



Water Main Replacement Program

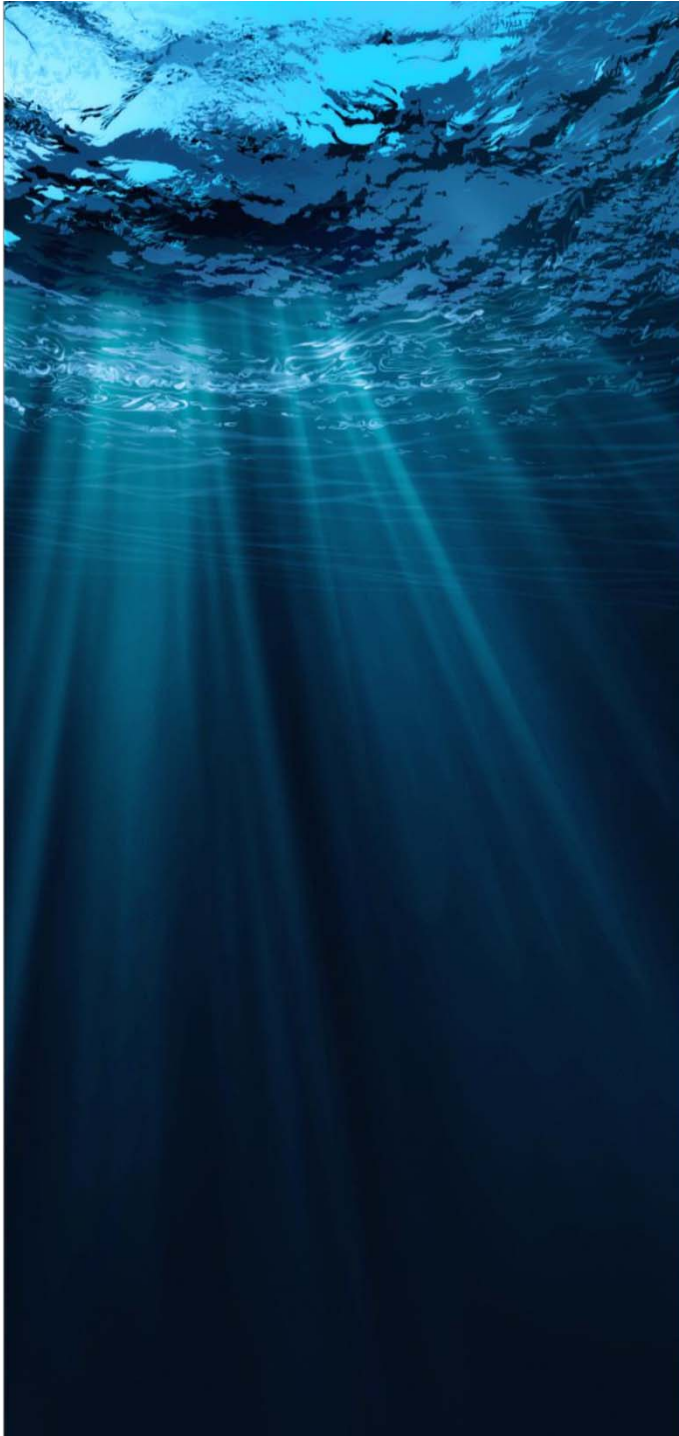


CITY OF ATLANTA DEPARTMENT OF
**watershed
management**

KEISHA LANCE BOTTOMS, MAYOR

Kishia L. Powell, Commissioner

December 10, 2019



Agenda

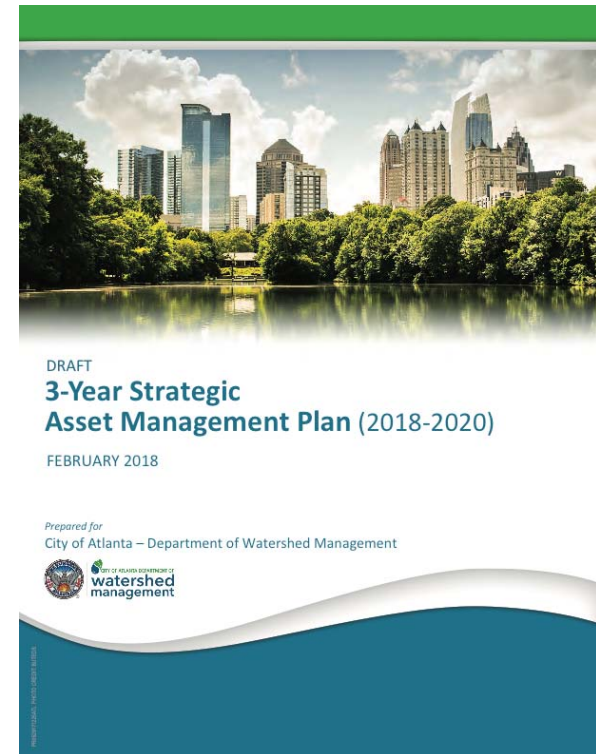
- 3-YR Strategic Asset Management Plan
- Water Distribution System Infrastructure
- Small Diameter Water Main Replacement Program
- Completed Water Main Replacement Projects
- Q&A

Purpose of Presentation: To address inquiries related to water main breaks and the water main replacement program.

