

# Internal Monitoring Report

**Policy #:** EL-2G Infrastructure  
**Frequency:** Annual

**Date:** May 23, 2017

## **Policy Language:**

The General Manager shall not cause or allow conditions, procedures, or decisions that prevent Madison Water Utility from meeting its obligation to serve current and future generations of customers within the City of Madison and its authorized service areas.

Accordingly, the General Manager shall not cause or allow conditions, procedures, or decisions that:

1. Fail to assure that required rates fund all expenditures for timely and prudent capital improvements to existing utility systems, and that those capital improvements are driven by reliability, operational or regulatory requirements, replacement of aging infrastructure, utility relocations for public works and road projects, or extension of the life of existing systems.
2. Fail to identify and plan for resource and infrastructure needs for the provision of water service to customers within the City of Madison and the Madison Water Utility's service areas consistent with a reasonable planning period for that service.
3. Fail to coordinate Madison Water Utility activities and policies with the City of Madison's Comprehensive Plan and other relevant guidelines for community development.
4. Fail to consider participation with other governmental or private entities on regional major water infrastructure or water supply planning projects.

## **General Manager's interpretation and its justification:**

This Executive Limitations policy requires that the Utility budget for, fund, prioritize, plan for, and construct the necessary system improvements to replace and sustain the Utility infrastructure for current and future generations. This policy recognizes that any and all long term planning shall be consistent with and comply with any and all City and regional plans. The Utility has the responsibility to establish, manage, and plan for the necessary water rates to fund all expenditures to meet identified capital and operational requirements. The Utility shall administer and conduct long term facility and system wide comprehensive planning to identify system needs and funding priorities. The Utility shall also maintain routine regular condition assessments of all facilities to allow for the planned upgrade and replacement of facilities to assure the long term capacity of the system to meet established levels of service. The Board has identified four specific areas: 1) financial planning, 2) asset management, 3) long term planning, and 4) City and Regional planning as key components of this policy.

### **Data directly addressing the General Manager's interpretation:**

1. *Assure that required rates fund the full cost of utility system capital improvements, and that those capital improvements are prioritized by reliability, operational or regulatory requirements, replacement of aging infrastructure, utility relocations for public works and road projects, or extension of the life of existing systems.*

Madison Water Utility continues to develop and refine its long term Capital Improvement Program (CIP) to meet short and long term goals and meet established customer levels of service. Madison Water is developing an Asset Management Program to evaluate the Business Risk Exposure (BRE) for all of our assets to identify critical replacement needs and maximize the return on investment. The Utility has developed and implemented a Water Master Plan to guide the development and expansion of the water system. This document, originally developed in 1964 is updated every 5 to 10 years.

