Appendix I

Water Supply

Minneapolis
Public Works

mpls

Water Supply Plan Amendment

City of Minneapolis

Department of Public Works

Water Treatment and Distribution Services

May 2019

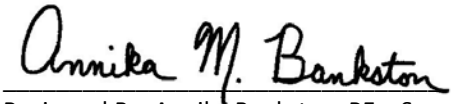
City of Minneapolis

Department of Public Works

Water Treatment and Distribution Services

May 2019

Prepared By: Chad M. Donnelly, PE – Program Administrator



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Approved By: Glen Gerads, Director – Water Treatment and Distribution Services

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Introduction

This Water Supply Plan (WSP) is prepared by the Water Treatment and Distribution Services (WTDS) Division of the City of Minneapolis' Public Work Department. The plan is prepared pursuant to Minnesota Statutes 103G.291 and is organized in accordance with the guidelines established by the Minnesota Department of Natural Resources (DNR) - Division of Ecological and Water Resources. This WSP shall also serve as the requisite supplemental document for the 2040 Minneapolis Comprehensive Plan as required by the Metropolitan Land Use Planning Act.

The WSP is divided into four parts:

PART 1: WATER SUPPLY SYSTEM DESCRIPTION AND EVALUATION

This chapter addresses the adequacy of the existing water source and supply systems to maintain current and projected water demands.

PART 2: EMERGENCY RESPONSE PROCEDURES

This chapter lists emergency response procedures and develops actions and protocols necessary to improve emergency preparedness.

PART 3: WATER CONSERVATION PLAN

This chapter identifies programs and strategies focused on reducing water demand within the market served by WTDS, improve the efficiency in water use, and minimize water losses and waste.

PART 4: METROPOLITAN COUNCIL ITEMS

This chapter relates to comprehensive plan requirements that apply to communities in the seven County Twin Cities Metropolitan Area.

General Information

Provided below in Table 1 is the DNR permit information assigned to WTDS along with the point of contact associated with the development, implementation, and record keeping associated with this WSP. The administrator of the WSP will be supported by WTDS staff as required.

Table 1 – General Information Regarding this WSP

Requested Information	Description
DNR Water Appropriation Permit Number(s)	1978-6216
Ownership	Public
Metropolitan Council Area	Ramsey County
Street Address	4300 Marshall St NE
City, State, Zip	Minneapolis, MN 55417
Contact Person Name	Chad Donnelly, PE
Title	Program Administrator
Phone Number	612-661-4903
MDH Supplier Classification	Municipal

1.0 Water Supply System Description and Evaluation

A. ANALYSIS OF WATER DEMANDS

WTDS provides and maintains drinking water service to the many consumers both living and doing business within the City of Minneapolis. Drinking water is also provided through wholesale contracts to several adjacent municipalities including Golden Valley, Crystal, New Hope, Edina, Bloomington, and temporarily New Brighton. Wholesale accounts are also maintained for the Minneapolis - St. Paul International Airport and the Fort Snelling Air Force Reserve (Fort Snelling). The aforementioned municipal accounts, along with the Minneapolis - St. Paul International Airport and Fort Snelling, are identified herein as Wholesale customers.

The data tabulations provided in this section of the WSP are the critical metrics that provide WTDS with the means to perform the important analyses for water consumption and conservation. Data is collected and made record of throughout the year so that WTDS can assess, in real-time, the demand of the consumer base and health of the water distribution system from the perspective of non-revenue water. Further discussion of consumption and conservation are provided in the later sections of this document. The Water use for the past 10 years is tabulated below in Table 2. This table also includes the average and maximum day demands along with the corresponding per-capita use rates.

Table 2 – Historic Water Demand

Year	Population Served (Minneapolis)*	Total Connections	Residential Water Delivered (MG)	C/I/I Water Delivered (MG)	Water Used for Non-Essential (MG)	Wholesale Deliveries (MG)	Total Water Delivered (MG)	Total Water Pumped (MG)	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)**
2006	387,970	102,753	8,489	6,046		4,502	19,037	22,230	14.36%	60.90	117.15		59.95	125.19
2007	392,462	102,800	8,384	6,109		4,560	19,052	22,283	14.50%	61.05	115.73		58.53	123.72
2008	390,131	102,800	8,045	5,819		4,169	18,033	21,417	15.80%	58.52	102.70		56.50	121.12
2009	386,691	97,212	8,065	5,614		4,439	18,118	21,085	14.07%	57.77	109.34		57.14	117.94
2010	382,578	97,212	7,708	5,479		3,604	16,792	19,930	15.75%	54.60	84.84		55.20	116.91
2011	387,873	98,543	7,512	5,294		4,159	16,965	20,084	15.53%	55.02	91.26		53.06	112.48
2012	392,008	99,874	7,821	5,565		4,367	17,752	20,577	13.73%	56.22	95.90		54.66	113.29
2013	400,938	97,891	7,557	5,331		3,897	16,786	19,778	15.13%	54.04	103.80		51.64	108.52
2014	411,273	97,891	7,239	5,256		3,559	16,054	19,666	18.37%	53.73	85.04		48.23	107.30
2015	412,173	97,500	7,177	4,874	0	3,795	15,846	19,179	17.38%	52.40	96.00	6/12/2015 & 9/4/2015	47.67	102.17
2016	414,456	97,500	7,305	4,849	0	4,121	16,275	19,849	18.01%	54.23	87.10	7/21/2016	48.29	103.97
2017[1]	416,700[1]	97,500[1]	4,714[1]	3,096[1]	0	3.137[1]	10,974[1]	13,746[1]	20.16[1]	37.56[1]	87.10[1]	6/8/2017[1]	31.17[1]	69.75[1]

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

= No Previous Data

* = US Census Bureau
** = MPLS Only
[1] = Data January 1, 2017 thru August 31, 2017

A listing of the top ten water consumers is provided in Table 3. The customer name, use category, gallons recorded, and percent of total water delivered for the 2015 reporting year are provided therein. Attempts were made by WTDS staff to ascertain the use or implementation of conservation measures by these customers. The results of this review revealed little detail pertinent to this plan. This field is therefore listed as Unknown.

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)
COVANTA	INDUSTRIAL (Energy)	202,732,010	1.3%	UNKNOWN
MINNEAPOLIS ENERGY CENTER	INDUSTRIAL (Energy)	76,693,075	0.5%	UNKNOWN
ABBOTT NORTHWESTERN HOSPITAL	COMMERCIAL (Health and Wellness)	53,356,896	0.3%	UNKNOWN
VETERANS ADMIN MEDICAL CENTER	GOVERNMENT (Health and Wellness)	53,069,648	0.3%	UNKNOWN
FAIRVIEW HEALTH SERVICES	COMMERCIAL (Health and Wellness)	51,786,744	0.3%	UNKNOWN
453300 HILTON HOTELS, MAIL STOP #7	COMMERCIAL	46,474,084	0.3%	UNKNOWN
UNIVERSITY OF MINNESOTA	INDUSTRIAL (Education)	35,340,116	0.2%	UNKNOWN
650 IDS CENTER	COMMERCIAL	32,148,185	0.2%	UNKNOWN
NORTH MEMORIAL MEDICAL CENTER	COMMERCIAL (Health and Wellness)	3,0641,613	0.2%	UNKNOWN
MARRIOTT	COMMERCIAL	29,144,017	0.2%	UNKNOWN

B. TREATMENT AND STORAGE CAPACITY

Outlined in Table 4 is a tabulation of the treatment processes employed by WTDS for source water treatment. Plant names along with the methods and types of treatment are provided therein. These methods are used daily and throughout the year in order to satisfy safe drinking water criteria.

It is noteworthy to mention that WTDS is in the process of designing and letting two construction projects to, one, rehabilitate the Fridley Filtration Plant, and two, re-design the recarbonation system to capture new technology and enhance water quality. A significant change to the treatment process will include a change-over to biologically active granular activated carbon in-lieu of conventional media (anthracite) employed currently to filter the water. The recarbonation system is primarily an upgrade from the existing treatment methods to that employed within current industry standards of today. The projects are expected to be underway in 2016 and completed by 2018.

Treatment Description:

The basic treatment process begins with screening of debris at the raw water intakes at Pump Station No. 5. During times of problematic taste and odors, potassium permanganate can be added to the raw water to lessen these aesthetic affects to the water. Raw water is pumped to the Fridley Softening Plant where lime is added along with ferric chloride for removal of organics and other solids by coagulation and precipitation. The water is softened in twelve precipitator cones with sludge withdrawn from the bottom of each cone. The sludge/solids are pumped to the dewatering plant for dewatering and recycling. The softened water is recarbonated using carbon dioxide gas to adjust the pH level. Powdered activated carbon is added ahead of softening or at the head of the recarbonation chambers to address taste and odor issues.

The water is routed to either to the Fridley Filter Plant via Pump Station No. 6 or to the Columbia Heights plant via Pump Station No. 4. A softened water basin stores the water prior to treatment at Columbia Heights. At both locations, the softened water is chlorinated and ammonia added to form combined chloramines.

At Columbia Heights, the settled water is directed to the ultrafiltration membrane plant. At Fridley, the water is filtered by dual granular media filters. Following filtration, the chloramine residual is adjusted to the desired level, fluoride is added, and ortho-polyphosphate (a corrosion inhibitor) is added. Finished water is stored in underground reservoirs prior to distribution or transmission to the Hilltop reservoir system. Pump Station Nos. 5, 7, 8, and 9 draw water from the finished water reservoirs. Pump Stations Nos. 1 and 3 serve to direct backwash water residuals or coagulation basin drainage from the filtration plants and coagulation chambers to the head of softening or the Dewatering Plant. Additionally, there are three booster pump stations in the distribution system to increase system pressures in small areas of high elevation (North High, Kenwood, and Southwest).

The residual solids from the lime softening and coagulation/settling processes are handled at the dewatering facility. The residuals are thickened in large gravity settling tanks. The thickener supernatant is recycled back to the softening plant. The thickened underflow is sent through filter presses and the cake is hauled off site as beneficial agricultural liming material. The pressate is directed to seven lime residual lagoons where evaporation and freeze-thaw cycles dry remaining solids. The dried solids from the lagoons are also trucked off site. The overall treatment process generates 25,000 to 32,000 tons of dry solids per year. Decant from the lagoons is adjusted for pH, monitored for solids and discharged to the river at the Lagoon Overflow Treatment Plant through a State Discharge System/National Pollutant Discharge Elimination System Permit The total treatment capacity has been sufficient to meet the water demands of the City and its wholesale customers.

Table 4 – Water Treatment Capacity and Treatment Processes

Treatment Site ID (Plant Name or Well ID)	Year Constructed	Treatment Capacity (MGD)	Treatment Method	Treatment Type	Annual Amount of Residuals	Disposal Process for Residuals	Do You Reclaim Filter Backwash Water?
Columbia Heights Filtration and Membrane Plant	1913 / 2005	75	Coagulation, Clarification, Disinfection, Membrane Filtration	Conventional Surface Water Treatment	80 - 100 MGY	River discharge (NPDES/SDS MN0003247)	Yes
Fridley Filtration Plant	1927	135	Coagulation, Clarification, Disinfection, Granular media filtration	Conventional Surface Water Treatment	none	N/A	Yes
Fridley Softening Plant	1940	135	Chemical Addition, Coagulation Clarification	Lime Softening and Recarbonation	None (Sent to Dewatering or Lagoons)	Dewatering and Lagoons	N/A
Dewatering Plant (Residuals treatment)	1973 / 2010	Solids from 120 – 135 MGD treatment	Thickening, Filtration (filter press)	Dewatering	40,000 tons dry solids	Farm application of Agricultural Liming Material	N/A
Lagoon Overflow Treatment Plant	1995	1.2	Chemical Addition	pH Adjustment	20 – 40 MGY	River discharge (NPDES/SDS MN0003247)	N/A
TOTALS	NA	135	NA	NA	100 – 140 MGY, 40,000 Tons Dry Solids	NA	NA

Table 5 – Storage Capacity (2015)

Structure Name	Type of Storage Structure	Year Constructed	Primary Material	Storage Capacity (MG)
Columbia Heights Finished Water Reservoir	Ground Storage	1913	Concrete	26.4
Fridley Finished Water Reservoir	Ground Storage	1927	Concrete	10.9
Fridley Finished Water Reservoir	Ground Storage	1952	Concrete	10.4
Hilltop Finished Water Reservoir	Ground Storage	1952	Concrete	16.8
Hilltop Finished Water Reservoir	Ground Storage	1954	Concrete	16.3
Columbia Heights Finished Water Reservoir	Ground Storage	1978	Concrete	9.8
Hilltop Finished Water Reservoir	Ground Storage	2001	Concrete	16.8
Hilltop Finished Water Reservoir	Ground Storage	2001	Concrete	16.8
Total	NA	NA	NA	124.2

C. WATER SOURCES

The Mississippi River is the single source of supply for the potable water system owned and operated by WTDS. Two intake structures are located adjacent to the river at the Fridley treatment facility. The main intakes are at Pump Station No. 5, which has 10 pumps. Four of the pumps have a capacity rated at 30 Million Gallons per Day (MGD), an additional four pumps have a capacity rated at 20 MGD, and two pumps with capacities of 19 MGD and 6 MGD. The total capacity is 219 MGD and the firm capacity[1] is 189 MGD.

WTDS does not have an interconnection in-place that can supply the requisite volume of water to meet daily demands. In addition, WTDS does not own or operate drinking water supply wells.

Conjunctive Use of Surface and Ground Waters

In 1987, the U.S. Geological Survey (USGS) in cooperation with the City of Minneapolis initiated a study to evaluate groundwater in the region as a potential alternate or supplemental source to the Mississippi River. The study examined the effects of groundwater withdrawals on the local aquifer and the Mississippi River near the plant. The Water-Resources Investigations Report 90-4165 (1990) describes the construction, calibration and application of a numerical groundwater flow model that simulates the flow dynamics of the water bearing formations within the study area including the St. Peter and Prairie du Chien/Jordan aquifer. The study suggests that contaminated groundwater could migrate towards certain depressions in the potentiometric surfaces of the St. Peter and ultimately the Prairie du Chien/Jordan aquifer. The presence of the bedrock valley within the region and discontinuities in the upper-drift confining unit create the potential for the downward movement of contaminants from the surficial sands and gravel deposits to the underlying aquifers. The risk of contamination has drawn concern by WTDS staff for potentially using groundwater in close proximity of the Fridley facility to augment or intermittently replace the current source water.

WTDS commissioned a study in 2013 to better understand the viability and cost of a groundwater supply strategy that could meet the average daily demand of the City on an intermittent basis and/or augment the current surface water supply source. The aspects of the study were specific to the following:

- Well-field Location, Scale and Yield Potential
- Groundwater Quality and Contaminant Migration
- Treatment
- Water Infrastructure (e.g. pipeline improvements)

The results of the study were outlined in the August 9, 2013 report prepared by Barr Engineering (Barr). The report brought forth a total of seven conceptual design alternatives which were identified by Barr and WTDS staff as those that meet the aforementioned objectives, and integrate well with current plant operations and WTDS infrastructure. WTDS staff has discussed the specifics of the report internally, but have elected not to pursue subsequent studies and engineering support services at this time (2016). Project prioritization and condition assessment program work has resulted to in the assignment of a “low” priority ranking for the groundwater supply initiative. Certain strategic projects have outweighed the tangential initiative for a groundwater water supply, groundwater treatment and distribution system.

Vulnerability Assessment

The findings and conclusions of the 2016 Vulnerability Assessment (VA) qualify the source water (Mississippi River) to be “low” in the risk ranking scheme which essentially lessens the need for source water mitigation measures or source water contingency action strategies to supplement or replace the Mississippi River as the source of the potable water system. The VA evaluated risk to the source water relative to both contamination and drought while accounting for the mitigation measures and contingency actions already in place. The evaluation indicated that a source water contamination or drought event would either have very low consequences or is very unlikely to occur. It was concluded that additional investment in source water mitigation measures or contingency action strategies to supplement or replace the source would have little to no risk reduction benefits. Although WTDS staff will continue to have groundwater related conversations, it is not likely that further development of the groundwater supply concepts will move forward within the next few years

Well-Fields

Within the City of Minneapolis boundaries, there are no high-capacity wells that could be hooked up to the City's water supply system in the event of a water emergency. Even if such wells existed, the connection of high pressure, untreated, and un-softened water into watermains would likely cause numerous water quality and pressure-related problems.

The Joint Water Commission (JWC), a wholesale customer to the east of Minneapolis comprised of Crystal, Golden Valley and New Hope conducted a groundwater source assessment in 2003. This study concluded that within the JWC service area, up to 21 MGD of groundwater could be pumped from the Prairie du Chien/Jordan aquifer. As of the date of this WSP, It is understood that the JWC has commissioned at least one water supply well contingency supply purposes.

Table 6 – Water Sources and Status

Resource Type (Groundwater, Surface water, Interconnection)	Resource Name	MN Unique Well # or Intake ID	Year Installed	Capacity (MGD)	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)
Surface Water	Mississippi River	Pump Station 5	1927	219	N/A	Active	Yes

Limits on Emergency Interconnections

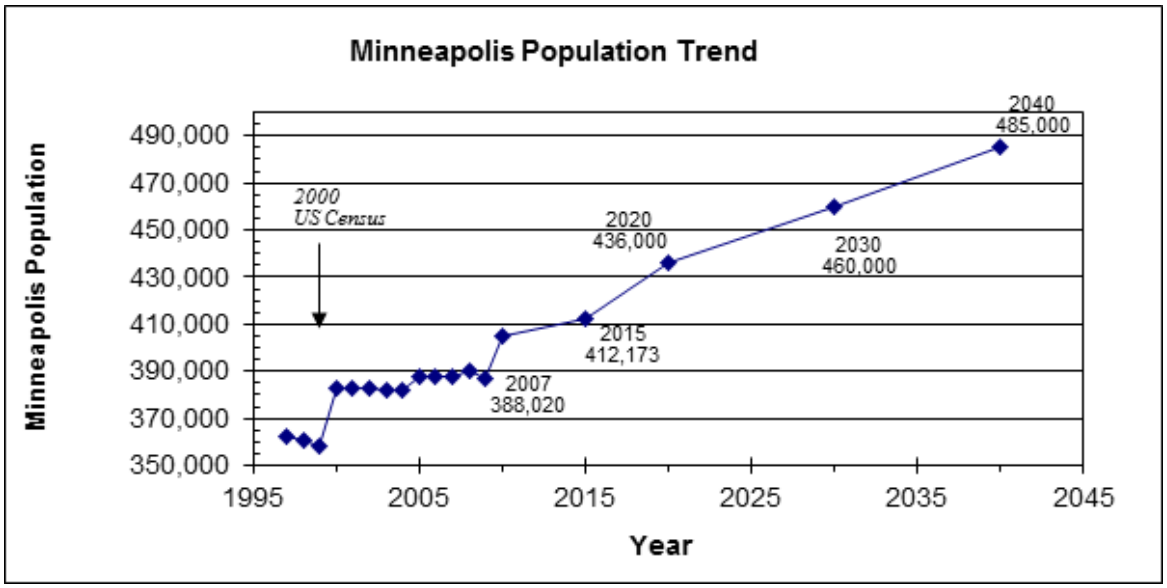
An 12 inch interconnection was constructed opportunistically with Saint Paul Regional Water Services in 2010 with the Light Rail Construction project as a contingency should water loss be experienced by Minneapolis and St. Paul customers within the immediate service area. The connection was not designed nor was it intended to service as viable alternative supply to the City of Minneapolis or the City of St. Paul in the event of a water shortage.

D. FUTURE DEMAND PROJECTIONS

Water Use Trends

The population within the City of Minneapolis peaked in the 1950's and experienced large losses from 1950 to 1980. From 1980 to 1990, the population of Minneapolis increased from 368,383 to 382,618, or 3.9% as taken from the US Census Bureau. Population projections through 2040 were provided by the Metropolitan Council. Figure 1 illustrates the population trend observed for the past twenty years as well as that projected by Metropolitan Council.

Figure 1 – Population Trends



While population has increased over the past 10 years the use of potable water has gone down. WTDS believes that this trend is attributable to an increase in awareness of water conservation by the consumer base as well as an increase in use of water conservation fixtures and appliances and/or retrofitting of these devices within current homes and businesses. Climate conditions are also of significant concern with respect to the amount of water consumed throughout the year. Warmer and dry years result in an increase in use and increased maximum day demands. Inversely, growing seasons that are witness to more wet-weather events yield significantly less water used.

Table 7 (below) was amended to provide a more accurate forecast of the population served and the corresponding water consumption for the City of Minneapolis and the wholesale customers through the year 2040. Population projection data was taken from Metropolitan Council's - Thrive MSP 2040 (July 2015) population projections. These figures were updated in April 2019 in concert with forecasts outlined within the 2040 Comprehensive Plan. This Plan Amendment reflects these changes.

Estimates of Gallons per Capita Day (GPCD) and Maximum Day (MD) were assigned based on historical records. A 10% reduction was applied to the Projected Total GPCD, Projected Average Daily Demand, and Projected Maximum Daily Demand for years 2025, 2030, and 2040 in recognition of the observed decline in water consumption.

