



BALTIMORE CITY

DPW

DEPARTMENT OF PUBLIC WORKS

RUDOLPH S. CHOW, P. E.
DIRECTOR



May 19, 2015 CIFA Federal Policy Conference

Water and Wastewater

What we do

- Protects and manages 3 raw water reservoirs: Liberty, Loch Raven and Prettyboy
- Treats and distributes 218 million gallons of water per day from 3 water filtration plants & maintains 4,500 miles of water mains, 69,135 valves, and 9,100 fire hydrants in the City and 13,750 fire hydrants in Baltimore County
- Serves 1.8 million customers in the Baltimore region
- Maintains 1,400 miles of sanitary mains & 41,590 manholes; treating 201 million gallons of wastewater per day at 2 wastewater treatment plants
- Maintains 1,146 miles of storm drains, 52,438 inlets, 27,561 manholes & 1,709 outfall structures



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Water & Wastewater

How we work

- Managing high risk infrastructure
- Increasing preventative maintenance capabilities; reducing operational asset risk
- Meeting environmental mandates while sustaining overall utility operations
- Balancing needed level of service with affordability

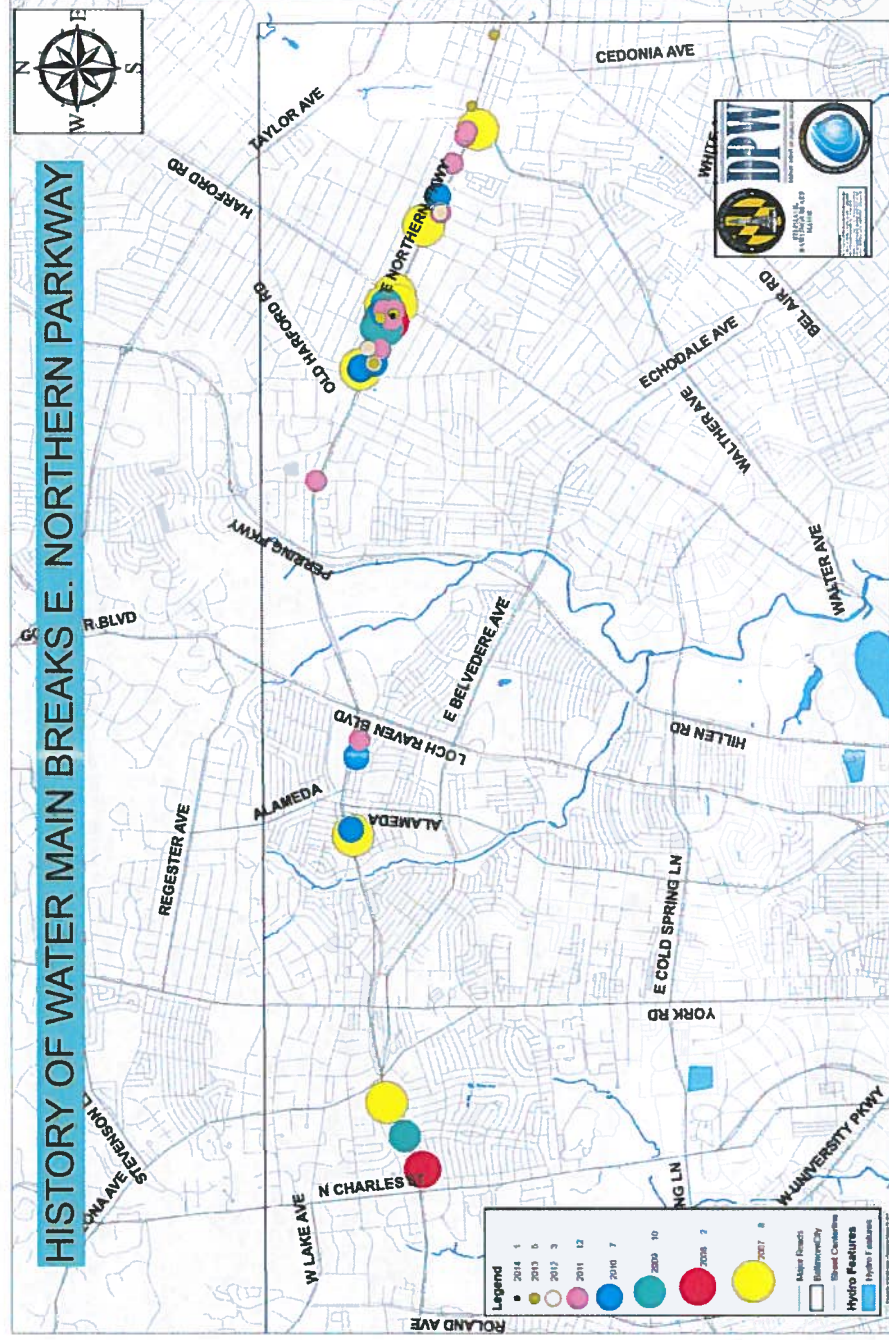


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Water Utility Challenges

● Example: E. Northern Parkway 2007-2014



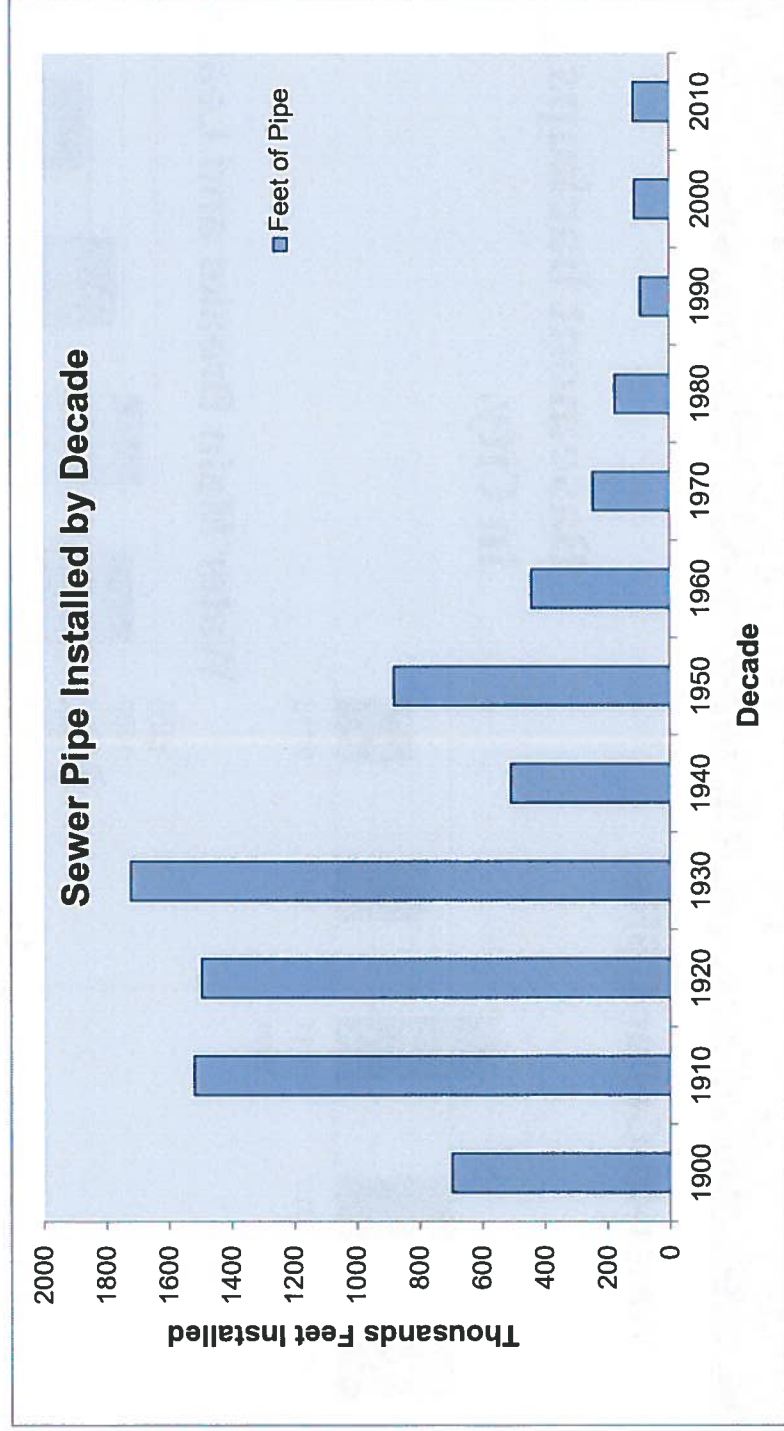
STEPHANIE RAWSON-DELAKE
MAYOR

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Age of our Assets: Sewer System