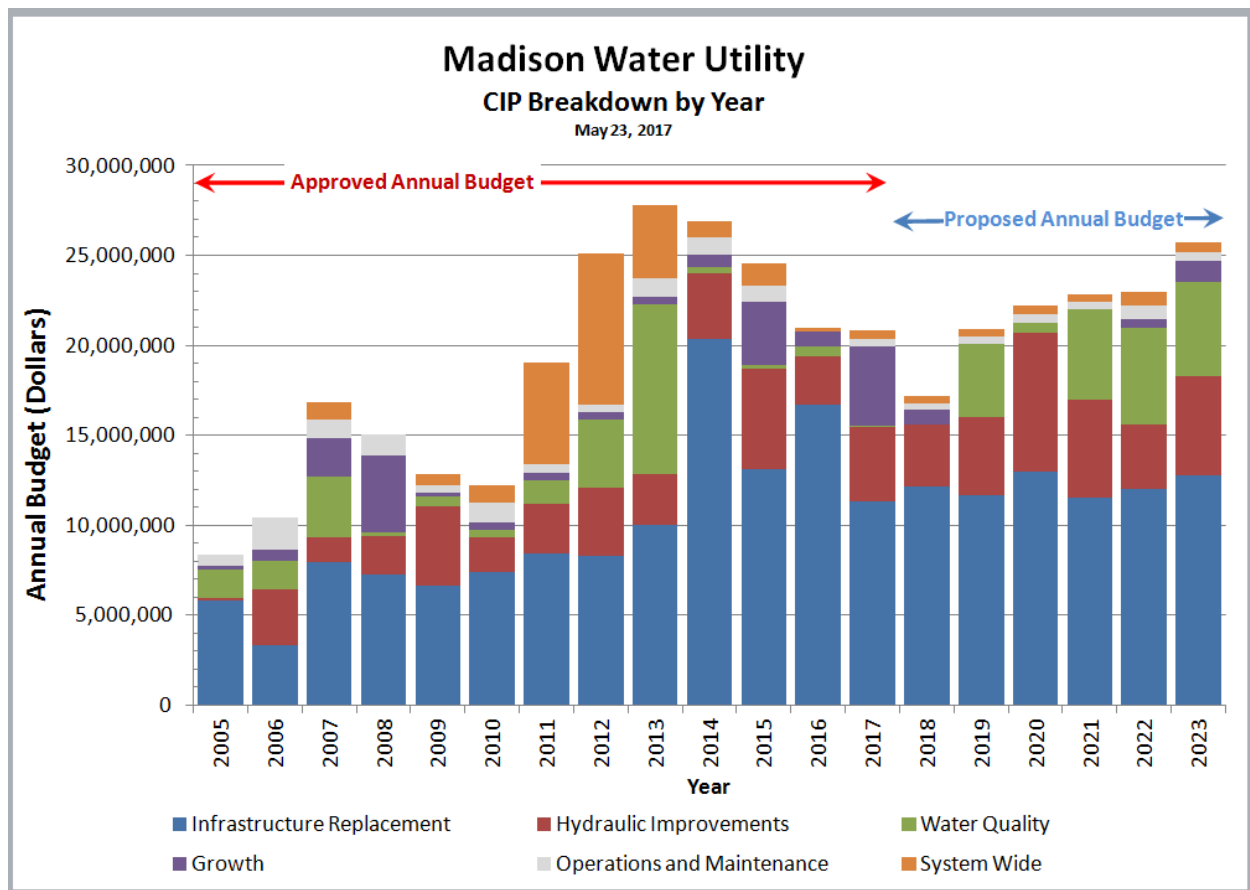
Madison Water Utility prepares and submits an annual Capital Budget to the Mayor of Madison for inclusion in the City budget. The annual capital improvement (CIP) budget for 2017 is based on the Utility's Water Master Plan, water quality issues, level of service policies, the Utility's Infrastructure Management Plan, other known capital improvement needs, itemized maintenance of the system, and the Utility's financial capacity to fund the CIP. The 2017 Capital Budget was drafted in May 2016, reviewed by the Water Utility Board, and approved by the Common Council in November 2016. A capital budget for the year 2018 is being developed for review by the Water Utility Board at their May meeting. The proposed 2018 capital budget provides budget projections through the year 2023 for long term planning purposes. During the 2018 capital budget preparation process, staff is currently considering infrastructure needs through the year 2030.

Projects included in the CIP are those identified as required to meet minimum levels of service established by the Utility. CIP projects include hydraulic upgrades, water quality improvements, and long term facility replacements identified and prioritized in the Water Master Plan, the Infrastructure Management Plan, and the East Side Water Supply Plan. It is anticipated that in May 2018 Asset Management techniques for minimizing business risk exposure will be implemented to help in the preparation of the budget for the year 2019.

The Utility's total annual capital budget capacity is based on the current and projected rate base and the Utility's borrowing capacity. Water rates and any projected rate increases are in compliance with the Water Board policy on the affordability of water. To manage water rates and ensure that the rate structure will cover anticipated capital expenditures and provide infrastructure renewal, the Utility has developed and uses a financial planning model to evaluate and project rate needs based on projected capital spending. As a part of the 2015 rate case submitted to the PSC, revenue projections and future rate increases were developed within the Utility water rate policy guidelines. Based on these rate projections and the Utility's borrowing capacity, the Capital Budget goal was established at approximately \$20 million per year (2015 dollars). This goal will be updated and reviewed as a part of the current rate case being developed by the Utility. It is expected that the current rate case will be submitted to the PSC in the summer of 2017.

The City’s Capital budget is currently being developed during April and May each year for submittal to the Water Board and the Mayor. The 2018 capital budget has been refined based on need, funding, current conditions, public feedback, and staff availability. The Mayor reviews the capital budget request and submits it to the Common Council for consideration and approval in November.

A copy of the approved Water Utility 2017 Capital Budget prepared and approved in November 2016 is attached for information and use. The approved capital budget covers authorized projects for 2017 and provides projections through the year 2022. The proposed 2018 capital budget provides projections through the year 2023. A graph illustrating the approved annual capital budgets from 2005 to 2017 and the projected annual budgets through the year 2023 is included below. The graph shows the total capital budget by year and also the breakdown by infrastructure replacement, hydraulic improvements, water quality improvements, growth, operations and maintenance, and system wide projects. This graph illustrates that the Utility has aggressively increased capital budget spending over the past decade to replace and upgrade its aging infrastructure. This graph also illustrates that the Utility is making a significant investment in water quality improvements throughout the system.