3-YR Strategic Asset Management Plan



- The Department of Watershed Management's (DWM) Office of Engineering Services houses a dedicated Strategic Asset Management Division responsible for data collection and analysis and implementation of our Asset Management Plan to support the Department's efforts to best manage over \$5B in infrastructure assets
- 3-YR Asset Management Plan was developed to establish our approach to asset management



Water Main Replacement Program Aligns with DWM Strategic Plan Priorities



**Infrastructure
Reliability**



**Service
Delivery**



**Operational
Efficiency**



**Financial
Resiliency**

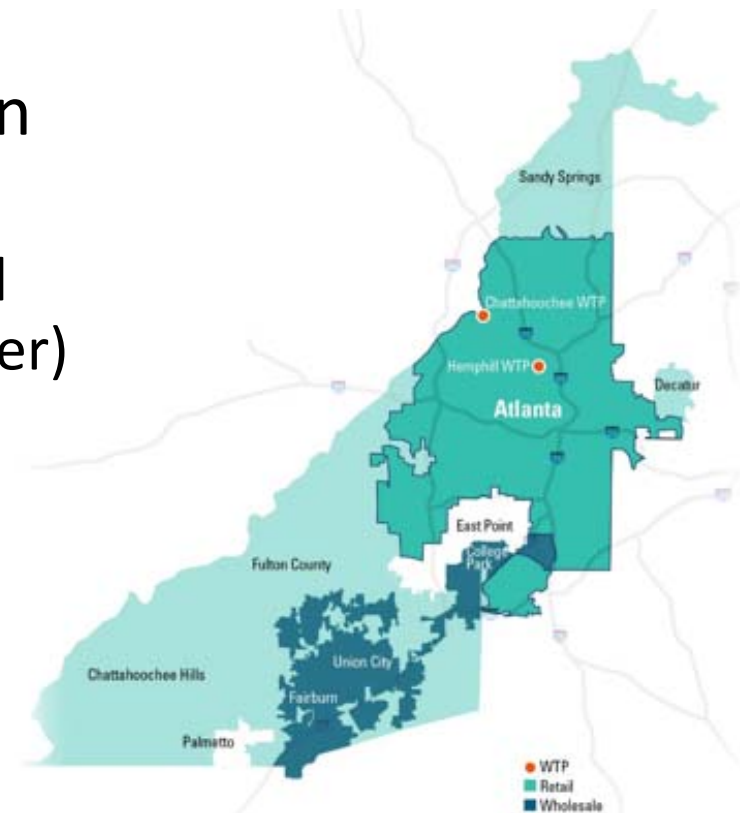


Water Distribution System Infrastructure

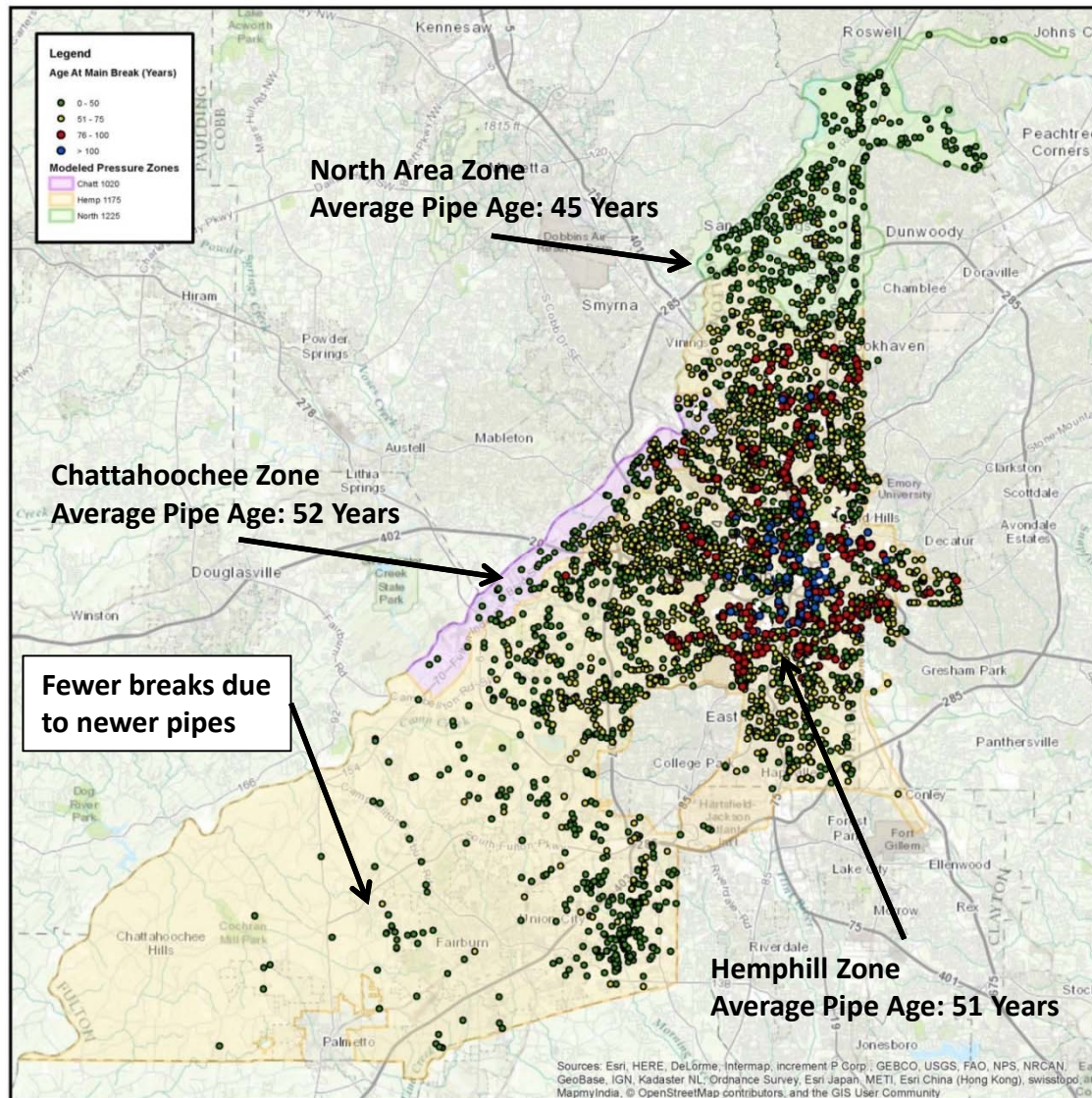
Water Distribution System



- Serves 1.2 million customers per day
- 2,780 miles of water distribution system pipe
 - More than 80% of system is small diameter pipe (12-inch and smaller)