- Pipelines installed in 1800's, 1900-1945, and post-1945 in response to population growth

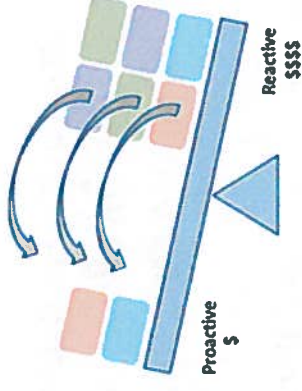


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Office of Asset Management

- New office driven by the need to systematically address aging infrastructure.
- Innovative approach to capital replacement.
- Major goals of Office of Asset Management:
 - Shift from reactive to proactive maintenance.
 - Develop sustainable cost structure for managing the assets.
 - Justify infrastructure investments.
 - Provide transparency to ratepayers.
- Use asset data to inform the Integrated Planning Framework (IPF).

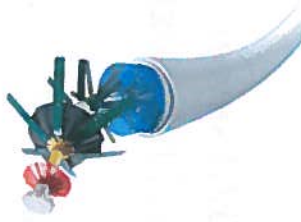


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Asset Management Highlight: PCCP Strategy

- Plan to address a critical water asset: Pre-stressed Concrete Cylinder Pipe (PCCP)
- Developing long-term strategy based on risk-based planning
 - 10-year plan to inspect all PCCP in system
 - Prioritized pipe by criticality and condition
 - Will inspect pipe segments by risk score in zones and determine repair actions
- Recent success: By being proactive and using latest technology, we prevented a problem in 2012 on a 54-inch transmission main.



PipeDiver



PCCP



**Broken wires –
SW Transmission Main**



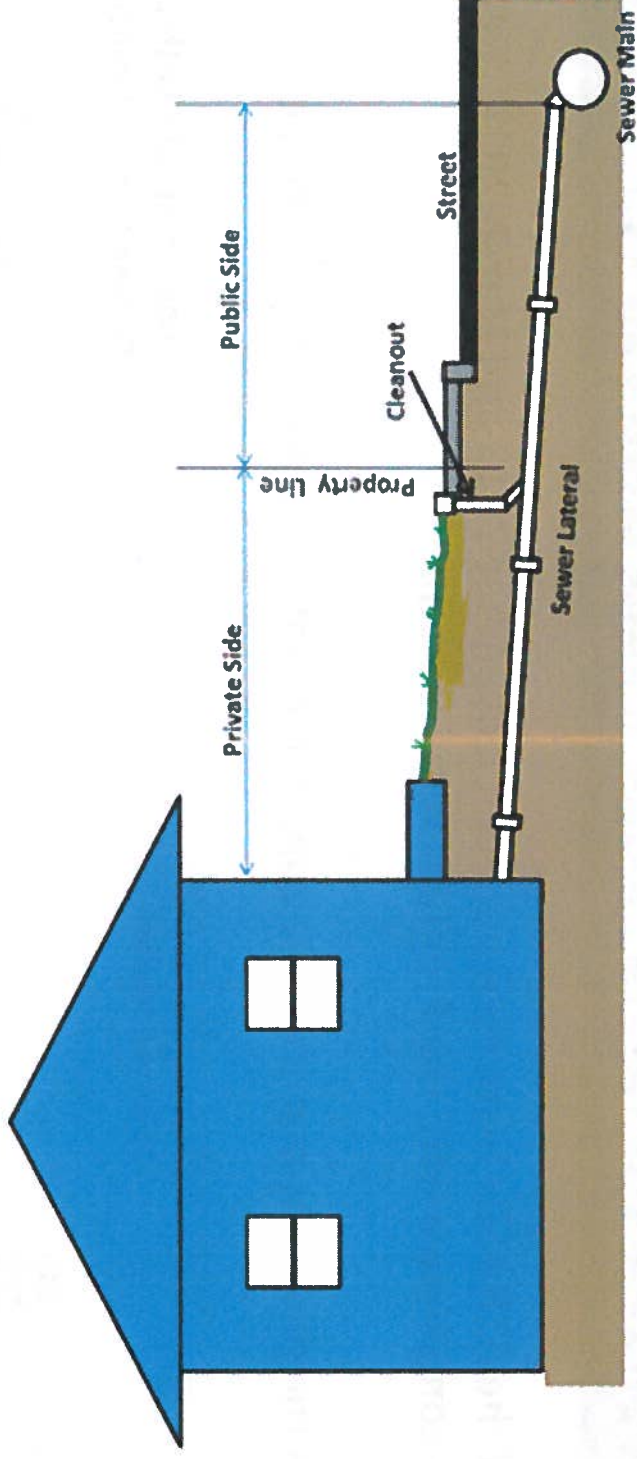
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RUDOLPH S. CIPIPO, P.E.
DIRECTOR

