

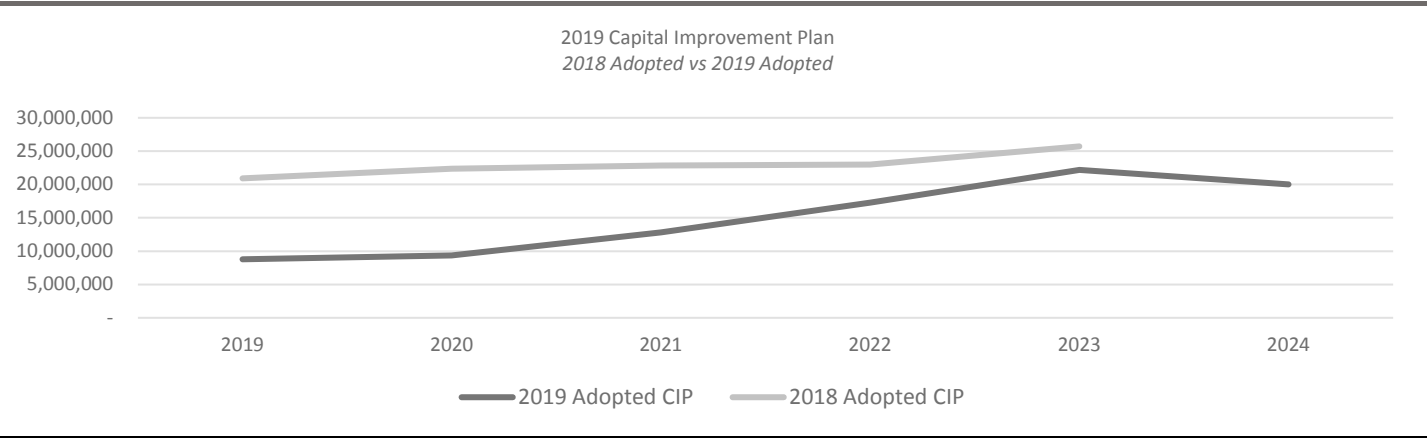
# Water Utility

## Capital Improvement Plan

### Project Summary

|                                            | 2019         | 2020         | 2021          | 2022          | 2023          | 2024          |
|--------------------------------------------|--------------|--------------|---------------|---------------|---------------|---------------|
| Booster Pump Station 109 (Spaanem Ave)     | -            | -            | -             | -             | 345,000       | 2,873,000     |
| Booster Pump Station 129 Reconstruction    | -            | -            | -             | 384,240       | 4,330,000     | -             |
| Booster Station 106 Reconstruction         | -            | -            | -             | -             | -             | 813,000       |
| Far West Elevated Reservoir                | -            | -            | -             | -             | -             | 1,355,000     |
| Lakeview Reservoir Reconstruction          | -            | -            | 2,081,000     | -             | -             | 680,000       |
| Unit Well 12 Conversion to a Two Zone Well | -            | -            | 228,960       | 3,816,000     | 804,000       | -             |
| Water Mains - New                          | 1,382,000    | 1,317,000    | 1,396,000     | 2,261,000     | 2,397,000     | 2,541,000     |
| Water Mains Replace Rehab Improve - Paver  | 2,020,000    | 1,317,000    | 1,820,000     | 1,929,000     | 2,045,000     | 2,168,000     |
| Water Mains Replace Rehab Improve - Pipe I | -            | 1,040,000    | 1,082,000     | 1,125,000     | 1,170,000     | 1,217,000     |
| Water Mains Replace Rehab Improve - Recor  | 4,887,000    | 5,180,000    | 5,491,000     | 5,820,000     | 6,169,000     | 6,539,000     |
| Water Utility Facility Improvements        | 491,000      | 512,000      | 704,000       | 1,132,000     | 768,000       | 1,158,100     |
| Well 14 Mitigation                         | -            | -            | -             | 801,000       | 4,160,000     | -             |
| Well 19 Iron and Manganese Filter          | -            | -            | -             | -             | -             | 665,330       |
| Total                                      | \$ 8,780,000 | \$ 9,366,000 | \$ 12,802,960 | \$ 17,268,240 | \$ 22,188,000 | \$ 20,009,430 |

