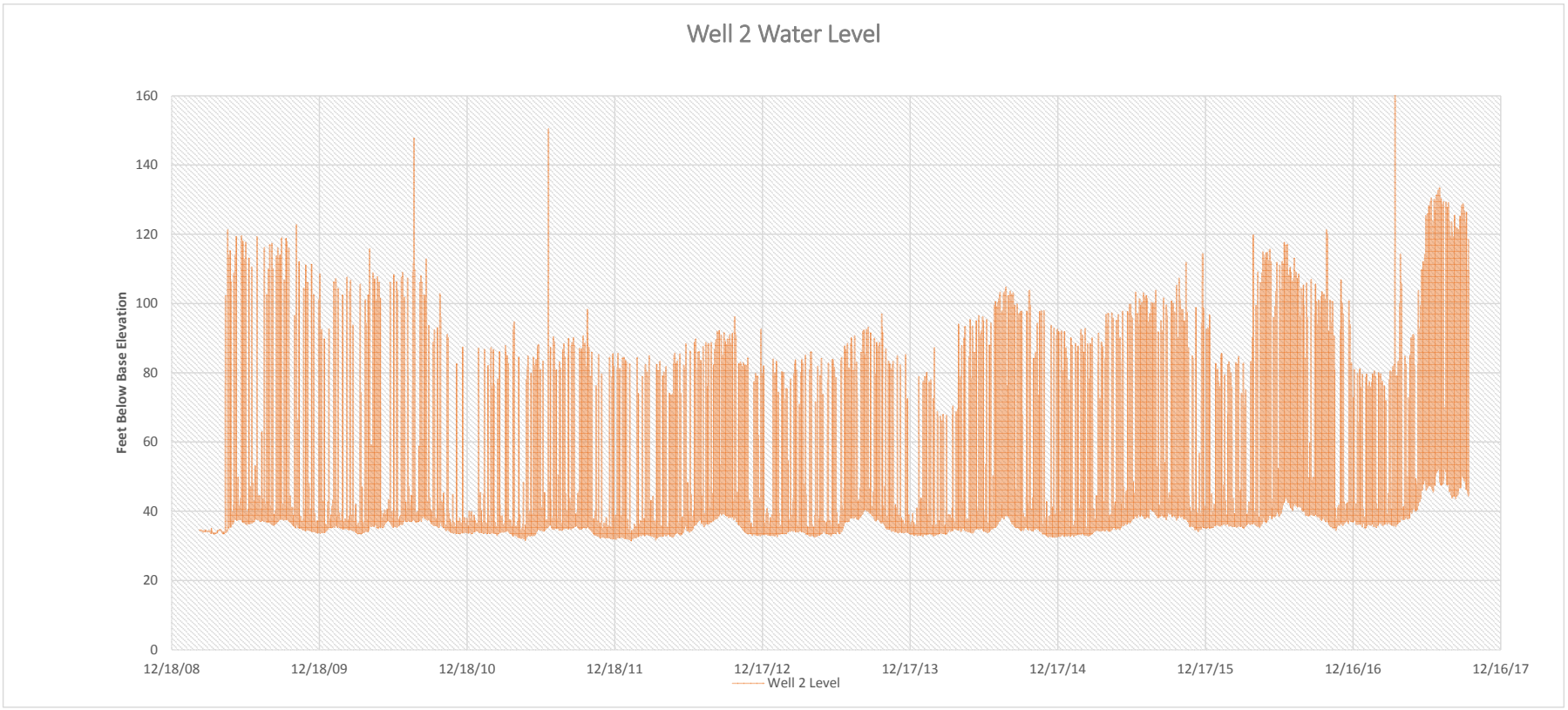
WYOMING
Cheyenne
307-634-7848
Sheridan
307-675-1148

Appendix 3

Water Level Graphs for Uses


Monitoring Well 784717 Water Levels
water Level Elevation (ft MSL)
870
865
860
855
850
845
12/18/10
12/18/11
12/17/12
12/17/13
12/17/14
12/17/15
12/16/16
12/16/17
Monitoirng Well 784717 Data


Well 1 Water Level
Feet Below Base Elevation
54
52
50
48
46
44
42
40
12/18/08
12/18/09
12/18/10
12/18/11
12/17/12
12/17/13
12/17/14
12/17/15
12/16/16
12/16/17
Well 1 Level


Well 2 Water Level
Feet Below Base Elevation
160
140
120
100
80
60
40
20
0
12/18/08
12/18/09
12/18/10
12/18/11
12/17/12
12/17/13
12/17/14
12/17/15
12/16/16
12/16/17
Well 2 Level

Appendix 4

Capital Improvement Plan

CITY OF DAYTON, MINNESOTA
CAPITAL IMPROVEMENT PLAN - WATER ENTERPRISE FUND 601
SCHEDULE OF PLANNED CAPITAL OUTLAY 2017 TO 2027

Department	Paid By	Replacement Year	Item	Cost	2017 Estimated Amounts	2018 Estimated Amounts	2019 Estimated Amounts	2020 Estimated Amounts	2021 Estimated Amounts	2022 Estimated Amounts	2023 Estimated Amounts	2024 Estimated Amounts	2025 Estimated Amounts	2026 Estimated Amounts	2027 Estimated Amounts
Water	City	2017	1 Ton with Hoist and plow package	$ 35,000	$ 35,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Water	City	2027	South Dayton Water System (Well/Tower) - Design & Construction	3,500,000	-	-	-	-	-	-	-	-	-	-	3,500,000
Water	Developer	2018	*Water Extension - Sundance Woods to Sundance Golf Course	75,000	-	75,000	-	-	-	-	-	-	-	-	-
Water	Developer	2018	*Water Extension - Sundance Golf Course to 117th Ave	300,000	-	300,000	-	-	-	-	-	-	-	-	-
Water	Developer	2020	*W French Lake Road - Brockton to south limit of Liberty site	TBD	-	-	-	TBD	-	-	-	-	-	-	-
Water	City	2018	GIS Software	17,500	-	17,500	-	-	-	-	-	-	-	-	-
Water	City	2028	South Dayton Water System (Well/Tower) - Completion & Start Up	300,000	-	-	-	-	-	-	-	-	-	-	-
Water	Developer	2020	*Trunk Water - Sundance Woods to Fernbrook	TBD	-	-	-	TBD	-	-	-	-	-	-	-
Water	Developer	2022	*Dayton Parkway (Holly Lane Extension) - Interchange to EFLR/WFLR	TBD	-	-	-	-	-	TBD	-	-	-	-	-
Water	Developer	2023	*W French Lake Road - Liberty Site to Dayton Parkway	TBD	-	-	-	-	-	-	TBD	-	-	-	-
Water	Developer	2024	*E French Lake Rd - Territorial to Dayton Parkway	TBD	-	-	-	-	-	-	-	TBD	-	-	-
Water	City	2018	Northwest Well (back up water source)	1,250,000	-	1,250,000	-	-	-	-	-	-	-	-	-
Water	City	2023	Northeast Well	1,250,000	-	-	-	-	-	-	1,250,000	-	-	-	-
Water	Developer	2027	*Dayton Parkway - EFLR/WFLR to EFLR/117th	TBD	-	-	-	-	-	-	-	-	-	-	TBD
Water	Developer	2027	EFLR/117th Connection	TBD	-	-	-	-	-	-	-	-	-	-	TBD
Water	City	2021	Northwest Ground Storage	1,000,000	-	-	-	-	1,000,000	-	-	-	-	-	-
Water	Developer	2028	Dayton Parkway - EFLR/117th to 125th	TBD	-	-	-	-	-	-	-	-	-	-	-
					$ 35,000	$ 1,642,500	$ -	$ -	$ 1,000,000	$ -	$ 1,250,000	$ -	$ -	$ -	$ 3,500,000

Northwest Tower (2021) is revised to be ground storage only for fire suppresion and NOT future development. Alternate would be $2,500,000 ultimate build. No available swer to support more than 100+/- homes; shown in post 2040 staging area.
Council needs to discuss timing and if it should be moved up sooner as this is the only solution for providing fire suppression.

Revised 8/14/17

Appendix 5

Emergency Contact List

Appendix 5
Water Supply Plan
Emergency Telephone List

Emergency Response Team	Name	Work Telephone	Alternate Telephone
Emergency Response Lead	Martin Farrell	612-751-8847	763-427-3224
Alternate Emergency Response Lead	Paul Enga	763-274-4966	763-427-2017
Water Operator	Mark Carlson	612-751-8874	763-427-3224
Alternate Water Operator	Victor Martinez	612-750-1887	763-427-3224
Public Communications	Tina Goodroad	763-421-3487	763-427-4589

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	Hennepin County Emergency Management	612-596-0250	
National Guard	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
Mayor/Board Chair	Tim McNeil	612-751-8707	763-427-3224
Fire Chief	Jason Mickelson	612-751-8158	
Sheriff	Hennepin County Sheriff	612-348-3744	
Police Chief	Paul Enga	763-274-4966	763-427-2017
Ambulance	North Memorial Ambulance Service	763-520-5200	
Hospital	Hennepin County Medical Center	612-873-3000	

State and Local Agencies	Name	Work Telephone	Alternate Telephone
MDH District Engineer	Isaac Bradlich	651-201-3971	
MDH	Drinking Water Protection	651-201-4700	
State Testing Laboratory	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
DNR Area Hydrologist	Mark Bushinski	651-259-5879	

Utilities	Name	Work Telephone	Alternate Telephone
Electric Company	Elk River Utilities	763-441-2020	
Electric Company	Xcel Energy	1-800-960-6235	
Electric Company	Connexus	763-323-2650	
Electric Company	City of Anoka	763-576-2750	
Gas Company	Centrepoint	612-321-4939	612-372-5050
Telephone Company			
Gopher State One Call	Utility Locations	800-252-1166	651-454-0002
Highway Department	Hennepin County Highway Dept	612-596-0300	

Mutual Aid Agreements	Name	Work Telephone	Alternate Telephone
Neighboring Water System	Champlin	612-968-2167	
Maple Grove	Maple Grove	763-494-6370	763-494-6377
Emergency Water Connection	Mike Bramwell	612-968-2167	
Materials			

Technical/Contracted Services/Supplies	Name	Work Telephone	Alternate Telephone
MRWA Technical Services	MN Rural Water Association	800-367-6792	
Well Driller/Repair	Renner Well Drilling	763-427-6101	763-286-5283
Pump Repair	"	"	"
Electrician	Bruce Bennet	763-421-2948	612-363-7121

Plumber			
Backhoe	Dayton Public Works	612-751-8847	763-427-3224
Chemical Feed	Jason Larson	612-790-7628	763-421-3819
Meter Repair	Dayton Public Works	612-751-8847	763-427-3224
Generator	Marty Farrell	612-751-8847	763-427-3224
Valves	Renner Well drilling	763-427-6101	763-286-5283
Pipe & Fittings	"	"	"
Water Storage	Martin Farrell	612-751-8847	763-427-3224
Laboratory	Water Labs Elk River	763-441-7509	
Engineering firm	Jason Quisberg	612-384-5379	763-252-6873

Communications	**Name**	**Work Telephone**	**Alternate Telephone**
News Paper	Champlin Dayton Press	763-425-3323	
Radio Station			
School Superintendent	Anoka-Hennpin/ David Law	763-506-1101	
Property & Casualty Insurance			

Appendix 6

Cooperate Agreements

AGREEMENT

CITY OF DAYTON AND CITY OF CHAMPLIN

THIS AGREEMENT is made and entered into between the City of Dayton, a Minnesota municipal corporation (hereinafter referred to as "Dayton"), and the City of Champlin, a Minnesota municipal corporation (hereinafter referred to as "Champlin").

RECITALS:

WHEREAS, Champlin currently owns and operates a municipal wastewater system (hereinafter referred to as "sewer") and a municipal water system (hereinafter referred to as "water") (hereinafter sewer and water are collectively referred to as "Champlin's Utilities"); and

WHEREAS, both the Champlin and Dayton comprehensive plans anticipate that there will be single family residential units in the southeast area of Dayton, including the Nature's Crossing Subdivision area.

WHEREAS, the Southeast Area requires access to Champlin's Utilities to develop urban densities; and

WHEREAS, the City of Dayton would like to extend Champlin's Utilities to the Southeast Area of Dayton, shown on attached **Exhibit A** (hereinafter referred to as "Southeast Area").

WHEREAS, Champlin and Dayton desire to enter into this Agreement allowing Champlin's Utilities to serve the Southeast Area pursuant to Minn. Stat. §471.59.