Asset Management Highlight: Sewer Lateral Inspection and Renewal

- Sewer laterals average, 80 years old; deterioration, blockages and backups.
- DPW will inspect and, if necessary, repair the public side of sewer laterals.



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Consent Decree

- Our 2002 Consent Decree agreement with the U.S. EPA and Maryland Department of the Environment requires the City to eliminate sanitary sewer overflows, conduct a comprehensive evaluation and rehabilitation of our sewer system, and continually upgrade it.
- Accomplishments include:
 - Eliminating 60 of 62 engineered SSOS
 - Upgrading or building new pumping stations
 - Improved SSO response and reporting procedures



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ENR Upgrades at both Wastewater Treatment Plants

- ◆ MDE funding for the Enhanced Nutrient Removal at Back River WWTP is not sufficient to cover total project costs
- ◆ The projects will result in a total Nitrogen Reduction of 2.2 million pounds/year, which is 30% of the State of Maryland's Chesapeake Bay Goal



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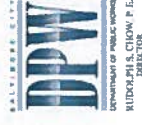


Water Utility Capital Projects

- The total 6-Year Capital Improvement Program (CIP 2015-2020) is estimated to be \$2.18 billion
- Includes water main rehabilitation & replacement
- The plan includes the coverage of all five City's Open Finished Water Reservoir Projects mandated by Federal Administrative Order
- Build a new water treatment plant to replace 100-year-old Montebello facility



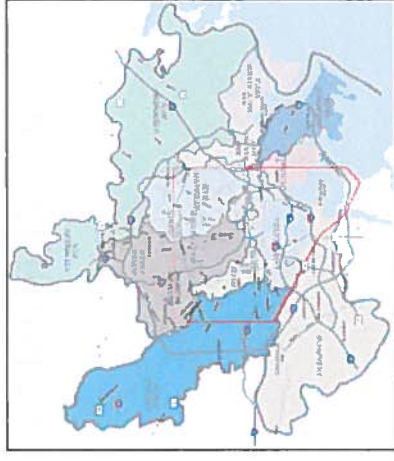
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Wastewater Utility Capital Projects

- The total 6-Year Capital Improvement Program (CIP 2015-2020) is estimated to be \$794.6 million
- Includes regulatory driven Enhanced Nutrient Removal upgrades at the Back River Wastewater Treatment Plant
- Headworks improvements at Back River
- Consent Decree corrective action improvements

WASTEWATER SERVICE AREA



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Wastewater Capital Improvement Plan

- Others:
 - House Lateral Connection Program
 - Sanitary Sewer Inspection Program
 - Comprehensive Biosolids Management Program
 - GIS Updates And Mapping Program
 - Urgent Need Sanitary Services
 - Sewer System Rehabilitation (Six Locations)
 - Wastewater Facilities Security Improvements
 - Sewer Overflow Elimination