Water Main Breaks by Location

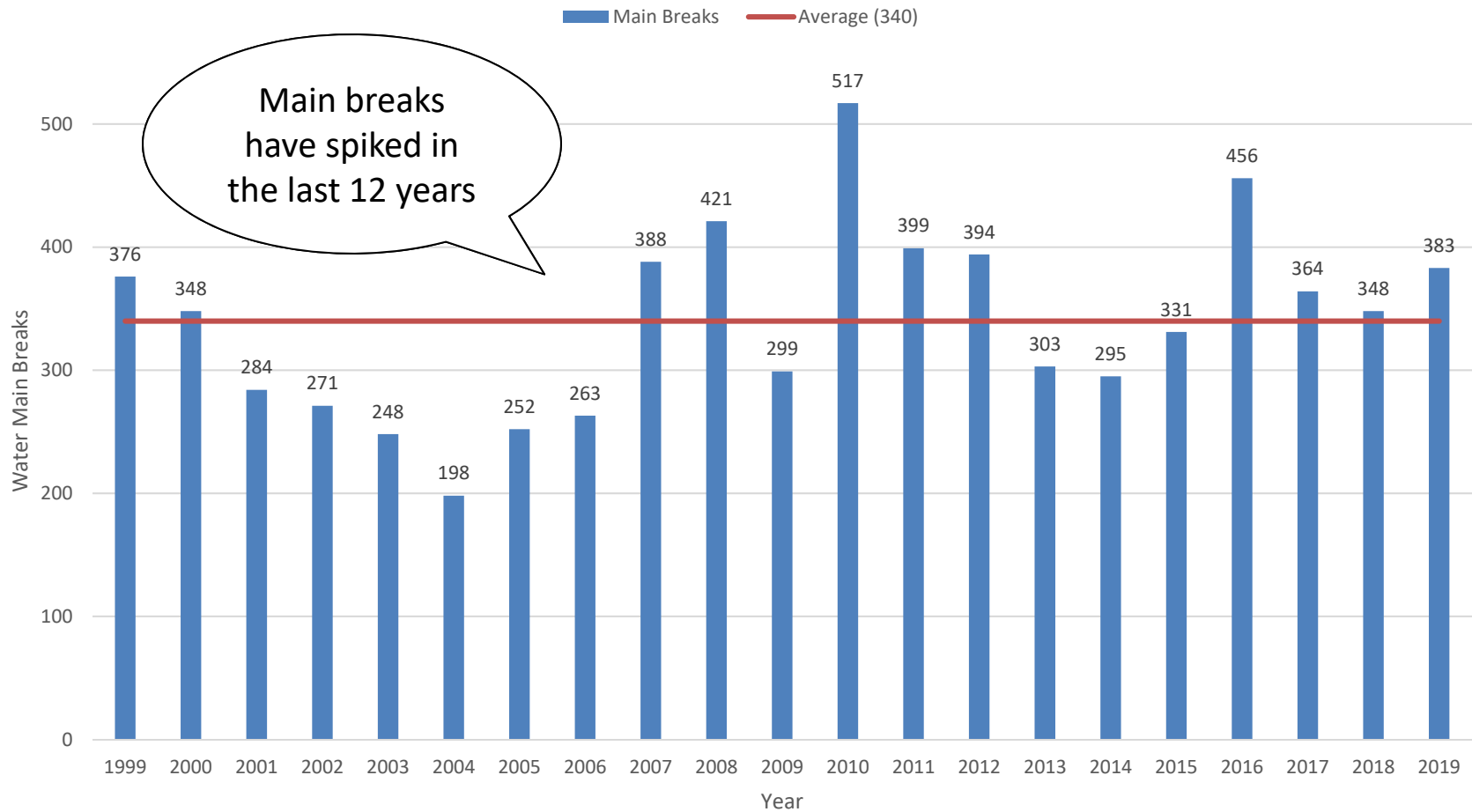


20 years of
Main break
Data

Water Main Breaks per Year



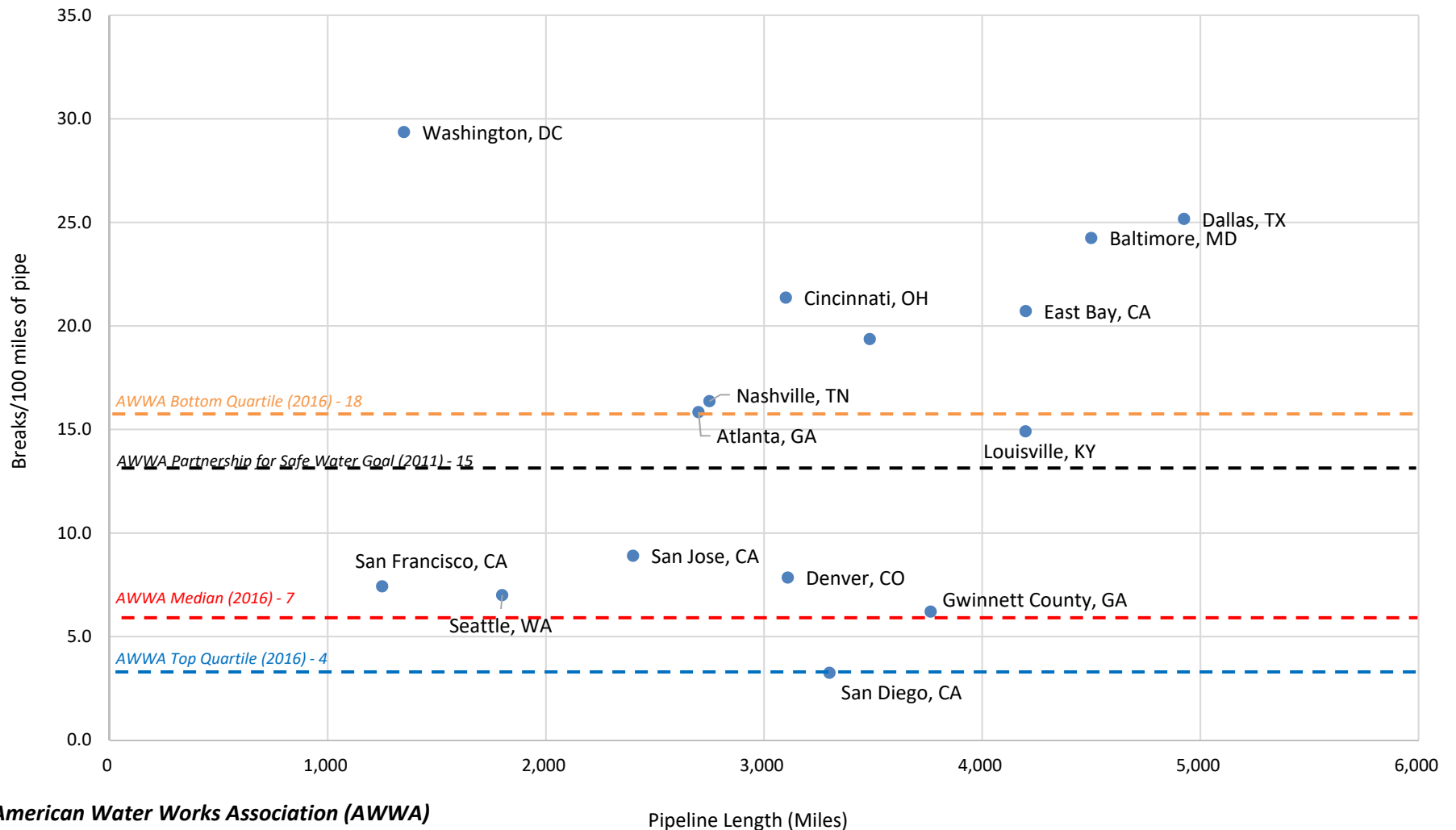