NOW, THEREFORE, it is hereby agreed by and between the parties as follows:

1. Use Allowed. For the term of this Agreement, and any renewals thereof, Champlin grants to Dayton a right and license to connect to and dispose of sanitary sewage from the Southeast Area via its municipal wastewater system. Further, Champlin grants to Dayton a right and license to connect to and draw water to serve the Southeast Area from Champlin's municipal water system. Level of services to be provided by Champlin to the Southeast Area properties pursuant to this Agreement shall be the same as provided by Champlin to similar developments in Champlin. Dayton shall adopt the provisions of Champlin's ordinances governing use of water and sewer, as attached in **Exhibit C**; Dayton may adopt additional ordinances regarding municipal utilities for the area to be served by Champlin, provided any such ordinance or ordinances shall be approved by Champlin, such approval shall not be

unreasonably withheld and the provisions shall not be substantially different from Champlin ordinances.

2. Construction, Ownership and Maintenance. Champlin represents that stub connections for sewer and water are located at the intersection of Goose Lake Road and Goose Lake Parkway that may be used, at Dayton's option, for connection of the Southeast Area to Champlin's Utilities.

Dayton shall pay for all lateral fees for use of sanitary sewer and/or water lateral on Goose Lake Road that benefit Dayton.

Dayton shall pay for and construct all sewer and water lines and associated structures within its boundaries. Champlin shall have the right to review and approve plans for any private/public improvement projects in Dayton's Southeast Area that will utilize Champlin's sewer and water system. Dayton shall pay Champlin for its staff's review time. Champlin shall submit a bill to Dayton upon completion of its review. Dayton shall collect from the private/public project said fee, which is to be based on an hourly charge for Champlin's staff review time. The fee is to be based on an hourly charge with a 2% markup rate to cover staff time and overhead. Dayton shall pay for, own and maintain all sewer and water lines and associated structures constructed within its boundaries. Dayton shall regularly maintain said lines and associated structures so as to keep them in good operating order per specifications detailed in **Exhibit B.** Dayton shall regularly inspect the lines and associated structures and immediately correct any problem which could adversely affect Champlin's Utilities, or which could result in inaccurate readings of flow through said lines. Maintenance shall occur as detailed in **Exhibit B.** All residential properties within the jurisdiction of Dayton served with water and sewer pursuant to this Agreement shall use water meters supplied and maintained by Champlin.

Champlin shall pay for, own and maintain the sewer and water lines and associated structures constructed within its boundaries. Champlin shall regularly maintain said lines and associated structures so as to keep them in good operating order. Maintenance shall occur as detailed in **Exhibit B.** Champlin shall regularly inspect the lines and associated structures and immediately correct any problem which would adversely affect or interfere with delivery of service to Dayton. Champlin shall provide the same level of continuous and uninterrupted service as provided to similar developments in Champlin and as provided in this Agreement, to the Southeast Area.

3. Champlin/Dayton shall share equally [50-50] the ownership and maintenance of public utilities in Goose Lake Road. In accordance with other agreements when Goose Lake Road is turned back to Champlin/Dayton by Hennepin County, Champlin/Dayton shall share equally [50-50] the ownership and maintenance of Goose Lake Road. Maintenance of and capital improvements

for Goose Lake Road shall be subject to consent by both parties. Maintenance shall be done in accordance with **Exhibit D.**

4. Ongoing Services. Champlin agrees that it currently has and will maintain, through the term of this Agreement, the capacity required for both sewer from and water to the Southeast Area pursuant to the land use element of the Comprehensive Plans of both parties in effect on the approval date of this agreement. Further, Champlin agrees it will provide for continuous and uninterrupted sanitary sewer service and city water service to the Southeast Area to the same extent that it provides such services to similar developments in Champlin, except for periods of necessary or emergency maintenance, or catastrophic events, including, but not limited to, flood, storm, war, or any other natural or man made catastrophes or events outside of its control. Except in cases of emergencies, in the event service needs to be interrupted for necessary maintenance, Champlin shall give Dayton fourteen (14) days notice. Said notice shall include a plan for said maintenance and alternative service to be provided, if any, and time period service will be interrupted, which plan and time period of interruption of service shall be reasonable. In the event service needs to be interrupted for emergency maintenance, Champlin shall give Dayton immediate notice. Said notice shall include, or shall as soon as practicable, be followed by a plan for said maintenance and time period service will be interrupted, which plan and time period of interruption of service shall be reasonable. The Cities of Dayton and Champlin shall cooperate in the construction of necessary utility services to serve the Faulds property, located at 11240 109th Ave. Any costs associated with extending sewer and water to the Fauld's property shall be paid by the property owner. As a part of the looping of the watermain on Goose Lake Road by Champlin, Dayton agrees to allow the extension of water trunk pipe into Dayton's municipal boundaries from 109th Avenue to a point approximately one-eighth mile north of 109th Avenue.

5. Fee Formula.

Connection/Billing, Rates, Fees and Changes.

a. Dayton Responsibilities.

Dayton shall be responsible for collection of all fees for connection to water and sewer, including trunk area fees and SAC Fees once a building permit is granted by Dayton. Dayton shall charge each residential unit within the Southeast Area the current rate charged by Champlin, pursuant to Champlin Ordinance and Resolution 2004-09 as shown in **Exhibit E.**

Dayton shall collect from each single family residential (SFR) connection in the Southeast Area and remit to Champlin the following fees:

Water Trunk, Source and Storage Fee	$2,200 per SFR connection
Sewer building fee	25 per SFR connection
Water building fee	25 per SFR connection
Water Meter fee	213 per SFR connection

Dayton shall pay directly to the Metropolitan Council Environmental Service (MCES) a Service Availability Connection (SAC) fee for each connection, which for 2004 amounts to $1,350 per single family connection.

Champlin's current Trunk Sewer Fee shall be paid by the Developer to the City of Dayton, at the time of final plat approval, prior to release of the Final Plat. Dayton shall submit said fees to the City of Champlin within thirty (30) days of Dayton's release of a Final Plat within the Southeast Area.

b. Champlin's Responsibilities. Champlin shall collect the service fees for sewer and water. Dayton shall develop a fair cost to be passed on to Dayton residents which would be a part of Champlin's rate, with that amount being reimbursed to the City of Dayton upon collection by Champlin. The rate of these costs are to be set by Dayton, by resolution, and may be updated by Dayton from time to time. When such an update occurs, Dayton shall notify Champlin ninety (90) days prior to effective date of such rate change, and Champlin shall adjust the amount collected from Dayton residents and subsequently the amount reimbursed to Dayton.

Champlin shall charge Dayton residents for only those services which benefit Dayton residents.

In the event Champlin amends its ordinance or resolution regarding fees, Champlin shall give Dayton written notice. Written notice shall be given 90 days prior to the effective date of such rate change.

Dayton residents have the same right to challenge bills received from Champlin that any other Champlin resident has.

Water meters will be dispersed to Dayton for pick-up and purchase by Dayton residents at the time of the sewer connection permit issuance. The SAC Fee and Water Trunk, Source and Storage Fee shall be collected and sewer and water permits shall be obtained at the time of the water meter purchase. The water meter fees, the Water Trunk, Source and Storage fees and the sewer and water permit fee collected by Dayton, will be submitted to Champlin on a quarterly basis.

c. Service to the Southeast Area. Flow determination for water to and sewer from the Southeast Area shall be determined by water meter readings of each individual residential unit. Champlin will have the sole responsibility of reading water meters and billing residential units within the Southeast Area for use.

d. Champlin shall bill Dayton residents monthly for sewer and water user fees and all applicable penalties. Payments by Dayton residents to Champlin shall be in accordance with Champlin City Ordinance.

Champlin shall notify Dayton of delinquent payments. Dayton shall be responsible for collecting delinquent payments in accordance with the laws of the State of Minnesota. Champlin shall cooperate to the extent necessary to assist Dayton in the collection of delinquent payments and penalties in accordance with Dayton City Ordinances and in accordance with procedures established in either MN Stat. Chapter 429 or MN Stat. 444.075. Within sixty (60) days of the 31st of August of each year of this agreement, Dayton shall pay to Champlin a sum equal to the total amount of delinquent fees as of August 31st. Dayton shall retain the right to assess the applicable properties, or to take any action available to it under law to recover the amount of the delinquent funds it so paid to Champlin.

6. Default and Remedies.

a. Champlin Remedies. In the event Dayton breaches any of its obligations under this agreement, Champlin shall have the right to bring an action of law or, if required by this agreement, arbitration, for its available remedies only after giving thirty (30) days written notice of the breach to Dayton and opportunity to cure the breach. If Dayton does not cure the breach, or reach a mutually agreed upon plan for the cure of the breach within that thirty (30) days notice period, Champlin may commence action or arbitration proceedings after giving ten (10) days written notice to Dayton that it intends to bring such action or arbitration proceeding. Nothing herein shall limit the causes of action or equitable rights that Champlin may assert pursuant to this agreement.

b. Dayton Remedies. In the event Champlin breaches any of its obligations under this agreement, Dayton shall have the right to bring an action at law or, if required by this agreement, arbitration, for its available remedies only after giving thirty (30) days written notice of the breach and opportunity to cure the breach. If Champlin does not cure the breach or reach a mutually agreeable plan for the cure of the breach within that thirty (30) days notice period Dayton may commence action or arbitration proceedings after giving ten (10) days written notice to Champlin that it intends to bring such action or arbitration proceeding. Provided, however, that if a default by Champlin results in sewer and water service to the Southeast Area below the level required by this Agreement, Champlin must take immediate action to correct the problem upon receipt of written notice from Dayton. Nothing herein shall limit the causes of action or equitable rights that Dayton may assert pursuant to this agreement.

7. Notice and Termination. Dayton shall reserve the right to service this area by another means in the future if some other means is provided and in such case, Dayton shall have the right to terminate this Agreement, by giving one hundred eighty (180) days written notice of its intention to terminate this Agreement. In the event of termination, all obligations of Dayton to make payment to Champlin shall cease upon the effective date of the termination.

8 Term. This agreement shall be perpetual and may only be terminated by Dayton pursuant to Section 7 of this Agreement.

9. Indemnity. Dayton shall defend, indemnify and hold Champlin harmless for any claims arising from Dayton's use or maintenance of sewer and water lines, and any associated structures, within the boundaries of Dayton. Champlin shall defend, indemnify and hold Dayton harmless for any claims arising from its operation of water and sewer lines, and any associated structures, located within the boundaries of Champlin.

10. Modification. This Agreement may be modified only by written agreement of both parties.

11 Notice. All notices required by this Agreement shall be in written form and shall be deemed delivered upon its receipt by the City Clerk of either party. Notice may be made by personal delivery, mail or facsimile.

12. Governing Law. This Agreement shall be construed by the laws of the State of Minnesota.

13. Severability. In case any one or more of the provisions contained in this Agreement shall be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein and any other application thereof shall not in any way be affected or impaired thereby.

14. Time is of the Essence. Time is of the essence in the performance of all obligations, undertakings and covenants under this Agreement.

15. Entire Agreement. This Agreement, any attached exhibits and any addenda or amendments signed by the parties shall constitute the entire agreement between Dayton and Champlin, and supersedes any other written or oral agreements between Dayton and Champlin on matters covered hereby.

16. Counterparts. This Agreement may be simultaneously executed in any number of counterparts, all of which shall constitute one and the same instrument.

17. Effective Date. The effective date of this Agreement shall be the last date on which it is executed by any party to this Agreement. This Agreement shall not become effective until it has been executed by all parties to the Agreement.

IN WITNESS, WHEREOF, the parties have agreed to the foregoing terms.