Table 7 – Project Annual Water Demand

Year	Projected Total Population (Minneapolis)	Projected Population Served (Golden Valley)[1]	Projected Population Served (Crystal)[1]	Projected Population Served (New Hope)[1]	Projected Population Served (Edina)[1,2]	Projected Population Served (Bloomington)[1,3]	Projected Population Served (Hilltop)[1]	Projected Population Served (Columbia Heights)[1]	Total Projected Population Served	Projected Total Per Capita Water Demand (GPCD)	Projected Average Daily Demand (MGD)	Projected Maximum Daily Demand (MGD)[4]	Annual Water Demand (BG)
2016	422564	20,871	22,568	20,923	1955	19850	422	8224	517377	104	53.81	102	19.64
2017	425621	21,970	22,604	20,993	1979	19926	429	8274	521796	104	54.27	102	19.81
2018	428636	22,850	22,640	21,063	2005	20002	435	8323	525954	104	54.70	102	19.97
2019	431610	23,780	22,676	21,133	2033	20079	441	8371	530123	104	55.13	102	20.12
2020	436000	24,800	22,700	21,100	2061	20157	447	8419	535684	104	55.71	102	20.33
2021	437433	24,900	23,030	21,273	2092	20235	454	8467	537884	100	53.79	102	19.63
2022	440283	25,000	23,030	21,343	2124	20315	459	8515	541069	100	54.11	102	19.75
2023	443091	25,100	23,090	21,413	2157	20395	465	8562	544273	100	54.43	102	19.87
2024	445858	25,200	23,120	21,483	2192	20476	471	8609	547409	100	54.74	102	19.98
2025	448583	25,300	23,150	21,553	2228	20558	477	8655	550504	100	55.05	102	20.09
2030	460000	25,800	23,200	22,000	2433	20980	503	8882	563798	95	53.56	102	19.55
2040	485000	26,700	23,800	23,100	2954	21887	549	9307	593297	95	56.36	102	20.57

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

[1] = Projection of Population Served by Water Treatment and Distribution Services for Wholesale Customer
[2] = Morningside Neighborhood
[3] = Based on % of Total Annual Water used/metered by MPLS (24% of the Total Annual Water Budget is utilized by the City of Bloomington)
[4] = Based on Average Maximum Daily Demand (2006 – 2016)

PROJECTED WATER DEMANDS (TABLE 7 – AVERAGE DAILY AND MAXIMUM DAILY)

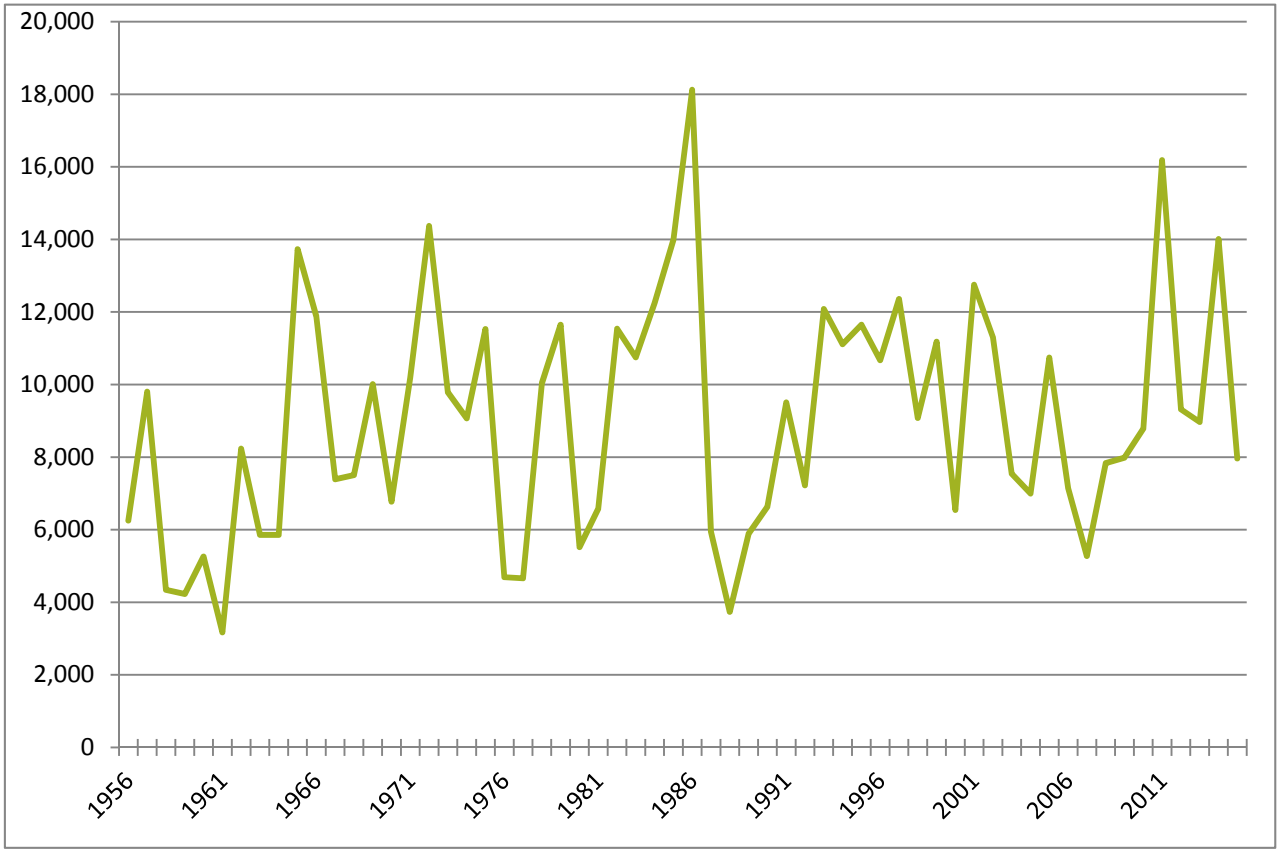
The Projected Water Demand metrics outlined above between the years of 2016 through 2026 are based on a 5-year running average of the actual water-use data made record of. The 5-year average for Total Per Capita, Average Daily, Maximum Daily, and Annual water demand was determined to be the best method to representing the future, or projected water-use data for WTDS for the next cycle and through 2040. Using the 5-year running average is also a conservative approach due to the "declining" trend observed in Table 2. Water-use projections assigned to years 2030 and 2040 account for the observed "decline" by an estimated 8 - 10% of the presently recorded values. The trend-lines for the water-use categories illustrated in Figure 5 further illustrate this assumption.

E. RESOURCE SUSTAINABILITY

The sole source of supply for WTDS is the Mississippi River. The river intakes are located in the pool created by the Upper St. Anthony Falls (USAF) Dam. The main intakes are approximately five (5) miles upstream from the USAF Dam. The flow characteristics of the river have been thoroughly documented in the U.S. Army Corps of Engineers' St. Paul District's Reports. WTDS has an estimated maximum 20-day supply of water, if the alternate intakes at Pump Station No. 4 could be used to withdraw from the pool of the USAF Dam.

The United States Geological Survey has maintained a river monitoring station near Anoka since 1931 (USGS Site ID 5288500). This station is downstream of the Coon Rapids Dam at approximate River Mile 865, about 6.5 miles upstream of the Minneapolis intakes. Figure 2 presents the average annual mean flow at that gage between the years 1956 through 2015. The average day demand of 61 MGD is equivalent to roughly 94 cubic feet per second (cfs) while a peak day demand of around 120 MGD is equivalent to 186 cfs.

Figure 2 – USGS River Gage 5288500 (Mississippi River at Anoka)

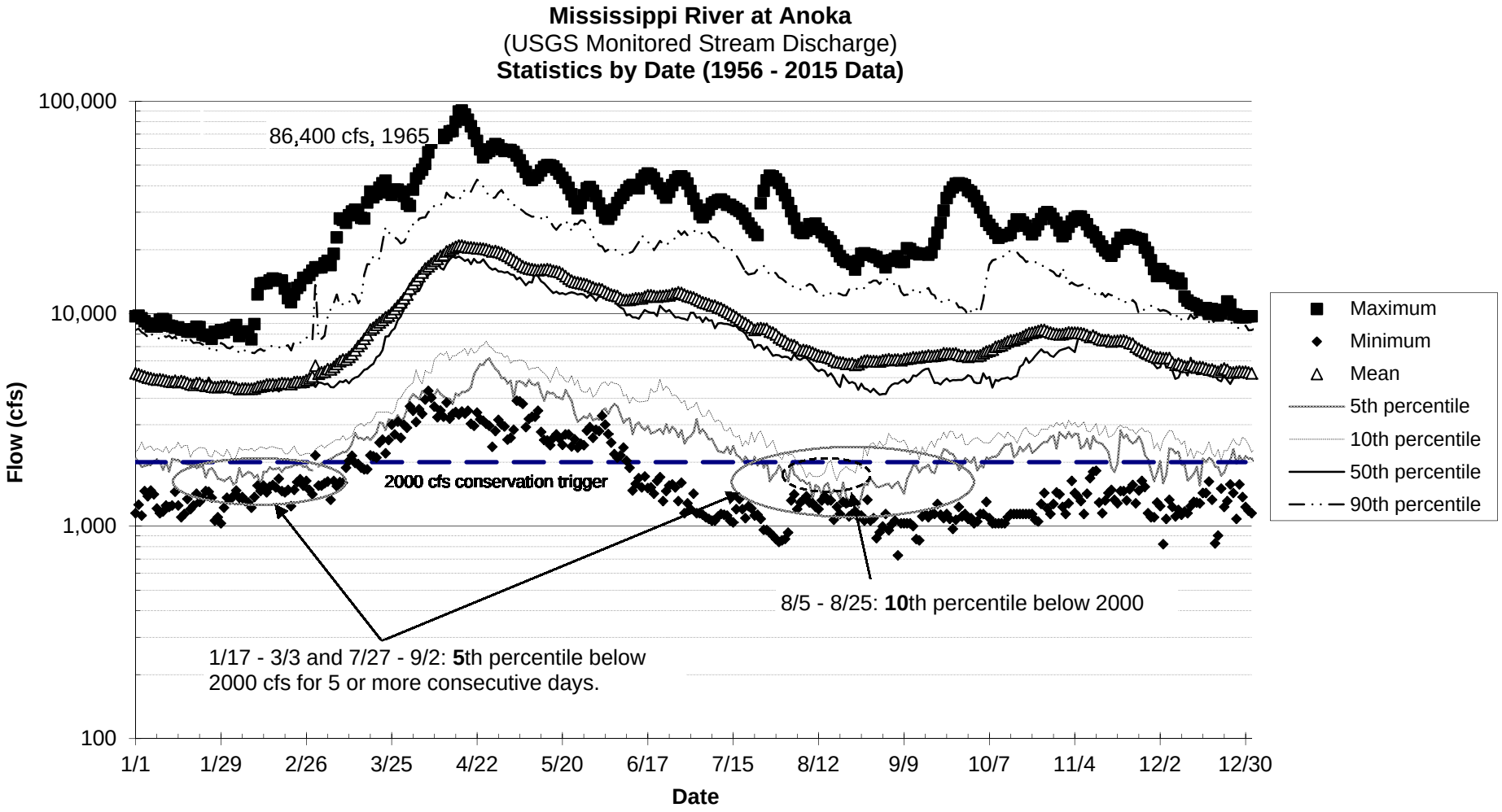


Legislation enacted in 1990 mandated the DNR to prepare a drought plan to provide a framework for preparing and responding to droughts and to minimize conflicts and negative impacts on Minnesota's natural resources and economy. Through this legislation the Minnesota Department of Natural Resources - Drought Plan (Plan) was developed. The Plan provides for response actions in a staged approach related to river elevations and respective flows. The plan was revised in April 2009.

The Plan identifies unique Mississippi River flows - measured by the USGS gage near Anoka - as triggers, or thresholds, for implementing emergency response actions for drought conditions. If the average daily flow at the USGS gage near Anoka is at or below 2000 cfs for five consecutive days a Drought Warning condition is declared.

Figure 3 illustrates the significant time periods for the 5th percentile and 10th percentile for the Mississippi River. The information used to generate the table was taken from the records maintained by USGS for River Gage Station 05288500. Information was available through Nov. 2015. These time periods reflect the percentile data drop below the 2000 cfs trigger for five or more days. It may be interpreted that once every 20 years (5th percentile), the Drought Warning condition would be triggered at some time between January 17th and March 3rd or between July 27th and September 2nd. Further, at a frequency of once every 10 years (10th percentile), the Drought Warning condition would be triggered at some time between August 5th and August 25th. However, the 10th percentile data never drops below the Restrictive Phase trigger of 2000 cfs. The 5th percentile value only drops below the Restrictive Phase trigger for six days between August 21st and 26th. Thus, the Mississippi River has ample flow to sustain WTDS's demands with minimal probability of reaching levels triggering drought response actions.

Figure 3 – Drought Response



As discussed in Section 1.0, subp. C, the VA evaluated risk to the source water relative to both contamination and drought while accounting for the mitigation measures and contingency actions already in place. The evaluation indicated that a source water contamination or drought event would either have "low" consequences or is "very unlikely" to occur. It was concluded that additional investment in source water mitigation measures or contingency action strategies to supplement or replace the source would have little to no risk reduction benefits.

However, the occurrence of a drought scenario, where regulatory bodies (e.g. DNR) may limit the amount of water WTDS could withdraw from the Mississippi River, would not reduce WTDS' ability to meet its water supply objectives. Drought scenarios which result in an insufficient volume of water in the river which would limit WTDS' ability to withdraw water is so unlikely that the relative risk associated with that scenario is "low" while any mitigation measures available or implementable would only partially mitigate the risk.

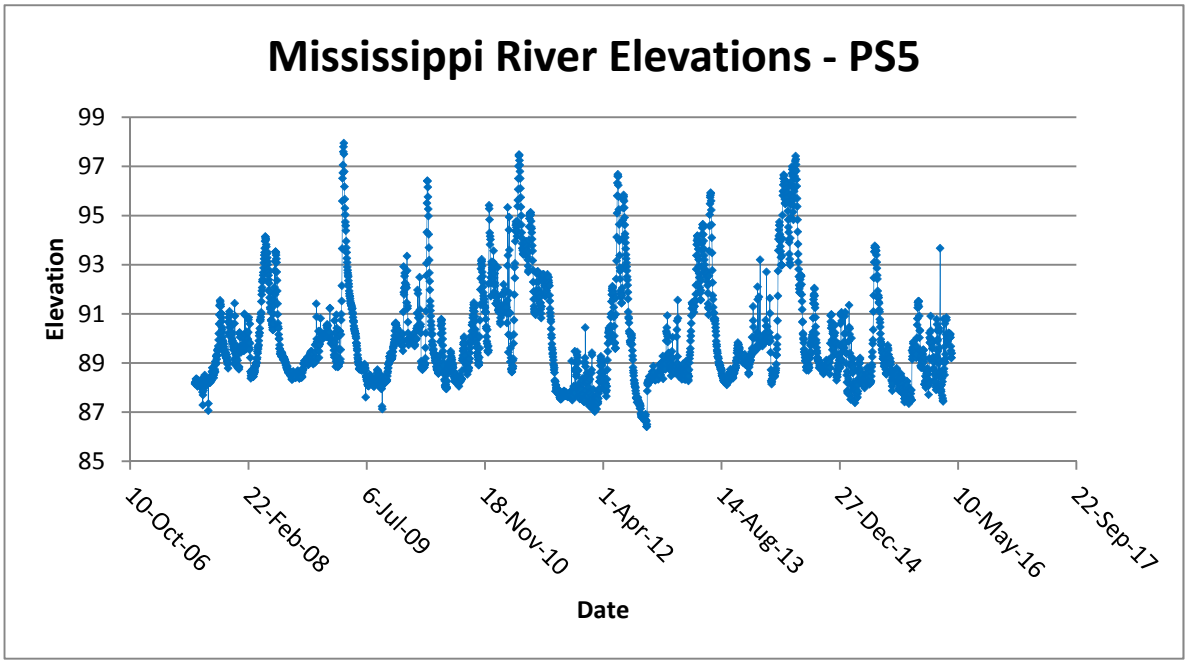
Table 8 – Information about Source Water Quality Monitoring

MN Unique Well # or Surface Water ID	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
Mississippi River	Source Water Intake	Routine MDH sampling Routine Water Utility Sampling	continuous hourly daily monthly quarterly annually	SCADA Grab Sampling

F. WATER LEVEL DATA

Water level monitoring is accomplished through automated methods by a gaging station located at Pump Station No. 5. River elevations are collected in real-time throughout the year and communicated to the SCADA system for monitoring and record keeping. WTDS staff downloads and records this information. This information is also supplied to the National Weather Service Agency and United Stated Geological Society. Figure 4 illustrates the water level data at the gaging station for the past 10 years. Elevation is per the City of Minneapolis datum.

Figure 4 – Water Level Data



A sample of the data used to generate Figure 4 is provided below as Table 9 – Water Level Monitoring. The gaging station, SCADA system, and data downloads serve as the water level monitoring plan employed by WTDS. A copy of the raw data is provided in Appendix 2 Water Level Monitoring Plan.

Table 9 – Water Level Data

Gage Station ID	Date	Location	Source Water	River Elevation (ft)
3371	1-Apr-16	PS05	Mississippi River	90.18
	2-Apr-16			90.04
	3-Apr-16			90.20
	4-Apr-16			90.02
	5-Apr-16			90.16
	6-Apr-16			90.14
	7-Apr-16			90.18
	8-Apr-16			90.05
	9-Apr-16			89.68
	10-Apr-16			89.50

Table 10 – Natural Resource Impacts

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
River	Mississippi River	Flow Volume and River Elevation	Monitoring	Flow Volumes and Elevations	Low River Level Pumping/Storage Strategies	SCADA Systems
River	Mississippi River	Groundwater Pumping	Monitoring	Flow Volumes and Elevations	Low River Level Pumping/Storage Strategies	SCADA Systems
River	Mississippi River	Contamination	Monitoring	Contaminated Surface Water	Shut-Down Intakes Deploy contaminant control measures	SCADA Water Quality Testing

There are no “known” or “documented” natural resources or any “high value” ecological resources that are or would be subject to impairment by the raw water intakes operated by WTDS. The 2015 Master Water Supply Plan prepared by the Metropolitan Council Environmental Services (MCES) was also reviewed in an attempt to identify any known or documented natural resources or system vulnerabilities that should be taken into consideration. The results of this plan review identified the Mississippi River itself as the only natural resource of significance.

WTDS maintains that the raw water withdrawals from the river, in addition to the return or discharge of dewatering process water back to the river is not harmful to this resource. The raw water withdrawal volumes are sub-fractional compared to the total flow volume available in the river throughout the year. The flow volume and respective elevation of the river is monitored throughout the year by WTDS. These values are compared with certain benchmarks that were established previously and recorded historically as “critical flows” that are necessary to support the potable water supply system. This information along with the requisite operational protocols is captured with the Emergency Water Supply Plan.

The discharge of dewatering process water is closely monitored for pH and total suspended solids in order to comply with the National Pollutant Discharge Elimination System (NPDES) permit provisions imposed by the MPCA.

Table 11 – Source Water Protection Plan

Plan Type	Status	Date Adopted	Date for Update
Source Water Protection Plan	Completed	March 2009	March 2019

The Source Water Protection Plan (SWPP) was prepared in recognition of the 1996 Amendment to the Federal Safe Drinking Water Act which requires the delegated state agency to complete a Source Water Assessment (SWA) of a public water system. The SWA is intended to inform the users of a public water supply system of the source of their drinking water, the susceptibility of the source water to contamination, potential contaminants of concern to the source water intakes and, to the extent practical, the sources of potential contaminants of concern.

The SWA for the City of Minneapolis was prepared collaboratively with the Minnesota Department of Health (MDH) through a Clean Water Partnership Grant issued by the MPCA. This document was utilized for the development of the current SWPP. The next plan update is scheduled for March 2019.

G. CAPITAL IMPROVEMENT PLAN (CIP)

Water utility infrastructure that is owned and operated by WTDS including water treatment plants, pumping facilities, and distribution piping are 60 to 150 years old. Various projects are in the planning, design, and implementation phases in order to sustain, as well as improve, system operations. The Capital Improvement Plan (CIP) is the road map by which projects are identified, funded, and implemented. A copy of the CIP is provided in Appendix 4 – Capital Improvement Plan. Table 12 provides a brief summary of projects that are undertaken throughout the year and those being considered for implementation within the next 20 years.

Table 12 – Adequacy of Water Supply System

System Component	Planned action	Anticipated Construction Year	Notes
Intakes	Repair/Replacement: Lowering of suction wells on raw water intake pumps	2020	Tentative: conceptual plan only as of 2016.
Water Storage Facilities	No action planned - adequate		
Water Treatment Facilities • Ongoing rehabilitation and upgrades at all plants and pump stations. • Fridley Filter Rehabilitation • Recarbonation system	Repair/Replacement	• Annually, • 2016 – 2020, • 2016 – 2018	
Distribution Systems (pipes, valves, etc.)	Repair/Replacement Expansion/Addition Cleaning and Lining Structural Lining	Annually	
Pressure Zones	No action planned - adequate		
Well-Field	Groundwater Augmentation	TBD	Concept Level Planning

Table 13 – Proposed Future Installations/Sources

For the purpose of this report, WTDS has identified the following proposed/future source water alternatives.