CIP spending is budgeted for the year in which the contract is signed and the funds are encumbered. This process allows the contract to be issued and fully funded within the

limitations of the approved budget. The majority of facility projects executed by the Utility span several years starting with conceptual development and then moving to final design and construction. While budgeting is required to cover anticipated contract costs, this does not indicate spending patterns nor does it project borrowing needs. Utility capital project borrowing is based on project spending as the work is completed.

Based on recommendations in the 2005 Infrastructure Management Plan, the Utility dedicated itself to actively funding infrastructure renewal. Reflecting that effort, funding of the CIP was increased from \$6 to \$8 million per year in 2004 and 2005 to its current level of \$20 million per year. With this increase in spending came an associated increase in required borrowing. Total Utility debt has grown significantly in the last 10 years.

To support this infrastructure renewal funding level, aggressive rate increases and innovative rate design will be required. The desire is to gain PSC approval to move to a more pay as you go rate model to fund infrastructure renewal. Going forward, to remain in compliance with Water Utility Board policy to limit annual rate increases to less than 10%, the Capital Budget annual goal will be approximately \$20 million per year in 2015 dollars. This funding level reflects a significant commitment to infrastructure renewal. Madison Water Utility infrastructure renewal efforts far exceed that done by other utilities across the State of Wisconsin and the majority of utilities across the country.

The Utility is developing an Asset Management Program to evaluate overall Utility capital reinvestment needs. The Asset Management Program will be developed over 3 to 5 years and will build on existing processes to assess and catalogue the condition of all of the Utility's assets and develop a long range process to maximize reinvestment. Through a process of assessment, risk analysis, preventive maintenance and planning, the Utility's investment in its capital assets will be maximized and a long term plan for system renewal will be implemented.

Capital budget projects currently underway in 2017 include over 8 miles of water main replacement, over two miles in pipe lining work, construction of the Blackhawk Reservoir, construction of Unit Well 31, and phase 2 of the reconstruction of the Paterson Street Operations Center. Reconstruction of Well 12 and its conversion to a two zone source of supply will start in 2018. Design of an iron, manganese, and radium removal filtration facility at Well 19 will get under way this year with construction scheduled for 2019. It is noted that over the past decade only a small percentage of CIP spending has been for assets required to support growth or expansion of the system.

I report compliance.

- 2. Identify and plan for resource and infrastructure needs for the provision of water service to customers within the City of Madison and the Madison Water Utility's service areas consistent with a reasonable planning period for that service.*

A system wide Water Master Plan has been used by Madison Water Utility for long term system planning since 1964. The plan is routinely updated every 5 to 10 years and outlines the needed

improvements to facilities and piping systems. The latest version of the Master Plan was developed from 2004 to 2006 and approved by the Water Utility Board in December 2006.

The Water Master Plan is a key planning tool for the preparation of the annual capital budget. During 2010 to 2012 the area east of the Yahara River including the north side and the southeast corner of the City, was evaluated for long term water demand and water quality needs. This planning project was titled the "East Side Water Supply Project". The East Side Water Supply Project verified the need for several water supply projects and identified several water quality improvement projects. The Utility has been actively completing those recommended projects over the last few years.

The consulting firm, Short Elliot and Hendrickson, was hired to assist with the update of the Utility's Water Master Plan. It is expected that the update of the Water Master Plan will be completed by the end of 2017. This update will use the water demand data from the Utility's AMI system. Using AMI data to update computer model demands, develop diurnal water demand curves, and evaluate seasonal peaking factors will be instrumental in improving our system planning model. It is anticipated that extensive modeling on system reliability, impacts of water conservation, and asset criticality will provide an excellent picture of long term capital needs. The Water Master Plan update will also look at financial planning parameters, financial capacity, and long term rate needs. This comprehensive Water Master Plan update will shape the development and renewal of the system for the next 20 years.

Madison Water Utility completed an Infrastructure Management Plan in 2005. This Plan evaluated and documented the condition of the Utility's assets with the objective of planning and budgeting for long term maintenance and replacement. The information gathered during the preparation of the Infrastructure Management Plan is used to identify needs, prioritize maintenance and replacement, and assist in the development of the annual capital budget.