The City of Dayton

By:
Its: Mayor

Dated: 7-22-2004

By:
Its: City Clerk

Dated: 7-22-2004

The City of Champlin

By:
Its: Mayor

Dated: 6/14/04

By:
Its: City Clerk

Dated: 6/14/04

Exhibit A
Champlin-Dayton Joint Powers Agreement

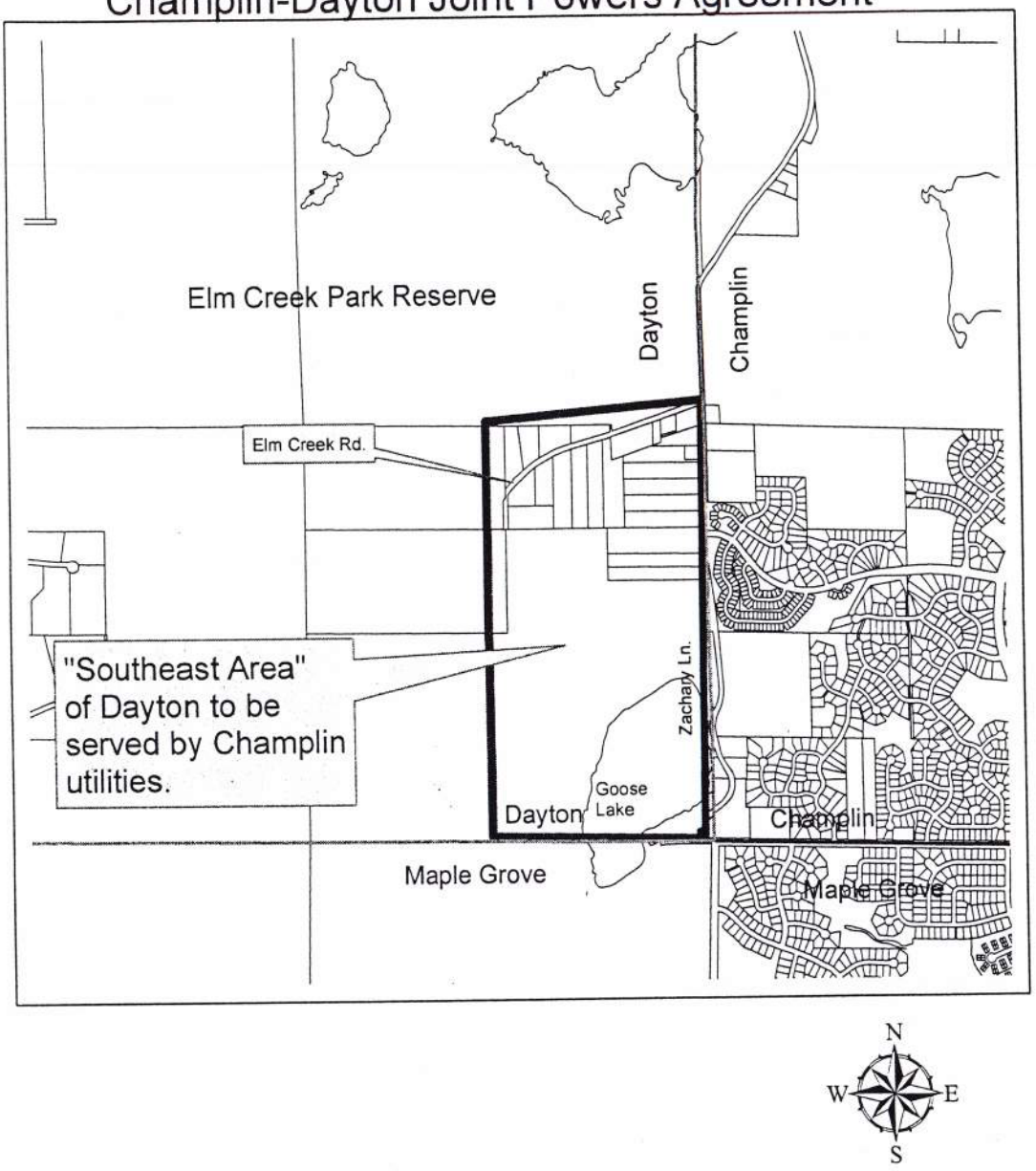


Exhibit B

Scheduled and Emergency Sewer Maintenance, and Scheduled Emergency Water Maintenance.

Scheduled and Emergency Sewer Maintenance

o Sewer Jetting	5 years
o Sewer Televising	As needed
o Sewer Mainline Repairs	As needed based on televising
o Sump Pump Connection Inspection	7 years
o Manhole Casting Maintenance	As needed
o Cone and Ring Inspections	As needed
o Sewer Plugs	As needed
o Locating	As needed
o Lift Station Maintenance	As needed
o Replacement of Infrastructure	As needed
o Excavation Restoration	As needed

Scheduled and Emergency Water Maintenance

o Flush Water Mains	Semi annually
o Exercise Hydrants	Semi annually
o Hydrant Repairs	As needed
o Paint Hydrants	As needed
o Replace Hydrant Flags	As needed
o Gate Valve Maintenance	As needed
o replacement of Infrastructure	As needed
o Locating	As needed
o Meter Reading (by Champlin)	Monthly
o Meter Finals (by Champlin)	As needed
o Meter Repairs (by Champlin)	As needed

Exhibit C

Champlin Ordinances

- An ordinance regulating the operation of the public water system, requiring certain connections to be made to the public water system, providing for the issuance of permits for, and supervision of, all connections to the public water system prescribing certain materials and methods to be used for said connections, prescribing rates and charges for water service, and prescribing for the violation of same. (Champlin 15-201 - 15-236)

- An ordinance regulating the operation of the public sanitary sewer system, requiring connections to be made to the public sanitary sewer system, providing for the issuance of permits for and supervision of all connections to the public sanitary sewer system, prescribing certain materials and methods to be used of said connections, establishing regulations as to types and kinds of wastes that may be disposed of by use of the public sanitary sewer system, prohibiting the discharge of any type or kind of surface waters into the public sanitary sewer system, prescribing rates and charges for disposal services, regulating street excavations, and prescribing penalties for the violation of same. (Champlin 15-401 - 15-414)

- Ordinance establishing an industrial user strength charge in addition to the charge based upon the volume of discharge by an industrial user and establishing an industrial user strength charge formula for the computation thereof to recover operation and maintenance costs or waste treatment services attributable to the strength of the discharge of industrial waste into the sewer system and establishing tax lien against property served in connection with such strength charge. (Champlin 15-801 - 15-807)

- An ordinance regulating the operation of the public water works system during periods when there may be a shortage of water. (Champlin 15-1100 - 15-1103)

- An ordinance providing for the installation or repair of sanitary sewer and water service lines and the collection of costs of such worth or service when done by the municipality as a special assessment against property benefited; and providing penalties for violations. (Champlin 15-1200 - 15-1205)

- An ordinance providing for public right-of-way management. (Champlin 15-1500 - 15-1535)

Exhibit D

Goose Lake Road Maintenance Responsibility

Champlin and Dayton will agree to maintain Goose Lake Road. The City of Champlin and the City of Dayton agree to maintain the roadway on an every other year basis. Road maintenance will be shared as noted below after the County turns back the road to Champlin and Dayton. Champlin will be responsible for maintenance in the even numbered years and Dayton will be responsible for maintenance in odd numbered years. The change over will begin on July 1st of each year. Therefore, for example, Champlin will be responsible for maintenance from July 1, 2006 – June 30, 2007 and Dayton will be responsible for maintenance from July 1, 2007 – June 30, 2008 and so on. The City responsible for maintenance will address all maintenance, curb to curb, of Goose Lake Road between 109th Ave. and Elm Creek Road. This will include:

- Maintenance of street signs
- Maintenance of traffic control signage
- Maintenance of concrete curb and gutter
- Maintenance of gravel shoulder
- Maintenance of catch basins and storm sewer pipe
- Maintenance of bituminous surface to include:
  - ☐ Pot holes
  - ☐ Crack sealing — See below
  - ☐ Seal coating — See below
  - ☐ Traffic markings — See below
- Street sweeping
- Snow and ice control
- Raising and lowering of any iron (manholes, catch basins, gate valves, etc)

- Maintenance does not include any side walk or trail located in Dayton or Champlin.

- Cracksealing and sealcoating will be done every six years. The cost will be divided by each City 50/50. The City of Champlin is responsible for the coordination of maintenance activities.

- Traffic markings will be done each year. The cost will be divided by each City 50/50. The City of Dayton is responsible for the coordination of this maintenance activity.

- If the road requires any "new" items (i.e. street sign, catch basin, etc.) Champlin and Dayton will share in the cost 50/50 assuming both cities agree.

Exhibit E
Resolution Updating Seal Coating, Storm Sewer District 10A and 10B and Typical Lot Fees

RESOLUTION NO. 2004-09
RESOLUTION UPDATING SEAL COATING, STORM SEWER DISTRICT 10A AND 10B AND TYPICAL LOT FEES

WHEREAS, the Champlin City Council has approved a special assessment manual outlining certain fees to be updated periodically, and

WHEREAS, the Champlin City Council has previously approved fees for Storm Sewer Districts 10A and 10B, Water Trunk, Source and Storage Fees and Sealcoating, and

WHEREAS, the fees outlined on the table entitled "Sealcoating, Storm Sewer District 10A and 10B and Typical Lot Fees and Water and Sewer Usage Fees" have been determined to be just and equitable, and

WHEREAS, the Consumer Price Index inflation rate is 2%, and

WHEREAS, the Water Trunk, Source and Storage Fee, based upon Resolution 96-32, will be increased $100 each year until the year 2017.

WHEREAS, the water usage fee was last updated March 1, 1997 and May 1, 2000 respectively.

NOW, THEREFORE, BE IT RESOLVED by the Champlin City Council that the fees are set according to the attached table.

FURTHER BE IT RESOLVED that Resolution No. 2003-11 dated January 13, 2003 is hereby rescinded.

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember Uglem, and upon vote being taken thereon the following voted in favor thereof: Mayor Boynton, Councilmembers Molenar, Walen and Uglem and the following voted against the same: none whereupon said resolution was passed this 12th day of January, 2004.

_____
Steven E. Boynton, Mayor

ATTEST:

_____
Jo Anne M. Brown, City Clerk

January 1, 2004

SEALCOATING, STORM SEWER DISRICT 10A AND 10B, TYPICAL LOT FEES, SAC FEE AND WATER AND SEWER USAGE FEES

ESTIMATED TYPICAL LOT	2003 TYPICAL BASED ON 90 FF	2004 TYPICAL BASED ON 90 ff
Water Lateral	$3281	$3347
Water Service	717	731
Water TSS	2100	2200
Sanitary Sewer Lateral	3565	3636
Sanitary Sewer Service	662	675
Sanitary Sewer Trunk	654	667
Storm Sewer	2258	2303
Residential Street		
New street (100% street cost)	3915	3993
New curb & gutter (100% curb & gutter)	752	767
Reconstructed street (50% typical street cost)	1959	1998
Mill & Overlay (50% typical mill & overlay cost)	598	610
MSA Street – Residential & Parks		
New street (100% street cost)	3915	3993
New curb & gutter (100% curb & gutter)	752	767
Reconstructed street (50% typical street cost)	1959	1998
Reconstructed curb & gutter (50% typ.res.st.cost)	377	385
Mill & Overlay (50% typical mill & overlay cost)	598	610
MSA Street – Apts/Condos/Town Homes (per single family equivalent unit)		
New street (100% typical residential street cost)	3915	3993
New curb & gutter (100% curb & gutter)	752	767
Reconstructed street (100% typical resid.street)	3915	3993
Mill & Overlay (100% typical resid. cost)	1196	1220
MSA Street – Industrial/Commercial/Churches/ Schools (per single family equivalent unit)		
*New Street (100% costs to 42')	6897	7035
New curb and gutter (100% costs to 42')	752	767
Reconstructed street (100% cost to 42')	6897	7035
Mill and overlay (100% costs to 42')	1664	1697

**Driveway & Boulevard Restoration	$1531	$1562
Street Lighting	1005	1025
Sidewalk	1150	1173
Trail	583	595

SEALCOATING – New and Reconstructs

Sealcoating (Residential)	$ 163	$ 166
Sealcoating (Commer. Incl. Apts)	163	166
Sealcoating (Open Land)	163	166

STORM SEWER DISTRICT 10A & 10B

Storm Sewer District 10A

Low Density Residential	$1794/Acre	$1830/Acre
Medium & High Density Res., Com., & Indust.	$2761/Acre	$2816/Acre

Storm Sewer District 10B

Low Density Residential	$3074/Acre	$3135/Acre
Medium & High Density Res., Com. & Industrial	$4727/Acre	$4822/Acre

Water Usage Rates	$4.67/1st 2000 gal. or less $1.82 ea. additional 1000 gallons (since 3/1/97)	
Sanitary Sewer Usage Rates	$9 flat charge/mo. plus $1.07/1000 gal. used on average winter usage or actual usage, whichever is less (since 5/1/00)	
SAC Fee	$1275	$1350/Acre

Sidewalk/trails on MSA Streets are not assessed whether initiated by a petition or City initiated.