Atlanta Water Main Breaks per Year



Water Utilities Main Breaks per 100 Miles



Main Breaks (breaks/100 miles of pipe)*



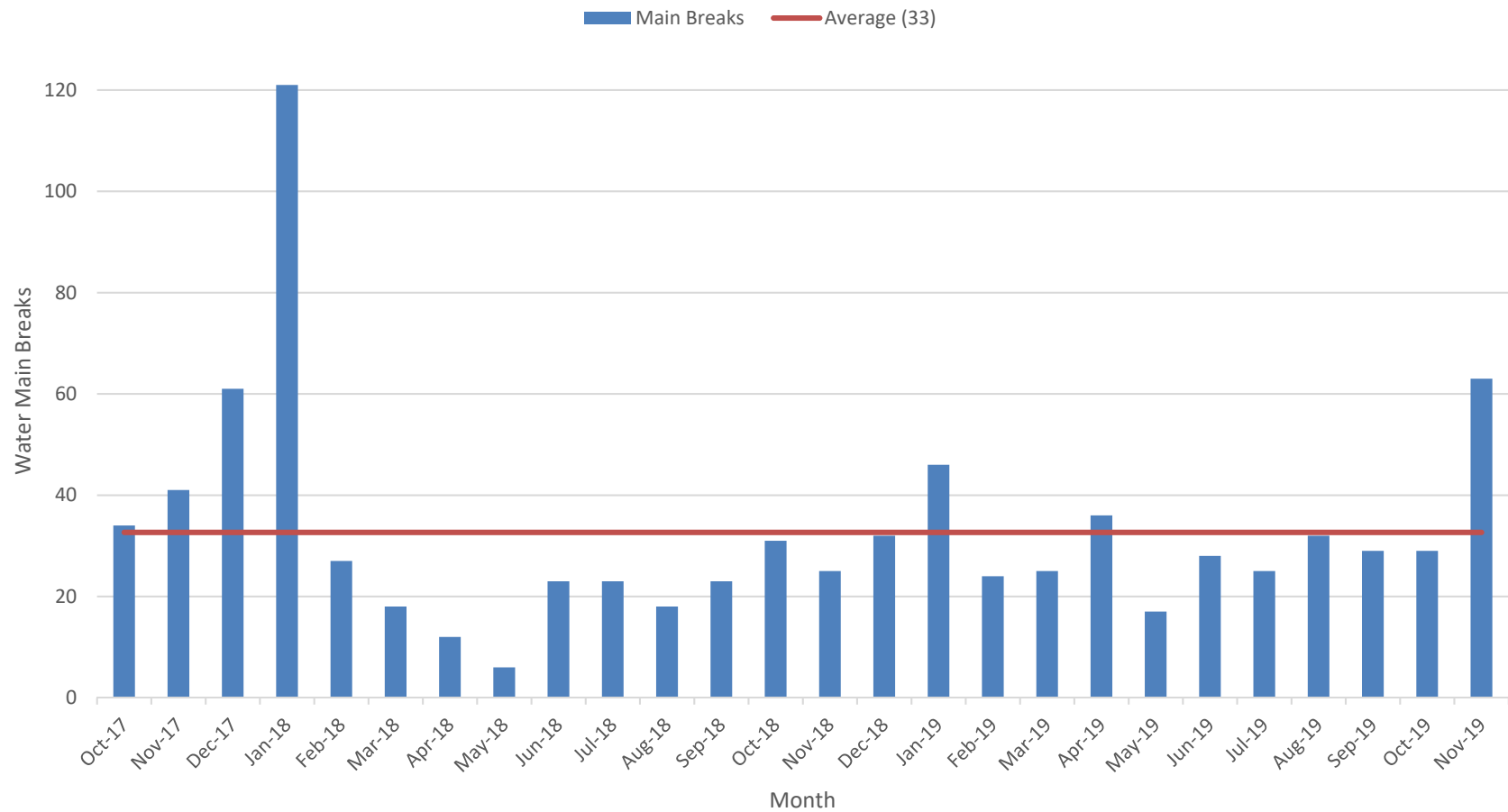
American Water Works Association (AWWA)