Source	Installation Location (approximate)	Resource Name	Proposed Pumping Capacity (gpm)	Planned Installation Year	Planned Partnerships
Groundwater	Fridley Minneapolis	TBD	TBD	TBD	None
Interconnection	TBD	TBD	TBD	TBD	St. Paul Regional Water

These source water strategies are intended to serve as a supplement to the existing Mississippi River source water supply. Groundwater, through well-field appropriations, and treated water through an interconnection with the City of St. Paul are to augment current operations and/or be utilized for emergency purposes. Both strategies are conceptual in nature and have not undergone the requisite engineering and planning as of the date of this WSP.

Water Source Alternatives

Do you anticipate the need for alternative water sources in the next 10 years?

__ Yes X No

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	Minneapolis Fridley	TBD	TBD	TBD	Augment/ Emergency Response	Cost Groundwater Quality
Interconnection to another supplier	City of St. Paul	TBD	TBD	St. Paul	Emergency Response	Cost Water Chemistry Pressure

As discussed above, WTDS does not anticipate the need for an alternative water source to sustain current and projected demands on the water system. The strategies listed in Table 14 are conceptual source alternatives to augment the current surface water supply and/or to provide an intermittent emergency supply should the primary source be temporarily unavailable. It is also unknown at this point as to the % or volume of water needed from an alternative source to sustain the demand. These fields are listed as To Be Determined (TBD)

2.0 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 SWPP plan. 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, as well as a component of, an all-hazard emergency operations plan referred to herein as the Emergency Response Plan (ERP). Municipalities that already have written procedures dealing with water emergencies should review the following information and update existing procedures to address these water supply protection measures.

A. FEDERAL EMERGENCY RESPONSE PLAN

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

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

If yes, what was the date it was certified? September 26, 2003

Table 15 – Emergency Preparedness Plan Contact Information

Emergency Response Plan	Contact Person	Contact Number
Emergency Response Lead	Annika Bankston Superintendent – Water Plant Operations	612-661-4975 612-581-0416 (cell)
Alternate Emergency Response Lead	George Kraynick Supervisor	612-661-4904 or 612-916-0546 (cell)
Emergency Response Plan Certification Date	February 2017	

B. OPERATIONAL CONTINGENCY PLAN

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

WTDS operates a water treatment plant maintenance facility as well as a distribution services maintenance division in support of water treatment operations and water distribution. Each facility is fully staffed with the requisite skilled laborers and resources necessary to respond to operational issues (i.e. electrical, mechanical, process) or failures that require immediate attention.

The water treatment plant maintenance shop continuously services, repairs, and replaces old equipment and instrumentation to ensure proper operation. This same group also handles any/all facilities and building maintenance required to sustain plant operations. The distribution services division administers a preventive maintenance program which includes exercising valves, flushing hydrants, performing leak detection investigations,

and cleaning and lining watermain to sustain water distribution to the local market and whole sale customers. Both facilities maintain and keep inventory of the tools and supplies necessary for performance of any/all response action work needed. In addition to the above, a fully staffed meter shop maintains, repairs, and/or replaces – as determined necessary – the water meters within the City of Minneapolis.

Due largely to the on-going and sometimes overwhelming effort of maintaining water treatment and distribution services systems and infrastructure, WTDS retains the services of certain outside contractors and suppliers. These firms are utilized for support to the maintenance service staff on a variety of construction projects with varying degrees of skills and complexities. WTDS has been able to develop strong working relationships with these firms for the purposes of immediate response action work. These contractors are called-upon in emergency situations to supplement WTDS forces in dealing with large scale issues or complex problems. A list of the firms is maintained at each of the respective maintenance facilities.

C. EMERGENCY RESPONSE PROCEDURES

Water suppliers must meet the requirements of MN Rules 4720.5280. Accordingly, the 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 SWPP contingency plan.

The ERP serves as an operational document for WTDS for response action work and water appropriation and delivery contingencies. The document was prepared in accordance with the provisions of MN Rule 4720.5280. WTDS is in the process of updating this document with the expectation to have it certified and ready for council adoption by February 2017.

Emergency Telephone List

The Emergency Telephone List is provided in Appendix 5. The list will be reviewed and updated annually to reflect any/all staff changes or re-assignments of responsibilities.

Current Water Sources and Service Area

Do records and maps exist? √ Yes ☐ No

WTDS maintains a geographic information system (GIS) database that encompasses the entire water utility serving Minneapolis and the points of service of the aforementioned wholesale customers. The GIS database and system tools are accessible both at the water treatment facility and distribution services offices as well as remotely through approved mobile devices. In addition to the GIS database, water utility as-built documents and intersection cards are maintained within the archives of the Fridley facility and distribution services offices respectively. The drawings help to facilitate project work within the City or as needed to supplement design and development work on engineering projects.

The mapping tools within the GIS system provide quick and easy access to the layout and make-up of the distribution system. These tools are used on a daily basis for operation and maintenance activities as well as for planning and design of water improvements projects. Intersection cards are also available for viewing through the mapping tool.

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

√ Yes ☐ No

As discussed above, water utility staff has the ability to access all the necessary information remotely through approved mobile devices or through designated GIS work stations. Field crews are now equipped with mobile devices that allow fast and easy access to the GIS database and mapping tools. The GIS system is maintained by trained professionals who update the database on a daily basis so the information is accurate and in real-time when crews attempt to access the files for work related purposes.

Does the appropriate staff know where the materials are located?

√ Yes ☐ No

Training is provided by WTDS on the use of the mobile devices and functionality of the GIS system for accessing information and interpreting the data for work related activities. Reproductions of the water utility as-builts are also an option, but are seldom used.

D. PROCEDURE FOR AUGMENTING WATER SUPPLIES

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 ST.PAUL	2000 GPM	NONE	AS NEEDED

GPM – Gallons per minute MGD – million gallons per day

As commented on previously, the interconnection with the City of St. Paul is not viewed or managed by WTDS as an alternative source of water for the purpose of emergency supply or augmentation. This infrastructure was added opportunistically with the light rail transit project for local fire suppression and/or as a contingency water supply for the immediate area.

Table 17 – Utilizing surface water as an alternative source

The Mississippi River is the primary source water for the City of Minneapolis' potable water supply system.

Surface Water Source Name	Capacity	Treatment Needs	Note Any Limitations On Use
Mississippi River	See Section 1.B	See Section 1.B	None

E. ALLOCATION AND DEMAND REDUCTION PROCEDURES

Demand reduction procedures are prudent to address the sudden loss of water due to line breaks, power failures, sabotage, etc. or a gradual decrease in water supply. During periods of limited water supply public water suppliers are required to allocate water based on the priorities established in Minnesota Statutes 103G.261 listed below.

Water Use Priorities (Minnesota Statutes 103G.261)

First Priority. Domestic water supply, excluding industrial and commercial uses of municipal water supply, and use for power production that meets contingency requirements.

NOTE: Domestic use is defined (MN Rules 6115.0630, Subp. 9), as use for general household purposes for human needs such as cooking, cleaning, drinking, washing, and waste disposal, and uses for on-farm livestock watering excluding commercial livestock operations which use more than 10,000 gallons per day or one million gallons per year.

Second Priority. Water uses involving consumption of less than 10,000 gallons per day.

Third Priority. Agricultural irrigation and processing of agricultural products.

Fourth Priority. Power production in excess of the use provided for in the contingency plan under first priority.

Fifth Priority. Uses, other than agricultural irrigation, processing of agricultural products, and power production.

Sixth Priority. Non-essential uses. These uses are defined by Minnesota Statutes 103G.291 as lawn sprinkling, vehicle washing, golf course and park irrigation, and other non-essential uses.

The values for Average Daily Demand provided in Table 18 were derived from the usage data recorded for the 2015 reporting year. The totals for the categories listed were observed to be within 4% of the 5-year average in each category indicating that 2015 was a reasonably representative year for water consumption. Prioritization of the respective categories was based on the above Water Use Priorities statute. The Short-Term Emergency Demand Reduction Potential values are based on the Average Daily Demand (summer) less the base-line measurement (winter).

Table 18 – Water Use Priorities

Customer Category	Allocation Priority	Average Daily Demand (MGD)	Short-Term Emergency Demand Reduction Potential (MGD)
Residential	1A	20.30	2.7
Institutional (Hospitals, Nursing Homes)	1B		
Industrial	2	7.10	0.10
Commercial	3	7.10	1.40
Wholesale	4	10.80	8.10
Irrigation	5	0.02	0.00
Un-metered/Non Revenue (16.50% of Avg. Daily Demand)		8.90	
TOTAL		54.22	12.30

MGD – Million Gallons per Day

Table 19 – Emergency Demand Reduction Conditions - Triggers and Actions

	Trigger(s)	Action(s)
Stage 1 (Mild)	Informed by State as being in a "Drought Watch" phase in accordance with the Statewide Drought Plan.	Voluntary conservation actions requested of users which may include reducing or eliminating sprinkling, or to reduce residential use (minimize bath use, reduce shower length, wash only full loads of clothes and dishes, etc.)
Stage 2 (Moderate)	Informed by State as being in a "Drought Warning" phase in accordance with the Statewide Drought Plan. When it is anticipated that demand will exceed 100% of available *firm* treatment capacity.	Odd-even watering ban. (In addition to Stage 1 actions).
Stage 3 (Severe)	Informed by State as being in a "Restrictive" phase in accordance with the Statewide Drought Plan. When it is anticipated that demand will exceed 100% of *actual* available treatment capacity and storage reserves.	Total sprinkling ban, car-washing prohibited. Residential users encouraged to use water for only essential domestic purposes (drinking, cooking, basic sanitation).
Critical Water Deficiency (M.S. 103G.291)	Informed by State as being in an "Emergency" phase in accordance with the Statewide Drought Plan. Executive Order by Governor. Severe contamination event.	Eliminate 6th priority use and constrain 2nd through 5th priority water allocation.

Note: The potential for water availability problems during the onset of a drought are almost impossible to predict. Significant increases in demand should be balanced with preventative measures to conserve supplies in the event of prolonged drought conditions.

The triggers outlined in Table 19 are those operational strategies that are employed by WTDS to reduce water demand during seasonally high usage or unscheduled interruptions. Table 19 describes the actions associated with each trigger, dependent upon the severity of a given emergency situation.

Notification Procedures

Table 20 – Plan to Inform Customers Regarding Conservation Requests, Water Use Restrictions, and Suspensions

Notification Trigger(s)	Methods	Update Frequency	Partners
Short-term demand reduction declared (< 1 year)	• Website • Social media (e.g. Twitter, Facebook) • City News Letter • Direct customer mailing • Meeting with large water users (> 10% of total city use)	• Daily • Weekly • Monthly • Annually	None
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)	• Daily • Weekly • Monthly • Annually	None
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)	• Daily • Weekly • Monthly • Annually	None

F. 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 any/all corrective actions will be implemented.

Affected operations, communications, and enforcement staff must then be trained to rapidly implement those provisions during emergency conditions. A copy of the Municipal Critical Water Deficiency Ordinance is provided in Appendix 7.

The City of Minneapolis has ordinances in place that empower the Director of WTDS or the City Engineer to address critical water deficiencies and provide for penalties for non-compliance. Ordinance 509.1480 authorizes

Public Water Supply Appropriation During Deficiency.

Minnesota Statutes 103G.291, Subdivision 1.

Declaration and conservation.

(a) If the governor determines and declares by executive order that there is a critical water deficiency, public water supply authorities appropriating water must adopt and enforce water conservation restrictions within their jurisdiction that are consistent with rules adopted by the commissioner.

(b) The restrictions must limit lawn sprinkling, vehicle washing, golf course and park irrigation, and other nonessential uses, and have appropriate penalties for failure to comply with the restrictions.

the City Engineer or the appointed representative of the City Engineer the right to declare an emergency. The following are taken from the City Code of Ordinances:

509.960. Shut-off for public interest, misuse, waste or violation. Any violation of chapter 509 may cause water to be shut off. Water may also be shut off if the director of the waterworks determines that the use, misuse or waste of water adversely affects the health, safety or welfare of the public. No one shall turn water on or off without authority from the city. Whenever water is found on without authority, it may be immediately turned off without further notice. (98-Or-134, § 1, 11-13-98)

509.1470. Water use limited during emergency period. No person shall draw or use water from the city water mains or city waterworks system other than as permitted by the declaration of emergency during any period of emergency caused by shortage of water supply or lowering of water pressure in the water mains of the city. (77-Or-070, § 1, 4-7-77; 98-Or-135, § 38, 11-13-98)

509.1480. Declaration of emergency. The city engineer or the appointed representative of the city engineer shall declare the existence of such an emergency as and when it may become necessary, shall determine the period of such an emergency and the termination thereof, shall decide the daily hours of restriction, the method of restriction, and shall decide upon the proper notification to customers of such restrictions. (77-Or-070, § 2, 4-7-77; Pet. No. 251069, § 26, 12-15-89; 98-Or-135, § 39, 11-13-98)

509.1490. Administrative fee. For a first violation of the declaration of emergency, the occupant of the premises or the owner thereof will receive a warning of the offense. Subsequent violations of the declaration of emergency will result in a turnoff of the water supply to the premises. Written notice posted on the premises at the time of the violation will be considered sufficient notice prior to turnoff of the water supply. No water supply which has been turned off because of a violation of this article shall be turned on until twenty-five dollars ($25.00) has been paid to the Minneapolis waterworks division, together with the regular charge for turning off and on water service. The city engineer may, in the event of demonstrated economic hardship, waive a

portion of the twenty-five dollar ($25.00) administrative fee, but not exceeding fifteen dollars ($15.00). The violation may also be subject to the penalties in Chapter 1 of this Code. (77-Or-070, § 3, 4-7-77; 98-Or-135, § 40, 11-13-98)

In the event emergency repairs are necessary, the City also has authority to shut off water:

> **509.110. City not liable for water shortage; authority to shut off.** The city shall not be liable for any deficiency or failure in the supply of water to consumers, whether occasioned by shutting the water off for the purpose of making repairs or connections, or for any other cause whatever. In case of fire or alarm of fire, or in making repairs, or constructing new works, the superintendent of the waterworks may shut off the water at any time and keep it shut off so long as the superintendent shall deem necessary. (Code 1960, As Amend., § 600.100; Pet. No. 251069, § 11, 12-15-89)

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

Language from the ordinance is provided herein.

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:

Director of WTDS, City Engineer, or representative(s) thereof.

3.0 Water Conservation Plan

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

There are many incentives for conserving water; conservation:

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

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

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

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

PROGRESS SINCE 2006 - IS THIS YOUR COMMUNITY'S FIRST WATER SUPPLY PLAN? YES ☐ NO √

Outlined below in Table 21 are the objectives identified within the 2008 publication of the WSP.

Table 21 – Implementation of Previous Ten-year Conservation Plan

2008 Plan Commitments	Action Taken?
Metering	√ Yes ☐ No
Reducing Unaccounted Water	√ Yes ☐ No
Water Rates	√ Yes ☐ No
Regulation	√ Yes ☐ No
Educational and Information Programs	√ Yes ☐ No
Retrofitting Programs	√ Yes ☐ No

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

A description of each strategy adopted with the 2008 WSP, along with a discussion of the results of these efforts are provided below. A graphical illustration is also provided in Appendix 8 and Section 3.B (Figure 5) herein to show the declining trend in water consumption for the last ten years as well as the projected consumption for the next cycle. The declining trend is attributable to efforts expended both internally by WTDS resources and the consumer base for water conservation and/or the "wise use" of water.

Metering

WTDS meters essentially all of its customers including residential, commercial, industrial, public facilities, and temporary water permit holders. Extra efforts have been implemented recently in order to meter those points-of-use that were not previously metered either through retrofitting existing sites or requiring meters with newly permitted projects and operational changes. Water meters vary in size from 5/8-inch to 12-inch.

All of the water meters within the City were changed out between 1992 and 2000 as part of the implementation of the automated meter reading program. In 2008 WTDS rolled-out a program to test and document the performance of a select group of water meters based on customer type and years operation. The program is carried out annually and is designed to reduce unaccounted water at the points-of-use. The

results of the program thus far reveal that 25 years is a realistic life expectancy for a 5/8-inch to 1-inch meter. Commercial meters starting at 1-1/2-inch and larger require a 7-year maintenance program. Commercial meters beyond 7 years of service require recondition and/or replacement. The field testing required to accomplish this task is minimal as most of the meter assemblies of WTDS's commercial customers are not fitted with a meter bypass. Water services for newly permitted commercial and industrial customers are fitted with the proper meter bypass plumbing which allows for in-situ performance testing. The metering and subsequent billing programs promote wise use of water and contribute positively to water conservation.

Reducing Unaccounted Water

Unaccounted Water has averaged 15% to 19% over the previous five years. WTDS believes this finding is attributable to a combination both permitted and non-permitted activities including distribution system flushing, private and public fire-flow testing, construction water for dust construction and street sweeping, drinking fountains and irrigation systems, and other non-essential uses. Water volumes lost as a result of seasonal watermain breaks and system failures can also be significant and will influence unaccounted water tabulated at the end of the reporting year.

Through the development and roll-out of certain administrative and operational programs over the past few years, WTDS has been able to reduce unaccounted water. The programs include leak investigations and corrective actions, water audits, adopting new technologies and strategies for metering at the intakes and points of use. WTDS has a full-time leak investigator on staff. If a leak is observed on a City watermain actions are taken as quickly as possible to address the issue. If the leak is determined to be on a private service line, the consumer is notified by mail that the leak must be repaired by no later than 15 calendar days from the date of the letter. If the leak is not repaired during this time, WTDS will take the necessary actions to repair the service and charge the customer. There are approximately 40 – 50 water main breaks (on the 1,000 miles of public main) each year and approximately 300 private service line leaks. Most leaks (both public and private) are identified by the following means:

- Residents experiencing low water pressure / volume.
- Residents noticing water bubbling up out of the ground.
- Residents noticing rumbling noise in their domestic water piping when they are not using any water.
- Workers from other Public Works divisions noticing water running in a storm drain or catch basin during dry weather.

In 2015 WTDS commissioned a leak detection survey to ascertain the integrity of the water distribution system. The focus of the study resided with pipe sizes of 4 inches through 12 inches in diameter and private services ranging between 5/8-inch to 1-1/2-inch in diameter. A total of 874 miles of pipe were surveyed. The results of the study revealed a total of 31 leaks among hydrants, valve packing, and private services. An estimated 365 gallons per day was reported as being lost as a result of these leaks. Since completing the study, all of the necessary corrective actions have been implemented to address these issues. WTDS is confident that for the next cycle, a reduction to the *Unaccounted for Water* metric will be less than the 15% to 19% measured over the past five years.

Water Rates

Billing Frequency: Monthly

Volume included in base rate or service charge: None

Uniform rate: WTDS utilizes a Uniform Rate Structure for water usage

Water Rates Evaluated: Every year

Date of last rate change: Jan. 1, 2016

The volume-based water rates for direct customers are uniform. The 2016 rates for customers inside the City limits is $3.50/billing unit. A single billing unit equals 1000 cubic feet. The current rate for customers outside the City limits is $3.60/billing unit. There is a minimum charge of $3.50 even if no usage is measured. Wholesale rates to other public water suppliers vary per contract. A copy of the approved Water Rate Structure is provided in Appendix 9.

The combination of metering all customer accounts, along with a monthly billing cycle promotes wise use of water and contributes positively to the conservation efforts of this WSP. It is noteworthy to mention that monthly sewer charges are also based on water usage which further promotes wise use of water by the customer base.

Minneapolis Water Rates (Adopted by Council Resolution on January 1, 2016)

Year	Water Charge per Unit (per 100 cubic feet)	Water Minimum	Outside City Water	Water Tax (%)
2016/17	$3.50	$3.50	$3.60	7.75%

Meter Size	Monthly Minimum Charge	Fire Line Monthly Charge
5/8"	$3.00	--
¾"	$4.50	--
1"	$7.50	--
1-½"	$15.00	$2.50
2"	$24.00	$2.50
3"	$48.00	$3.33
4"	$75.00	$5.00
6"	$150.00	$10.00
8"	$240.00	$15.83
10"	$345.00	$22.92
12"	$990.00	$65.83

Regulation

As indicated in the section discussing Enforcement of Demand Reduction Procedures, the City of Minneapolis has ordinances in place for emergency water restrictions. The director of WTDS, the City Engineer or the appointed representative of either, has the flexibility in the method, timing, and duration of the restrictions applied. Regulatory actions in the form of fines and water shut-offs are implemented as deemed necessary by WTDS and the Water Advisory Board. A copy of the current ordinance is provided in Appendix 10

State and Federal Regulations (mandated)

The Minneapolis City Council enacts ordinances to regulate construction, maintenance, and remodeling so that the buildings where citizens live, work, and play will be safe. The City uses permits to make sure that the work is done in compliance with those ordinances. The City of Minneapolis enforces national and international codes adopted by the State of Minnesota. It is assumed the State codes include:

☒ Rainfall sensors on landscape irrigation systems. Minnesota Statute 103G.298 requires "All automatically operated landscape irrigation systems shall have furnished and installed technology that inhibits or interrupts operation of the landscape irrigation system during periods of sufficient moisture. The technology must be adjustable either by the end user or the professional practitioner of landscape irrigation services."