* Based on 42' wide street pro-rated from typical residential street. The amount assessed to be pro-rated based on width of street.

**New street and/or new utilities need to include driveway and boulevard restoration costs.

CITY OF OTSEGO

COUNTY OF WRIGHT

STATE OF MINNESOTA

AGREEMENT BETWEEN THE CITY OF OTSEGO AND CITY OF DAYTON REGARDING COSTS RELATED TO THE STUDY AND EVALUATION OF CONSTRUCTION AND DELIVERY OF EMERGENCY WATER SERVICE

THIS AGREEMENT made this 26 day of 9, 2016 by and between the City of Otsego (OTSEGO), a Minnesota Municipal Corporation and the City of Dayton (DAYTON), a Minnesota Municipal Corporation.

WHEREAS, OTSEGO is located within Wright County and has constructed City water service extending near to its border with DAYTON; and

WHEREAS, DAYTON is located primarily within Hennepin County and a small portion within Wright County and has limited public water service; and

WHEREAS, DAYTON has limited available emergency water service within the proposed Service Area as set forth on Exhibit A, attached; and

WHEREAS, DAYTON has requested that OTSEGO consider the delivery of emergency water service to the Service Area; and

WHEREAS, OTSEGO has indicated that they will consider the request after receiving preliminary information from City staff and consultants regarding the feasibility, advisability and cost of providing DAYTON with emergency water service.

NOW, THEREFORE IT IS AGREED BETWEEN THE PARTIES AS FOLLOWS:

1. OTSEGO will undertake the necessary preliminary studies, research and collection of data to provide the OTSEGO City Council with an adequate basis of making a decision as to whether or not it would be advisable to proceed with providing the requested emergency services water connection.

2. All costs incurred by OTSEGO in the drafting of this Agreement, and in undertaking the studies and research mentioned above will be paid by DAYTON. Costs include, but are not limited to, City staff time, consultant's fees, engineering fees, legal fees cost of printing and cost of any necessary meetings to review the material. It is contemplated that OTSEGO will need to

evaluate the effect of the requested services on its water system, evaluate where pipes can be extended, determine the need for easements and the related costs, evaluate the cost of ongoing service, evaluate additional maintenance and repair required by the extension of lines, evaluate charges for the service to DAYTON, evaluate what Agreement and in what form needs to be in place between the Parties, and evaluate the criteria for providing the service as well as the mechanism for service provision. The specific engineering study to be undertaken is described in the attached August 12, 2016 letter from Hakanson Anderson to Lori Johnson, OTSEGO City Administrator.

3. OTSEGO shall provide an itemized billing statement to DAYTON monthly for the costs as set forth above. DAYTON agrees to pay within thirty (30) days of receipt of the bill for said costs.

4. OTSEGO may enforce this Agreement in the Wright County District Court, and in the event that the Agreement requires enforcement due to non-payment or any other reason DAYTON agrees to pay any and all costs, including attorney's fees incurred by OTSEGO in enforcement of the Agreement.

5. This Agreement is an agreement that relates only to the analysis of the feasibility of providing emergency water service to the Proposed Service Area. By entering into this Agreement OTSEGO makes no representations that it will provide the requested service, and any provision of service or construction of emergency water service shall be the subject of a separate agreement. The decision as to whether or not to provide the service and under what conditions is left solely to the discretion of the OTSEGO City Council. DAYTON understands that prior to making any decision, OTSEGO must fully evaluate the ramifications of the request and determine whether or not it is in the best interests of the citizens of Otsego.

6. This Agreement may be terminated by DAYTON by written notice to OTSEGO. In the event written notice is given, OTSEGO shall cease all work under this Agreement, and shall provide to DAYTON a final invoice for costs incurred through the date of termination.

Dated: 10-10-16

CITY OF OTSEGO

Jessica Stockamp, Mayor

Tami Loff, City Clerk

Motion made by O'Brien, Seconded by Ziebell.
Motion carried Unanimously.

Dated: 9-27-16

CITY OF DAYTON

Tim McNeil, Mayor

Amy Stanius, Deputy City Clerk

Joint Powers Agreement

WHEREAS, the City of Rogers (hereinafter "Rogers") and the City of Dayton (hereinafter "Dayton") are municipal corporations under the laws of Minnesota; and

WHEREAS, Dayton has a public water system that is supplied water from the City of Maple Grove (hereinafter "Maple Grove") which is capable of providing service to Lot 1 Block 1 Kinghorn Industrial Park for an industrial building not to exceed _____ square feet (hereinafter "User") within Rogers; and

WHEREAS, Rogers has a property that is being developed adjacent to Dayton's water system and a distance away from current Rogers water supply; and

WHEREAS, a temporary connection to the Dayton water system and Maple Grove water supply has been requested by Rogers to serve this property until the Rogers system can be extended to the site, which Rogers intends to last for no longer than five years; and

WHEREAS, Rogers understands that no additional connections other than to User will be allowed without prior approval of Dayton and Maple Grove; and

WHEREAS, Rogers and Dayton have discussed the connection with Maple Grove and have received approval for the connection according to a memo of understanding that stipulates a connection charge of $20,000 be paid by Rogers to Maple Grove for five (5) years of service and that if User is still connected after the five year term, that another $20,000 be paid to Maple Grove for a second five year term. Rogers will accurately meter water provided to the User and will provide that information to Dayton and will pay Dayton the charges for said water use consistent with water charges made to similar uses in Dayton, including a reasonable administrative fee of 1% of the water charges made; and

WHEREAS, Maple Grove's water supply is not intended to serve all of fully developed Dayton. If this connection continues to a time when Dayton begins to supplement Maple Grove's water supply with its own water supply,, but no earlier than 10 years from the date of this Agreement,, Dayton will make additional charges to Rogers commensurate with all additional costs to Dayton for providing that service, including trunk and facility charges, and administrative, legal and engineering fees incurred by Dayton; and

WHEREAS, the proposed connection, following the end of this use agreement, can serve as a cross connection between Rogers and Dayton in case there is a need to provide water to one or the other community. Rogers will be paying the entire $21,000 connection cost to provide this emergency cross connection. (This is the full cost of the improvement which would otherwise be split between Dayton and Rogers at $10,500 each.) In consideration for the completion of this emergency cross connection and Rogers paying Dayton's share of half the cost or $10,500, Dayton will not charge Rogers its trunk water main fee ($1200/acre for the 11.69 acres or $14,028. Because this is a temporary connection to last no more than 5 years and assuming a watermain life of 40 years Roger's cost would be 1/8 of $14,028 or $1,753.50); and

WHEREAS, Dayton is willing under the terms of this agreement to make its public water available to User; and

NOW, THEREFORE, IT IS HEREBY AGREED upon this 19th day of June, 2013, pursuant to Minn. Stat.§471.59, between Rogers and Dayton under the terms of this agreement.

1. Purpose. The purpose of this agreement is for Dayton to provide public water service to User within the City of Rogers under the terms of this agreement.

2. Incorporation. The foregoing recitals are incorporated into and made part of this Agreement.

3. Permission to Connect. User will be allowed to connect to the Dayton water system through a public watermain that will connect Rogers and Dayton. The water will be provided from Maple Grove and a connection charge will be paid to Maple Grove amounting to $20,000 for five years of service, prior to commencement of service. If Rogers has not connected the User to Rogers's water within the five year period, Rogers will pay Maple Grove an additional $20,000 for a new five year term, prior to commencement of continued service. Dayton will not require any payment for trunk system improvements and will take the construction of this interconnect as payment in full for the normal trunk fee. Rogers will spend $21,000 to complete the connection to Dayton.

4. Construction. Rogers shall be responsible for construction of all necessary pipes, leads, valves and other appurtenances to allow the User to connect with Dayton's water system. Rogers shall be responsible for all such construction cost and may assess or otherwise charge properties within Rogers. All construction shall be done to specifications consistent with the applicable standards and regulations, including any applicable Dayton construction standards. Dayton shall review and approve construction plans before the commencement of construction and may, to the extent desired, monitor actual construction to assure compliance with applicable Dayton standards.

Charges for Service. Rogers shall pay Maple Grove $20,000 for five years of service and if Rogers is still connected after the five year term, another $20,000 will be paid to Maple Grove for a second five year term. In addition Rogers shall pay to Dayton $3,500 prior to the commencement of service and after connection, Rogers shall pay for ongoing water service at the same rate as Dayton charges its residents, plus an administrative fee of 1% of the water service charges payable to Dayton. The payment shall be made by Rogers on a quarterly basis, upon receipt. The payment made by Rogers shall be accompanied by a Water Use Report or meter reading to provide for actual usage. In the event service continues after the initial five year term, Rogers shall pay to Dayton an additional $3,500 prior to commencement of the additional 5 year term.

5. Reimbursement. Rogers agrees to pay the total amount of any costs, charges, expenses, attorneys' fees and engineering fees incurred by Dayton in relation to this agreement and its implementation. Dayton shall invoice Rogers and Rogers shall remit payment to Dayton within 14 calendar days of the receipt of the invoice.

6. Maintenance/Compliance with Dayton Regulations .Rogers agrees to maintain and operate the public water main system within the corporate boundaries of the City of Rogers in accordance with all Dayton and other applicable State regulations. The City of Dayton shall maintain the water main system within the corporate boundaries of the City of Dayton.

7. Assistance. Rogers and Dayton will work together to answer questions and provide information concerning maintenance, billing and other common areas of concern between the cities.

8. Arbitration. All disputes between the parties shall be resolved by arbitration pursuant to Minn. Stat. Chapt. 572. If the parties cannot agree on the arbitrator, the arbitrator shall be appointed through application to the Hennepin County District Court.

9. Contingencies. This agreement is contingent upon all necessary approvals by the Minnesota Department of Health and Maple Grove for the water service described herein.

10. Default and Termination. In the event payments due to Dayton are not made as required the City may terminate this Agreement upon ten days notice to Rogers. Upon any termination of the Agreement, upon the effective date of termination, the Dayton may discontinue the provision of water to Rogers under this Agreement and shall have no liability to Rogers for such termination; and, Rogers shall defend, indemnity and hold Dayton harmless from any all claims, including without limitation from the User, or any other owners, tenants or occupants of the property of the User.

11. Term of Agreement. Dayton may terminate this Agreement upon 6 months written notice if Dayton reaches capacity of water from Maple Grove, Rogers will be responsible to provide water service to the site. Provided, however, this Agreement shall terminate when the User can be served by a water system operated by Rogers or ten years from the date of this Agreement, whichever comes first.

IN WITNESS WHEREOF, the undersigned, as of the date set forth above, being fully authorized, on behalf of the Cities of Rogers and Dayton, agree to the terms set forth above.

CITY OF ROGERS

By: _____
Mayor

Attest:

_____
City Clerk

CITY OF DAYTON

By: _____
Mayor

Attest: _____
City Clerk

CONTRACT FOR WATER SERVICE BETWEEN THE CITY OF MAPLE GROVE MINNESOTA AND THE CITY OF DAYTON MINNESOTA

This contract made and entered in this 8th day of August 2006 by and between the City of Maple Grove, a Municipal Corporation located in Hennepin County, Minnesota hereafter called "Maple Grove" and the City of Dayton, a Municipal Corporation located in Hennepin County, Minnesota hereafter called "Dayton".

Witness:
That the said parties, in consideration of the mutual covenants and agreements herein after set forth, have agreed to and with each other as follows:

1. **Term of Contract**
   This contract shall be for the term of thirty (30) years from the date of execution hereof unless terminated earlier as hereinafter provided. The contract may be cancelled pursuant to notice provided in Section 10 or may be cancelled by either party if laws are enacted by the State of Minnesota or the United States of America which substantially and adversely affect rights, duties, or obligations of either party under this contract. In the event the City of Dayton wants to terminate this contract, the contract shall be terminated provided Dayton reimburses costs incurred by Maple Grove to serve Dayton. It is expressly understood that this contract may be extended by the written consent of both parties.