*Based on data collected from utilities

Water Main Breaks per Month



Atlanta Water Main Breaks per Month





Small Diameter Water Main Replacement Program

System Comparative Performance Data – Peer Utilities



Seattle

- 1,900 mi Total System
- 0.5% Replacement Rate
- 7 Breaks per 100 Miles



Chicago

- 4,230 mi Total System
- 2.1% Replacement Rate
- 90 Breaks per 100 Miles



DC Water

- 1,300 mi Total System
- 1% Replacement Rate
- 29 Breaks per 100 Miles



San Francisco

- 1,250 mi Total System
- 1.2% Replacement Rate
- 7 Breaks per 100 Miles



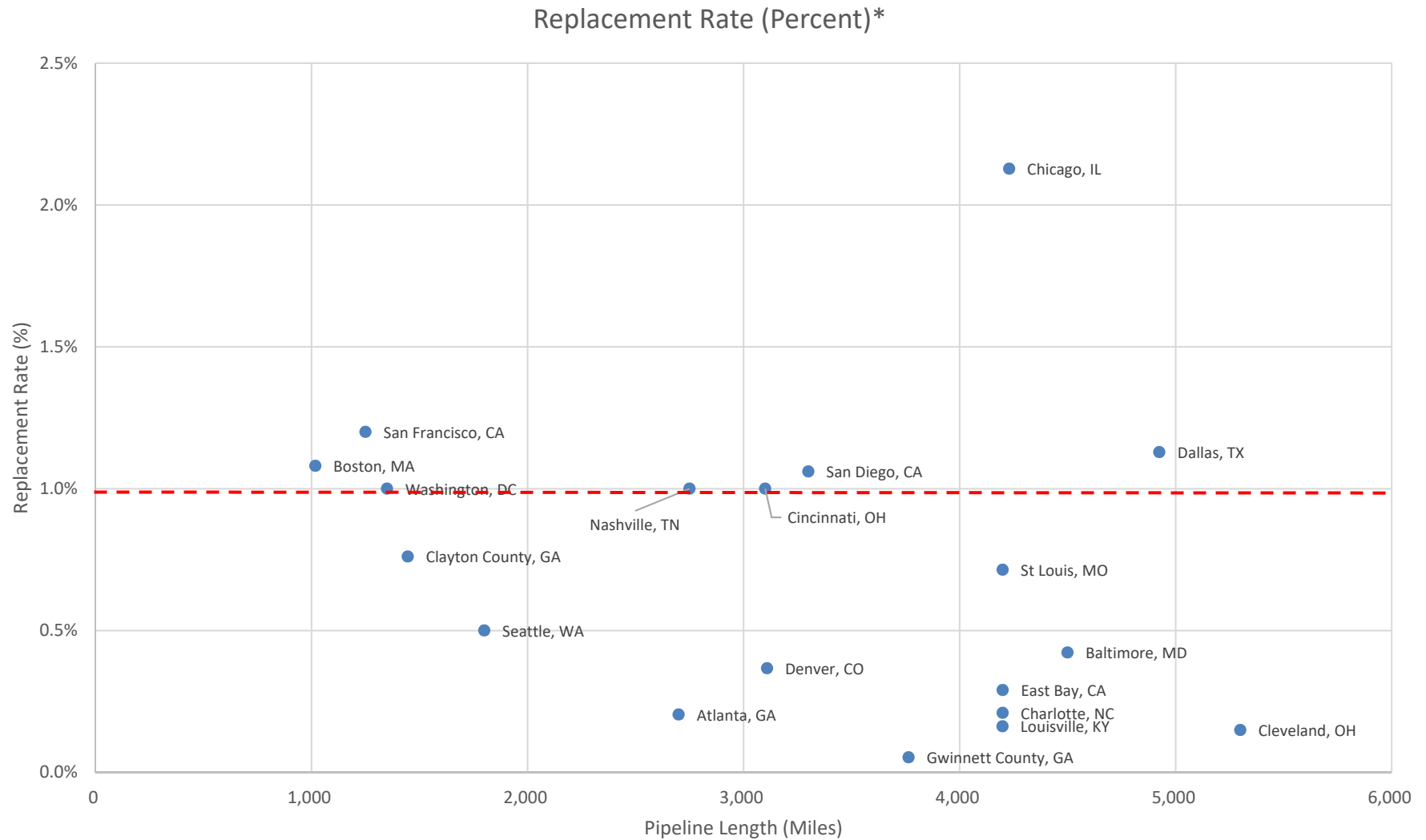
Atlanta

- 2,700 mi Total System
- 0.2% Replacement Rate (58,000 ft - 2 years)
- 15 Breaks per 100 Miles

Atlanta's replacement rate is lower than key peer utilities

**Based on data collected in 2017*

Water Utilities Replacement Rates (%)



***Based on data collected from utilities**

Water Distribution System Asset Management Goals