Since completion of the 2005 Infrastructure Management Plan, the pipe replacement budget has increased by over 350% as the Utility works to replace an aging water distribution system. The Utility has approximately 400 miles of pipe to replace over the next several decades. Due to the heavy commitment to distribution system replacement, only critical facility upgrade projects have been completed over the past 10 years. It is expected that work on wells, pump stations, and reservoirs will continue to ramp up over the next several years. Routine inspections and facility assessments are continuing and work is planned and prioritized as determined by the inspections.

The asset management team continues to work with GHD, Inc. to craft a strategic asset management plan (SAMP) to guide the development of a full-scale asset management program. The asset management development effort is a multi-year, phased initiative focused on improving Madison Water Utility's overall efficiencies and effectiveness in delivering services to its customers. The asset management team recently finished reviewing a "roadmap" created by GHD. The "roadmap" provides a set of tasks that, when complete, will result in a functional asset management program. One of the first tasks to be completed will be assessing the "business risk exposure" of each of the utility's assets. The business risk exposure (BRE) can best be understood as the probability an asset will fail (PoF) multiplied by the asset's consequence of failing (CoF). The BRE will then provide MWU with a way to A) rank potential

capital improvements and B) prioritize maintenance strategies for existing facilities. The completed SAMP and roadmap will be finished by July when GHD is scheduled to present the roadmap to the Water Board and perform its final staff training.

I report compliance.

- 3. Coordinate Madison Water Utility activities and policies with the City of Madison's Comprehensive Plan and other relevant guidelines for community development.*

Madison Water Utility works closely with the City Planning Department during the preparation of the Water Master Plan to ensure coordination and compliance with City long term planning efforts. Population estimates, development patterns and neighborhood plans are drawn from the City of Madison Planning Department's Comprehensive Plan and other planning documents. Utility engineering staff relies on the Planning Department to revise and update the City Comprehensive Plan per community development patterns and guidelines, changes in Zoning codes and revisions to economic development projections within the planning area.

I report compliance.

- 4. Participate with other governmental or private entities on regional major water infrastructure or water supply planning projects.*

During the past year, no major regional water infrastructure or water supply projects were developed or planned. Madison Water Utility is forming a working group with Madison Metropolitan Sewerage District and City Engineering to develop a comprehensive water sustainability plan. The Utility is dedicated to protecting the groundwater resource and promoting long term water conservation initiatives.

To address regional planning issues, Madison Water Utility participates in regional water groups as they develop and is an advocate of regional water supply planning. Over the years, the Utility has facilitated some high level discussions within Dane County regarding regional groundwater management. Utility management, water quality and engineering staff actively participate on Wisconsin Section of the American Water Works Association committees. AWWA committee participation facilitates the exchange of information and ideas with regard to drinking water industry issues and regulations.

I report compliance.

# Water Utility

## Capital Improvement Plan

### Project Summary

	2017	2018	2019	2020	2021	2022
Booster Pump Station 109 (Spaanem Ave)	81,000	1,725,960	617,000	-	-	-
Booster Station #106 Reconstruction	-	-	818,000	-	-	-
BPS 129 Reconstruction	-	-	131,000	2,484,840	574,000	-
Far West Elevated Reservoir	4,011,000	-	-	-	1,309,000	-
Lakeview Reservoir Reconstruction	858,000	-	60,000	1,759,800	-	-
Paterson St Remodel	4,325,000	-	-	-	-	-
Pump Station Improvements	877,000	1,000,300	1,070,600	1,196,900	1,010,200	1,061,600
Unit Well 12 Conversion to a Two Zone Well	102,000	2,373,280	1,017,120	-	-	-
Unit Well No. 8 Reconstruction	50,000	110,000	-	-	-	-
Voc Air Stripper At Well 18	-	-	-	-	5,000	255,000
Water Mains - New	1,000,000	1,100,000	1,924,000	2,067,000	2,222,000	2,391,000
Water Mains Replace Rehab Improve	8,500,000	10,000,000	10,730,000	11,522,000	12,129,000	12,776,000
Water Utility Facility Improvements	168,000	235,000	1,120,000	660,000	617,000	1,341,000
Well 19 Iron/Manganese Filter	-	678,800	2,974,400	-	-	-
Well 28 Iron and Manganese Filter	-	-	-	107,660	2,632,320	1,107,660
Well 30 Iron and Manganese Filter	-	-	-	-	330,000	2,200,000
Well 7 Area Hydraulic Improvements	-	-	-	842,000	-	-
Zone 4 Fire Flow Supply Augment	5,512,500	-	271,000	697,000	-	-
Zones 7 & 8 Supply: Whitney Way	-	-	-	65,000	555,000	1,134,000
<b>Total</b>	<b>\$ 25,484,500</b>	<b>\$ 17,223,340</b>	<b>\$ 20,733,120</b>	<b>\$ 21,402,200</b>	<b>\$ 21,383,520</b>	<b>\$ 22,266,260</b>