2. **Water Service**
   A. Maple Grove agrees to furnish and deliver water from the Maple Grove water works system to the southwest portion of Dayton as shown on Exhibit "A" in sufficient quantity to meet an average day demand not to exceed 2.8 Million Gallons per Day (MGD) and a maximum day demand of 5.0 MGD.
   B. Maple Grove will furnish water to the City of Dayton at mutually agreed Connection Points (hereinafter Connection Points) at a minimum pressure as determined by elevation 1066 National Geodetic Vertical Datum of 1929.
   C. The water furnished by Maple Grove shall be the same treated water supplied by Maple Grove to Maple Grove residents.
   D. Dayton agrees that the use of water from the supply furnished by Maple Grove shall be at all times be governed by the applicable rules, regulations and conditions Maple Grove has now in effect or hereafter adopts for the preservation, regulation and protection of its water supply, and Dayton agrees to adopt the rules, regulations or requirements of Maple Grove now or hereafter adopted in connection with use of water in Maple Grove and to enact and enforce such rules, regulations and requirements as Dayton ordinances within one hundred and eighty (180) days after the execution of this contract and to enact any amendments to the regulations hereafter adopted by the City of Maple Grove within sixty (60) days after being notified of such adoption and to adopt the same penalties as those of Maple Grove for the violation thereof and to strictly enforce such rules, regulations and requirements. This section shall be, however, limited to water usage and related matter and does not give Maple Grove the right to prescribe rules for administration and billing for the Dayton water system.

3. **Water System Facilities**
   A. Maple Grove shall own and operate all facilities necessary to the supply, production, storage and transmission of water to the Connection Points, [but not including the master meter or master meters and backflow devices.]
   B. Dayton shall own and operate all facilities necessary for the metering, transmission, and distribution of water from the Connection Points to the points of delivery of water in Dayton. All such facilities shall conform to the Minnesota State Health Department requirements. Dayton shall maintain at no expense to Maple Grove its entire Dayton water system from point or points of delivery.
   C. Dayton shall keep accurate records of watermain construction and number of connections by category and such records shall be subject to inspection and auditing by Maple Grove.
   D. The Connection Points on Maple Grove's facilities shall be made by Maple Grove, but all expense shall be paid by Dayton within thirty (30) days of billing by Maple Grove. The water consumed by Dayton shall be measured by a master meter or meters furnished and maintained by Dayton at its own cost and expense at such reasonable locations to be designated by Maple Grove. Such meters shall be of a make and setting, and shall be installed and housed in a manner approved by Maple Grove. Such meters shall be subject to testing by Maple Grove at any reasonable time.
   E. Backflow prevention devices shall be installed at the Connection Points to assure no backflow or flow through of water through the Dayton system into the Maple Grove system. Dayton shall install and maintain at no expense to Maple Grove said backflow devices.

4. **Connection Charge**
   The City of Dayton shall pay a connection charge based on the current charge then in effect at time of payment to Maple Grove properties for each connection made to the system served with water from Maple Grove based on the following residential connection charges for various types of property

Land Use Type	Residential Equivalent Unit	2006 Rate
Low Density	1.0/unit	$1,700/unit
Medium and High Density with laundry facilities in each unit.		
Medium and High Density without Plumbing included for laundry facilities in each unit	.8/unit	$1,360/unit
Commercial	4.0/acre	$6,800/ac
Industrial	4.0/acre	$6,800/ac
Mixed	4.0/acre	$6,800/ac
Parks	0.5acre	$850/ac
Institutional	4.0/acre	$6,800/ac

The estimated number of Residential Equivalent Units (R.E.U.'s) in southwest Dayton that will be

connect to Maple Grove's water supply is shown in the following table:

	Number of Acres	Number of R.E.U.'s
Residential (Low, Medium, High)	2800	8800
Commercial/Industrial	800	3200
Institutional	N/A	N/A
Parks	400	200
Mixed Use	-	-
Total	**4,000**	**12,200**

The City of Dayton agrees to pay Maple Grove three hundred fifty thousand dollars ($350,000) within sixty (60) days of execution of this agreement, and $350,000 when Dayton connects to Maple Grove's water supply, which amount will allow 102.94 acres, or 411.76 R.E.U.'s to connect to Maple Grove's system provided said payments are received by end of 2006. Thereafter Dayton shall pay Maple Grove for each R.E.U. or acre that connects to the system served from Maple Grove at the then current connection charge rate for Maple Grove properties and transmit payment to Maple Grove within 45 days of permit for connection.

5. **Connections Beyond Corporate Limits of Dayton**
Water extensions beyond the Corporate Dayton limits of the City of Dayton and shall be made only with the permission of Maple Grove.

6. **Rates**
Initial water rate for water sold by Maple Grove to Dayton under this agreement shall be $1.30 per 1000 gallons. In the future, the water rate shall be increased by the same percentage of increase for water to Maple Grove residents. Maple Grove's current water rates to Maple Grove residents is $.90 per 1000 gallons and $13.20 annually resulting in a current effective water rate of approximately $1.04 per 1000 gallons based on 100,000 gallons per Residential Equivalent Unit (REU) per year.

7. **Meter Reading and Billing**
Monthly readings of the master meter or meters at the Connection Points of delivery to Dayton shall be made by Maple Grove. Billings by Maple Grove shall be mailed to Dayton and payment on such bills shall be made by Dayton to Maple Grove within 30 days.

8. **Department of Health Connection Fee**
The City of Dayton shall be responsible for collecting and transmitting the state mandated water connection fee (current rate is $5.21/year) to the Minnesota Department of Health for connections made to the Dayton Water Distribution System.

9. **Liability of Maple Grove** -
Maple Grove shall not be liable for interruptions in service; provided, however, that Maple Grove shall not discriminate against Dayton water users in the event of such interruption, and shall reasonably attempt to provide uniform service to all water system users, to the extent possible in the event of such interruption.

10. **Default**
Either party shall have the right to terminate this agreement and the water service provided herein in the event that the other party fails to comply with any of the terms and conditions of this agreement. Any termination shall not take effect unless written notice of termination is provided containing a description the default. The defaulting party shall have thirty (30) days to cure the default. If the default is cured, this agreement shall be reinstated. If it is not cured within the time provided for cure, this agreement and the obligations here under shall terminate. However, such service may be

terminated only after reasonable notice to Dayton, and Dayton shall have a reasonable opportunity to correct any condition which is cited by Maple Grove as a cause for termination of water service.

11. **Indemnification**
Dayton agrees to indemnify and save Maple Grove harmless in accordance with acceptable standards from any and all claims or demands for damages rising out of or which may result from the water supplied pursuant to this agreement and from the use, installation, and maintenance and repair of its facilities as set forth in the contract.

12. **Non-Waiver**
The non-enforcement by either party hereunder of a right provided by this Agreement shall not constitute a waiver of that party's rights to enforce the term or provision of the Contract at a later date.

13. **Effective Date of Agreement**
Effective date of this agreement shall be the date of execution thereof of both parties.

CITY OF MAPLE GROVE

_____
Date

_____
Mayor

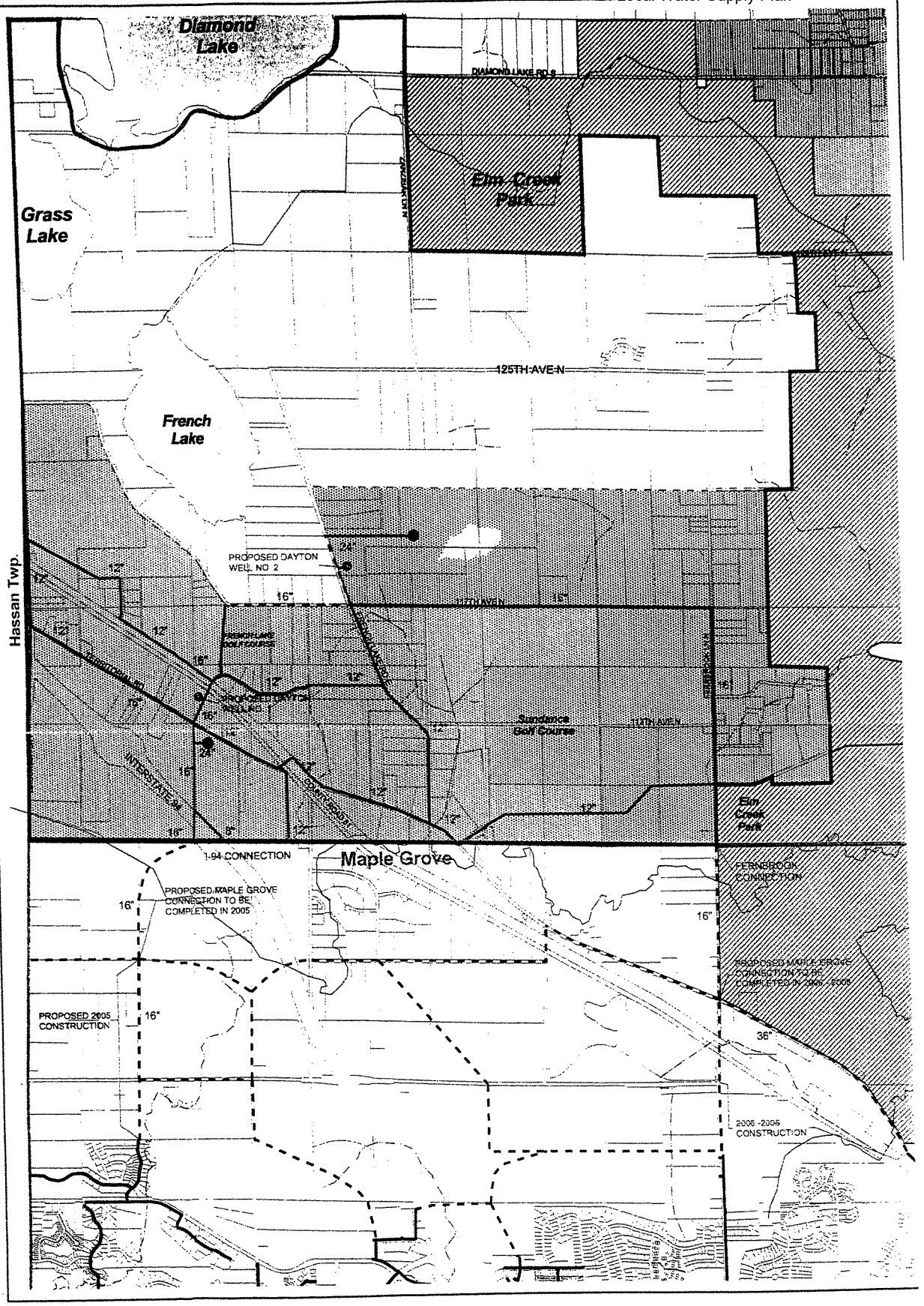
_____
City Clerk

CITY OF DAYTON

October 3, 2006
Date

_____
Mayor

_____
City Clerk



City of Dayton

SW Dayton Trunk Water/ Maple Grove Connection Distribution Plan

Water Supply Investigation

May 2005

- Proposed Well
- Proposed Storage Tank

Trunk Water Mains
- Proposed SW Dayton
- Proposed Maple Grove
- Maple Grove Trunk
- City Boundary