- Improve water quality
- Achieve 0.5% annual water main replacement rate (200 year replacement cycle; average age of system is 56 years old)
- Complete a valve exercise program and repair or replace as needed by 2025
- Reduce annual main breaks by 50 by 2023



Small Diameter Water Main Replacement Program Approach



Prioritization Criteria:

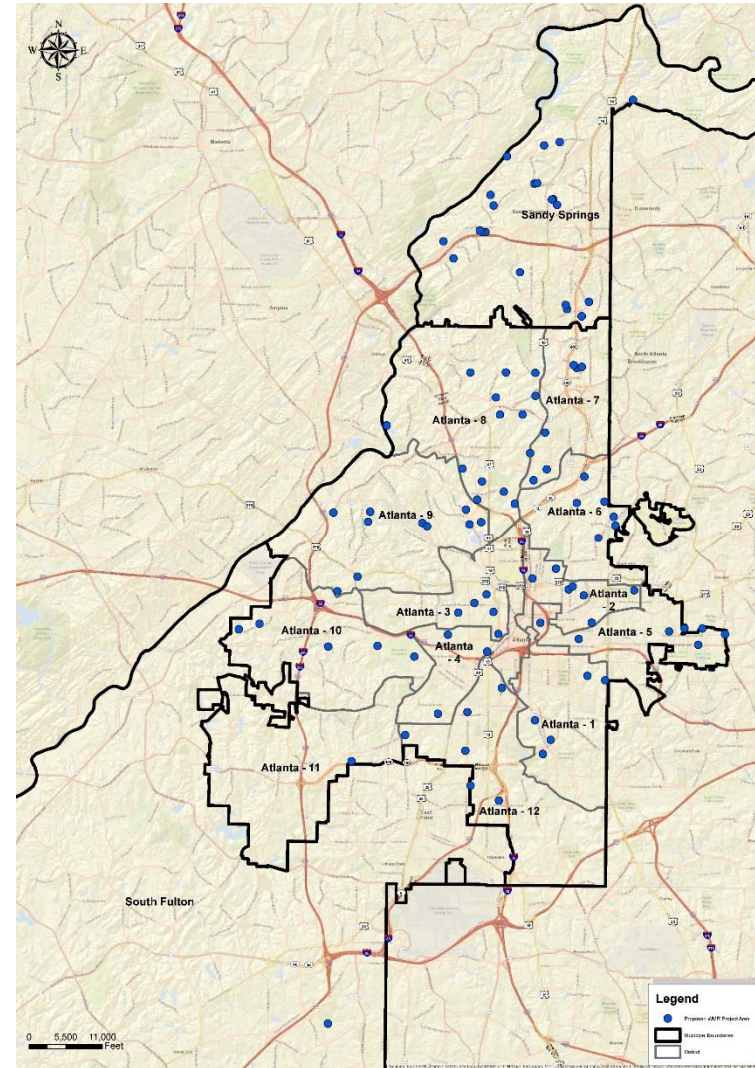
- Compliance
 - **Main breaks**
 - Aging infrastructure
 - Tuberculation/fire flow
 - Water quality issues
 - Proximity to critical infrastructure
 - Risk based - likelihood and consequence of failure
 - Coordination with other Capital programs and projects (Renew Atlanta, etc.)
 - Economic Development
- 2" and 4"
- Replace instead of repair
 - Replace size-for-size/upsized as needed
- 6" and 8"
- Upsize 6" to 8"
 - Conduct C-Factor (roughness) testing
 - Target unlined pipes and cast-iron pipes
 - Fire Flow
 - Work Order history
- 10" and 12"
- Replace or upsize as needed