### Changes from 2016 CIP

Project	Change
Booster Pump Station 109 (Spaanem Ave)	Project added to CIP
Booster Station #106 Reconstruction	Project budget decreased
BPS 129 Reconstruction	Project added to CIP
Far West Elevated Reservoir	Project completion deferred 1 year
Lakeview Reservoir Reconstruction	Project construction deferred 2 years
Pump Station Improvements	Program budget increased
Unit Well No. 8 Reconstruction	Project deferred 2 years; beyond 2017 CIP
Water Mains Replace Rehab Improve	Program budget decreased
Water Utility Facility Improvements	Program budget decreased
Well 19 Iron/Manganese Filter	Project deferred 2 years
Well 28 Iron and Manganese Filter	Project added to CIP
Well 29 Filter Capacity Expansion	Project eliminated from CIP
Well 30 Iron and Manganese Filter	Project added to CIP
Well 7 Area Hydraulic Improvements	Project added to CIP
Zone 4 Fire Flow Supply Augment	Project deferred 1 year and total cost increased
Zones 7 & 8 Supply: Whitney Way	Project deferred 1 year and total cost reduced

# Water Utility

## Budget Overview

### 2017 CIP by Expenditure Type

	2017	2018	2019	2020	2021	2022
Water Network	25,484,500	17,223,340	20,733,120	21,402,200	21,383,520	22,266,260
<b>Total</b>	<b>\$ 25,484,500</b>	<b>\$ 17,223,340</b>	<b>\$ 20,733,120</b>	<b>\$ 21,402,200</b>	<b>\$ 21,383,520</b>	<b>\$ 22,266,260</b>

### 2017 CIP by Funding Source

	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	25,484,500	17,223,340	20,733,120	21,402,200	21,383,520	22,266,260
<b>Total</b>	<b>\$ 25,484,500</b>	<b>\$ 17,223,340</b>	<b>\$ 20,733,120</b>	<b>\$ 21,402,200</b>	<b>\$ 21,383,520</b>	<b>\$ 22,266,260</b>

### Borrowing Summary

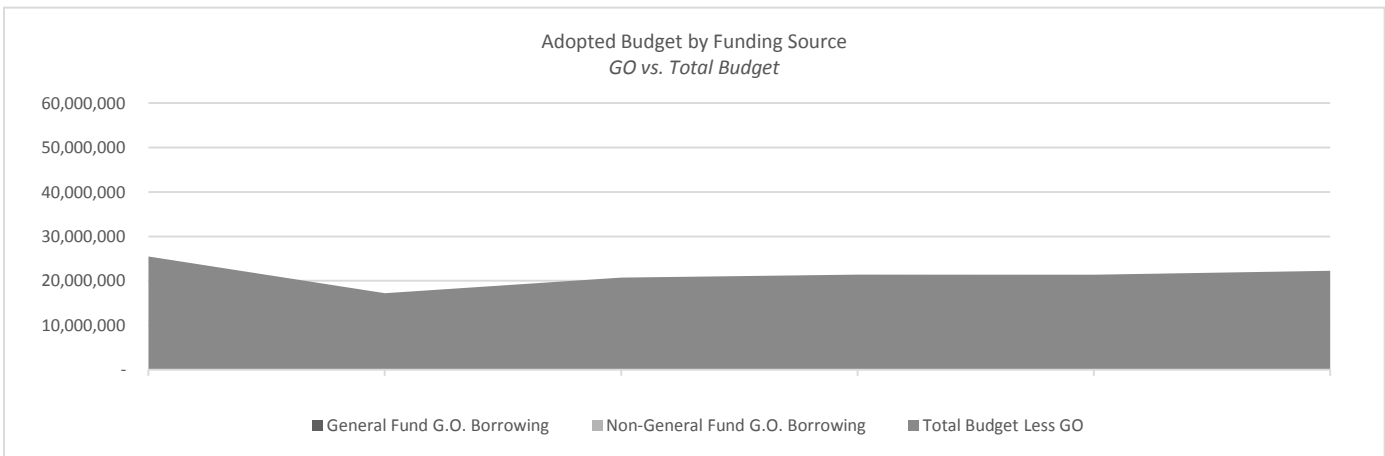
	2017	2018	2019	2020	2021	2022
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#### Borrowing Schedule