### Changes from 2018 CIP



## Project Adjustments

- Booster Pump Station 109 (Spaanem Ave): Project construction deferred from 2020 to 2024.
- Booster Pump Station 129 Reconstruction: Project construction deferred from 2019 to 2023.
- Booster Pump Station 106 Reconstruction: Project construction deferred from 2020 to 2024.
- Far West Elevated Reservoir: Project construction deferred from 2021 to 2024.
- Lakeview Reservoir Reconstruction: Project construction deferred from 2020 to 2021.
- Unit Well 12 Conversion: Project budget increased; Project construction advanced from 2023 to 2022 (\$3.2m)
- VOC Air Stripper at Well 18: Project removed from CIP (\$0.47m)
- Well 14 Mitigation: Project removed from CIP (\$4.96m)
- Well 19 Iron/Manganese Filter: Planning deferred to 2024; project construction removed from CIP (\$4.0m)
- Well 24 Iron/Manganese Filter: Project removed from CIP (\$0.57m)
- Well 28 Iron/Manganese Filter: Project removed from CIP (\$4.98m)
- Well 30 Iron/Manganese Filter: Project removed from CIP (\$5.18m)
- Well 7 Area Hydraulic Improvements: Project removed from CIP (\$0.87)
- Zone 4 Fire Flow Supply Augment: Project removed from CIP (\$1.09m)
- Zones 7 & 8 Supply - Whitney Way: Project removed from CIP (\$1.65m)

## Program Adjustments

- Water Mains - New: Program budget decreased in out-years (\$5.5m)
- Water Mains Replace Rehab Improve - Pavement Management: Program budget decreased in out-years (\$15.65m)
- Water Mains Replace Rehab Improve - Pipe Lining: Program budget decreased in out-years (\$1.22m)
- Water Mains Replace Rehab Improve - Reconstruction Streets: Program budget increased in out-years (\$3.4m)
- Water Utility Facility Improvements: Program budget decreased in out-years (\$4.15m)

# Water Utility

## Budget Overview

### 2019 CIP by Expenditure Type

|                         | 2019         | 2020         | 2021          | 2022          | 2023          | 2024          |
|-------------------------|--------------|--------------|---------------|---------------|---------------|---------------|
| Building                | 112,000      | 118,000      | 1,978,960     | 4,906,240     | 3,872,000     | 4,235,430     |
| Machinery and Equipment | 379,000      | 394,000      | 410,000       | 426,000       | 443,000       | 461,000       |
| Other                   | -            | -            | 5,000         | -             | 7,000         | -             |
| Water Network           | 8,289,000    | 8,854,000    | 10,409,000    | 11,936,000    | 17,866,000    | 15,313,000    |
| Total                   | \$ 8,780,000 | \$ 9,366,000 | \$ 12,802,960 | \$ 17,268,240 | \$ 22,188,000 | \$ 20,009,430 |

### 2019 CIP by Funding Source

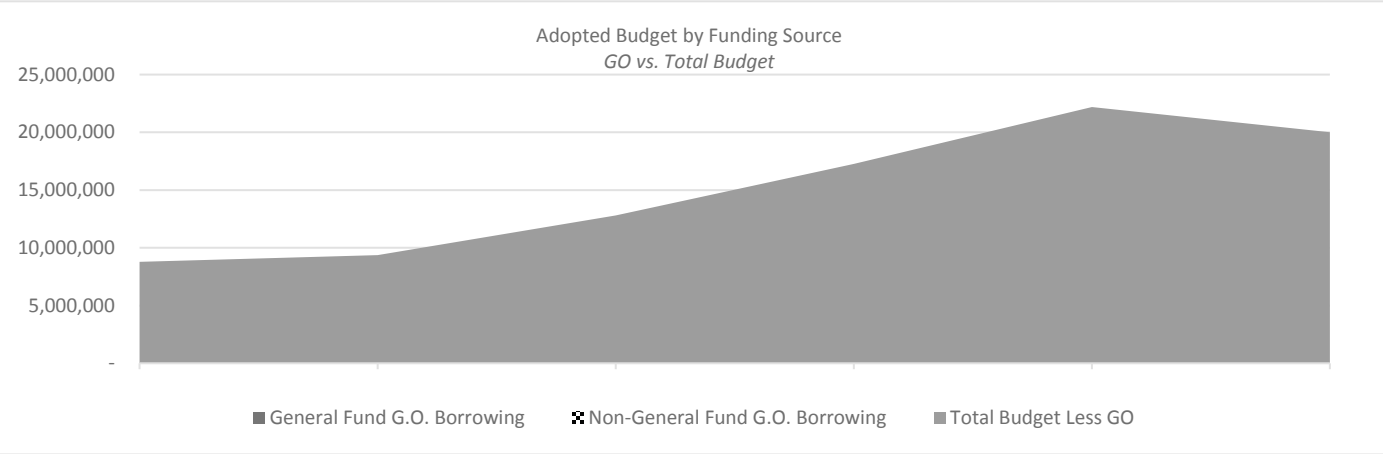
|               | 2019         | 2020         | 2021          | 2022          | 2023          | 2024          |
|---------------|--------------|--------------|---------------|---------------|---------------|---------------|
| Revenue Bonds | 8,780,000    | 9,366,000    | 12,802,960    | 17,268,240    | 22,188,000    | 20,009,430    |
| Total         | \$ 8,780,000 | \$ 9,366,000 | \$ 12,802,960 | \$ 17,268,240 | \$ 22,188,000 | \$ 20,009,430 |

