

FY 19 - 24

Water Utilities Action

Plan

October 2, 2019



Bottom Line

- ▶ CIP invests \$610 million for Water, Wastewater and Stormwater infrastructure projects over the next five years
- ▶ Inclusive of \$200 million bond for Stormwater needs
- ▶ The next 20 Years requires over \$2 billion investment for infrastructure needs
- ▶ Investments at 3% of the systems asset value for Operations & Maintenance (Industry Best Practice) = \$33 million annually

Water, Wastewater and Stormwater Investments



- ▶ The System
 - ▶ Water Treatment Facilities
 - ▶ Fiveash & Peele-Dixie
 - ▶ Prospect & Peele-Dixie Wellfields
 - ▶ Water Distribution System
 - ▶ Wastewater Collection System
 - ▶ Wastewater Treatment Facility – George T. Lohmeyer (GTL)
 - ▶ Stormwater Infrastructure System

Peele-Dixie Water Facility

- ▶ Peele-Dixie
 - ▶ Current capacity of 12 millions of gallons per day (MGD); current use of 9 MGD
 - ▶ Capacity can be expanded
 - ▶ May need to consider expansion as part of Fiveash project
 - ▶ Evaluation of water allocations
 - ▶ Current technology provides quality water product; updates anticipated

Fiveash Water Facility

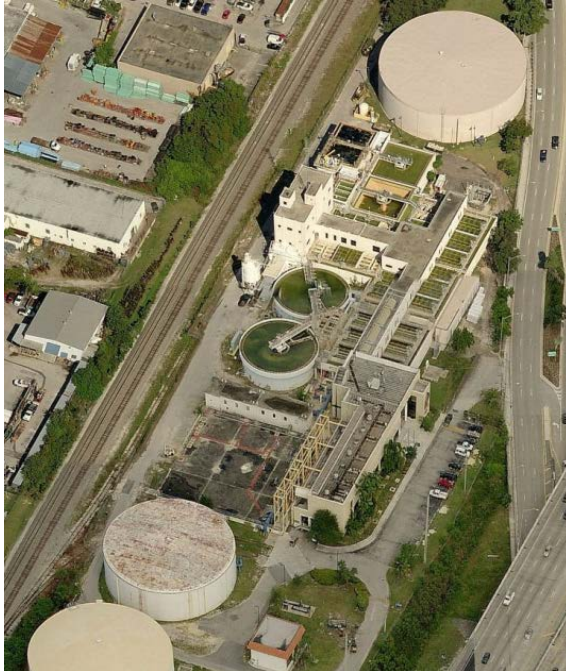


- ▶ Granular Activated Carbon (GAC)
 - ▶ GAC process not feasible for Fiveash
 - ▶ Operational costs too high
 - ▶ Results would not meet water quality expectations
- ▶ Fiveash Water Plant Evaluation
 - ▶ Plant is at the end of its useful life
 - ▶ Rebuild or refurbishment not feasible
 - ▶ Replacement is recommended

New Fiveash Water Facility Evaluation

- ▶ Potential Location
 - ▶ Adequate land available at Prospect wellfield site
 - ▶ Meets requirements for area needs, existing zoning, environmental conditions will need mitigation; site access routes will need to be determined, FAA height restrictions
 - ▶ Workable site based on initial review
 - ▶ Served by Prospect wellfield; Biscayne Aquifer
 - ▶ Future capacity needs not met
 - ▶ Future expansion requires consideration of Floridian Wells or C-51 Reservoir allocation

Fiveash Water Plant



- ▶ Considerations
 - ▶ Depends on level of risk City willing to assume
 - ▶ Conventional / Construction Manager at Risk / Public Private Partnership Options
 - ▶ Design/Build/Finance/Operate/Maintain
- ▶ Final Report due December, 2019 will include budgeted cost estimates

Peele-Dixie & Fiveash Wellfields

- ▶ Wellfields
 - ▶ Peele-Dixie - Broadview area
 - ▶ Fiveash – Prospect wellfields
 - ▶ Served by Biscayne wells
 - ▶ Expansion of capacity would require Floridian Aquifer Wells to be put into service
 - ▶ Current needs met with Biscayne Aquifer all allocations - future needs not met

Water Distribution



- ▶ Valve and water main location and mapping
 - ▶ Consultant contract on regular agenda
 - ▶ City Survey team and Distribution Crew engaged in location efforts
 - ▶ Update maps and atlas for locations – GIS ready
 - ▶ Requires future funding for installation of critical redundant valves and/or valve repairs
- ▶ Water main flushing / maintenance
 - ▶ Free chlorination per AWWA best management practices
 - ▶ Directional flushing program
 - ▶ Acquired the de-chlorination equipment used in watermain flushing
 - ▶ Consultant work on modeling water system
 - ▶ Installation of 22 auto-flushing devices by City crews plus manual flushing
 - ▶ Installation of 50 additional auto-flushing devices within the next year to maintain water quality