General Fund G.O. Borrowing	-	-	-	-	-	-
Non-General Fund G.O. Borrowing	-	-	-	-	-	-
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

#### Annual Debt Service

General Fund G.O. Borrowing	-	-	-	-	-	-
Non-General Fund G.O. Borrowing	-	-	-	-	-	-





# Water Utility

## Project Overview

**Project:** Arbor Hills Fire Flow Supply **Project #:** 10435

**Project Description:**

This project funds the final phase of construction for booster pump station #118. The project will construct pipeline that will allow for full functionality of the booster pump station.

### Project Budget by Funding Source

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	642,000	-	-	-	-	-	-
<b>TOTAL</b>	<b>\$ 642,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**Project:** Asset Management System **Project #:** 17097

**Project Description:**

This project develops a city-wide asset management program. The project includes a software system where specific program area functions will be configured to meet the needs of Public Works agencies.

### Project Budget by Funding Source

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	200,000	-	-	-	-	-	-
<b>TOTAL</b>	<b>\$ 200,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**Project:** Booster Pump Station 109 (Spaanem Ave) **Project #:** 11605

**Project Description:**

This project funds a booster pumping station for Madison's east side to improve operational functionality and reliability to the water supply system.

### Project Budget by Funding Source

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	-	81,000	1,725,960	617,000	-	-	-
<b>TOTAL</b>	<b>\$ -</b>	<b>\$ 81,000</b>	<b>\$ 1,725,960</b>	<b>\$ 617,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**Project:** Booster Station #106 Reconstruction **Project #:** 10444

**Project Description:**

This project funds hydraulic capacity improvements at booster pump station 106.

### Project Budget by Funding Source

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	880,000	-	-	818,000	-	-	-
<b>TOTAL</b>	<b>\$ 880,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 818,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**Project:** BPS 129 Reconstruction **Project #:** 17601

**Project Description:**

This project constructs a new booster pump station located on North Thompson Drive on the City's northeast side. The goal of the project is to increase water transfer capacity from Zone 6E to Zone 3. Construction is planned for 2020.

### Project Budget by Funding Source

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	-	-	-	131,000	2,484,840	574,000	-
<b>TOTAL</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 131,000</b>	<b>\$ 2,484,840</b>	<b>\$ 574,000</b>	<b>\$ -</b>

**Project:** Far West Elevated Reservoir **Project #:** 10445

**Project Description:**

This project constructs a reservoir on Madison's far west side. The goal of the project is to reduce pressure on the High Point Reservoir to ensure adequate supply for regular usage and to meet minimum fire flow needs. The project was called for in the 2006 Water Master Plan. Construction is planned for 2017.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	194,000	4,011,000	-	-	-	1,309,000	-
<b>TOTAL</b>	<b>\$ 194,000</b>	<b>\$ 4,011,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,309,000</b>	<b>\$ -</b>

**Project:** Lakeview Reservoir Reconstruction **Project #:** 10439

**Project Description:**

This project will continue reconstruction efforts at Lakeview Reservoir.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	1,121,000	858,000	-	60,000	1,759,800	-	-
<b>TOTAL</b>	<b>\$ 1,121,000</b>	<b>\$ 858,000</b>	<b>\$ -</b>	<b>\$ 60,000</b>	<b>\$ 1,759,800</b>	<b>\$ -</b>	<b>\$ -</b>

**Project:** Paterson St Remodel **Project #:** 10442

**Project Description:**

This project funds renovations of the Water Utility Operations Center at Paterson Street. Construction began in 2015 and will be completed in 2017. The reconstructed space will address existing space limitations and improve employee safety.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	-	4,325,000	-	-	-	-	-
<b>TOTAL</b>	<b>\$ -</b>	<b>\$ 4,325,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**Project:** Pump Station Improvements **Project #:** 10446

**Project Description:**

This program funds improvements to pump stations, pressure reducing valve (PRV) stations, well improvements, and tasks recommended by the Water Utility Master Plan.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	148,000	877,000	1,000,300	1,070,600	1,196,900	1,010,200	1,061,600
<b>TOTAL</b>	<b>\$ 148,000</b>	<b>\$ 877,000</b>	<b>\$ 1,000,300</b>	<b>\$ 1,070,600</b>	<b>\$ 1,196,900</b>	<b>\$ 1,010,200</b>	<b>\$ 1,061,600</b>