### Borrowing Summary

|                                 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---------------------------------|------|------|------|------|------|------|
| <b>Borrowing Schedule</b>       |      |      |      |      |      |      |
| General Fund G.O. Borrowing     | -    | -    | -    | -    | -    | -    |
| Non-General Fund G.O. Borrowing | -    | -    | -    | -    | -    | -    |
| Total                           | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |

### Annual Debt Service

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



## Project Overview

|                |                                               |                  |              |
|----------------|-----------------------------------------------|------------------|--------------|
| <b>Project</b> | <b>Booster Pump Station 109 (Spaanem Ave)</b> | <b>Project #</b> | <b>11605</b> |
|----------------|-----------------------------------------------|------------------|--------------|

This project funds construction of a booster pumping station at Spaanem Avenue on the City's east side. The goal of the project is to facilitate the movement of water from an area with excess supply to an area that is undersupplied. The project will improve overall system reliability, increase operational flexibility, and improve service to system consumers in the service area. Funding in 2023 is for design; funding in 2024 is for construction.

|               | Reauth           | 2019        | 2020        | 2021        | 2022        | 2023              | 2024                |
|---------------|------------------|-------------|-------------|-------------|-------------|-------------------|---------------------|
| Revenue Bonds | 81,000           | -           | -           | -           | -           | 345,000           | 2,873,000           |
| <b>TOTAL</b>  | <b>\$ 81,000</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 345,000</b> | <b>\$ 2,873,000</b> |

This project funds the upgrade of Booster Pump Station 129 on the City's northeast side. The goal of the project is to increase water transfer capacity from Zone 6E to Zone 3 in that area. This project will replace the temporary pump station constructed on the Well 29 site in 1990, and provide additional water supply needed on the far east side of Madison. Funding in 2022 is for design; funding in 2023 is for construction.

|               | Reauth      | 2019        | 2020        | 2021        | 2022              | 2023                | 2024        |
|---------------|-------------|-------------|-------------|-------------|-------------------|---------------------|-------------|
| Revenue Bonds | -           | -           | -           | -           | 384,240           | 4,330,000           | -           |
| <b>TOTAL</b>  | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 384,240</b> | <b>\$ 4,330,000</b> | <b>\$ -</b> |

This project funds the piping network at Booster Station #106 near Tokay Blvd and Midvale Blvd. The goal of the project is to enhance system reliability, improve fire protection, and improve the hydraulic capacity in the Sunset Hills area. Booster pumping station 106 was reconstructed in 2013 and provides a key water supply point to the west side. Funding in 2024 is for construction.

|               | Reauth | 2019 | 2020 | 2021 | 2022 | 2023 | 2024    |
|---------------|--------|------|------|------|------|------|---------|
| Revenue Bonds | -      | -    | -    | -    | -    | -    | 813,000 |
| TOTAL         | \$ -   | \$ - | \$ - | \$ - | \$ - | \$ - | 813,000 |

This project is for the construction of a reservoir on Madison's far west side (also known as the Blackhawk Reservoir). The goal of the project is to add one million gallons of elevated water storage capacity to the far west side of Madison to allow development, improve system reliability, increase firefighting capacity, and increase emergency water reserves. Funding in 2024 is for construction.