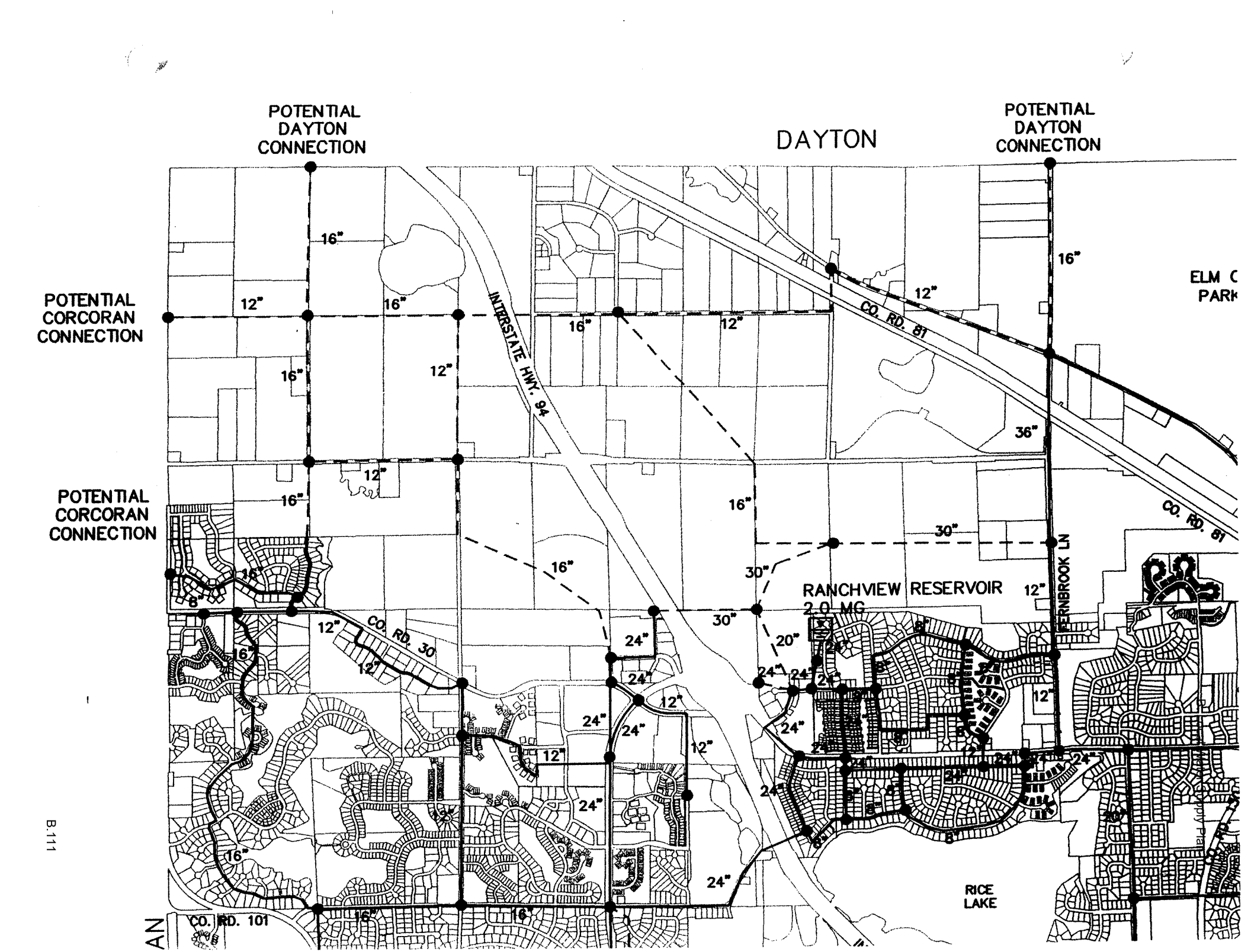
2001 Phasing
- 2000 - 2010
- 2010 - 2020
- 2020+
- 2020 MUSA
- Water Service Area

1000 0 1000
Feet

N W E S

Bonestro Rosene Anderlik Associat
Engineers & Archite

t:\1741\1740612\1\cad\figs\anypro\MG_connect


POTENTIAL DAYTON CONNECTION
DAYTON
POTENTIAL DAYTON CONNECTION
POTENTIAL CORCORAN CONNECTION
POTENTIAL CORCORAN CONNECTION
INTERSTATE HWY. 94
CO. RD. 81
CO. RD. 30
CO. RD. 101
RANCHVIEW RESERVOIR 2.0 MG
FERNBROOK LN
RICE LAKE
ELM C
PARK
16"
12"
24"
30"
36"
20"
8"

STATE OF MINNESOTA)
COUNTY OF HENNEPIN) SS.
CITY OF MAPLE GROVE

I, the undersigned, being the duly qualified City Clerk of the City of Maple Grove, Hennepin County, Minnesota, hereby certify that I have carefully compared the attached Resolution with the original thereof on file and of record in my office, and the same is a full, true and correct copy of City Council Resolution No. 06-096 as adopted on the 15th day of May, 2006.

WITNESS, my hand and seal this 16th day of May, 2006.

Alan A. Madsen, City Clerk

STATE OF MINNESOTA)
COUNTY OF HENNEPIN) SS.
CITY OF MAPLE GROVE)

I, the undersigned, being the duly qualified and acting Clerk of the City of Maple Grove, Hennepin County, Minnesota, a Minnesota municipal corporation, hereby certify that the above and foregoing Resolution No. 06-096 is a true and correct copy of the Resolution as adopted by the City Council on the 15th day of May, 2006.

Alan A. Madsen, City Clerk

RESOLUTION NO. 06-096

RESOLUTION APPROVING CONTRACT FOR WATER SERVICE BETWEEN THE CITY OF MAPLE GROVE, MINNESOTA AND THE CITY OF DAYTON, MINNESOTA

WHEREAS, a request has been submitted to have the City of Maple Grove supply the City of Dayton with water for both domestic and fire flow purposes; and

WHEREAS, Maple Grove's water system is designed to accommodate the requested amount of water needed by the City of Dayton; and

WHEREAS, a contract has been drafted for approval and execution by Dayton and Maple Grove City officials, which sets forth provisions of the sale of water to the City of Dayton; and

WHEREAS, the Maple Grove City Council concurs with the provisions of said contract.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Maple Grove, Minnesota:

1. The contract for water service between the City of Maple Grove, Minnesota and the City of Dayton, Minnesota is hereby approved.

2. The Mayor and City Clerk are hereby authorized to execute said contract.

Adopted by the City Council on this 15th day of May, 2006.

The motion for the adoption of the foregoing resolution was made by Councilmember Jaeger, seconded by Councilmember Sargent, and upon vote being duly taken thereon, the following voted in favor thereof: Mayor Steffenson, Councilmembers Campbell, Jaeger, Koski and Sargent

and the following voted against the same: None.

and the following were absent: None.

whereupon said resolution was declared duly passed and adopted.

Appendix 7

Municipal Critical Water Deficiency Ordinance

ORDINANCE NO. 2017-14
CITY OF DAYTON
HENNEPIN AND WRIGHT COUNTIES, MINNESOTA

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

THE CITY COUNCIL OF THE CITY OF DAYTON DOES ORDAIN:

Sec. 1-1. Purpose.
This ordinance establishes water conservation restrictions; and the plan will be in effect at any time the governor declares by executive order a critical water deficiency, pursuant to Minnesota Statutes section 103G.291. This ordinance, as passed, applies only to Municipal water supply users.

Sec. 1-2. Definitions.
Clerk in statutory cities means the person assigned duties pursuant to Minn. Stat. § 412.151; or the city manager pursuant to Minn. Stat. § 412.601 – 412.751 or in charter cities as determined by city charter.
Department means the city water department.
Emergency means the declaration of a critical water deficiency by the governor.
Irrigation means the watering of shrubs, trees, sod, seeded areas, gardens, lawns, or any other outdoor vegetation, except outdoor vegetation utilized for agricultural purposes.
Notification to public means notification through local media, including interviews and issuance of news releases.
Public water supplier means the city or other entity that owns, manages, or operates a public water supply, as defined in Minn. Stat. § 144.382, subdivision 4.
Reclaimed water means water collected from rooftops, paved surfaces, or other collection devices and all water utilized more than once before re-entering the natural water cycle.
Water recirculation system means any system which enables a user to reuse water at least once prior to returning the water to the natural water cycle.

Sec. 1-3. Application.
(a) This ordinance applies to all customers of public water suppliers who own or control water use on any premises.
(b) No person shall make, cause, use, or permit the use of water received from a public water supply for residential, commercial, industrial, governmental, or any other purpose in any manner contrary to any provision in this ordinance.
(c) Mandatory emergency conservation measures shall be implemented based upon the declaration of a critical water emergency by the governor.

Sec. 1-4. Declaration of critical water deficiency.
Upon the declaration of a critical water deficiency by the governor, the public water supplier shall immediately post notice of the emergency declaration at the usual meeting place of the city council, or the official city bulletin board. The city shall provide notification to the public as quickly as possible or through established water supply plans emergency response plans or

procedures. Through this resolution, the City of Dayton also reserves the right for its Mayor to declare a critical water deficiency.

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

Sec. 1-6. Variances.
The City Clerk or their designee, is authorized to grant variances to this ordinance where strict application of its provisions would result in serious hardship to a customer. A variance may be granted only for reasons involving health or safety. An applicant may appeal the denial of a variance within five (5) days of the decision by submitting a written appeal to the City Clerk. The City Council shall hear the appeal at the next City Council meeting. The decision of the City Council is final.

Sec. 1-7. Violation.
(a) Violations shall be determined and cited by the City Clerk or his/her designee. A violator may appeal the citation within five (5) days of its issuance by submitting a written appeal to the City. The City Council shall hear the appeal at the next City Council meeting. The decision of the City Council is final. Violators may be granted an administrative waiver if evidence is provided that equipment failure was the cause of the violation. A letter from a qualified vendor or equipment invoice will be required to show proof of equipment failure.
(b) Upon discovery of a first violation, the violator shall be issued, either personally or by mail, a warning letter that sets forth the violation and which shall describe the remedy and fines for future violations.
(c) Upon subsequent violations at the same location, the violator shall be issued, either personally or by mail, a citation that sets forth the violation and shall describe the remedy. Fines shall be added to the monthly water bill of the owner or current occupant of the premises where the violation occurred. The imposition of the fine shall in no way limit the right of the City to pursue other legal remedies.

Sec. 1-8. Enforcement.
The City Clerk or his/her designee is authorized to designate city employees or law enforcement personnel to enforce the provisions of this ordinance.

Sec. 1-9 Severability.
If any provision of this ordinance or the application of any provision to a particular situation is held to be invalid by a court of competent jurisdiction, the remaining portions of the ordinance and the application of the ordinance to any other situation shall not be invalidated.

Sec. 1-10 Effective date.
This ordinance shall be in full force and effect from and after its passage and publication as required by law.

Adopted by the City Council of the City of Dayton this 10th of October, 2017.