Proposed Water Main Replacement Projects



Planned Construction	Cost Estimate	Length (ft)	Pct of System
2020	\$ 5,054,000	13,660	0.09%
2021	\$ 9,548,000	25,807	0.18%
2022	\$ 9,692,000	26,188	0.18%
Total		65,655	

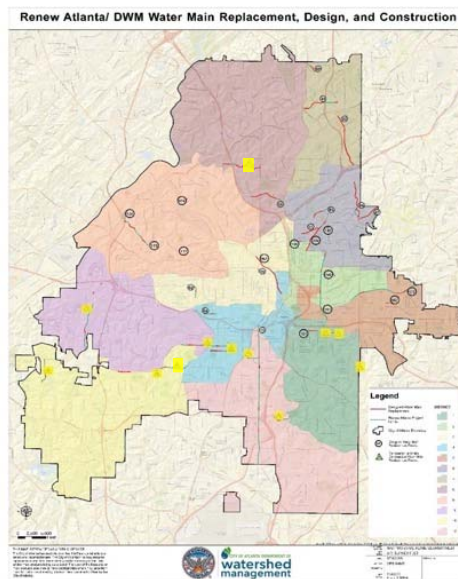
Total of **98 discrete projects** across three years; based on repeat main breaks over the past five years.





Completed Water Main Replacement Projects

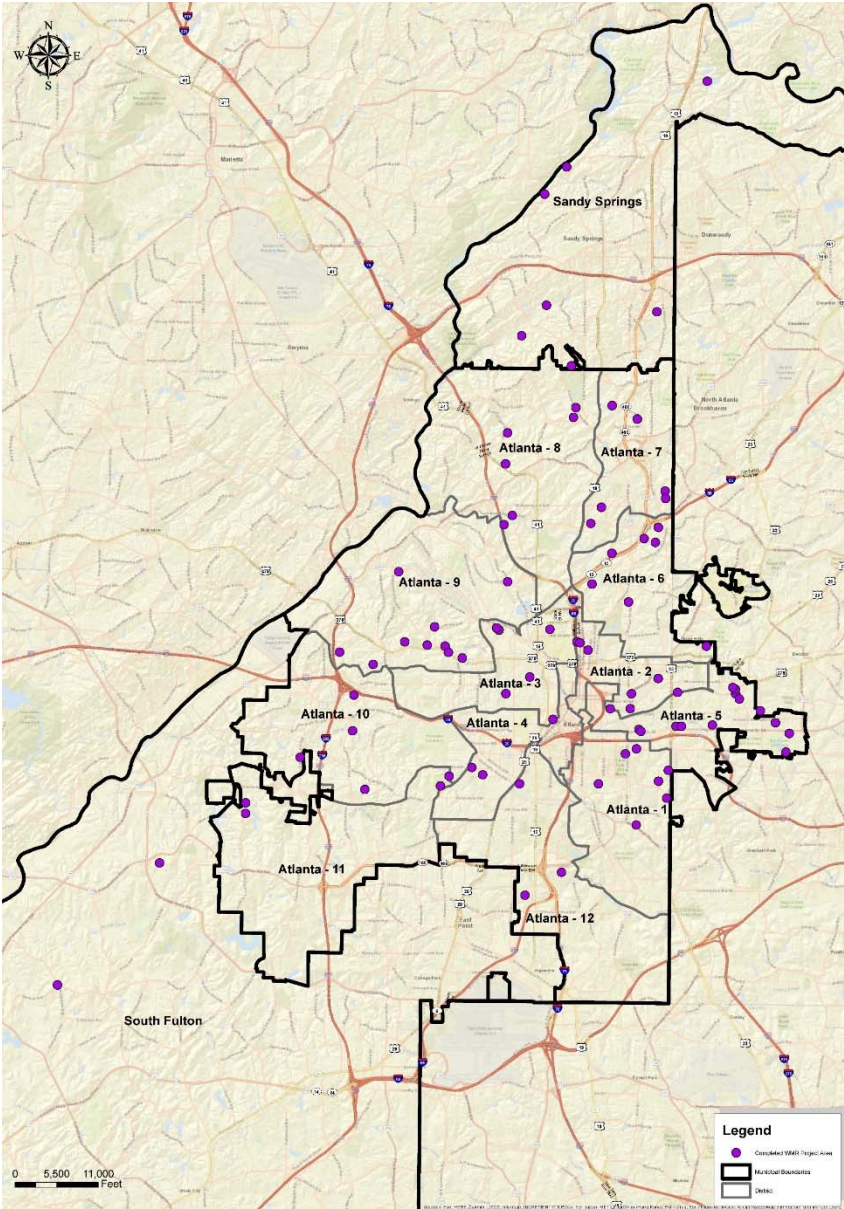
Renew Atlanta Water Main Replacement Projects