[illegible]

### Project Description

This project funds reconstruction of the Lakeview Reservoir at Lake View Avenue on the City's north side. The goal of the project is to upgrade the existing booster pumping station to improve efficiency, increase capacity, and provide reliability to the pumping system. Pipelines will be upgraded in the system to increase hydraulic capacity and improve fire protection. Funding in 2021 is for the first phase of construction; funding in 2024 is for the final phase of construction.

### Project Budget by Funding Source

|               | Reauth      | 2019        | 2020        | 2021                | 2022        | 2023        | 2024              |
|---------------|-------------|-------------|-------------|---------------------|-------------|-------------|-------------------|
| Revenue Bonds | -           | -           | -           | 2,081,000           | -           | -           | 680,000           |
| <b>TOTAL</b>  | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 2,081,000</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 680,000</b> |

### Project Description

This project funds rebuilding and expanding Well 12 located on South Whitney Way. The goal of the project is to provide water supply capacity to five existing pressure zones which represents the majority of the City's west side. The system flexibility provided by this project will improve service reliability and maximize water supply. Funding in 2021 is for design; funding in 2022 and 2023 is for construction.

### Project Budget by Funding Source

|               | Reauth      | 2019        | 2020        | 2021              | 2022                | 2023              | 2024        |
|---------------|-------------|-------------|-------------|-------------------|---------------------|-------------------|-------------|
| Revenue Bonds | -           | -           | -           | 228,960           | 3,816,000           | 804,000           | -           |
| <b>TOTAL</b>  | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 228,960</b> | <b>\$ 3,816,000</b> | <b>\$ 804,000</b> | <b>\$ -</b> |

### Project Description

This project funds upgrades to Well 8 at Lakeland Avenue on the City's east side. The project scope includes installing a filter for iron and manganese to address current water quality issues at Well 8. The goal of the project is to reduce iron and manganese to diminish colored water events and the need for system flushing.

### Project Budget by Funding Source

[illegible]

### Project Description

This program funds installing new water mains throughout the City. The goal of the program is to strengthen and expand the existing distribution system, improve water pressure, improve fire protection, allow transfer of water between pressure zones, and to serve the growing areas of the City. Newly installed mains include hydraulic improvements consistent with the Water Utility Master Plan. Planned projects in 2019 include: County Highway M at Midtown Road and Raymond Road, Cottage Grove

### Project Budget by Funding Source

|               | Reauth              | 2019                | 2020                | 2021                | 2022                | 2023                | 2024                |
|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Revenue Bonds | 2,617,350           | 1,382,000           | 1,317,000           | 1,396,000           | 2,261,000           | 2,397,000           | 2,541,000           |
| <b>TOTAL</b>  | <b>\$ 2,617,350</b> | <b>\$ 1,382,000</b> | <b>\$ 1,317,000</b> | <b>\$ 1,396,000</b> | <b>\$ 2,261,000</b> | <b>\$ 2,397,000</b> | <b>\$ 2,541,000</b> |

|                |                                                                    |                  |              |
|----------------|--------------------------------------------------------------------|------------------|--------------|
| <b>Project</b> | <b>Water Mains Replace Rehab<br/>Improve - Pavement Management</b> | <b>Project #</b> | <b>11894</b> |
|----------------|--------------------------------------------------------------------|------------------|--------------|

*Project Description*

This program funds replacing existing water mains in conjunction with the repaving of roads as part of the City's Engineering-Major Streets Pavement Management program. The goal of the program is to update the water infrastructure reducing the risk of pipe failure. The program aligns with the Water Utility's goal to replace or rehabilitate over 400 miles of aging pipe within the City over a 40-year period to renew and maintain the system.