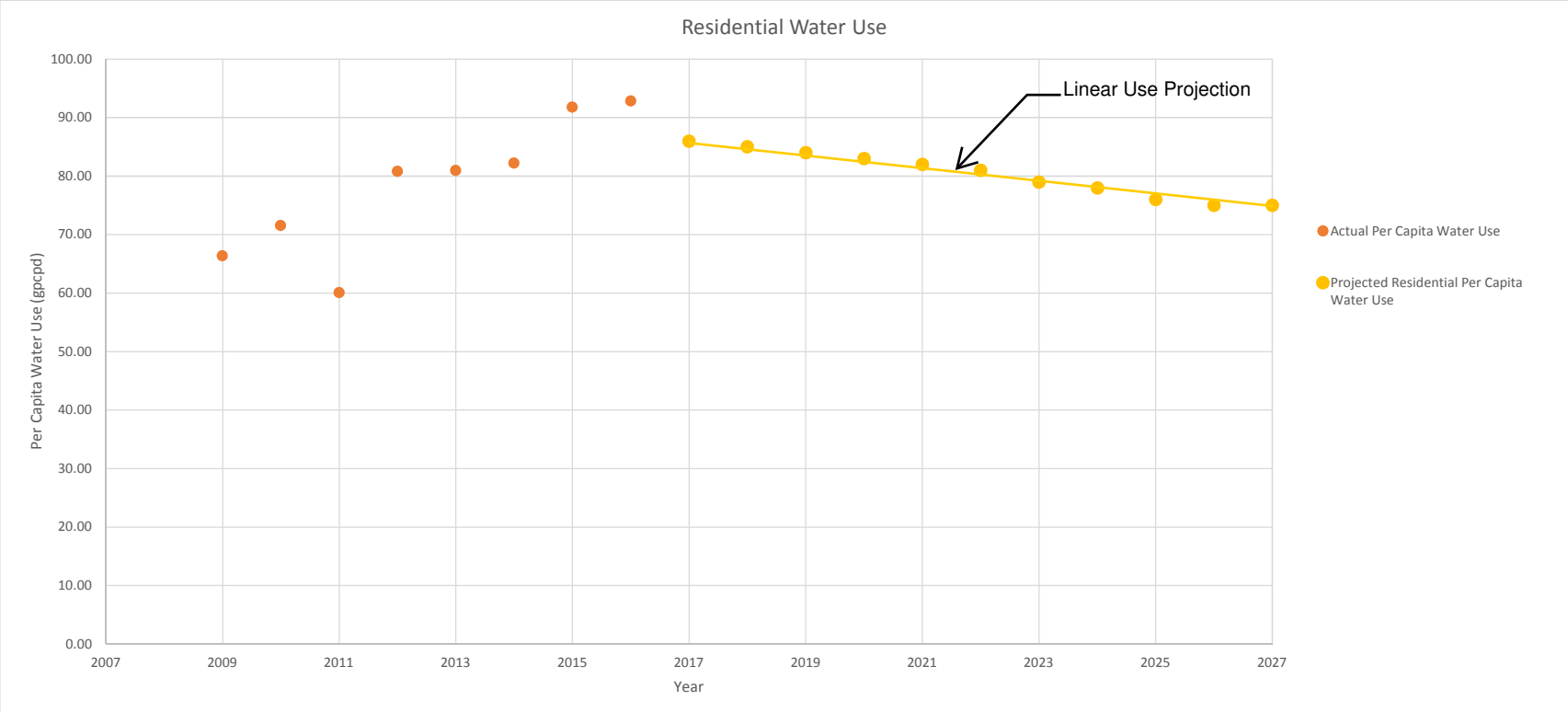
_____
Mayor- Tim McNeil

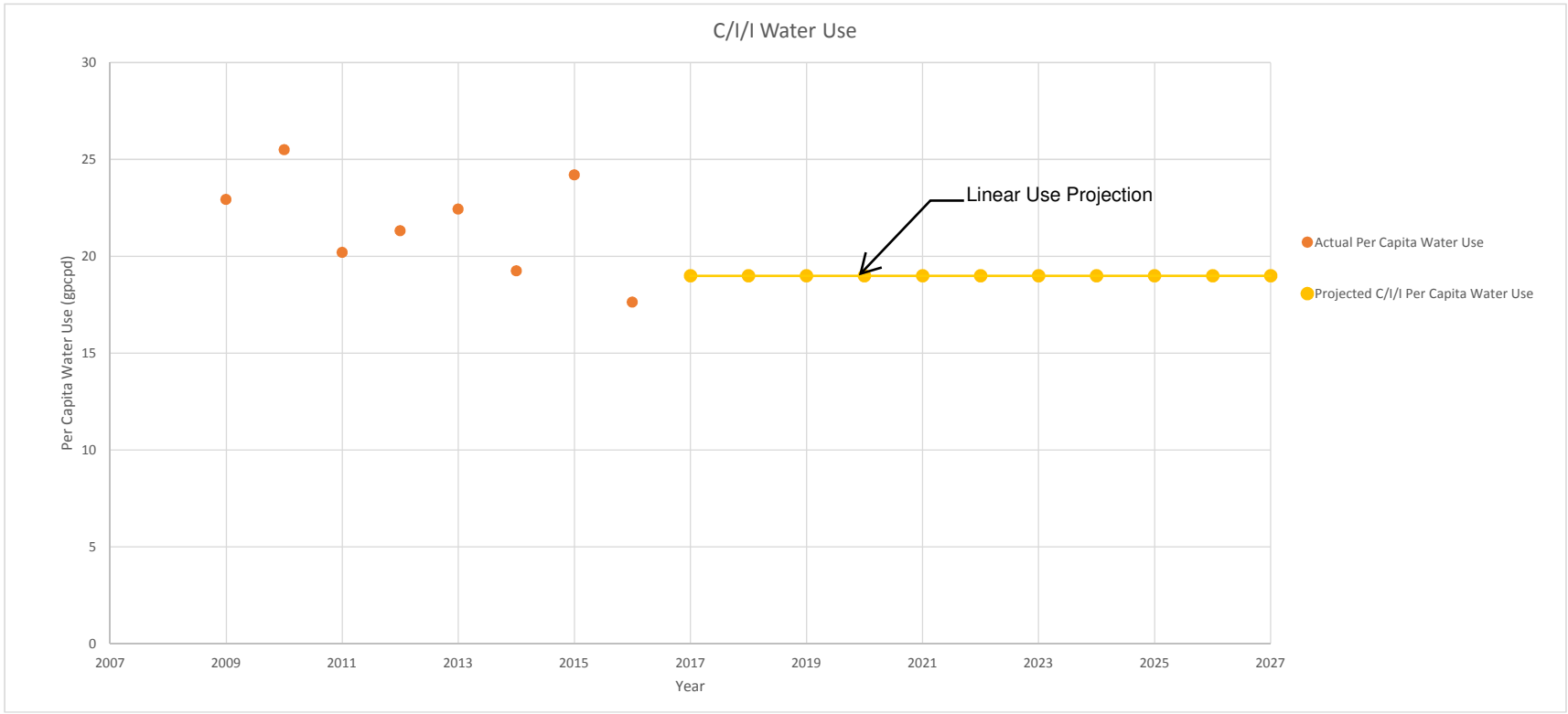
ATTEST:

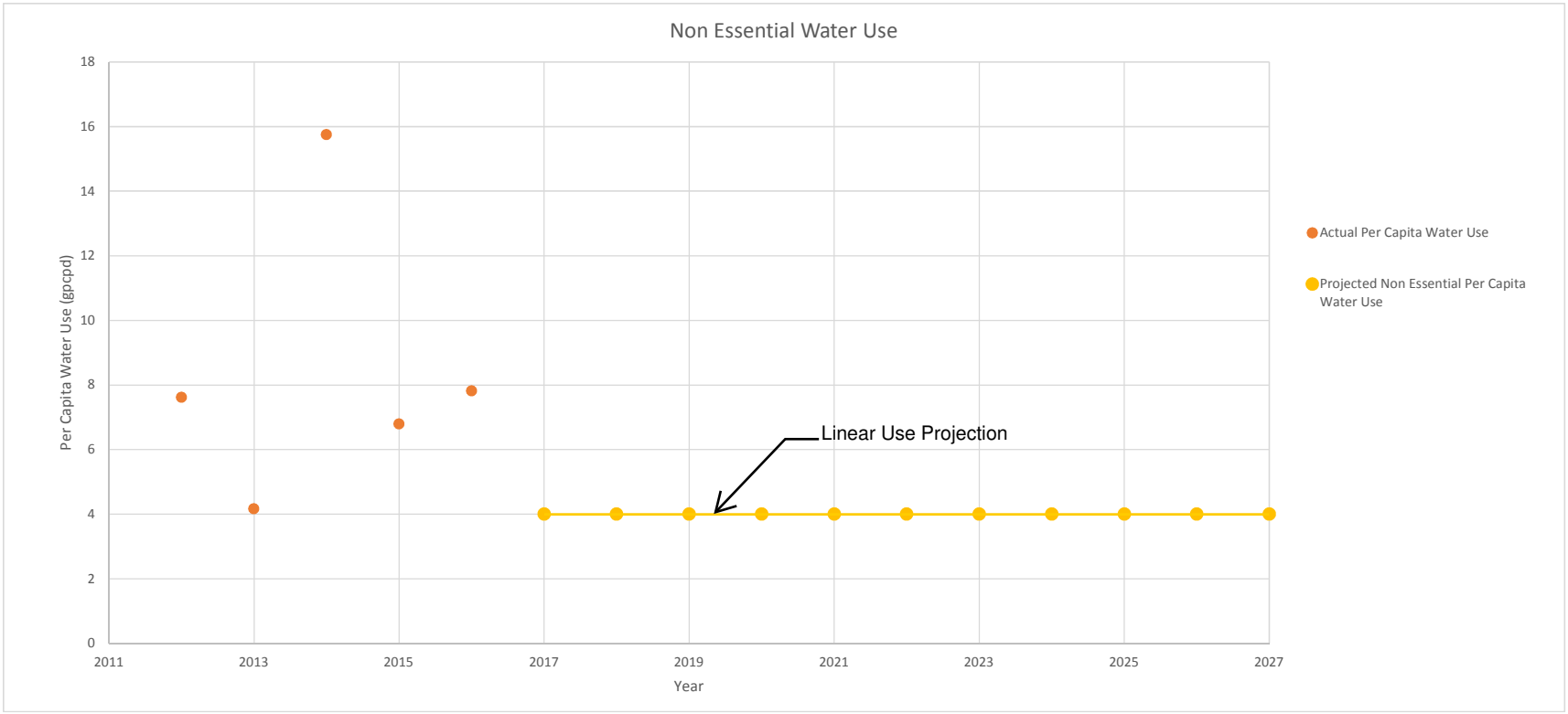
_____
City Clerk-Amy Benting
Published in the Champlin Dayton Press on:

Appendix 8

Water Demand Graphs


Residential Water Use
Linear Use Projection
Per Capita Water Use (gpcpd)
Year
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
2027
Actual Per Capita Water Use
Projected Residential Per Capita Water Use


C/I/I Water Use
Per Capita Water Use (gpcpd)
30
25
20
15
10
5
0
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
2027
Year
Linear Use Projection
Actual Per Capita Water Use
Projected C/I/I Per Capita Water Use


Non Essential Water Use
Per Capita Water Use (gpcpd)
18
16
14
12
10
8
6
4
2
0
2011
2013
2015
2017
2019
2021
2023
2025
2027
Year
Linear Use Projection
Actual Per Capita Water Use
Projected Non Essential Per Capita Water Use

Appendix 9

Water Rate Information

Exhibit A
2017 FEE SCHEDULE
Revised March, 2017

Planning Services	Actual Cost
Miscellaneous Consultants	Actual Cost
City Staff Services	Fully Burdened Rate (Per Hour)
Public Hearing Notice:	
Mailings	Actual Cost
Champlin-Dayton Press Publication	Actual Cost
Mailing Labels (Hennepin/Wright County)	Actual Cost
Recording – Hennepin/Wright County:	
Abstract & Torrens Properties	Actual Cost + Staff Time
Sewer and Water Utility Rates:	
Water Base	$13.00/Bi-Monthly
Water Usage: Per 1,000 (gallons) 0-4,999 gallons	$2.83
Water Usage: Per 1,000 (gallons) 5,000 gallons and over	$3.13
Water Availability Fee charged to existing residences with available water service, but have not connected	$13.00/Bi-Monthly
Sewer Base	$19.00/Bi-Monthly
Sewer Usage: Per 1,000 (gallons) 0-4999 gallons	$4.15
Sewer Usage: Per 1,000 (gallons) 5,000 gallons and over	$4.15
Sewer Only NDL 1,000 gallons and above	$5.59
MN Connect Fee	$1.06/Bi-Monthly
Champlin Fee Per/Unit Natures Crossing	$12.00/month
Water Meter Use Fee:	
3/4 Inch Water (base fee)	$31.24
1 Inch Wate (base fee)	$39.76
1.5 Inch Water (base fee)	$51.12
2 Inch Water (base fee)	$82.36
3 Inch Water (base fee)	$312.40
4 Inch Water (base fee)	$397.00
6 Inch Water (base fee)	$596.40
10 Inch Water (base fee)	$1,420.00
Special Agriculture Preserve Application:	$50.00 per application (Per Statute)
Special Assessment Searches:	$25.00 each
Zoning Letter:	$50.00 per property

Appendix 10

Water Use Ordinances

Turf Area Limitations

http://library.amlegal.com/nxt/gateway.dll/Minnesota/dayton_mn/daytonminnesotazoningandsubdivisioncode/chapter1000landusage/section1001zoning/100124landscapingandscreening?f=templates$fn=default.htm$3.0$vid=amlegal:dayton_mn$anc=JD_1001.24

Tree Ratios

http://library.amlegal.com/nxt/gateway.dll/Minnesota/dayton_mn/daytonminnesotazoningandsubdivisioncode/chapter1000landusage/section1001zoning/100124landscapingandscreening?f=templates$fn=default.htm$3.0$vid=amlegal:dayton_mn$anc=JD_1001.24

Appendix 11

Implementation Checklist

Appendix 11
Implementation Checklist

Activity Implemented	Activity or Action Item	Timeframe
Actions to reduce residential per capita demand		
	Revise city ordinance/codes to permit water reuse options	3 years
	Revise ordiances to limit irrigation. Specifically review various watering bans/plans	3 years
	Implement notification system to inform customers when water avilability conditons change	Ongoing
	Conduct audience-appropriate water conservation education and outreach	Develop within 5 years and then ongoing
Actions to reduce total water demand		
	Phase in enhance meters capable of automated readings to detect spikes in consumption	Phase in as C/I/I meters replaced
	implement C/I/I notification system to inform non-residential customers when water availability conditions change	Ongoing
	Prepare a master plan for smart growth (compact urban growth that avoids sprawl)	Ongoing
	Prepare a comprehensive open space plan (area for parks, green spaces, natural areas)	Ongoing

Appendix 12

Sources of Information for Table 10

Appendix 12

Sources of Information for Completion of Table 10

City of Dayton Wellhead Protection Plan, May 2019

DNR-provided feature map, 1.5-mile radius around proposed Dayton Well 4, 4/6/2020

Groundwater Technical Review, DNR, 1/23/2019

Hennepin County Natural Resources Map, wetlands, 4/20/2020

Third Generation Watershed Management Plan, Elm Creek Watershed Management Commission, 9/23/2015