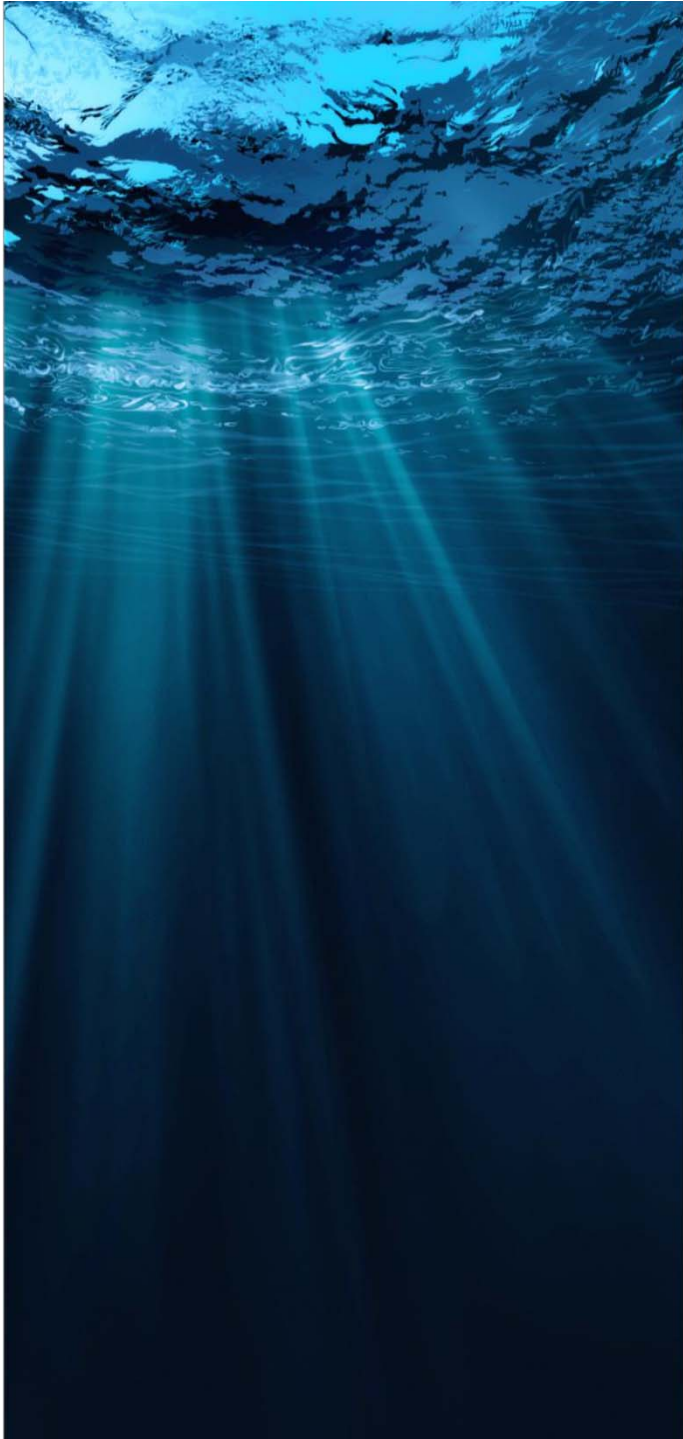


- **Total Project Costs in 2017: \$10.3M**
- **Highlights**
 - Construction began in March 2017
 - Assessed - 194 projects
 - Designed - 37 projects
 - Completed -14projects
 - Replaced 31,528 LF (mainly 6” and 8” cast iron replacement with 8” ductile iron)
 - On site coordination of water, sewer, and storm water work order closeouts
- **Drivers**
 - Avoid cutting newly paved streets
 - Cost savings due to coordination with Dept. of Public Works and Renew Atlanta on paving projects

Completed Water Main Replacement Projects

Program	2015 (LF)	2016 (LF)	2017 (LF)	2018 (LF)	2019 (LF)
Operations	2,977	15,472	11,211	3,041	11,236
Renew ATL			13,916	15,144	2,468
Small Dia WMR					5,350
Total (LF)	2,977	15,472	25,127	18,185	19,054
Total Cost	\$ 911,110	\$ 5,602,625	\$ 9,941,506	\$ 4,774,738	\$ 4,839,215





Q&A