☒ Water Efficient Plumbing Fixtures. The 1992 Federal Energy Policy Act established manufacturing standards for water efficient plumbing fixtures, including toilets, urinals, faucets, and aerators.

Enforcement is handled by the Regulatory Services and Emergency Preparedness Division of the City Coordinator's office. Regulatory Services provides the investigation and enforcement of laws and ordinances pertaining building and housing code inspections from plan review through construction and system commissioning.

Education and Information Programs

All of WTDS's educational efforts and public outreach emphasize the inherent value of drinking water and the importance of preservation and conservation of this resource. Over the past 10 years the public outreach efforts include:

- Annual (May) distribution of Consumer Confidence Reports. Future reports will provide specific resources for customers to learn more about water conservation.
- Annual (January) notices of water billing rates are directly mailed to customers and will provide specific resources for customers to learn about water conservation.
- All customers receiving direct mailings from the Utility billing department receive a brochure prepared by the American Water Works Association entitled "Water Conservation at Home" which includes information on treating drinking water as a valuable resource and discusses how water is metered and used in the home and ways to reduce that use.
- The Water Division's web site on the City's internet site (http://www.ci.minneapolis.mn.us/water/) includes a page of "Water Conservation Resources" providing links to information on water saving tips, water efficient fixtures and use of rain barrels
- Tours given to students from grade-school through college age, educators, citizen groups, etc. on a regular basis emphasize the need to treat drinking water as a valuable resource.
- Media interviews are given as requested.
- Support by the Theater and Art Communities' advocacy of water. A 2007-08 example includes support of In the Heart of the Beast Mask and Puppet Theater's "Invigorate the Common Well" series.

The City of Minneapolis is committed to providing sustainable options for metro living. "Green" construction is a holistic approach which encompasses healthy air quality, sustainable building materials, conservation of water, energy efficiency and environmentally friendly landscaping. The City's website (http://www.ci.minneapolis.mn.us/mdr/GreenBuildingOptions_home.asp) provides residents and business owners many options for going "Green" which can help citizens protect the environment, conserve water, and often save money over the lifetime of the investment.

Retrofitting Programs

The City's Utility Billing maintains the following website: "Money Saving Tips: Ways to Reduce Your Utility Bill" http://www.ci.minneapolis.mn.us/utility-billing/saving.asp This page includes a direct link to the US EPA's "Water Sense" web site which includes a product listing of water-efficient devices.

The Minneapolis Development Review, responsible for City building permits, maintains a link on their website to a Green Building Options Checklist, http://www.ci.minneapolis.mn.us/mdr/docs/greenbuildchecklist.pdf, which includes recommendations and information on installation of water efficient fixtures and rain barrels. This checklist also gives links to other green building sites.

The "Water's Off" program contributes to the overall water conservation. The Water's Off event is held each spring with volunteers from Minneapolis/St. Cloud Plumbers Local 15 donating their time to repair plumbing and retrofit old fixtures for the low-income, elderly and disabled homeowners. Contractors donate the use of their service trucks and the material for all the necessary repairs and the work is completely free to homeowners who qualify through Minneapolis community action programs. These programs supply the Water's Off committee with the names of people who meet guidelines to ensure that the people needing the help will receive it.

A. TRIGGERS FOR ALLOCATION AND DEMAND REDUCTION ACTIONS

Table 22 – Short and Long-term Demand Reduction Conditions - Triggers and Actions

Objective	Triggers	Actions
Protect Surface Water Flows	Low stream flow conditions	Increase promotion of conservation measures
Short-term demand reduction (less than 1 year)	Extremely high seasonal water demand (more than double winter demand) Loss of treatment capacity State drought plan	Enforce the critical water deficiency ordinance to restrict or prohibit lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses.
Long-term demand reduction (>1 year)	Per capita demand increasing Total demand increase	Enforce water deficiency ordinance that is or can be quickly adopted to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. 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	As declared	As Stipulated by State Statue or DNR Drought Response Plan

B. CONSERVATION OBJECTIVES AND STRATEGIES

Objective 1: Reduce Unaccounted Water loss to Less than 10%

Is your ten-year average (2005-2014) unaccounted Water Use in Table 2 higher than 10%?

√ Yes ☐ No – The 10-year average is 14%

As discussed previously, WTDS has made significant strides and investments both financially and operationally to reduce Unaccounted (i.e. non-revenue) Water. WTDS utilizes the AWWA recommended Water Audit Software for additional tracking and assessment of non-revenue water within the system. The software provides WTDS with the proper accounting and auditing platform to measure the water produced (e.g.

appropriate, treated, distributed) to that metered or consumed at the points of use. It is WTDS's opinion that the next cycle will reveal a value of less than 10% for the ten-year average of unaccounted water.

What is your leak detection monitoring schedule?

WTDS has a full-time leak investigator on staff. The leaks reported or detected are investigated and repaired as soon as possible. Leak detection is handled on a daily/weekly basis throughout the year dependent upon available resources.

What is the date of your most recent water audit? November 30, 2015

Frequency of water audits: √ yearly ☐ other (as needed)

Leak detection and survey: ☐ every year ☐ every other year √ periodic (as needed)

Year last leak detection survey completed: November 2015

Metering

American Water Works Association (AWWA) recommends that every water supplier install meters to account for all water taken into its system for treatment and distribution, along with all water distributed to the customer's points-of-service. An effective metering program relies upon periodic performance testing, repair, and maintenance or replacement of meters. AWWA also recommends that water suppliers conduct regular water audits to ensure accountability. Some cities install separate meters for interior and exterior water use, but some research suggests that this may not result in water conservation.

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	76,421	76,421	N/A	N/A	25
Irrigation meters	973	973	N/A	N/A	25
Institutional (Wholesale)	6	13	N/A	2 years	7
Commercial	6,154	8,426	N/A	2 years	7
Industrial	132	208	N/A	2 years	7
Public Facilities (Government)	1,054	1,206	N/A	2 years	25
Other: Multiple Dwellings	14,868	14,954	N/A	2 years	25
TOTALS	99,608	101,778	100,869		

WTDS is also taking steps to digitize the metering program through the development and roll-out of the Advance Meter Infrastructure (AMI) program. The goal of the program is to have "real-time" monitoring data for residential, commercial, and industrial meters throughout the system. The system is designed to provide real-time data of water usage at the points of use and an indication of a failing or failed meter. AMI is expected to yield faster response times by WTDS crews with any needed repairs and replacements. This also provides WTDS with the opportunity of notifying customers in advance of the water utility bill of a leaking fixture or excessive water use that maybe unknown to the customer. The program is anticipated to be fully on-line by the year 2024.

Table 24 – Water Source Meters

Source water metering is handled at the Fridley Softening Plant. Differential pressure instrumentation was installed on the venturies in 2005 as part of a SCADA system upgrade to the softening plant. The instrumentation undergoes all manufacturer-recommended testing and preventative maintenance.

	Number of Meters	Meter testing schedule	Number of Automated Meter Readers	Average age/meter replacement schedule (years
River Intakes	4	Annually	4	As Needed

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

Residential water usage has been declining over the past several years from values as high as 71 GPCD (1998) to as low as 47 GPCD (2015). The declining trend is believed to be attributable to the success of the conservation programs and more cognizant use of water by the customer base. WTDS expects to be well below the objective of 75 GPCD for the next cycle.

Is your average 2010-2015 residential per capita water demand in Table 2 more than 75?

☐ Yes √ No

The lowest per capita value recorded for residential consumption was in 2015 at 47 GPCD. This is believed to be attributable to successful water conservation programs, education, and institution of water conserving devices (e.g. low flow shower heads, irrigation systems equipped with rain sensory devices, household plumbing) available within the market place.

What was your 2005 – 2014 ten-year average residential per capita water demand?

54 GPCD

Table 25 – Strategies and Timeframe to Reduce Residential Per Capita Demand

Although residential water usage is declining, the need for conservation practices and programs is still necessary and important. The following strategies are those currently employed by WTDS. It is proposed that these strategies remain current through the next cycle.

Strategy to reduce residential per capita demand	Timeframe for completing work
Revise city ordinances/codes to encourage or require water efficient landscaping.	Current/As Needed
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	Current
Make water system infrastructure improvements	Current/As Needed
Implement a notification system to inform customers when water availability conditions change.	Current
Identify supplemental Water Resources	10 years
Conduct audience-appropriate water conservation education and outreach.	Current
Automated (Real-time) Metering Instrumentation (AMI)	12 years

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

Over the past 10 years, with the exception of years 2007 (+1.02%) and 2012 (+4.86%), the annual water usage by these customers has declined on average of about 2.5%. Most recently by almost 8% between the water consumption measured in 2014 to that measured in 2015. Although it is difficult to predict future water usage, WTDS feels that this trend will continue over the next 10 year cycle which exceeds the plan objective.

It is also the opinion of WTDS staff that the above referenced decline in water consumption for this category of water customers is partially attributable to the institution and success of the grant program administered by MCES specific to large water users within the metropolitan area.

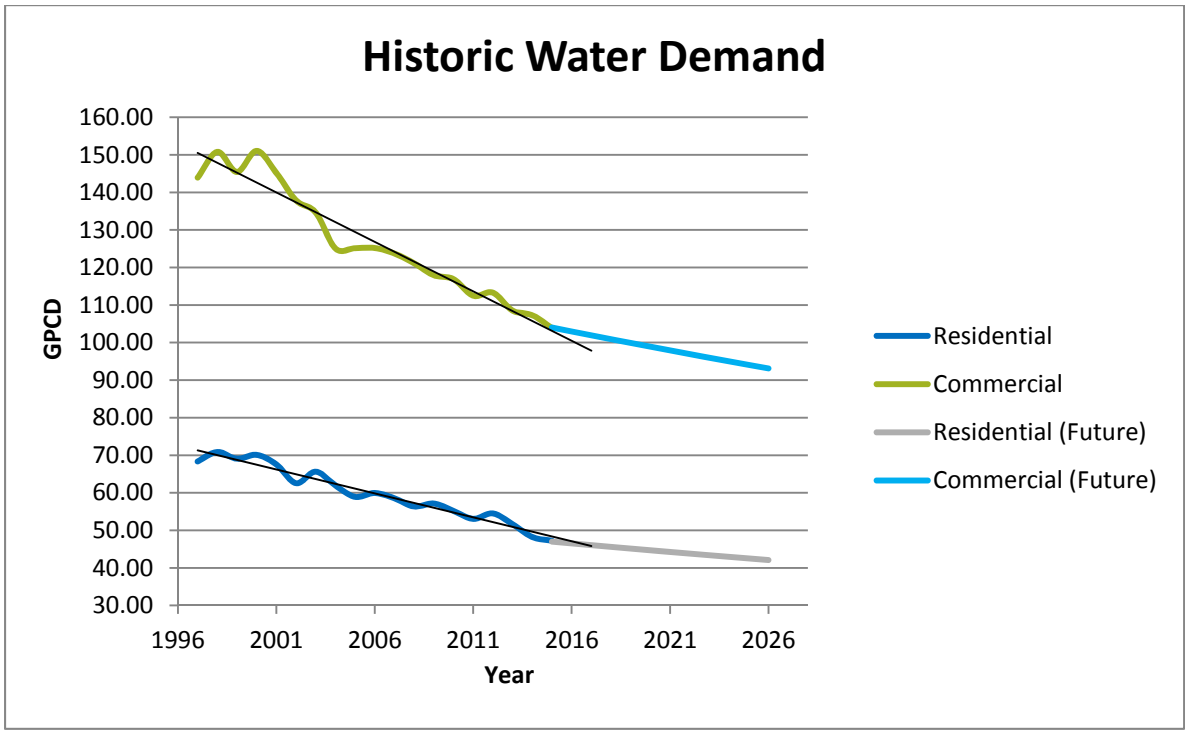
Table 26 – Strategies and Timeframe to Reduce Institutional, Commercial Industrial, and Agricultural and Non-revenue Use Demand

Strategy to reduce total business, industry, agricultural demand	Timeframe for completing work
Install enhanced meters capable of automated readings to detect spikes in consumption	12 years
Repair leaking system components (e.g., pipes, valves)	Current
Train employees how to conserve water	Current
Implement a notification system to inform non-residential customers when water availability conditions change.	10 years

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

It is evident that water conservation programs and practices are finding success in the larger effort to reduce the use of water. Through the institution of better metering practices and instrumentation, development and use of household and commercial water conservation devices and techniques, and improved commercial and industrial water processes, the water conservation programs are yielding significant success in reducing water consumption and minimizing the burden on appropriations and treatment. The "declining" water use trend-line depicted in Figure 5 is attributable to the development, roll-out, and implementation of the many private and governmental water conservation programs promoting wise-use of water and techniques introduced into the industry since the late 1980s and early 1990s. A declining trend in water use is estimated to continue when looking outward at the next 10-year cycle, but it is WTDS's opinion that this trend-line will be less sharp, and slightly more stable perhaps on the order of 1-2% rather than the 4-8% which was observed for the last 5 to 10 years.

Figure 5 – Historic Water Demand (GPCD)



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

Since 2003, the calculated Ratio of Average Maximum day to the Average Day result has not exceeded 2.0. WTDS does not anticipate that this value will exceed 2.6 based on the observed reduction is water usage.

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

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

1.78

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

The Uniform Rate Structure (URS) was developed in recognition of the statutory provisions outlined in MN 103G.291, subd. 4 which stipulates that a public water supplier serving more than 1,000 people must employ water-use demand reduction measures, including a conservation rate structure that encourages conservation. A copy of the URS is provided in Appendix 9.

In 2008 WTDS staff underwent a study and prepared a presentation for the DNR to highlight the results of WTDS's *critical metrics* calculations used by the DNR to assess the efficacy of a permit holder's water conservation program. The purpose of the presentation and subsequent discussion was to demonstrate the success WTDS is having through the institution of the URS and supplemental efforts (e.g. leak detection and metering) and to garner acceptance by the DNR for continuation of the same as it applies to the statutory requirements of this WSP.

The *critical metrics* referenced above include residential GPCD, Total GPCD, and Peak Demand. The findings of these analyses revealed that the City of Minneapolis is and has been historically below the respective thresholds established by the MnDNR for water use. The same findings are observed through 2015. Furthermore, the data for the previous 10-years suggests that a declining trend will continue into the next 10-year cycle and likely beyond this time frame.

Inclusive to the above critical metrics is the issue concerning the rates or fees employed by the City of Minneapolis compared to other water suppliers within the metropolitan area. The rates approved by the City of Minneapolis - Water Advisory Board are the highest within the metropolitan area. The unique costs associated with surface water treatment and distribution is much higher than that of water suppliers whose source is through groundwater appropriations. The higher-than-average cost provides the indirect benefit of conservation through more cognizant use of water by the customers and encouragement within the households and business to employ conservation strategies.

On these grounds, WTDS maintains that the URS and on-going conservation efforts satisfy the statutory requirements for water conservation associated with this WSP. These measures will continue to be employed and monitored each year through the next 10-yeat cycle.

Water Conservation Program

As defined herein, a Water Conservation Program is for the purpose of sustaining the current water Supply and to Reduce or Optimize the use of water. The programs established by WTDS in support of this initiative include leak detection and corrective action planning and implementation, periodic water audits, and education and outreach. Recent advancements in metering strategies and instrumentation have also contributed to water conservation through enhanced data analysis and prioritization of operation and maintenance related activities. On an economic scale, the higher than average fees and frequent (monthly) billing cycles also promotes more conscientious use of water by the customer base. It is through these strategies WTDS has found success in reducing “per capita” water demand and are witness to a declining trend in total annual water use.

Current Water Rates

A copy of the City of Minneapolis’ Fee Schedule is provided herein.

Frequency of billing: √ Monthly ☐ Bimonthly ☐ Quarterly ☐ Other:

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

Date of last rate change: Dec. 17, 2015

Table 27 – Rate structures for each customer category

Customer Category	Conservation Billing Strategies in Use	Conservation Neutral Billing Strategies in Use	Non-Conserving Billing Strategies in Use
Residential, Commercial, Institutional	Uniform	None	None

Objective 7: Additional strategies to Reduce Water Use

The Conservation Objectives outlined below are those that WTDS adopted in 2008 through approval of the WSP including Regulatory, Education and Outreach, and Retrofitting conservation measures where feasible. The City of Minneapolis is also is the process of updating the Comprehensive Plan in fulfillment of the City's obligations associated with the Land Use Planning Act. WTDS envisions that the City's Comprehensive Plan, once complete, will include discussion and/or policy in water conservation. More discussion with the Environmental Systems research team is expected to ensue.

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

√	Regulatory
√	Education and Outreach
√	Retrofitting Conservation Measures where applicable
√	Master Planning
√	Implement a Stormwater Management Program

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

The effort of tracking and measuring the success of the aforementioned objectives will be handled in the same fashion as that of the previous 10-year cycle which includes data management (e.g. integrity reviews and record keeping) and data assessments. The water-use metrics outlined in Section C – Conservation Objectives and Strategies including the maximum day demand to average day demand, total per capita demand, reduction of unaccounted for water, and others are tabulated and reviewed on a monthly, quarterly, and annual basis by WTDS staff. Reviews are performed to make note of any irregularities and/or other unique findings that differ from those recorded historically. Unique findings are further investigated and reported on.

C. REGULATION

Complete Table 29 by selecting which regulations are used to reduce demand and improve water efficiencies. Add additional rows as needed.

Table 29 – Regulations for Short-term Reductions in Demand and Long-term Improvements in Water Efficiencies

Regulations Utilized	When is it applied (in effect)?
Critical/Emergency Water Deficiency ordinance	√ 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)	√ Ongoing

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.