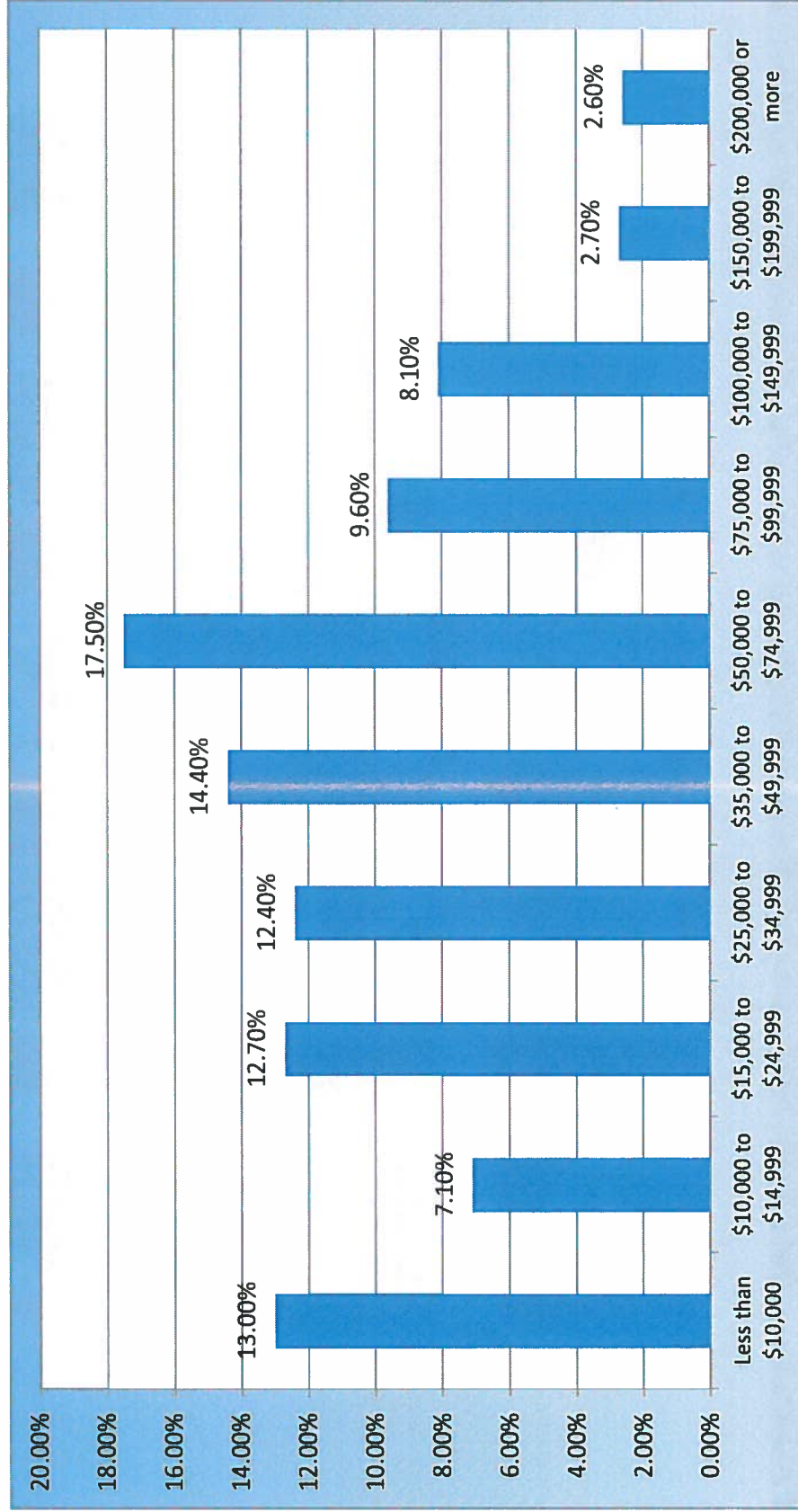


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Impact to the Public: Balancing Need with Reality

(Household Income)



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Integrated Planning Framework

ENVIRONMENTAL

Pathogen Pollutant Loading Reduction
Phosphorus Pollutant Loading Reduction
Nitrogen Pollutant Loading Reduction
Sediment Pollutant Loading Reduction
Trash Pollutant Loading Reduction
Regulatory Compliance
Habitat Preservation and Restoration
Drinking Water Conservation and Control

SOCIAL

Health and Safety
Recreational Access
Urban Tree Canopy
Customer Satisfaction
Drinking Water Quality
Lower Income or Blighted Neighborhoods

FINANCIAL

Alternative Funding
Annual O&M Costs
Job Stimulus
Capital Costs

PROJECT DELIVERY

Service Life / Condition
Project Delay
Collaboration



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Questions?



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