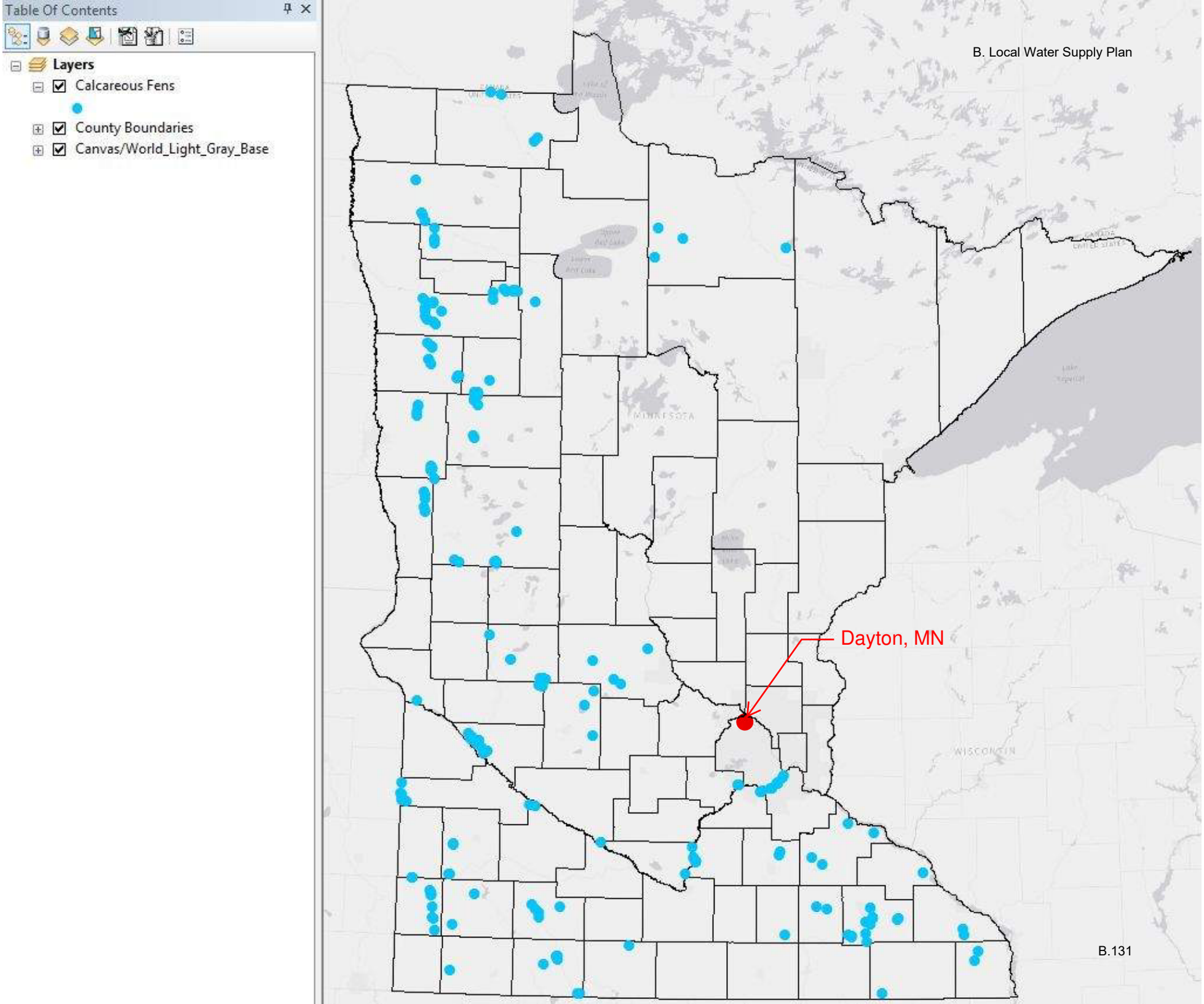
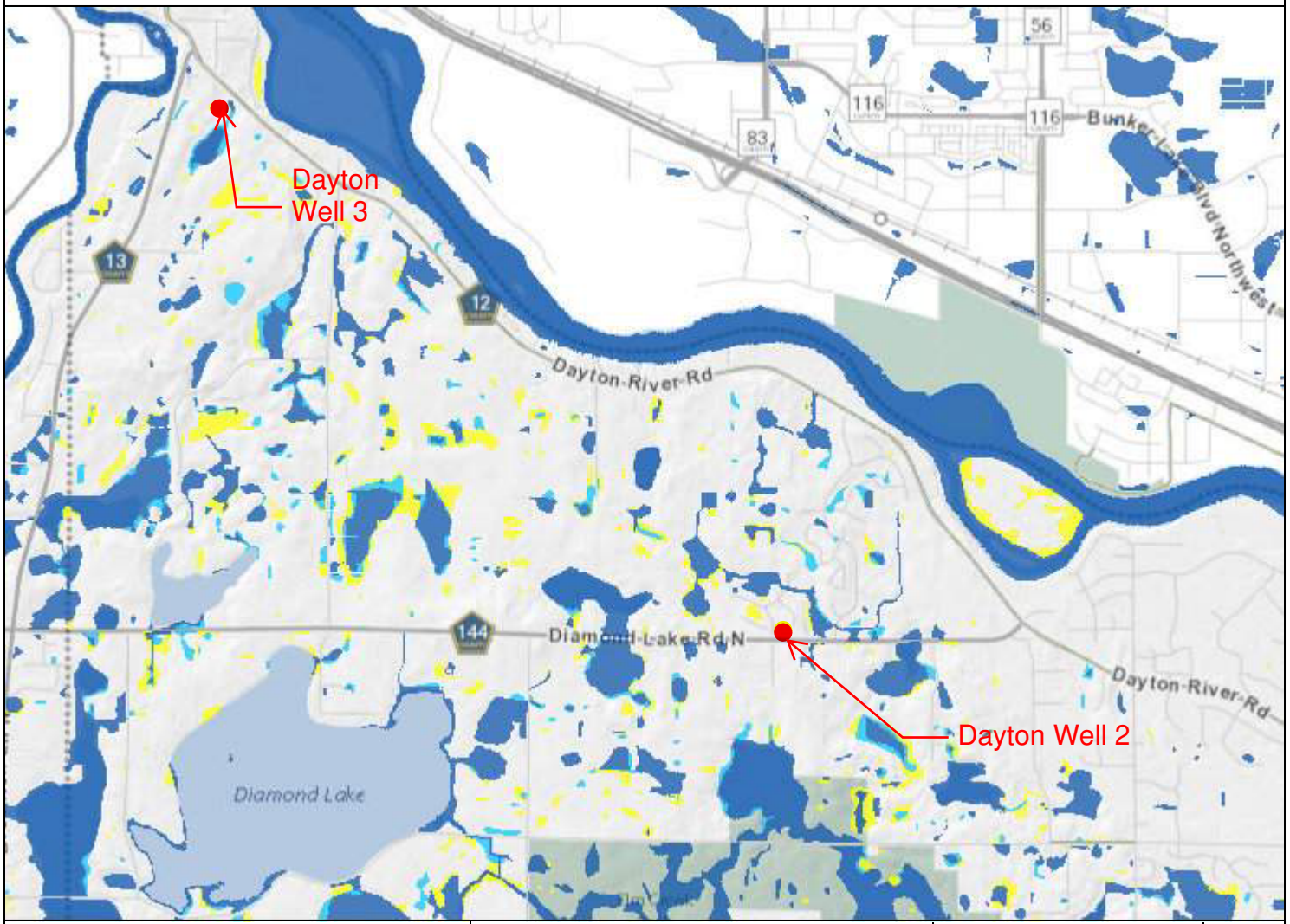


Table Of Contents
Layers
Calcareous Fens
County Boundaries
Canvas/World_Light_Gray_Base
Dayton, MN
MINNESOTA
WISCONSIN

Hennepin County Natural Resources Map

Date: 4/20/2020



Legend

Wetlands

- Potential Wetland - HCWI
- Probable Wetland - HCWI
- Probable Wetland - NWI

No results

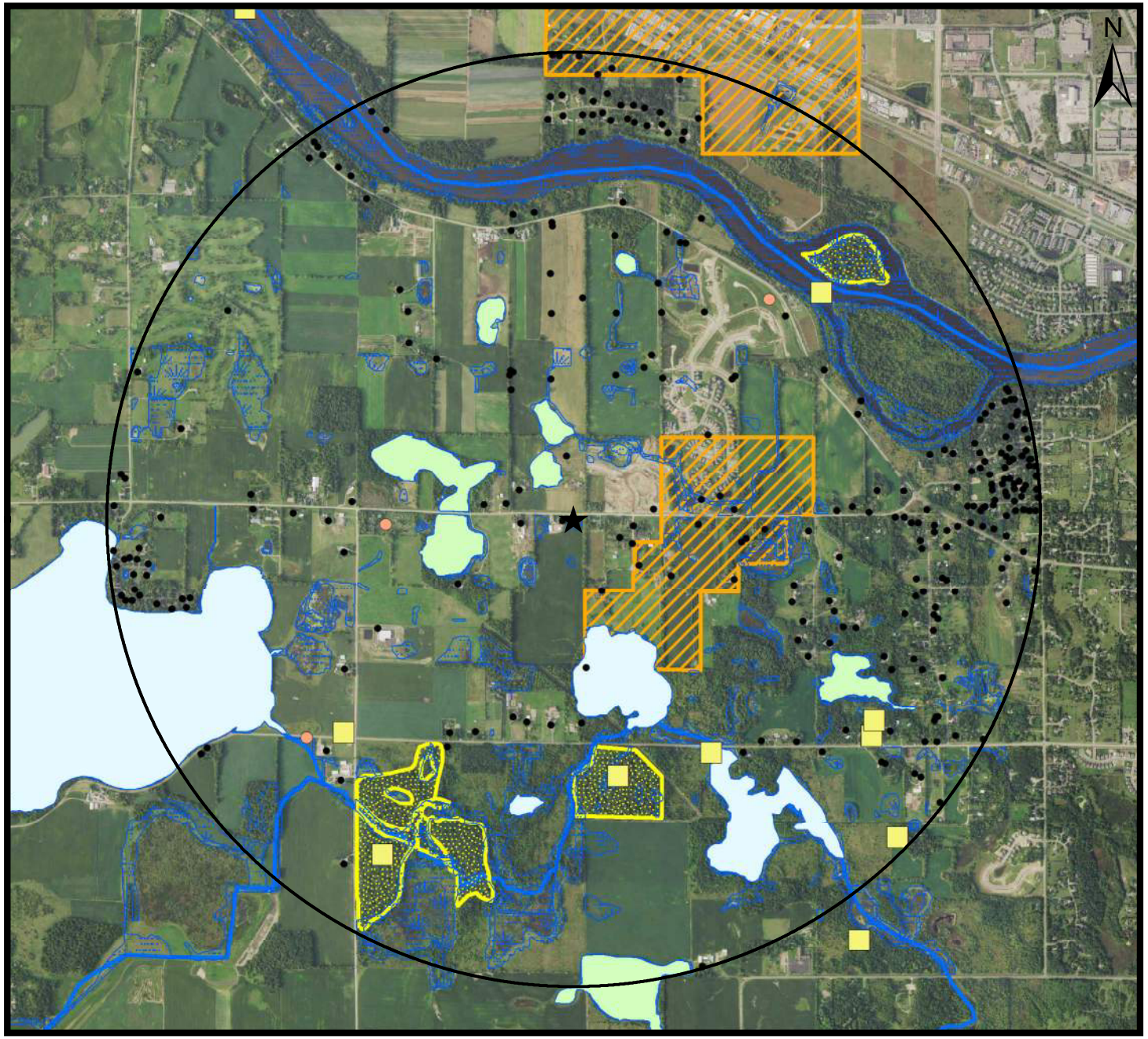
Comments:

1 inch = 3,200 feet

N

Tracking Number: 2020-0748, 1.5 mile distance

B. Local Water Supply Plan



Legend

- Proposed well(s)
- 1.5 mile radius
- Known groundwater users
- Contamination sites (MPCA)*
- Rare species*
- Public water basins
- Public water wetlands
- Wetlands
- Native plant communities
- Rivers and streams
- Drinking water protection areas

** Not the full extent of the feature.*

Created by: Dan Scollan

Date: 4/6/2020

UTM coordinates: (462814, 5006319)

Longitude(x), Latitude(y): (-93.47, 45.21)

Town:120, Range:22, Rng Dir: W, Sec:16

DEPARTMENT OF NATURAL RESOURCES

0 0.25 0.5 0.75 1 Miles