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

Water Use Targets	Outreach Methods	Partners
General Public	Education	MPLS Public Works

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

Education and Information Programs

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

Proposed Education Programs

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

Table 31 – Current and Proposed Education Programs

Education Methods	General summary of topics	#/Year	Frequency
Billing inserts or tips printed on the actual bill	Water Conservation and Methods	12	√ Ongoing
Consumer Confidence Reports	Water Quality and Water Conservation	1	√ Ongoing
Social media distribution (e.g., emails, Facebook, Twitter)	Water Conservation and Methods	6	√ Ongoing
Staff training	Water Conservation, Methods, and Non-Essential Water	12	√ Ongoing
Facility tours	Water appropriation, treatment, distribution	30(+/-)	√ Ongoing
Information kiosk at utility and public buildings	Water Quality and Water Conservation	Daily	√ Ongoing
Community Events	Water Conservation and Methods	1-2	√ Ongoing
Website (http://www.ci.minneapolis.mn.us/water/))	Water Conservation and Methods	Daily	√ Ongoing

4.0 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 address 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
Comprehensive planning that guides development in vulnerable drinking water supply management areas	TBD	TBD

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

Appendix 1 (Not Applicable)

Well Records and Maintenance Summaries

Appendix 2

Water Level Monitoring Plan

timestamp	PS05_04_IN_221_LI_VAL0
1/1/2015 0:00	91.05874634
1/1/2015 1:00	91.01125336
1/1/2015 2:00	90.95999908
1/1/2015 3:00	90.94374847
1/1/2015 4:00	90.8125
1/1/2015 5:00	90.68125153
1/1/2015 6:00	90.63124847
1/1/2015 7:00	90.66374969
1/1/2015 8:00	91.01000214
1/1/2015 9:00	91.00875092
1/1/2015 10:00	90.99250031
1/1/2015 11:00	90.94374847
1/1/2015 12:00	90.86000061
1/1/2015 13:00	90.84625244
1/1/2015 14:00	90.87875366
1/1/2015 15:00	91.02500153
1/1/2015 16:00	90.89499664
1/1/2015 17:00	90.92749786
1/1/2015 18:00	90.95999908
1/1/2015 19:00	90.95999908
1/1/2015 20:00	90.97750092
1/1/2015 21:00	90.99500275
1/1/2015 22:00	90.99375153
1/1/2015 23:00	91.00875092
1/2/2015 0:00	91.02625275
1/2/2015 1:00	91.04125214
1/2/2015 2:00	91.04249573
1/2/2015 3:00	91.05874634
1/2/2015 4:00	91.05874634
1/2/2015 5:00	91.04125214
1/2/2015 6:00	91.05750275
1/2/2015 7:00	91.09124756
1/2/2015 8:00	91.07499695
1/2/2015 9:00	91.04249573
1/2/2015 10:00	91.02625275
1/2/2015 11:00	91.01000214
1/2/2015 12:00	90.99375153
1/2/2015 13:00	91.01125336
1/2/2015 14:00	90.99500275
1/2/2015 15:00	90.99250031
1/2/2015 16:00	91.00875092
1/2/2015 17:00	91.02625275
1/2/2015 18:00	91.01125336
1/2/2015 19:00	91.01000214
1/2/2015 20:00	90.99375153
1/2/2015 21:00	90.97624969
1/2/2015 22:00	90.99250031
1/2/2015 23:00	90.97750092
1/3/2015 0:00	90.99375153
1/3/2015 1:00	91.01000214
1/3/2015 2:00	91.00749969

10/28/2016 10:00	90.21499634
10/28/2016 11:00	90.21624756
10/28/2016 12:00	90.18250275
10/28/2016 13:00	90.21624756

Appendix 3 (Not Applicable)

Water Level Graphs for Each Water Supply Well

Appendix 4

Capital Improvement Plan

Capital Budget Request - Public Works - Water

Summary: 2017 to 2021 Version: 4/6/16 - Submitted via COGNOS for CLIC

			values in $ 1000's							**Current 5 years**		
Priority	Project #	Description	prev. 5 years		2017	2018	2019	2020	2021	Beyond	Total requested		Total requested
#N/A	WTR 0R	Reimbursable Watermain Projects	10,000		2,000	2,000	2,000	2,000	2,000	2,000	10,000		22,000
2	WTR12	Water Distribution Improvements	30,900		7,250	7,350	7,450	7,550	7,650	7,750	37,250		75,900
		Revenue Funded	*30,900*		*7,250*	*7,350*	*7,450*	*7,550*	*7,650*	*7,750*			*75,900*
		Bond Funded											*-*
5	WTR18	Water Distribution Facility	8,500		7,500	7,500	-	-	-	-	15,000		23,500
		Revenue Funded	*3,000*										*3,000*
		Bond Funded	*5,500*		*7,500*	*7,500*							*20,500*
3	WTR23	Treatment Infrastructure Improvements	21,250		3,000	4,000	5,000	5,000	5,000	5,500	22,000		48,750
		Revenue Funded	*21,250*		*3,000*	*4,000*	*5,000*	*5,000*	*5,000*	*5,500*			*48,750*
		Bond Funded											*-*
1	WTR24	Fridley Filter Plant Rehabilitation	21,500		18,500	16,500	9,500	-	-	-	44,500		66,000
		Revenue Funded	*800*		*1,500*								*2,300*
		Bond Funded	*20,700*		*17,000*	*16,500*	*9,500*						*63,700*
	WTR25	Ground Water Supply	2,000		-	-	-	-	-	-	-		2,000
		Revenue Funded	*2,000*										*2,000*
		Bond Funded											*-*
4	WTR26	Recarbonation System Replacement	4,000		4,500	-	-	-	-	-	4,500		8,500
		Revenue Funded	*3,000*		*1,000*								*4,000*
		Bond Funded	*1,000*		*3,500*								*4,500*
7	WTR27	Automated Meter Infrastructure	250		2,620	700	1,800	1,700	-	-	6,820		7,070
		Revenue Funded	*250*										*250*
		Bond Funded			*2,620*	*700*	*1,800*	*1,700*					*6,820*
6	WTR28	Ultrafiltration Module Replacement	-		2,200	2,200	2,200	2,200	-	-	8,800		8,800
		Revenue Funded											*-*
		Bond Funded			*2,200*	*2,200*	*2,200*	*2,200*					*8,800*
8	WTR29	Columbia Heights Campus Upgrades	-		500	4,180	4,250	4,200	1,340	-	14,470		14,470
		Revenue Funded			*500*								*500*
		Bond Funded				*4,180*	*4,250*	*4,200*	*1,340*				*13,970*
		Total Capital program											
		Reimburseable Total	*10,000*		*2,000*	*2,000*	*2,000*	*2,000*	*2,000*	*2,000*	*10,000*		*22,000*
		Revenue Funded	*61,200*		*13,250*	*11,350*	*12,450*	*12,550*	*12,650*	*13,250*	*not*		*136,700*
		Bond Funded	*27,200*		*32,820*	*31,080*	*17,750*	*8,100*	*1,340*	*-*	*split*		*118,290*
		Total Capital program	**98,400**		**48,070**	**44,430**	**32,200**	**22,650**	**15,990**	**15,250**	######		**276,990**

Appendix 5

Emergency Telephone List

Attachment 3

Emergency Telephone List

Emergency Response Team	Name	Work Telephone	Alternate Telephone
Emergency Response Lead	Annika Bankston	612-661-4975	612-581-0416
Alternate Emergency Response Lead	George Kraynick	612-661-4923	412-268-0821
Water Operator	Steve Valtinson	612-661-4916	612-799-7612
Alternate Water Operator	Jim Forslund	612-661-4961	612-437-0421
Public Communications	George Kraynick	612-661-4923	412-268-0821

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	Emergency Management	612-596-0250	
National Guard	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
Mayor/Board Chair	Minneapolis Mayors Office	612-673-2100	
Fire Chief	General Information	612-673-2890	
Sheriff	Henn Cnty Sheriff's Office	612-348-3744	
Police Chief	General Information	612-673-5701	
Ambulance	911	911	
Hospital	HCMC	612-873-3000	
Doctor or Medical Facility	HCMC	612-873-3000	

State and Local Agencies	Name	Work Telephone	Alternate Telephone
MDH District Engineer	Engineering Services	651-201-5000	
MDH	Drinking Water Protection	651-201-4700	
State Testing Laboratory	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
MPCA	General Information	651-296-6300	1-800-657-3864
DNR Area Hydrologist	Kate Drewry	651-259-5753	
County Water Planner	Joe Settles	612-348-6157	

Utilities	Name	Work Telephone	Alternate Telephone
Electric Company	Xcel Energy (James Nash)	612-630-4187	612-201-4384
Gas Company	Centerpoint Energy (Casey Tollefson)	612-321-5502	612-321-5480
Telephone Company			
Gopher State One Call	Utility Locations	800-252-1166	651-454-0002
Highway Department			

Mutual Aid Agreements	Name	Work Telephone	Alternate Telephone
Neighboring Water System	St. Paul (Dave Wagner)		
Neighboring Water System	Golden Valley (Jeff Oliver)	763-593-8030	
Neighboring Water System	Crystal (Mark Ray)	763-531-1160	
Neighboring Water System	New Hope (Dave Lemke)	763-592-6762	Chris Long – 651-492-7747
Neighboring Water System	Edina (Chad Millner)	952-826-0318	
Neighboring Water System	Bloomington (City Utility Division)	952-563-8777	
Neighboring Water System	New Brighton (Craig Schlichting)	651-638-2100	
Emergency Water Connection			
Materials			

Technical/Contracted Services/Supplies	Name	Work Telephone	Alternate Telephone
MRWA Technical Services	MN Rural Water Association	800-367-6792	
Well Driller/Repair	Braun Intertec (Ray Huber)	952-995-2000	
Pump Repair	Water Treatment and Distribution Services	612-661-4955	
Electrician			
Plumber			
Backhoe			
Chemical Feed			
Meter Repair			
Generator			
Valves			
Pipe & Fittings			
Water Storage			
Laboratory			
Engineering firm			

Communications	Name	Work Telephone	Alternate Telephone
News Paper	Star Tribune	612-673-4414	
Radio Station			
School Superintendent	MPLS Public Schools	612-668-0000	
Property & Casualty Insurance			

Critical Water Users	Name	Work Telephone	Alternate Telephone
Hospital Critical Use:	HCMC	612-873-3000	
Nursing Home Critical Use:	HCMC	612-873-3000	
Public Shelter Critical Use:	HCMC	612-873-3000	

Appendix 6 (Not Applicable)

Cooperative Agreements for Emergency Services

Appendix 7

Municipal Critical Water Deficiency Ordinance

Art. VII. Notices and Turning Water Off, §§ 509.960--509.1050

509.960. Shut-off for public interest, misuse, waste or violation. Any violation of chapter 509 may cause water to be shut off. Water may also be shut off if the director of the waterworks determines that the use, misuse or waste of water adversely affects the health, safety or welfare of the public. No one shall turn water on or off without authority from the city. Whenever water is found on without authority, it may be immediately turned off without further notice. (98-Or-134, § 1, 11-13-98)

Art. XI. Sprinkling During Shortages, §§ 509.1470--509.1490

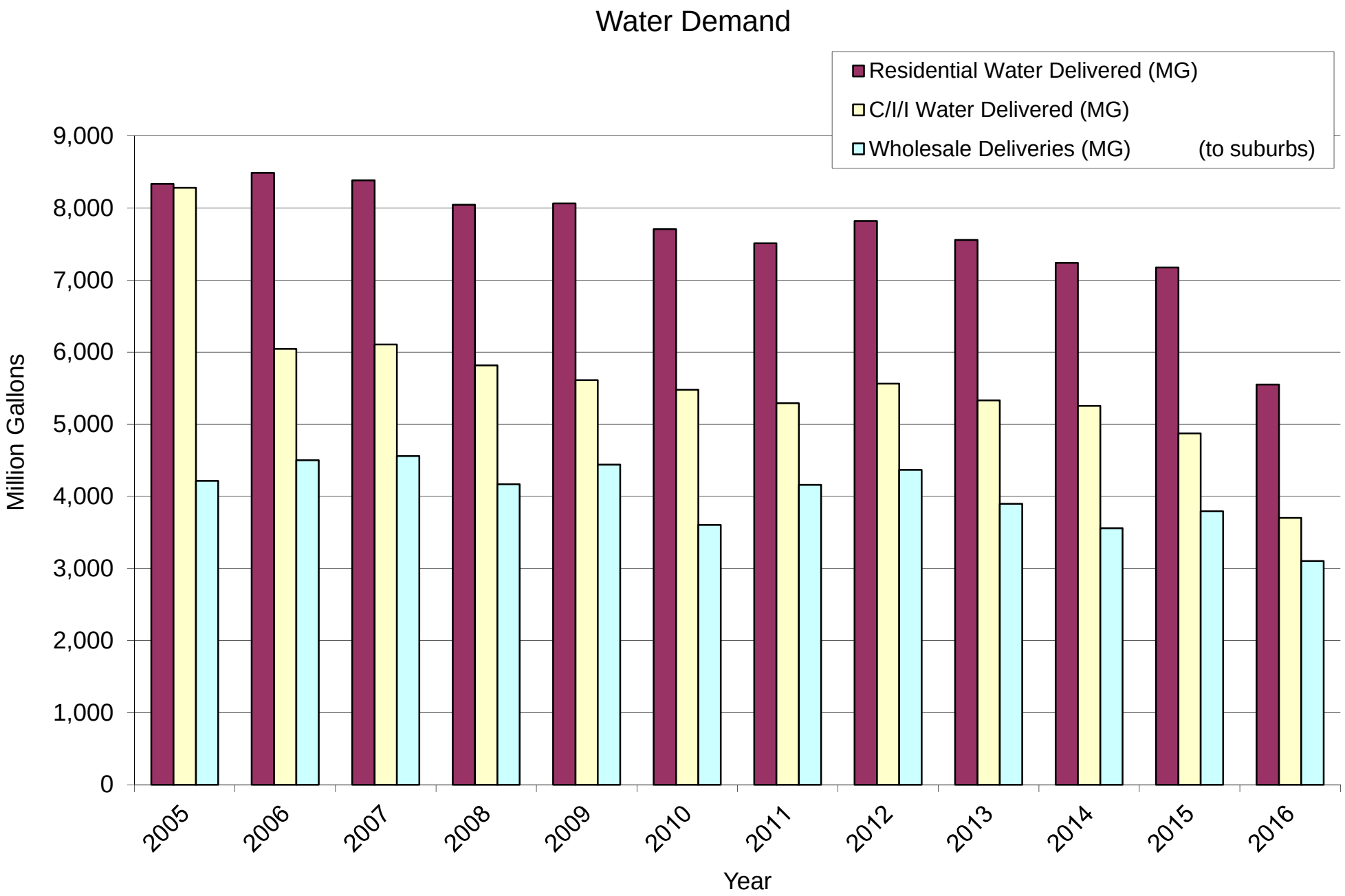
509.1470. Water use limited during emergency period. No person shall draw or use water from the city water mains or city waterworks system other than as permitted by the declaration of emergency during any period of emergency caused by shortage of water supply or lowering of water pressure in the water mains of the city. (77-Or-070, § 1, 4-7-77; 98-Or-135, § 38, 11-13-98)

509.1480. Declaration of emergency. The city engineer or the appointed representative of the city engineer shall declare the existence of such an emergency as and when it may become necessary, shall determine the period of such an emergency and the termination thereof, shall decide the daily hours of restriction, the method of restriction, and shall decide upon the proper notification to customers of such restrictions. (77-Or-070, § 2, 4-7-77; Pet. No. 251069, § 26, 12-15-89; 98-Or-135, § 39, 11-13-98)

509.1490. Administrative fee. For a first violation of the declaration of emergency, the occupant of the premises or the owner thereof will receive a warning of the offense. Subsequent violations of the declaration of emergency will result in a turnoff of the water supply to the premises. Written notice posted on the premises at the time of the violation will be considered sufficient notice prior to turnoff of the water supply. No water supply which has been turned off because of a violation of this article shall be turned on until twenty-five dollars ($25.00) has been paid to the Minneapolis waterworks division, together with the regular charge for turning off and on water service. The city engineer may, in the event of demonstrated economic hardship, waive a portion of the twenty-five dollar ($25.00) administrative fee, but not exceeding fifteen dollars ($15.00). The violation may also be subject to the penalties in Chapter 1 of this Code. (77-Or-070, § 3, 4-7-77; 98-Or-135, § 40, 11-13-98)

Appendix 8

Graph Showing Annual per Capita Water Demand for Each Customer Category During the Last Ten Years


Water Demand
Residential Water Delivered (MG)
C/I/I Water Delivered (MG)
Wholesale Deliveries (MG) (to suburbs)
Million Gallons
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Year

Appendix 9

Water Rate Structure

OFFICIAL PROCEEDINGS
MINNEAPOLIS CITY COUNCIL

ADJOURNED SESSION OF THE
REGULAR MEETING OF
DECEMBER 5, 2014
HELD DECEMBER 10, 2014

(Published December 20, 2014, in *Finance and Commerce*)

Council President Johnson called the meeting to order at 6:05 p.m. in the Council Chamber, a quorum being present.

Present - Council Members Kevin Reich, Cam Gordon, Jacob Frey, Blong Yang, Abdi Warsame, Lisa Goodman, Elizabeth Glidden, Alondra Cano, Lisa Bender, John Quincy, Andrew Johnson, Linea Palmisano, President Barbara Johnson.

On motion by Glidden, the agenda was adopted.

Council President Johnson welcomed elected officials representing the Park & Recreation Board and the Board of Estimate & Taxation.

On motion by Glidden, Council Rule VIII (2) (D) was suspended to allow members of the public to address the City Council.

A public hearing was held to receive comments on the proposed 2015 budget and tax levy. A complete copy of the speakers list is available for public inspection, as set forth in Petition No. 277829 on file in the Office of the City Clerk.

On motion by Glidden, the meeting was recessed at 8:01 p.m. to allow the Board of Estimate & Taxation to meet.

President Johnson reconvened the meeting at 8:17 p.m.

The following reports were signed by Mayor Betsy Hodges on December 11, 2014. Minnesota Statutes, Section 331A.01, Subd 10, allows for summary publication of ordinances and resolutions in the official newspaper of the city. A complete copy of each summarized ordinance and resolution is available for public inspection in the office of the City Clerk.

REPORT OF THE WAYS & MEANS/BUDGET SUBCOMMITTEE

On behalf of the Ways & Means/Budget Subcommittee, Quincy offered Resolution 2014R-518 approving the 2014 property tax levies, payable in 2015, for the various funds of the City of Minneapolis for which the City Council levies taxes.

Warsame moved that the resolution be amended by decreasing the General Fund levy by $174,000 to a total of $153,929,000 and decreasing the total levy for the various funds to $222,814,000.

Glidden moved a substitute to the Warsame amendment that the resolution be amended by increasing the General Fund levy by $620,000 to a total of $154,723,000 and increasing the total levy for various funds to $223,608,000 with the intent of using these additional levy resources to mitigate future levy increases by supplementing the property tax stabilization account.

On roll call, the result of the Glidden substitute was:
Ayes: Gordon, Glidden, Cano, Bender, Quincy, A. Johnson (6)
Noes: Reich, Frey, Yang, Warsame, Goodman, Palmisano, President Johnson (7)
The motion failed.

On roll call, the result of the Warsame amendment was:
Ayes: Reich, Frey, Yang, Warsame, Goodman, Palmisano, President Johnson (7)
Noes: Gordon, Glidden, Cano, Bender, Quincy, A. Johnson (6)
The motion was adopted.

The following is the complete text of the unpublished summarized resolution.

RESOLUTION 2014R-518
By Quincy

Approving the 2014 property tax levies, payable in 2015, for the various funds of the City of Minneapolis for which the City Council levies taxes.

Resolved by The City Council of The City of Minneapolis:

That the following taxes and tax levies are hereby assessed against and levied based on taxable value upon the real and personal property in the City of Minneapolis in 2014 for taxes payable in 2015 for the following funds:

FUND	**CERTIFIED LEVY AMOUNT**
General Fund	$153,929,000
Municipal Building Commission	$4,675,000
Permanent Improvement	$1,000,000
Bond Redemption	$35,900,000
Firefighters Relief Association (MFRA)	$2,745,000
Police Relief Association (MPRA)	$6,415,000
Minneapolis Employees Retirement (MERF)	$18,150,000
Total	**$222,814,000**

Be It Further Resolved that the difference between the amounts herein levied for the Bond Redemption Fund and the aggregate of levies previously certified to the Hennepin County Auditor are made up by cash from prior years' balances. The dollar amount shown in the levy is hereby certified and such amounts to be determined by the County Auditor are to be due to the City under the "Fiscal Disparities" law.

Be It Further Resolved that a tax levy of **$9,300,000** be **assessed against and levied based on market value** upon the real and personal property in the City of Minneapolis in 2014 for taxes payable in 2015 for debt service associated with the voter approved Library Referendum Bond authorization of 2000 for $140,000,000.

Be It Further Resolved that a Special Tax Levy (Chapter 595) of **$1,021,000** with an estimated Tax Capacity Rate of 0.246 be assessed against and levied based on taxable value upon the real and personal property in the City of Minneapolis in 2014 for taxes payable in 2015 **for a Special Levy under Chapter 595** to be initially deposited in the General Fund of the City upon receipt from the County and to be used only for expenditures consistent with Chapter 595.

Be It Further Resolved that the **Certified Local Government Aid (LGA**) Amount estimated at **$77,388,236** shall be initially distributed as follows:

Municipal Building Commission	$232,938
Minneapolis Park & Recreation Board	$9,133,360
General Fund	$68,021,938
Total	**$77,388,236**

On roll call, the result was:
Ayes: Reich, Frey, Yang, Warsame, Goodman, Palmisano, President Johnson (7)
Noes: Gordon, Glidden, Cano, Bender, Quincy, A. Johnson (6)
The resolution, as amended, was adopted.

On behalf of the Ways & Means/Budget Subcommittee, Quincy offered Resolution 2014R-519 fixing the maximum amounts to be expended by the various departments for 2015 from the various funds under the jurisdiction of the City Council for which the City Council levies taxes and fees.

Yang moved that the resolution be amended by:

1. Reducing the appropriation in the Communications Department by $174,000 and 2.0 FTEs, and reducing the General Fund property tax revenues by $174,000; and

2. Utilizing $250,000 in available one-time General Fund resources to:

a) Reinstate the $150,000 to the Neighborhood & Community Relations Department for the One Minneapolis Fund;

b) Reinstate the $75,000 to the City Coordinator Department for the Clean Energy Initiative; and

c) Allocate the remaining $25,000 to the Community Planning & Economic Development Department to reinstate a portion of the 2015 appropriation for homeownership counseling and outreach.

3. Directing the Neighborhood & Community Relations Department to provide guidelines for expenditures of the consolidated TIF fund for neighborhood revitalization purposes, using existing and previous policies, practices, and precedents, such as special uses like the Affordable Housing/Commercial Corridor Reserve Fund. A key feature that should be included

from past guidelines is the requirement for neighborhood review and sponsorship. The guidelines should be specific for intended uses, be they special initiatives or larger scale activities such as Large Tract Development activities. Staff is to present this recommendation to the City Council no later than May 31, 2015.

Gordon moved a substitute to the Yang amendment to utilize $250,000 in available one-time General Fund resources and reduce the appropriation for the Convention Center marketing enhancement by $200,000 to:

1. Reinstate $75,000 to the City Coordinator Department for the Clean Energy Initiative;

2. Reinstate $150,000 to the Neighborhood & Community Relations Department for the One Minneapolis Fund;

3. Provide $30,000 to the Neighborhood & Community Relations Department for costs associated with Project Lookout, previously directed to be funded from the One Minneapolis Fund;

4. Reinstate $125,000 to the Community Planning & Economic Development Department for the Homeownership Support and Foreclosure Prevention Program; and

5. Reinstate $70,000 to the City Coordinator Department to complete an evaluation of the City's neighborhood and community engagement system.