Water Distribution

- ▶ Elimination of dead-end water mains – develop annual program starting FY2021
 - ▶ Design work by consultant needed
 - ▶ Reserve portion of annual CIP funds for looping projects
 - ▶ Future funding needed for construction work
- ▶ CIP funding \$53 million for repair or rehabilitation of 315,300 linear feet of watermain pipes = 59.7 miles
- ▶ Complete multiple valve connections with Pompano Beach – Interlocal Agreement
 - ▶ Provides redundancy to both communities along northern border
 - ▶ Protects both systems from cross contamination
 - ▶ Additional funding needed ~ \$500,000

George T. Lohmeyer Wastewater Treatment Plant



- ▶ Rebuild Oxygen generation plant (Cryogenic Plant)
- ▶ Refurbish Injection Wells
- ▶ Continue to improve Electrical System
- ▶ Provide Generators for backup power to the entire plant
- ▶ Replacement of major pipe within plant underway
- ▶ Dedicated funding from the Regional System Partners

Wastewater Collection System

- ▶ CIP funding \$20 million for repair or rehabilitation for 29 of the 186 pump stations
- ▶ CIP funding \$177.5 million for repair or rehabilitation of 622,100 linear feet of major pipe – 117.8 miles
- ▶ Continue to locate valves and mapping
- ▶ Continue to upgrade and maintain pump stations

Wastewater Collection System

- ▶ Complete Inflow and infiltration work in 2020
 - ▶ 938 Maintenance holes assessed
 - ▶ 229,397 linear feet of sewer lines smoke tested - over 43.4 miles
 - ▶ 190,874 linear feet of sewers lined – over 36.1 miles
 - ▶ 1,634 laterals lined or closed
- ▶ Complete Force main assessments in 2020
 - ▶ 13,520 linear feet rehabilitated – 2.6 miles
 - ▶ 75,000 linear feet in design/permitting/construction – over 14.2 miles
- ▶ Continue Pump station replacements
 - ▶ 3 pump stations rehabilitated
 - ▶ 2 pump stations in design/permitting/construction
- ▶ 51 Consent Agreement milestones
 - ▶ 20 milestones completed
 - ▶ 15 completed ahead of schedule -

Stormwater



- ▶ Complete “hybrid” stormwater rate study by Stantec and present to Commission in November
- ▶ Critical funding for \$200 million in storm system improvements designed for seven neighborhoods/basins
- ▶ Funding for design of storm water system improvements for remaining fifteen neighborhoods/basins is needed
- ▶ Anticipated funding needs of nearly \$1 billion over next 20 years

Stormwater

- ▶ Currently have 165 tidal valves installed with 129 more scheduled to alleviate flooding and increase resiliency on sea level rise, pedestrian, and vehicle safety
- ▶ Installation of seven new stormwater pump stations improvements by performing an evaluation assessment of two stations to minimize flood risk
- ▶ Repair or rehabilitation of 115,000 linear feet of stormwater major pipe = 21.7 miles
- ▶ Perform dredging of various canals to provide proper flow of stormwater and reduce flooding

Technological Initiatives

- ▶ Supervisory Control and Data Acquisition (SCADA) improvements
- ▶ Asset Management Project
 - ▶ Implementation of Cityworks system
 - ▶ Provides an Asset Life Cycle which includes inventory, condition assessment, monitor, maintain and replace assets more cost effectively
 - ▶ Valued Based Decisions
- ▶ Smart Meters

Smart Metering



- ▶ Advanced Metering Infrastructure (AMI)
 - ▶ Contracts under review / financing being finalized for Commission consideration
 - ▶ Replaces all water meters with digital system
 - ▶ Improved accuracy will recoup lost revenues sufficient to pay for meters over 12 years
 - ▶ Allows pro-active notices to Neighbors of unusual usage or leaks before a large bill
 - ▶ Wireless reading eliminates manual reading of meters
 - ▶ Provides detailed usage reports to allow Neighbors to manage their water consumption and to alert them of potential high usage
 - ▶ Meter accuracy guaranteed 10 years

Work Smarter

- ▶ Expand Procurement Strategies
 - ▶ Bundling Projects
 - ▶ Conventional Procurement Methods
 - ▶ Job Order Contracts
 - ▶ Public Private Partnerships and Variations
- ▶ Add procurement staff
- ▶ Strategic Project Coordination

Summary

- ▶ Fiveash is at the end of it's normal life, replacement necessary - \$200+ million needed – not yet budgeted
- ▶ Additional staff and equipment will be needed to perform flushing, valve location, installation & maintenance of self-flushing devices – Planned for FY21Budget
- ▶ AMI system will provide accurate meter reading/usage information to Neighbors allowing them to manage their water consumption effectively
- ▶ CIP funding will be needed for redundant valves, valve repairs, elimination of dead-end water mains, installation of valves on water main connections with Pompano Beach
- ▶ Stormwater infrastructure improvements are dependent on funding source – Rate Study

Next Steps

- ▶ What we need from Commissioners
 - ▶ Need approval of the Stormwater Rate Study
 - ▶ Direction for the Fiveash Treatment Facility
 - ▶ Action on the AMI project
 - ▶ Budget approval for additional procurement staff
 - ▶ Consideration of a mid-year adjustment for water main connection with Pompano Beach
 - ▶ Funding consideration for additional staff and equipment needed for redundant valves, valve repairs, elimination of dead-end water mains