**Project:** Unit Well 12 Conversion to a Two Zone Well **Project #:** 10452

**Project Description:**

This project will convert Well 12 to a two zone well. The goal of the project is to maximize operational flexibility and reliability to the west side supply system. Construction is planned for 2018 and 2019.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	719,000	102,000	2,373,280	1,017,120	-	-	-
<b>TOTAL</b>	<b>\$ 719,000</b>	<b>\$ 102,000</b>	<b>\$ 2,373,280</b>	<b>\$ 1,017,120</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**Project:** Unit Well No. 8 Reconstruction **Project #:** 10944

**Project Description:**

The project upgrades and replaces Well 8 located on Lakeland Avenue on the City's East side. The project scope includes installation of a filter for iron and manganese to address current water quality issues at Well 8. Construction is scheduled for 2018.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	25,000	50,000	110,000	-	-	-	-
<b>TOTAL</b>	<b>\$ 25,000</b>	<b>\$ 50,000</b>	<b>\$ 110,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**Project:** Voc Air Stripper At Well 18 **Project #:** 12016

**Project Description:**

This project will construct a volatile organic compound (VOC) air stripper at Well 18 located on South Park Street. Recent water quality analysis has shown increasing VOC levels in the water supply in the well area. Construction is planned in 2022.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	-	-	-	-	-	5,000	255,000
<b>TOTAL</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 5,000</b>	<b>\$ 255,000</b>

**Project:** Water Mains - New **Project #:** 10856

**Project Description:**

This program installs new water mains to help strengthen the existing distribution system, improve pressures, improve fire protection, allow transfer of water from pressure zone to pressure zone, and serve the growing Madison area. Newly installed mains will include hydraulic improvements consistent with the Water Utility Master Plan.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	200,000	1,000,000	1,100,000	1,924,000	2,067,000	2,222,000	2,391,000
<b>TOTAL</b>	<b>\$ 200,000</b>	<b>\$ 1,000,000</b>	<b>\$ 1,100,000</b>	<b>\$ 1,924,000</b>	<b>\$ 2,067,000</b>	<b>\$ 2,222,000</b>	<b>\$ 2,391,000</b>

**Project:** Water Mains Replace Rehab Improve **Project #:** 10432

**Project Description:**

This program replaces and upgrades existing water mains. Assessment of an aging infrastructure indicates the Utility must replace or rehabilitate over 400 miles of pipe in over a 40 year period to renew and maintain the system. This program works in conjunction with the timing of several Engineering - Major Streets Reconstruction Streets projects.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	-	8,500,000	10,000,000	10,730,000	11,522,000	12,129,000	12,776,000
<b>TOTAL</b>	<b>\$ -</b>	<b>\$ 8,500,000</b>	<b>\$ 10,000,000</b>	<b>\$ 10,730,000</b>	<b>\$ 11,522,000</b>	<b>\$ 12,129,000</b>	<b>\$ 12,776,000</b>

**Project:** Water Utility Facility Improvements **Project #:** 10440

**Project Description:**

This program funds miscellaneous project repair, improvements to Utility facilities, and security improvements.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	200,000	168,000	235,000	1,120,000	660,000	617,000	1,341,000
<b>TOTAL</b>	<b>\$ 200,000</b>	<b>\$ 168,000</b>	<b>\$ 235,000</b>	<b>\$ 1,120,000</b>	<b>\$ 660,000</b>	<b>\$ 617,000</b>	<b>\$ 1,341,000</b>

**Project:** Well 19 Iron/Manganese Filter **Project #:** 10448

**Project Description:**

This project constructs an iron and manganese filter at Well 19 to address existing water quality issues. This well is located in the west UW-Madison campus area. Construction is planned for 2019.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	115,000	-	678,800	2,974,400	-	-	-
<b>TOTAL</b>	<b>\$ 115,000</b>	<b>\$ -</b>	<b>\$ 678,800</b>	<b>\$ 2,974,400</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**Project:** Well 28 Iron and Manganese Filter **Project #:** 17604

**Project Description:**

This project constructs a new booster pump station located on Old Sauk Road on the City's west side. The goal of the project is to increase water transfer capacity from Zone 6E to Zone 3. Construction is planned for 2021.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	-	-	-	-	107,660	2,632,320	1,107,660
<b>TOTAL</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 107,660</b>	<b>\$ 2,632,320</b>	<b>\$ 1,107,660</b>