On roll call, the result of the Gordon substitute was:
Ayes: Gordon, Glidden, Cano Bender, Quincy, A. Johnson (6)
Noes: Reich, Frey, Yang, Warsame, Goodman, Palmisano, President Johnson (7)
The motion failed.

On motion by Glidden, Yang's motion to amend the resolution was divided and renumbered so as to consider each item separately, as follows:

1. Reducing the appropriation in the Communications Department by $174,000 and 2.0 FTEs, and reducing the General Fund property tax revenues by $174,000.

On roll call, the result of the Yang amendment was:
Ayes: Reich, Frey, Yang, Warsame, Goodman, Palmisano, President Johnson (7)
Noes: Gordon, Glidden, Cano Bender, Quincy, A. Johnson (6)
The motion was adopted.

2. Utilizing $150,000 in available one-time General Fund resources for the Neighborhood & Community Relations Department for the One Minneapolis Fund;

On roll call, the result of the Yang amendment was:
Ayes: Reich, Gordon, Frey, Yang, Warsame, Goodman, Glidden, Cano, Bender, Quincy, A. Johnson, Palmisano, President Johnson (13)
Noes: (0)
The motion was adopted.

3. Utilizing $75,000 in available one-time General Fund resources for the City Coordinator Department for the Clean Energy Initiative.

On roll call, the result of the Yang amendment was:
Ayes: Reich, Gordon, Frey, Yang, Warsame, Goodman, Glidden, Cano, Bender, Quincy, A. Johnson, Palmisano, President Johnson (13)
Noes: (0)
The motion was adopted.

4. Utilizing $25,000 in available one-time General Fund resources for the Community Planning & Economic Development Department to reinstate a portion of the 2015 appropriation for homeownership counseling and outreach.

On roll call, the result of the Yang amendment was:
Ayes: Reich, Gordon, Frey, Yang, Warsame, Goodman, Glidden, Cano, Bender, Quincy, A. Johnson, Palmisano, President Johnson (13)
Noes: (0)
The motion was adopted.

5. Directing the Neighborhood & Community Relations Department to provide guidelines for expenditures of the consolidated TIF fund for neighborhood revitalization purposes, using existing and previous policies, practices, and precedents, such as special uses like the Affordable Housing/Commercial Corridor Reserve Fund. A key feature that should be included from past guidelines is the requirement for neighborhood review and sponsorship. The guidelines should be specific for intended uses, be they special initiatives or larger scale activities such as Large Tract Development activities. Staff is to present this recommendation to the City Council no later than May 31, 2015.

On motion by Gordon, the staff direction was referred to the Health, Environment & Community Engagement Committee.

Gordon moved that the resolution be amended by reducing the allocation to the Convention Center marketing enhancement by $30,000 and increasing the allocation to the One Minneapolis Fund by $30,000.

On roll call, the result of the Gordon amendment was:
Ayes: Gordon, Glidden, Cano Bender, Quincy, A. Johnson (6)
Noes: Reich, Frey, Yang, Warsame, Goodman, Palmisano, President Johnson (7)
The motion failed.

Cano moved that the resolution be amended by reducing the appropriation in the Convention Center marketing enhancement by $50,000 and increasing the appropriation in the Neighborhood & Community Relations Department by $50,000 for support services to help implement President Obama's executive order on immigration.

On roll call, the result of the Cano amendment was:
Ayes: Reich, Gordon, Frey, Yang, Warsame, Goodman, Glidden, Cano, Bender, Quincy, A. Johnson, Palmisano, President Johnson (13)
Noes: (0)
The motion was adopted.

Glidden moved that the resolution be amended by reducing the appropriation for the Convention Center marketing enhancement by $100,000 to reinstate $100,000 for the Community Planning & Economic Development Department for the Homeownership Support and Foreclosure Prevention Program.

On roll call, the result of the Glidden amendment was:
Ayes: Gordon, Glidden, Cano, Bender, Quincy, A. Johnson (6)
Noes: Reich, Frey, Yang, Warsame, Goodman, Palmisano, President Johnson (7)
The motion failed.

On motion by Palmisano, the resolution was amended by directing the Internal Audit Department to work with the Neighborhood & Community Relations Department and other City Coordinator departments to create a scope of work and then oversee an evaluation of NCR Programs using existing budgeted resources. Staff is directed to report back findings of the evaluation to the Committee of the Whole by August 2015.

On motion by Bender, the resolution was amended by directing the Public Works, Regulatory Services, and Police departments to provide existing resources to facilitate up to eight (8) Open Streets events in 2015.

A. Johnson moved that the resolution be amended by transferring $55,000 from the Convention Center marketing enhancement to the City Attorney's Office to increase funding for restorative justice.

On roll call, the result of the A. Johnson amendment was:
Ayes: Gordon, Glidden, Cano Bender, Quincy, A. Johnson (6)
Noes: Reich, Frey, Yang, Warsame, Goodman, Palmisano, President Johnson (7)
The motion failed.

Cano moved that the resolution be amended by reducing the appropriation to the Community Planning & Economic Development Department by $200,000 for 2.0 FTEs in construction code services and increasing the appropriation to the Communications Department by $174,000 for 2.0 FTEs to increase collaboration with the Neighborhood & Community Relations Department and non-English media outlets, and increasing the One Minneapolis Fund by $26,000.

On roll call, the result of the Cano amendment was:
Ayes: Gordon, Glidden, Cano, Bender, A. Johnson (5)
Noes: Reich, Frey, Yang, Warsame, Goodman, Quincy, Palmisano, President Johnson (8)
The motion failed.

Goodman moved the previous question on the resolution fixing operating budgets for City departments under the jurisdiction of the City Council for Fiscal Year 2015, as amended.

On roll call, the result was:
Ayes: Reich, Frey, Yang, Warsame, Goodman, Quincy, Palmisano, President Johnson (8)
Noes: Gordon, Glidden, Cano Bender, A. Johnson (5)
In the absence of a two-third majority required to call the question, the motion failed.

The following is the complete text of the unpublished summarized resolution.

RESOLUTION 2014R-519
By Quincy

Fixing the maximum amounts to be expended by the various departments for 2015 from the various funds under the jurisdiction of the City Council for which the City Council levies taxes and fees.

Resolved by The City Council of The City of Minneapolis:

That there be appropriated out of the monies in the City Treasury and revenues of the City applicable to specifically named funds the maximum appropriation amounts as outlined in Financial Schedules 1, 2, 3, 4 (Community Development Block Grant ("CDBG") Program Allocations), 6 and 7 as published in the final 2015 Adopted Budget Book.

Be It Further Resolved that the proper City officers be authorized to execute and/or carry out the intent of the 2015 Consolidated Plan program allocations (CDBG, HOME, ESG and HOPWA entitlement grants), as amended, including the 2015 Adopted Budget Schedule 4 CDBG Program, and Schedules 6 CPED Program Allocations by fund.

Be It Further Resolved that the proper City officers be authorized to enter into any necessary grant agreements with the Department of Housing and Urban Development to receive Fiscal Year 2015 Consolidated Plan funding.

2015 Operating Budget
Resolution Footnotes:

a) Financial Management Policies, as included in the Financial Policies Section of the 2015 Adopted Budget book, are hereby adopted as part of the 2015 budget.

b) That this resolution may be cited as the "General Appropriation Resolution of 2015."

Changes to the Recommended Budget

c) Amend the Mayor's 2015 recommended budget to utilize $80,000 in anticipated savings from the reduction in the 2015 citywide health insurance premium to increase the 2015 recommended budget in the City Clerk's Office and add 1.0 Full-Time Equivalent (FTE) (Council Committee Coordinator).

d) Amend the Mayor's 2015 recommended budget to increase expense appropriation and staffing in the City Clerk's Office by $100,000 and 1.0 FTE, respectively, for the purposes of managing data practices request with on-going costs to be recouped through the City's internal cost allocation mechanism.

e) Amend the Mayor's 2015 recommended budget to reduce the property tax levy increase by:

1. Reducing 50 percent of the one-time funding for a Civil Rights Disparity Study in the Civil Rights Department by $150,000.

2. Reducing 50 percent of the one-time funding in the City Coordinator Department for the Clean Energy Initiative of $150,000 (reduction of $75,000).

3. Reducing the one-time funding in the Convention Center by $100,000.

4. Eliminating the tax increment financing (TIF) activities in the Neighborhood & Community Relations Department (NCR) by $150,000 for staff/program expenses and $150,000 recommended for the One Minneapolis Fund and utilize the $300,000 of TIF to replace General resources in NCR.

5. Reduce ongoing funding for health insurance by $120,000 to reflect lower premiums.

6. Reduce ongoing funding in the Community Planning & Economic Development (CPED) Department for Homeownership Counseling and Outreach by $125,000 and shifting an additional $75,000 to one-time funding.

f) Amend the Mayor's 2015 recommended budget in the Communications, Community Planning & Economic Development, and Neighborhood & Community Relations Departments by shifting Upper Harbor Terminal ($250,000) and Communications ($174,000) positions from TIF funding to the General Fund and shifting Neighborhood & Community Relations General Fund allocation ($424,000) from the General Fund to TIF funding.

g) Amend the Mayor's 2015 recommended budget to reduce the transfer to the Convention Center Fund for the purpose of marketing, events, and community engagement programming by $10,000 and further reduce the Arts, Culture & Creative Economy budget by a total of $15,000, and increasing funding to Arts in Public Places by $25,000. Further direct that funding to Arts in Public Places for 2015 be dedicated to conservation of public art.

h) Amend the Mayor's 2015 recommended budget in the Regulatory Services Department to include funding for Homeline Services in the amount of $100,000 to be funded from the Regulatory Services Fund.

i) Amend the Mayor's 2015 recommended budget in the Community Planning & Economic Development Department to direct $1.5 million in Community Development Block Grant (CDBG) funding currently earmarked for the Senior Housing Initiative ($1.0 million) and the Owner Occupied Rehab Program ($0.5 million) to the City's Affordable Housing Trust Fund, and to prioritize up to $2.5 million from the City's development accounts for qualified affordable housing projects.

j) Reducing the appropriation in the Communications Department by $174,000 and 2.0 FTEs, and reducing the General Fund property tax revenues by $174,000.

k) Utilizing $150,000 in available one-time General Fund resources to reinstate the Neighborhood & Community Relations Department for the One Minneapolis Fund.

l) Utilizing $75,000 in available one-time General Fund resources to reinstate the City Coordinator Department for the Clean Energy Initiative.

m) Utilizing $25,000 in available one-time General Fund resources to reinstate a portion of the 2015 appropriation for the Community Planning & Economic Development Department homeownership counseling and outreach.

n) Reducing the Convention Center's marketing enhancement appropriation by $50,000 and increasing the Neighborhood & Community Relations Department appropriation by $50,000 for support services to help implement President Obama's executive order on immigration.

Directions to Staff

o) Direct the Finance and Property Services Department to amend all schedules and language according to amended budgets.

p) Direct the Finance and Property Services Department to update the five-year financial direction budgets and staff directions.

q) Direct the Public Works Department to report to the Transportation & Public Works Committee by January 31, 2015, with proposed specific projects for the 2015 Capital Budget for the Paving Program.

r) Direct the Community Planning & Economic Development Department to report to the Community Development & Regulatory Services and Ways and Means Committees by July 1, 2015, with the financial status of the Great Streets Façade Improvement and Business District Support Programs for evaluation prior to issuance of the 2015 Request for Proposals.

s) Direct the City Coordinator to include staff from multiple departments, including CPED, to solicit, evaluate, and recommend proposals for downtown activation activities that align with City goals and complement City initiatives.

t) Direct the Fire Department to commence with recruit classes as soon as feasible and report back to Ways and Means Committee with a plan to maintain staffing at the approved complement level by July 1, 2015, for the purpose of reviewing and recommending mechanisms to provide for enhanced staffing levels.

u) Direct the Community Planning & Economic Development Department to complete an analysis of existing housing stock and housing needs in Minneapolis to inform future policy decisions that support housing options for all levels of income including the Affordable Housing Trust Fund and Transit-Oriented Development program as well as potential policy changes that support housing affordability such as inclusionary zoning.

v) Direct the Intergovernmental Relations Department to lead a staff workgroup to identify opportunities for the City to support the Minneapolis implementation for the Presidential executive order on immigration and bring forward a proposal with a recommended resolution acknowledging the City's commitment.

w) Direct the Neighborhood & Community Relations Department to coordinate with the Communications Department and other City departments to provide planning, supportive services, and outreach for the implementation of President Obama's executive order on immigration policy.

x) Direct the City Coordinator Department to convene key department stakeholders to research how we are currently supporting the need and make recommendations on how to support and services of communications technology could be enhanced, including, but not limited to, the potential to move responsibility for the existing Radio Communications & electronics work unit from Finance and Property Services Department to the Information Technology Department.

y) Direct the Community Planning & Economic Development Department to develop a five-year Art in Public Places capital plan and report back to the Community Development & Regulatory Services and the Ways & Mean committees by March 31, 2015.

z) Direct the Regulatory Services Department to provide a status update of the activities performed by Homeline to the Community Development & Regulatory Services committee by July 1, 2015.

aa) Direct the Neighborhood & Community relations Department (NCR) for a one-time provision of $55,000 for the Minneapolis Highrise representative Council for Project Lookout utilizing $30,000 from the One Minneapolis Fund and the remainder to come from the department's year savings.

bb) Direct the Minneapolis Police Department to allocate up to $75,000 of its recommended 2015 expense appropriation to partner with the City Attorney's Office and the Domestic Abuse Hotline.

cc) Direct the Finance & Property Services Department Procurement Division, in collaboration with affected City departments, to:

1. Compile historical information of the City's utilization of single source contracts and report back to the Committee of the Whole and Ways & Means Committees in the first quarter with recommendations for policy considerations to provide more opportunities for supplier diversity in procurement activities; and

2. Review existing standards for insurance and bonding for City contractors, including comparison of standards used by the State of Minnesota and other public bodies, and report back to the Committee of the Whole and Ways & Means Committees in the first quarter with recommendations for policy considerations to provide more opportunities for supplier diversity in procurement activities.

dd) Direct the Finance & Property Services Department to facilitate the hiring of 5 new FTE positions in the Community Planning & Economic Development Department, Development & Construction Code Services Division.

ee) Direct the Community Planning & Economic Development Department to collaborate with Summit Academy OIC to facilitate participation in the City's job training programs.

ff) Directing the Internal Audit Department to work with the Neighborhood & Community Relations Department and other City Coordinator departments to create a scope of work and then oversee an evaluation of NCR Programs using existing budgeted resources, and to report back to the Committee of the Whole by August 2015.

gg) Directing the Public Works, Regulatory Services, and Police departments to provide existing resources to facilitate up to eight (8) Open Streets events in 2015.

Technical Changes

hh) Amend the Mayor's recommended 2015 budget by $2,659,438, reducing fund 01CAZ revenue and fund 01CBY expense by $2,659,438 in the Community Planning & Economic Development department.

ii) Amend the Mayor's 2015 recommended budget by $300,000; reducing fund 07300 expense by $300,000 in the Public Works Department.

jj) Amend the Mayor's 2015 recommended budget by aligning recommended funding for the City's Capital Asset Request System (CARS) for all departments as needed.

kk) Amend the Mayor's 2015 recommended budget by $85,019; reducing fund 00100 revenue by $85,019 in the Public Works Department.

ll) Amend the Mayor's 2015 recommended budget by $118,667; by increasing revenue and expense appropriation for fund 00100 by $118,667 in the Public Works Department for special service district.

mm) Amend the Mayor's 2015 recommended budget by $2,024,000; by reducing expense appropriation for fund 07700 by $2,024,000 in the Public Works Department for organics rollout.

nn) Amend the Mayor's 2015 recommended budget by $140,000; by increasing expense appropriation for fund 00100 by $140,000 in the Regulatory Services Department for traffic control to match revenue.

oo) Amend the Mayor's 2015 recommended budget by $870,000; by increasing revenue and expense appropriation for fund 07ERT by $870,000 in the Community Planning & Economic Development Department for the Upper Harbor Terminal.

On roll call, the result was:
Ayes: Reich, Frey, Yang, Warsame, Goodman, Glidden, Cano, Bender, Quincy, A. Johnson, Palmisano, President Johnson (12)
Noes: Gordon (1)
The resolution, as amended, was adopted.

On behalf of the Ways & Means/Budget Subcommittee, Quincy offered Resolution 2014R-520 adopting the 2015 - 2019 Five Year Capital Program and fixing the maximum amounts for 2015 to be expended by the various funds under the jurisdiction of the City Council.

The following is the complete text of the unpublished summarized resolution.

RESOLUTION 2014R-520
By Quincy

Adopting the 2015 - 2019 Five Year Capital Program and fixing the maximum amounts for 2015 to be expended by the various funds under the jurisdiction of the City Council.

Resolved by the City Council of the City of Minneapolis:

That the Five Year Capital Program for 2015 - 2019 is hereby adopted and that there be appropriated out of the monies of the City Treasury and revenues of the City applicable to specifically named funds and revenue sources, the following maximum appropriation amounts for 2015 as detailed in the Capital Section of the 2015 Adopted Budget:

Fund Department	Amount (thousands $)
34200 9010901 MBC CAPITAL IMPROVEMENTS	**1,700**
14300 101000 PARKS CAPITAL IMPROVEMENTS (c)	**4,621**
04100 9010937 PUBLIC WORKS STREET PAVING CAPITAL IMPROVEMENTS (a,b)	**42,835**
04100 9010938 PUBLIC WORKS BRIDGE CAPITAL IMPROVEMENTS	**11,000**
04100 9010939 PUBLIC WORKS SIDEWALK CAPITAL IMPROVEMENTS	**3,520**
04100 9010943 PUBLIC WORKS TRAFFIC CAPITAL IMPROVEMENTS (c)	**10,460**
TOTAL PUBLIC WORKS CAPITAL IMPROVEMENTS	***67,815***
04100 9010923 PROPERTY SERVICES CAPITAL IMPROVEMENTS	**5,415**
04100 9010970 NON-DEPARTMENTAL CAPITAL IMPROVEMENTS (911 and Public Safety)	**1,835**
TOTAL CITY FUND 04100 CAPITAL IMPROVEMENTS	***75,065***
06400 9010972 INFORMATION TECHNOLOGY INTERNAL SERVICE FUND CAPITAL	**2,850**
07100 9010932 SANITARYSEWER ENTERPRISE FUND CAPITAL	**7,425**
07300 9010932 STORM SEWER ENTERPRISE FUND CAPITAL	**10,920**
07400 9010950 WATER SEWER ENTERPRISE FUND CAPITAL	**22,495**
07700 9010923 SOLID WASTE FUND CAPITAL	**3,000**
GRAND TOTAL ALL FUNDS	***128,076***

Be It Further Resolved that the following 2015 Capital Budget footnotes are hereby incorporated into the 2015 Capital Resolution:

a) Per Technical Budget Amendment 1i.) Public Works: Reducing Fund 04100 appropriation request by $3,500,000 and reducing other miscellaneous revenues by $3,385,000 and net debt bonds by $115,000 for the PV085 Nicollet Mall Reconstruction Project. This project was fully funded as part of the Public Works Capital Project Closeout action adopted by the City Council on December 5, 2014.

b) Per Staff Directive 3c.) Public Works is directed to report to T&PW Committee by January 31, 2015, with proposed specific projects for the 2015 Capital Budget for paving program.

c) As a result of reallocations made by the Park Board to their Operating and Capital budgets, the total allocation of park capital levy has been reduced by ($1,309,000) for 2015 compared to the 2015 Mayor's Recommended Budget.

On roll call, the result was:
Ayes: Reich, Gordon, Frey, Yang, Warsame, Goodman, Glidden, Cano, Bender, Quincy, A. Johnson, Palmisano, President Johnson (13)
Noes: (0)
The resolution was adopted.

On behalf of the Ways & Means/Budget Subcommittee, Quincy offered Resolution 2014R-521 requesting that the Board of Estimate and Taxation authorize the City to incur indebtedness and issue and sell City of Minneapolis bonds in the amount of $10,130,000 for certain purposes other than the purchase of public utilities.

The following is the complete text of the unpublished summarized resolution.

RESOLUTION 2014R-521
By Quincy

Requesting that the Board of Estimate and Taxation authorize the City to incur indebtedness and issue and sell City of Minneapolis bonds in the amount of $10,130,000 for certain purposes other than the purchase of public utilities.

Resolved by The City Council of The City of Minneapolis:

That the Board of Estimate and Taxation be requested to authorize the City to incur indebtedness and issue and sell City of Minneapolis bonds in the amount of $10,130,000, the proceeds of which are to be used for the purpose of paying the portion of the cost of making and constructing certain local improvements to be assessed against benefited properties as estimated by the City Council and the Park Board, including assessable portions of the costs relating to paving, mill and overlays, alley resurfacing, retaining walls, streetscapes, landscaping, curb and gutter, street lighting, traffic management plans, ornamental lighting and bike lane development, of which assessments shall be collected in successive equal annual installments, payable in the same manner as real estate taxes, with the number of installments determined by the type of improvement and current City Council policy.