*Project Budget by Funding Source*

|               | Reauth              | 2019                | 2020                | 2021                | 2022                | 2023                | 2024                |
|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Revenue Bonds | 2,014,508           | 2,020,000           | 1,317,000           | 1,820,000           | 1,929,000           | 2,045,000           | 2,168,000           |
| <b>TOTAL</b>  | <b>\$ 2,014,508</b> | <b>\$ 2,020,000</b> | <b>\$ 1,317,000</b> | <b>\$ 1,820,000</b> | <b>\$ 1,929,000</b> | <b>\$ 2,045,000</b> | <b>\$ 2,168,000</b> |

|                |                                                            |                  |              |
|----------------|------------------------------------------------------------|------------------|--------------|
| <b>Project</b> | <b>Water Mains Replace Rehab<br/>Improve - Pipe Lining</b> | <b>Project #</b> | <b>11892</b> |
|----------------|------------------------------------------------------------|------------------|--------------|

*Project Description*

This program provides cured-in-place-pipe lining (CIPP) to improve the quality of existing pipes in the water network throughout the City. The goal of the program is to lengthen the useful life of the pipes at a lower cost than replacing the pipe. The program measures the miles of pipe rehabilitated using the lining method. Locations for CIPP lining are evaluated on an annual basis.

*Project Budget by Funding Source*

|               | Reauth      | 2019        | 2020                | 2021                | 2022                | 2023                | 2024                |
|---------------|-------------|-------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Revenue Bonds | -           | -           | 1,040,000           | 1,082,000           | 1,125,000           | 1,170,000           | 1,217,000           |
| <b>TOTAL</b>  | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 1,040,000</b> | <b>\$ 1,082,000</b> | <b>\$ 1,125,000</b> | <b>\$ 1,170,000</b> | <b>\$ 1,217,000</b> |

|                |                                                                    |                  |              |
|----------------|--------------------------------------------------------------------|------------------|--------------|
| <b>Project</b> | <b>Water Mains Replace Rehab<br/>Improve - Reconstruct Streets</b> | <b>Project #</b> | <b>11893</b> |
|----------------|--------------------------------------------------------------------|------------------|--------------|

*Project Description*

This program funds replacing existing water mains in conjunction with the reconstruction of roads as part of the City's Engineering-Major Streets Reconstruct Streets program. The goal of the program is to update the water infrastructure diminishing the risk of pipe failure. The program aligns with the Water Utility's goal to replace or rehabilitate over 400 miles of aging pipe within the City over a 40-year period to renew and maintain the system. Funding was added to 2019 for water main replacement in conjunction with reconstruction streets projects for Bassett Street and West Wilson Street by Finance Committee amendment #4.

*Project Budget by Funding Source*

|               | Reauth              | 2019                | 2020                | 2021                | 2022                | 2023                | 2024                |
|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Revenue Bonds | 1,688,689           | 4,887,000           | 5,180,000           | 5,491,000           | 5,820,000           | 6,169,000           | 6,539,000           |
| <b>TOTAL</b>  | <b>\$ 1,688,689</b> | <b>\$ 4,887,000</b> | <b>\$ 5,180,000</b> | <b>\$ 5,491,000</b> | <b>\$ 5,820,000</b> | <b>\$ 6,169,000</b> | <b>\$ 6,539,000</b> |

|                |                                            |                  |              |
|----------------|--------------------------------------------|------------------|--------------|
| <b>Project</b> | <b>Water Utility Facility Improvements</b> | <b>Project #</b> | <b>10440</b> |
|----------------|--------------------------------------------|------------------|--------------|

*Project Description*

This program funds repairs and security upgrades at Water Utility facilities. The goal of the program is to maintain facilities for reliable services while reducing the need for emergency repairs. Progress is measured by tracking the number of emergency calls, facility outages, and accidents each year. Funding in 2019 is for upgrades to the meter network.

*Project Budget by Funding Source*

|                  | Reauth            | 2019              | 2020              | 2021              | 2022                | 2023              | 2024                |
|------------------|-------------------|-------------------|-------------------|-------------------|---------------------|-------------------|---------------------|
| Reserves Applied | 210,226           | -                 | -                 | -                 | -                   | -                 | -                   |
| Revenue Bonds    | 32,764            | 491,000           | 512,000           | 704,000           | 1,132,000           | 768,000           | 1,158,100           |
| <b>TOTAL</b>     | <b>\$ 242,990</b> | <b>\$ 491,000</b> | <b>\$ 512,000</b> | <b>\$ 704,000</b> | <b>\$ 1,132,000</b> | <b>\$ 768,000</b> | <b>\$ 1,158,100</b> |