**Project:** Well 30 Iron and Manganese Filter **Project #:** 17603

**Project Description:**

This project constructs an iron and manganese filter at Well 30 located on Moorland Road on the City's south side. The goal of the project is to address existing water quality standards. Planning will begin in 2021; construction is planned for 2022.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	-	-	-	-	-	330,000	2,200,000
<b>TOTAL</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 330,000</b>	<b>\$ 2,200,000</b>

**Project:** Well 7 Area Hydraulic Improvements **Project #:** 17602

**Project Description:**

This project will provide for hydraulic capacity improvements to the distribution system at Well 7. The goal of the project is to provide for the full capacity of the updated well which was constructed in 2015. Construction is planned for 2020.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	-	-	-	-	842,000	-	-
<b>TOTAL</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 842,000</b>	<b>\$ -</b>	<b>\$ -</b>

**Project:** Zone 4 Fire Flow Supply Augment **Project #:** 10434

**Project Description:**

This project will construct unit well 31 located on Tradewinds Parkway on the City's southeast side. The project will correct a significant system deficiency in the southeast corner of the system identified by the Water Utility Master Plan. Construction began in 2015 with the construction of a site ground reservoir. The well house, filter, and booster pump station will be constructed in 2017. The well will be finished and fully operational in 2018.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	-	5,512,500	-	271,000	697,000	-	-
<b>TOTAL</b>	<b>\$ -</b>	<b>\$ 5,512,500</b>	<b>\$ -</b>	<b>\$ 271,000</b>	<b>\$ 697,000</b>	<b>\$ -</b>	<b>\$ -</b>

**Project:** Zones 7 & 8 Supply: Whitney Way

**Project #:** 10438

*Project Description:*

This project constructs an additional well to serve Madison's west side. Construction of the new location is in anticipation of continued growth to Madison's west side. Planning and design is scheduled to begin in 2020, with the new well being functional in 2024.

**Project Budget by Funding Source**

	Reauth	2017	2018	2019	2020	2021	2022
Revenue Bonds - Capitalized	-	-	-	-	65,000	555,000	1,134,000
<b>TOTAL</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 65,000</b>	<b>\$ 555,000</b>	<b>\$ 1,134,000</b>

# Water Utility

## 2017 Appropriation Schedule

### 2017 Appropriation

### Adopted Budget

	Request	Executive	GO Borrowing	Other	Total
Booster Pump Station 109 (Spaanem Ave)	81,000	81,000	-	81,000	81,000
Far West Elevated Reservoir	2,732,000	4,011,000	-	4,011,000	4,011,000
Lakeview Reservoir Reconstruction	858,000	858,000	-	858,000	858,000
Paterson St Remodel	2,235,000	4,685,000	-	4,325,000	4,325,000
Pump Station Improvements	877,000	877,000	-	877,000	877,000
Unit Well 12 Conversion to a Two Zone Well	102,000	102,000	-	102,000	102,000
Unit Well No. 8 Reconstruction	50,000	50,000	-	50,000	50,000
Water Mains - New	1,000,000	1,000,000	-	1,000,000	1,000,000
Water Mains Replace Rehab Improve	8,500,000	8,500,000	-	8,500,000	8,500,000
Water Utility Facility Improvements	168,000	168,000	-	168,000	168,000
Zone 4 Fire Flow Supply Augment	4,212,500	5,512,500	-	5,512,500	5,512,500
<b>Total</b>	<b>\$ 20,815,500</b>	<b>\$ 25,844,500</b>	<b>\$ -</b>	<b>\$ 25,484,500</b>	<b>\$ 25,484,500</b>

### Reauthorized Appropriation

	GO Borrowing	Other	Total
Arbor Hills Fire Flow Supply	-	642,000	642,000
Asset Management System	-	200,000	200,000
Booster Station #106 Reconstruction	-	880,000	880,000
Far West Elevated Reservoir	-	194,000	194,000
Lakeview Reservoir Reconstruction	-	1,121,000	1,121,000
Pump Station Improvements	-	148,000	148,000
Unit Well 12 Conversion to a Two Zone Well	-	719,000	719,000
Unit Well No. 8 Reconstruction	-	25,000	25,000
Water Mains - New	-	200,000	200,000
Water Utility Facility Improvements	-	200,000	200,000
Well 19 Iron/Manganese Filter	-	115,000	115,000
<b>Total</b>	<b>\$ -</b>	<b>\$ 4,444,000</b>	<b>\$ 4,444,000</b>

### Total 2017 Appropriation

	<b>\$ -</b>	<b>\$ 29,928,500</b>	<b>\$ 29,928,500</b>
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