PV001	Parkway Paving Program (PV1501)	50,000
PV006	Alley Renovation Program (PV1506)	50,000
PV027	Hennepin/Lyndale	195,000
PV056	Asphalt Pavement Resurfacing Program (PV1556)	4,000,000
PV061	High Volume Corridor Reconditioning Program (PV1561)	965,000
PV063	Unpaved Alley Construction (PV1563)	50,000
PV073	26th Ave N (W Broadway to Lyndale Ave N)	695,000
PV074	CSAH & MnDOT Cooperative Projects (PV1574)	3,170,000
PV083	Minnehaha Ave (24th to 26th St E)	955,000
	Total	**$10,130,000**

On roll call, the result was:
Ayes: Reich, Gordon, Frey, Yang, Warsame, Goodman, Glidden, Cano, Bender, Quincy, A. Johnson, Palmisano, President Johnson (13)
Noes: (0)
The resolution was adopted.

On behalf of the Ways & Means/Budget Subcommittee, Quincy offered Resolution 2014R-522 requesting that the Board of Estimate and Taxation authorize the City to incur indebtedness and issue and sell City of Minneapolis bonds in the amount of $36,460,000 for certain purposes other than the purchase of public utilities.

The following is the complete text of the unpublished summarized resolution.

RESOLUTION 2014R-522
By Quincy

Requesting that the Board of Estimate and Taxation authorize the City to incur indebtedness and issue and sell City of Minneapolis bonds in the amount of $36,460,000 for certain purposes other than the purchase of public utilities.

Resolved by The City Council of The City of Minneapolis:

That the Board of Estimate and Taxation be requested to authorize the City to incur indebtedness and issue and sell City of Minneapolis bonds, in the amount of $36,460,000, the proceeds of which are to be used as follows:

Municipal Building Commission, in the amount of $1,000,000

MBC01	Life Safety Improvements	100,000
MBC02	Mechanical Systems Upgrade	600,000
MBC04	MBC Elevators	300,000

Park & Recreation Board, in the amount of $2,500,000

PRK02	Playground and Site Improvements Program	960,000
PRK03	Shelter – Pool – Site Improvements Program	600,000
PRK04	Athletic Fields and Site Improvements Program	300,000
PRK31	Bossen Park Field Improvements	640,000

City Council, in the amount of $32,960,000

PV001	Parkway Paving Program (PV1501)	700,000
PV006	Alley Renovation Program (PV1506)	200,000
PV027	Hennepin/Lyndale	1,085,000
PV056	Asphalt Pavement Resurfacing Program (PV1556)	500,000
PV059	Major Pavement Maintenance Program (PV1559)	250,000
PV061	High Volume Corridor Reconditioning Program (PV1561)	1,455,000
PV063	Unpaved Alley Construction (PV1563)	150,000
PV068	LaSalle Ave (Grant to 8th)	805,000
PV070	Riverside Extension – 4th St/15th Ave	500,000
PV073	26th Ave N (W Broadway to Lyndale Ave N)	5,245,000
PV074	CSAH & MnDOT Cooperative Projects (PV1574)	350,000
PV083	Minnehaha Ave (24th to 26th St E)	335,000
PV086	26th Ave N (Wirth Pkwy to Brdwy/Lyndale to River)	815,000
PV099	26th & 28th St Buffered Bike Lanes (Hiawatha to 35W)	200,000
PV101	29th St W Pedestrian Connection	350,000
PV104	ADA Ramp Replacement Program (PV15104)	1,000,000
BR101	Major Bridge Repair and Rehabilitation (BR1501)	500,000
BR130	7th St Ramp Bridge over 35W	3,000,000
SWK01	Defective Hazardous Sidewalks (SWK15)	305,000
BIK28	Protected Bikeways Program (BIK1528)	790,000
TR008	Parkway Street Light Replacement (TR1508)	350,000
TR010	Traffic Management Systems (TR1510)	400,000
TR011	City Street Light Renovation (TR1511)	550,000
TR021	Traffic Signals (TR1521)	1,625,000

TR022	Traffic Safety Improvements (TR1522)	310,000
TR024	Pedestrian Level Lighting Program (TR1524)	500,000
TR025	Sign Replacement Program (TR1525)	590,000
FIR11	New Fire Station No.11	465,000
FIR12	Fire Station No. 1 Renovation & Expansion	500,000
MPD03	Hamilton School Acquisition & Facility Improvement	2,000,000
PSD01	Facilities – Repair & Improvements (PS1501)	1,200,000
PSD03	Facilities – Space Improvements (PS1503)	750,000
PSD11	Energy Conservation and Emission Reduction (PS15E11)	500,000
91101	911 Telephone System Replacement	135,000
RAD01	Public Safety Radio System Replacement	1,700,000
IT004	Enterprise Infrastructure Modernization (IT1504)	850,000
IT033	Police Report Management System Upgrade	2,000,000
	Total	**$36,460,000**

On roll call, the result was:
Ayes: Reich, Gordon, Frey, Yang, Warsame, Goodman, Glidden, Cano, Bender, Quincy, A. Johnson, Palmisano, President Johnson (13)
Noes: (0)
The resolution was adopted.

On behalf of the Ways & Means/Budget Subcommittee, Quincy offered Resolution 2014R-523 requesting that the Board of Estimate and Taxation authorize the City to incur indebtedness and issue and sell City of Minneapolis bonds in the amount of $14,200,000 for certain purposes other than the purchase of public utilities.

The following is the complete text of the unpublished summarized resolution.

RESOLUTION 2014R-523
By Quincy

Requesting that the Board of Estimate and Taxation authorize the City to incur indebtedness and issue and sell City of Minneapolis bonds in the amount of $14,200,000 for certain purposes other than the purchase of public utilities.

Resolved by The City Council of The City of Minneapolis:

That the Board of Estimate and Taxation be requested to authorize the City to incur indebtedness and issue and sell City of Minneapolis bonds in the amount of $14,200,000, the proceeds of which are to be used for sanitary sewer projects and water projects as follows:

Sanitary Sewer Projects – Fund 07100:		
SA001	Sanitary Tunnel and Sewer Rehab Program (SA15401)	4,200,000
SA036	Infiltration & Inflow Removal Program (SA1536)	1,000,000
Water Projects – Fund 07400:		
WTR24	Fridley Filter Plant Rehabilitation	8,000,000
WTR26	Recarbonation System Replacement	1,000,000
	Total	**$14,200,000**

On roll call, the result was:
Ayes: Reich, Gordon, Frey, Yang, Warsame, Goodman, Glidden, Cano, Bender, Quincy, A. Johnson, Palmisano, President Johnson (13)
Noes: (0)
The resolution was adopted.

On behalf of the Ways & Means/Budget Subcommittee, Quincy offered Resolution 2014R-524 designating the utility rates for water, sewer, stormwater, solid waste, and recycling service effective with water meters read on and after January 1, 2015.

The following is the complete text of the unpublished summarized resolution.

RESOLUTION 2014R-524
By Quincy

Designating the utility rates for water, sewer, stormwater, solid waste, and recycling service effective with water meters read on and after January 1, 2015.

Resolved by The City Council of The City of Minneapolis:

Effective with utility billings for water meters read from and after **January 1, 2015**, the meter rates for water are hereby fixed and shall be collected as follows:

Charges commence when the street valve is turned on for water service.

(a) **Three dollars and thirty-seven cents ($3.37)** per one hundred (100) cubic feet for customers not otherwise mentioned.

(b) **Three dollars and fifty-two cents ($3.52)** per one hundred (100) cubic feet to municipalities, municipal corporations, villages and customers outside the corporate limits of the city where service is furnished through individual customer meters.

(c) Rates for municipalities, municipal corporations and villages, which are established by contract, shall continue on the existing contract basis.

(d) In addition to the above rates a fixed charge based on meter size will be billed each billing period or fraction thereof as follows:

Meter Size	Fixed Charge
5/8-inch	**$ 3.00**
3/4-inch	**4.50**
1-inch	**7.50**
1 1/2-inch	**15.00**
2-inch	**24.00**
3-inch	**48.00**
4-inch	**75.00**
6-inch	**150.00**
8-inch	**240.00**

10-inch	**345.00**
12-inch	**990.00**

(e) The fixed charge for a property serviced by a combined fire/general service line shall be based on the small side register of the combined meter, provided the volume of water used on the large side register does not exceed 45,000 gallons per year. The volume of water used on the large side register in the previous year will be used to establish the fixed rate in the current year. In addition to the fixed charge, a fire line rate shall be assessed according to the size of the large side register at the annual rates established in provision (f) of this section.

The fixed charge for a property serviced by a combined fire/general service line shall be based on the large side register of the combined meter, when volume of water used on the large side register exceeds 45,000 gallons per year. The volume of water used on the large side register in the previous year will be used to establish the fixed rate in the current year.

The fixed charge for a combined fire/general service line shall remain in place for the entire year.

(f) All fire standpipes, supply pipes and automatic sprinkler pipes with detector meters, direct meters or non-metered, shall be assessed according to size of connection at the following rates each per annum for the service and inspection of the fire protection pipes and meters installed, as follows:

1½ inch pipe connection …….$ 30.00
2 inch pipe connection . . . ……..$ 30.00
3 inch pipe connection . . . …….$ 40.00
4 inch pipe connection . . . ….. $ 60.00
6 inch pipe connection . . . …..$120.00
8 inch pipe connection . . . ….. $190.00
10 inch pipe connection . . . …..$275.00
12 inch pipe connection . . . …..$790.00

When the seal of any of the valves connecting with such fire protection pipes shall be broken, it shall be forthwith resealed by a Public Works - Water Division representative. All connections for fire systems must have a post indicator valve installed at the curb if ordered by the superintendent of the waterworks. (Code 1960, As Amend., § 606.030; Ord. of 12-28-73, § 1)

(g) Rates for other services and materials provided shall be fixed as follows:

Activity	**Amount**
1. Damaged, Lost or New Water Meters	
5/8”	$ 120
3/4”	$ 140
1”	$ 175
1 ½”	$ 405
2”	$ 490
3”	$ 1,040
4”	$ 1,350
6”	$ 2,120

2. Damaged or Lost Reader Water Meter Equipment		
ERT		$ 130
Encoder 5/8" – 1"		$ 80
Encoder 1 ½" or greater		$ 125
3. Remove, Install or Drain a Water Meter		
5/8" – 1"		$ 50
1 ½" – 2"		$ 100
3" or greater		$ 200
4. Water Meter Testing		
5/8" – 1"		$ 100
1 ½" – 2"		$ 200
3" or greater – on-site		$ 300
3" or greater – Meter Shop test		$ 500
5. Water Meter Reading, Missed Appointments, Posting		$ 20
6. Private Meter Trip Fee		$ 50
Equipment charged at cost		
All applicable taxes will be applied		
7. Water Turn-On or Turn-Off		
Base Charge		$ 45
Winter Fee – Nov. 15 – Apr. 15		$ 25
Delinquency Admin Fee		$ 6
Shut Off Valve Flush Fee		$ 20
8. Coupling Pricing for Water Meters	Charged at cost of inventory	
9. Water Service Tap Cutoff or Extension Permit		$ 50
10. Water Hydrant Usage		
Permit		$ 50
Installation of equipment for garden usage		$ 100
Installation of equipment for construction, demolition and special event usage		$ 200
Hydrant sanitation for portable water usage		$ 160
Equipment deposit for residential demolition usage		$ 1,200
Equipment deposit for commercial construction and demolition usage		$ 3,200
Water usage charged at regular in city rate		
11. Temporary Water Meter for Construction Usage		
Permit		$ 50
Temporary water meter usage fee		$ 200
Equipment and water usage deposit		$ 2,500
Water usage charged at regular in city rate subtracted from initial deposit until consumed		

12. Large Water Main Tap by Tap Size*

6x4”	$ 1,974
6x6”	$ 2,223
8x4”	$ 2,121
8x6”	$ 2,191
8x8”	$ 2,928
10x4”	$ 2,413
10x6”	$ 2,429
10x8”	$ 2,682
12x4”	$ 2,138
12x6	$ 2,288
12x8”	$ 3,101
12x12”	$ 5,174
16x4”	$ 2,742
16x6	$ 2,462
16x8”	$ 3,818
16x12”	$ 5,065
24x4”	$ 2,417
24x6	$ 3,000
24x8”	$ 4,074
24x12”	$ 5,788
30x4”	$ 3,505
30x6	$ 3,711
30x8”	$ 5,169
30x12”	$ 8,556
36x4”	$ 3,766
36x6	$ 3,879
36x8”	$ 4,901
36x12”	$ 7,935

13. Small Water Main Tap by Size*

3/4x3/4”	$ 213
1x1”	$ 223
1x1¼”	$ 238

14. Water Main Tap Discontinue by Size*

6x2”	$ 1,799
6x3”	$ 1,799
6x4”	$ 2,093
6x6”	$ 2,093
8x2”	$ 1,832
8x3”	$ 1,832
8x4”	$ 1,832

8x6”	$ 2,299
8x8”	$ 2,299
10x2”	$ 1,899
10x3”	$ 1,899
10x4”	$ 1,899
10x6”	$ 2,985
10x8”	$ 2,985
10x10”	$ 2,985
12x2”	$ 1,964
12x3”	$ 1,964
12x4”	$ 1,964
12x6”	$ 1,964
12x8”	$ 3,052
12x12”	$ 3,052
16x2”	$ 2,492
16x3”	$ 2,492
16x4”	$ 2,492
16x6”	$ 2,492
16x8”	$ 2,492
16x12”	$ 4,188
24x2”	$ 2,899
24x3”	$ 2,899
24x4”	$ 2,899
24x6”	$ 2,899
24x8”	$ 2,899
24x12”	$ 2,899

15. Mechanical Plug Pricing*

4” Plug	$ 1,799
6” Plug	$ 1,811
8” Plug	$ 1,852
12” Plug	$ 1,899

*When site specific circumstances preclude the use of standard methods, the fee will be based on the City’s estimate for time and materials. Standard fee includes installation and $50 permit fee but not excavation.

16. Water Main Shut Down for Contractor $ 646

17. Penalties

a) Water Meter Tampering Penalty/Administration Fee/Violation Fee	$ 200
b) Water Meter Bypass Valve Tampering Penalty	$ 500
c) Unauthorized Water Service Turn-on Penalty	$ 500
d) Water System Valve Tampering Penalty	$ 500
e) Violation of Water Emergency Declaration	$ 25

The sanitary sewer rates and stormwater service rate shall be applied to utility billings for water meters read from and after January 1, 2015.

Sanitary Sewer Rate
The sanitary sewer rates to be charged properties within and outside the City of Minneapolis that are served directly by the City of Minneapolis sewer system and that are all served either directly or indirectly by the sewage disposal system constructed, maintained and operated by the Metropolitan Council Environmental Services under and pursuant to Minnesota Statutes Sections 473.517, 473.519 and 473.521, Sub. 2, are hereby set as follows:

(a) The sanitary sewer rate applicable inside the City of Minneapolis is **three dollars and twenty-one cents ($3.21)** per one hundred (100) cubic feet.

(b) In addition, a fixed charge based on water meter size will be billed each billing period or fraction thereof as follows:

Meter Size	Fixed Charge
5/8-inch	**$ 3.80**
3/4-inch	**5.70**
1-inch	**9.50**
1 1/2-inch	**19.00**
2-inch	**30.40**
3-inch	**60.80**
4-inch	**95.00**
6-inch	**190.00**
8-inch	**304.00**
10-inch	**437.00**
12-inch	**1254.00**

(c) The sanitary sewer rate applicable outside the City of Minneapolis for all sewage flow generated is **three dollars and twenty-one cents ($3.21)** per one hundred (100) cubic feet when the City of Minneapolis also provides water. In addition, the fixed charge sanitary sewer rate shall be based on meter size per section (b).

(d) Sanitary sewer only service outside the City of Minneapolis shall be twenty dollars ($20.00) per month.

(e) The sanitary sewer charge for residential property not exceeding three (3) residential units shall be based on the volume of water used during the winter season which is defined as a four (4) month period between November 1 and March 31.

(f) The sanitary sewer charge for residential property exceeding three (3) residential units and all other commercial and industrial property shall be based on measured sewage volume or the total water volume used during the billing period as is appropriate.

Stormwater Rate
The stormwater rate, subject to the provisions in Chapter 510, of the Minneapolis Code of Ordinances, is imposed on each and every Single-Family Residential Developed Property, Other Residential Developed Property, Non-Residential Developed Property, and Vacant

Property, other than Exempt Property, and the owner and non-owner users, and is hereby set as follows:

(a) The Equivalent Stormwater Unit (ESU) rate is **eleven dollars and ninety-four cents ($11.94).** The ESU measurement is 1,530 square feet of impervious area.

(b) The stormwater rate imposed on Single-Family Residential Developed Properties shall be categorized into three tiers based on the estimated amount of impervious area as follows:

High – Single-Family Residential Developed Property – greater than one thousand five hundred and seventy-eight (1,578) square feet of estimated impervious area. The ESU shall be 1.25 and the stormwater rate set at **fourteen dollars and ninety-three cents ($14.93).**

Medium – Single-Family Residential Developed Property – equal to or greater than one thousand four hundred and eighty-five (1,485) square feet and less than or equal to one thousand five hundred and seventy-eight (1,578) square feet of estimated impervious area. The ESU shall be 1.00 and the stormwater rate set at **eleven dollars and ninety-four cents ($11.94).**

Low – Single-Family Residential Developed Property – less than one thousand four hundred and eighty-five (1,485) square feet of estimated impervious area. The ESU shall be .75 and the stormwater rate set at **eight dollars and ninety-six cents ($8.96).**

(c) Stormwater charges for all other properties will be based on the following calculation:
(Gross Lot Size in sq.ft. X Runoff Coefficient) ÷ 1,530 sq. ft.= # of ESU
# of ESU X **$ 11.94** = Monthly Fee

The runoff coefficient assumed for each land use category is shown below.

Land Use	Coefficient Applied
Bar-Rest.-Entertainment	.75
Car Sales Lot	.95
Cemetery w/Monuments	.20
Central Business District	1.00
Common Area	.20
Garage or Misc. Res.	.55
Group Residence	.75
Ind. Warehouse-Factory	.90
Industrial railway	.85
Institution-Sch.-Church	.90
Misc. Commercial	.90
Mixed Comm.-Res-Apt	.75
Multi-Family Apartment	.75
Multi-Family Residential	.40
Office	.91
Parks & Playgrounds	.20
Public Accommodations	.91
Retail	.91
Single Family Attached	.75
Single Family Detached	ESU

Sport or Rec. Facility	.60
Utility	.90
Vacant Land Use	.20
Vehicle Related Use	.90

Solid waste and recycling variable rate charges associated with water meter read dates from and after **January 1, 2015**, the charges shall be as follows:

(a) The base unit charge shall be **twenty-one dollars and sixty cents ($21.60)** per dwelling unit per month.

(b) The cart disposal charge shall be two dollars ($2.00) per month for each small cart.

(c) The cart disposal charge shall be five dollars ($5.00) per month for each large cart assigned to a dwelling unit.

On roll call, the result was:
Ayes: Reich, Gordon, Frey, Yang, Warsame, Glidden, Cano, Bender, Quincy, A. Johnson, Palmisano (11)
Noes: Goodman, President Johnson (2)
The resolution was adopted.

On motion by Glidden, the meeting was adjourned.

Casey Joe Carl,
City Clerk

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Official Posting: 12/19/2014

Appendix 10

Adopted or Proposed Regulations to Reduce Demand or Improve Water Efficiency

CHAPTER 509. - WATER[2]

Footnotes:

--- (2) ---

***Editor's note**—It should be noted that Ord. No. 98-Or-133, § 1, adopted Nov. 13, 1998, repealed Arts. V—VII of this chapter; Ord. No. 98-Or-134, § 1, adopted Nov. 13, 1998, added provisions designated as Arts. IV—VIII; and Ord. No. 98-Or-135, §§ 1—40, renumbered Arts. VIII—X as IX—XI and amended various sections therein. See the Code Comparative Table for a detailed analysis of inclusion of said ordinances.*

***Charter reference**— Damaging waterworks property, Ch. 9, § 16.*

***State Law reference**— Fluoridation required, M.S. § 144.145.*

ARTICLE X. - CONTROL AND PROTECTION OF SUPPLY[9]

Footnotes:

--- (9) ---

***Editor's note**—Ord. No. 98-Or-125, § 8, adopted Nov. 13, 1998, renumbered Art. IX as Art. X. See also the editor's note at Ch. 509.*

509.1170. - Supply required.

Every building intended for human occupancy or use shall be provided with ample supply of potable water. (Code 1960, As Amend., § 608.010; 98-Or-135, § 9, 11-13-98)

Cross reference— Standards and requirements for water used for drinking and domestic purposes, Ch. 196; polluted water wells, § 250.10 et seq.

509.1180. - Inspection of supply.