### Project Description

## Well 14 Mitigation

Project #

**11900**

This project funds improvements to reduce chloride concentration levels at Well 14 on University Avenue near Spring Harbor. Due to winter road salt operations on University Avenue and the surrounding neighborhoods, chloride levels in the water pumped from Well 14 have been rising for several years. Funding for this project was added to the budget by Finance Committee #15.

|               | Reauth      | 2019        | 2020        | 2021        | 2022              | 2023                | 2024        |
|---------------|-------------|-------------|-------------|-------------|-------------------|---------------------|-------------|
| Revenue Bonds | -           | -           | -           | -           | 801,000           | 4,160,000           | -           |
| <b>TOTAL</b>  | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 801,000</b> | <b>\$ 4,160,000</b> | <b>\$ -</b> |

## Project

### Well 19 Iron and Manganese Filter

Project #

10448

### Project Description

This project funds a new iron, manganese, and radium treatment system at Well 19 at Lake Mendota Drive on the City's west side. The goal of this project is to address existing water quality issues in the area. Progress will be measured by the change in iron, manganese, and radium concentrations, which currently do not meet Madison Water Utility standards. Funding in 2024 is for construction.

### Project Budget by Funding Source

|               | Reauth | 2019 | 2020 | 2021 | 2022 | 2023 | 2024       |
|---------------|--------|------|------|------|------|------|------------|
| Revenue Bonds | -      | -    | -    | -    | -    | -    | 665,330    |
| TOTAL         | \$ -   | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 665,330 |

## Project

### Zone 4 Fire Flow Supply Augment

Project #

10434

### Project Description

This project funds the continued construction of Unit Well 31 at Tradewinds Parkway on the City's southeast side. The project will improve fire protection capacity to the far southeast corner of the Water Utility's current service area. Construction of the first phase of the project began in 2015 to build a ground reservoir.

### Project Budget by Funding Source

[illegible]

## Water Utility

### 2019 Appropriation Schedule

#### 2019 Appropriation

#### Adopted Budget

|                                                         | Request             | Executive           | GO Borrowing | Other               | Total               |
|---------------------------------------------------------|---------------------|---------------------|--------------|---------------------|---------------------|
| Water Mains - New                                       | 1,382,000           | 1,382,000           | -            | 1,382,000           | 1,382,000           |
| Water Mains Replace Rehab Improve - Pavement Managem    | 1,620,000           | 1,620,000           | -            | 2,020,000           | 2,020,000           |
| Water Mains Replace Rehab Improve - Reconstruct Streets | 4,887,000           | 4,887,000           | -            | 4,887,000           | 4,887,000           |
| Water Utility Facility Improvements                     | 491,000             | 491,000             | -            | 491,000             | 491,000             |
| <b>Total</b>                                            | <b>\$ 8,380,000</b> | <b>\$ 8,380,000</b> | <b>\$ -</b>  | <b>\$ 8,780,000</b> | <b>\$ 8,780,000</b> |

#### Reauthorized Appropriation

|                                                         | GO Borrowing | Other               | Total               |
|---------------------------------------------------------|--------------|---------------------|---------------------|
| Booster Pump Station 109 (Spaanem Ave)                  | -            | 81,000              | 81,000              |
| Unit Well No. 8 Reconstruction                          | -            | 215,000             | 215,000             |
| Water Mains - New                                       | -            | 2,617,350           | 2,617,350           |
| Water Mains Replace Rehab Improve - Pavement Management | -            | 2,014,508           | 2,014,508           |
| Water Mains Replace Rehab Improve - Reconstruct Streets | -            | 1,688,689           | 1,688,689           |
| Water Utility Facility Improvements                     | -            | 243,953             | 243,953             |
| Zone 4 Fire Flow Supply Augment                         | -            | 350,496             | 350,496             |
| <b>Total</b>                                            | <b>\$ -</b>  | <b>\$ 7,210,997</b> | <b>\$ 7,210,997</b> |

#### Total 2019 Appropriation

|             |                      |                      |
|-------------|----------------------|----------------------|
| <b>\$ -</b> | <b>\$ 15,990,997</b> | <b>\$ 15,990,997</b> |
|-------------|----------------------|----------------------|