The director of inspections shall inspect the installation of, extension to or any alterations in all water service, water supply or water distribution piping system in all buildings, structures and premises in the city or outside the city of the property is connected to the City of Minneapolis water supply system. The officers and employees of the department of inspections and the waterworks division shall have free entry and access to any building, structure or premises, or part thereof, whether complete or in the process of erection, for the purpose of determining whether the provisions of this article are complied with. The city may shut off the water supply to any property where the owner has refused to give access to the affected property. (Code 1960, As Amend., § 608.020; 98-Or-135, § 10, 11-13-98)

509.1190. - Permits required.

No person shall install in any building or structure any pipe or pipes or systems of piping which receive service from the waterworks system, or any private source, nor make any alteration in or addition, replacement or extension to any existing pipe or system of piping in any building or structure until such person shall have made application to the department of inspections for permission for such installation,

alteration, addition, replacement or extension. Permits will not be required for the repair of leaks or the replacement of less than ten (10) feet of piping. (Code 1960, As Amend., § 608.030; 98-Or-135, § 11, 11-13-98)

509.1200. - Permit application and fees.

Every application for a permit for the installation in any building or structure of water supply or water distribution pipes or system of piping shall be in writing on printed forms furnished by the department of inspections. The fees for permits shall be in an amount as established in the schedule contained in a separate fee resolution. (Code 1960, As Amend., § 608.040; 98-Or-135, § 12, 11-13-98; 2012-Or-076, § 79, 11-16-12)

509.1210. - Permit not required of refrigeration installers.

No permit shall be required of a person duly licensed by the city as a master refrigeration installer or the holder of a certificate of competency as a journeyman refrigeration installer issued by the city for the disconnecting or reconnecting of refrigeration systems or equipment connected to the water distribution system of any building or structure for the repair or service of such refrigeration systems or equipment. (Code 1960, As Amend., § 608.050; 98-Or-135, § 13, 11-13-98)

509.1220. - Permittee must be master plumber; exceptions.

Except as provided in section 509.1230, no permit shall be issued to any person for the installation, alteration, extension or repair of any system of water supply piping in connection with any plumbing system in any building, structure or premises unless such person is duly licensed and bonded by the city as a qualified master plumber.

Notwithstanding any other provision of this Code of Ordinances to the contrary and where permitted by state law, permits may be issued to make repairs, additions, replacements and alterations to any plumbing or drainage work of any single-family dwelling structure used exclusively for living purposes or any accessory buildings thereto provided that all such work in connection therewith shall be performed only by the person who is the bona fide owner and occupant of such dwelling as his residence or a member of said owner-occupant's immediate family as herein defined. "Immediate family" includes only a parent, children by birth or adoption and said children's spouse. (Code 1960, As Amend., § 608.060; 98-Or-135, § 14, 11-13-98)

Cross reference— Inquiry as to qualifications of owner or occupant applying for permit under this article and authority of director of inspections to refuse issuance of such permit if applicant not qualified, § 89.30.

509.1230. - Permits to refrigeration installers and steam and hot water installers for limited purposes.

Permits shall also be issued to persons duly licensed and bonded by the city as qualified:

(a) Master refrigeration installers for the installation, alteration, extension or repair of any condenser or cooling water piping to refrigeration systems or equipment from an existing opening in the water distribution piping system of any building or structure; and

(b) Master steam and hot water heating installers for the installation, alteration, extension or repair of water piping to steam or hot water heating systems, steam piping systems or cooling piping and equipment from an existing opening in the water distribution piping system of any building or structure. (Code 1960, As Amend., § 608.070; 98-Or-135, § 15, 11-13-98)

509.1240. - Connection to another water system.

If a system of water supply, whether inside or outside of any building or structure, is supplied with water from any source other than the city water supply, the system shall be kept entirely separated from the city supplied water system. Any fire protection system supplied with water from the city water service shall be supplied exclusively with the city's water service. No connection shall be allowed with any other system drawing its supply from any other source where the city water supply may be subject to contamination from the other source. No connection shall be made at any time between the fire service pipe system and the regular water supply to the premises, unless all connections shall have been approved by the water treatment and distribution services division. (Code 1960, As Amend., § 608.080; 98-Or-135, § 16, 11-13-98; 2012-Or-076, § 80, 11-16-12)

509.1250. - Separation from connected system.

Wherever physical connection or cross connection between the city water system and any other water system is found to exist, the Director of Minneapolis Water Treatment and Distribution Services Division and the owner shall be notified; and unless the owner removes the connection or cross connection within ten (10) days, the director shall cause the water to be physically disconnected in the street and to remain disconnected until the separation of the system is effected. The director may act as necessary to protect public health. (Code 1960, As Amend., § 608.090; 98-Or-135, § 17, 11-13-98; 2012-Or-076, § 81, 11-16-12)

509.1260. - Delivery to common tanks.

Where the city water supply is delivered to a tank which is also supplied with water from a source other than the Minneapolis Waterworks, the tank shall be open to atmospheric pressure and the city water shall be discharged by a separate overhead pipe terminating in an opening at least six (6) inches, or two (2) times the diameter of the pipe, whichever is the greater, above the top or rim of the tank and under any condition shall be sufficiently high to prevent back siphoning. Such tanks shall not be located where they are subject to flooding. Plans and specifications for such an installation shall be approved in writing by the director of the waterworks and the department of inspections before such work begins, and the installation shall be subject to the city plumbing inspector's inspection and approval before city water will be connected. All such

nonpressure potable water supply tanks shall be properly covered to prevent entrance of foreign material into the water supply. Soil or waste lines shall not be permitted to pass directly over such tanks or over manholes in pressure tanks. (Code 1960, As Amend., § 608.100; 98-Or-135, § 18, 11-13-98)

509.1270. - Direct connection of system to various fixtures and appliances.

No pipe or system of piping which receives its supply from the Minneapolis Waterworks System or any other potable water shall be directly connected to any processing tank, vat, mixer, cooker or washer, pump appliance, or equipment used for storing, holding or conveying fluids or materials or for manufacturing or food processing, or washing purposes. Such appliance and equipment shall be supplied from the Minneapolis Water System through an open funnel connection or from a tank supplied with city water admitted to such tank through a pipe terminating not less than six (6) inches above the top or rim of such tank; or through a pipe protected by an approved vacuum breaker; or by any other method acceptable to the department of inspections. No pipe or system of piping in any building or structure, or premises which receives its supply from the Minneapolis Waterworks System shall be directly connected to any device, appliance or apparatus in which such water supply is used to provide power through a water jet or other device to create vacuum with which to operate any cellar drain, ejector, cleaner, sweeper, conveyor or washer of any kind or description. (Code 1960, As Amend., § 608.110; 98-Or-135, § 19, 11-13-98)

509.1280. - Secondary water.

Secondary water is any water from a system of water pipes or piping which receives its water supply from rivers, cistern or any groundwater or rainwater reservoir; the secondary water is also water from the mains of the Minneapolis Water Treatment and Distribution Services System which has been used for any purpose within any building, structure or premises which has been discharged from any type of condenser coils or cooling system, hydraulic lifts, boilers, linotype machines, die casting machines or apparatus or which has been stored in such a manner as to expose it to possible contamination. No secondary water shall in any way be piped or conveyed into the water supply system of any building, structure or premises to become a part of or mixed with the fresh water supply from the mains of the Minneapolis Water Treatment and Distribution Services System. No pipe or other conduit which conveys secondary water shall be cross connected to the potable water system. (Code 1960, As Amend., § 608.120; 98-Or-135, § 20, 11-13-98; 2012-Or-076, § 82, 11-16-12)

509.1290. - Compliance with plumbing code.

All materials and methods of installation for the water supply system shall be made in accordance with the provisions of the Minnesota Plumbing Code. (Code 1960, As Amend., § 608.130; 98-Or-135, § 21, 11-13-98; 2012-Or-076, § 83, 11-16-12)

Cross reference— Plumbing code, Ch. 101.

509.1300. - Hot water relief valves.

All equipment for heating and storage of hot water for domestic or commercial purposes, when installed, repaired, relocated, replaced or reconnected, shall be equipped with a listed and approved relief valve.

All direct fired storage water heaters, electric storage water heaters and hot water storage tanks, shall be provided with a combination temperature and pressure relief valve, or a separate pressure relief valve and a separate temperature relief valve. The temperature relief element shall be of the full automatic reseating type with test lever, be factory adjusted to open for relief of hot water from the system at or before the maximum system temperature reaches two hundred ten (210) degrees Fahrenheit. It shall have a relieving capacity equal to or greater than, the heater Btu input rating.

All combined temperature and pressure relief valves and all temperature only relief valves shall be installed with the temperature sensing element immersed in the hottest water, within the upper six (6) inches of the tank. Valves without extended temperature sensing elements shall only be installed directly in a tank tapping in the upper six (6) inches of the tank.

The pressure relief element shall be of the direct acting spring loaded type with test lever. It shall be set to start opening at a pressure not exceeding the working pressure of the tank or heater and shall have a capacity which will limit the pressure rise to not over ten (10) percent of its set pressure. Pressure relief valves may be installed directly in a tank tapping in the top of the tank or heater or may be installed in either the hot or cold water line, as near as possible to the tank or heater.

Relief valves shall have not less than three-fourths-inch inlet and outlet connections when used with water heating equipment having an input of fifteen thousand (15,000) Btu or more. (Code 1960, As Amend., §§ 608.150, 608.160; 98-Or-135, § 22, 11-13-98)

509.1310. - Storage tanks.

The engineering standards of boilers and pressure vessels for use in any building or structure using water supplied by the Minneapolis Water Treatment and Distribution Services Division, shall be that established by the current edition of the construction, operation and care of, in-service inspection and testing, and controls and safety devices codes of the American Society of Mechanical Engineers and amendments thereto. (98-Or-135, § 23, 11-13-98; 2012-Or-076, § 84, 11-16-12)

509.1320. - Tankless heaters.

All indirect heaters, instantaneous heaters, and tankless heaters shall be provided with a pressure relief valve. Each pressure relief valve shall have the respective features and be installed as described in section 509.1300. (Code 1960, As Amend., § 608.170; 98-Or-135, § 24, 11-13-98)

509.1330. - Relief valve drain.

All temperature and pressure relief valves shall have a drain or discharge pipe connected same size as the discharge opening. It shall terminate atmospherically with an unthreaded end, not more than eighteen (18) inches above the floor in a place that will not harm persons or property. (Code 1960, As Amend., § 608.180; 98-Or-135, § 25, 11-13-98)

509.1340. - Marking, approval of relief valves.

Relief valves shall be clearly marked with the following information: Manufacturer's name, type and model number of the device, the set opening temperature, the set opening pressure and the Btu relieving capacity of the valve.

All relief valves shall be certified or listed by one (1) or more of the following organizations: American Gas Association, American Society of Mechanical Engineers, National Board of Boiler and Pressure Vessel Inspectors, or other testing agency approved by the department of inspections. (Code 1960, As Amend., § 608.199; 98-Or-135, § 26, 11-13-98)

509.1350. - Inspection and tests.

The plumber shall notify the department of inspections whenever the water distribution system for which a permit has been issued is ready for inspection and test by registering the number of the permit and the location of the work in the register book. The register book is kept for that purpose in the office of the director of inspections. The entire water distribution system shall be tested in the presence of the plumbing inspector under a water or air pressure not less than the working pressure under which it is to be used, and found to be perfectly tight and installed in accordance with provisions of this article. (Code 1960, As Amend, §§ 608.200, 608.320; 98-Or-135, § 27, 11-13-98)

509.1360. - Sill cocks.

Each sill cock shall have a separate accessible stop and waste valve. (Code 1960, As Amend., § 608.230; 98-Or-135, § 28, 11-13-98)

509.1370. - Drain cocks.

All storage tanks shall be equipped with drain cocks with minimum diameter of one-half (½) inch. (Code 1960, As Amend., § 608.240; 98-Or-135, § 29, 11-13-98)

509.1380. - Materials for water pipe.

Water pipe and fittings shall be of brass, copper, cast iron, galvanized wrought iron or steel. (Code 1960, As Amend., § 608.250; 98-Or-135, § 30, 11-13-98)

509.1390. - Screwed joints.

All screw joints shall be American Standard screw joints and all burrs or cutting shall be removed and the end thoroughly reamed before the joints are made up. (Code 1960, As Amend., § 608.260; 98-Or-135, § 31, 11-13-98)

509.1400. - Copper tube.

Copper tube for water distribution shall conform to American Society for Testing Materials "Standard Specification for Copper Water Tube" (Serial designation B 88-85). Copper tube for water distribution piping above ground shall have a weight of not less than that of copper water tube Type L. Copper tube for water distribution underground piping shall have a weight of not less than that of copper water tube Type K. (Code 1960, As Amend., § 608.270; 98-Or-135, § 32, 11-13-98)

509.1410. - Marking copper tube for identification.

Copper tube shall be marked for identification in accordance with the following standards:

Standard ink colors shall be used as follows: Type K, green; Type L, blue. Color marking shall not be less than one-fourth (¼) inch in width and shall be continuous for the full length of the tube.

Incised marking, as required in American Society for Testing Materials "Standard Specification for Copper Water Tube" (Serial designation B 88-85) shall be retained in addition to color marking. (Code 1960, As Amend., § 608.280; 98-Or-135, § 33, 11-13-98)

509.1420. - Soldering or sweating.

Soldering or sweat joints for copper tubing shall be made with approved fittings as herein listed. Surfaces to be soldered or sweated shall be mechanically cleaned bright. The joints shall be properly fluxed with noncorrosive flux and made with approved solder. Joints in copper tubing shall be made by the appropriate use of approved brass or copper fittings, properly sweated, soldered or brazed together. (Code 1960, As Amend., § 608.290; 98-Or-135, § 34, 11-13-98)

509.1430. - Flared joints.

Flared joints for soft copper water tubing shall be made with fittings meeting the standards in section 509.1440. The tubing shall be reamed and expanded with a proper tool; provided, however, all concealed tubing shall be soldered or brazed. (Code 1960 As Amend., § 608.300; 98-Or-135, § 35, 11-13-98)

509.1440. - Copper fittings standards.

Standards for copper fittings shall be as follows:

Copper Brass Solder Joint Fittings—American Society of Mechanical Engineers (ASME) B 16.18-1950.

Wrought Copper Solder Joint Fittings—American Society of Mechanical Engineers (ASME) B 16.22-1951.

Brass Fittings for Flared Copper Tube—American Society of Mechanical Engineers (ASME) B 16.25-1958. (Code 1960, As Amend., § 608.310; 98-Or-135, § 36, 11-13-98; 2012-Or-076, § 85, 11-16-12)

ARTICLE XI. - SPRINKLING DURING SHORTAGES[10]

Footnotes:

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***Editor's note**—Ord. No. 98-Or-135, § 37, adopted Nov. 13, 1998, renumbered Art. X as Art. XI. See also the editor's note at Ch. 509.*

509.1470. - Water use limited during emergency period.

No person shall draw or use water from the city water mains or the city water distribution system other than as permitted by the declaration of emergency during any period of emergency caused by shortage of water supply or lowering of water pressure in the water mains of the city. (77-Or-070, § 1, 4-7-77; 98-Or-135, § 38, 11-13-98; 2012-Or-076, § 86, 11-16-12)

509.1480. - Declaration of emergency.

The city engineer or the appointed representative of the city engineer shall declare the existence of such an emergency as and when it may become necessary, shall determine the period of such an emergency and the termination thereof, shall decide the daily hours of restriction, the method of restriction, and shall decide upon the proper notification to customers of such restrictions. (77-Or-070, § 2, 4-7-77; Pet. No. 251069, § 26, 12-15-89; 98-Or-135, § 39, 11-13-98)

509.1490. - Administrative fine.

For a first violation of the declaration of emergency, the occupant of the premises or the owner thereof will receive a warning of the offense. Subsequent violations of the declaration of emergency will result in a turnoff of the water supply to the premises. Written notice posted on the premises at the time of the violation will be considered sufficient notice prior to turnoff of the water supply. No water supply which has been turned off because of a violation of this article shall be turned on until an administrative fine in an amount as established in the schedule contained in the rate resolution has been paid to the Minneapolis Water Treatment and Distribution Services Division, together with the regular charge for water service turn off and on. The violation may also be subject to the penalties in Chapter 1 of this Code. (77-Or-070, § 3, 4-7-77; 98-Or-135, § 40, 11-13-98; 2012-Or-076, § 87, 11-16-12)

Appendix 11

Implementation Checklist

Water Supply Plan Checklist

All sections of the plan must be completed in order for the plan to be approved. The following checklist can be used to make sure all elements of the plan have been completed.

Part 1. Water Supply System Description and Evaluation

☑	Table 1. DNR Water Appropriation Permit Number & Utility Contact Information
☑	Table 2. Historic Water Demand (Part 1, A)
☑	Table 1. Large volume users (Part 1, A)
☑	Table 2. Water treatment capacity and treatment processes (Part 1, B
☑	Table 3. Storage capacity, as of the end of the last calendar year (Part 1, B)) & discussion of current and future storage capacity needs
☑	Table 4. Water sources & status (Part 1, C) & discussion of limitations
☑	Table 5. Projected annual water demand (Part 1, D) & discussion of water use trends & projection method
☑	Table 6. Source water quality monitoring (Part 1, E)
☑	Table 9. Water level data (Part 1, E)
☑	Table 10. Natural resource impacts (Part 1, E)
☑	Table 11. Status of Wellhead Protection and Source Water Protection Plans (Part 1, E)
☑	Table 12. Adequacy of Water Supply System (Part 1, F)
☑	Table 13. Proposed future installations/sources (Part 1, F)
☑	Table14. Alternative water sources (Part 1, F)
☑	Appendix 1: Well records and maintenance summaries
☑	Appendix 2: Water level monitoring plan
☑	Appendix 3: Water level graphs for each water supply well
☑	Appendix 4: Capital Improvement Plan

Part 2. Emergency Planning and Response Procedures

☑	Table 15. Emergency response plan contact information (Part 2, A) & Y/N questions
☑	Table 16. Interconnections with other water supply systems to supply water in an emergency (Part 2, C) & Y/N questions
☑	Table 17. Utilizing Surface Water as an Alternative Source (Part 2, C) & discussion of additional emergency water provisions
☑	Table 18. Water use priorities (Part 2, C)
☑	Table 19. Emergency demand reduction conditions, triggers and actions (Part 2, C)
☑	Table 20. Plan to Inform Customers Regarding Conservation Requests, Water Use Restrictions, and Suspensions (Part 2, C) & discussion of restriction authority
☑	Appendix 5: Emergency Telephone List
☑	Appendix 6: Cooperative Agreements for Emergency Services
☑	Appendix 7: Municipal Critical Water Deficiency Ordinance

Part 3. Water Conservation Plan

☑	Table 21. Implementation of previous ten-year Conservation Plan (Part 3, A) & discussion of progress and results
☑	Table 22. Short and long-term demand reduction conditions, triggers & actions (Part 3, A)
☑	Y/N & discussion of leak detection monitoring , water audits & water loss (Part 3, B)
☑	Table 23. Customer Meters (Part 3, B)
☑	Table 24. Water Source Meters (Part 3, B)
☑	Y/N & discussion of water use trends in residential GPCD (Part 3, B)
☑	Table 25. Strategies and timeframe to reduce residential per capita demand (Part 3, B)
☑	Table 26. Strategies and timeframe to reduce institutional, commercial, industrial, and agricultural and non-revenue use demand (Part 3, B)
☑	Describe trends in customer use categories (Part 3, B)
☑	Calculate ratio of maximum day demand to average day demand (Part 3, B)
☑	Table 27. Rate structures for each customer category (add additional rows as needed)
☑	Table 28. Additional strategies to Reduce Water Use & Support Wellhead Protection (Part 3, B)
☑	Discuss how you will track success (Part 3, B)
☑	Table 29. Regulations for short-term reductions in demand and long-term improvements in water efficiencies (Part 3, B)
☑	Table 30. Retrofitting programs (Part 3, B)
☑	Table 31. Current and Proposed Education Programs (Part 3, C) and discussion of future education plans
☑	Appendix 8: Graph showing annual per capita water demand for each customer category during the last ten-years
☑	Appendix 9: Water Rate Structure
☑	Appendix 10: Adopted or proposed regulations to reduce demand/improve water efficiency
☑	Appendix 11: Implementation Checklist

Part 4. Items Metropolitan Area Water Suppliers

☑	Table 32. Alternative Approaches (Part IV, D)
☑	Complete Technical Assistance question

Plan Submittal and Adoption

☑ Follow MPARS submission guidelines on page 1 of this document (preferred) or
Mail to: DNR Ecological & Water Resources
Water Permit Programs Supervisor
500 Lafayette Road
St. Paul, MN 55155-4032 Or e-mail to http://www.dnr.state.mn.us/mpars/index.html

☐ *(Metro communities with less than 1,000 people only)*
Follow MPARS submission guidelines on page 1 of this document (preferred) or
Mail to: Metropolitan Council
Reviews Coordinator
390 N Robert St
St. Paul, MN 55101 Or e-mail to ReviewsCoordinator@metc.state.mn.us