



Gwinnett
Water Resources

2020 Business Plan Presentation

Wednesday, August 28, 2019

Agenda



*Utility of the
future*



*DWR report
card*



Challenges



Financials



The Department of Water Resources

Water Treatment



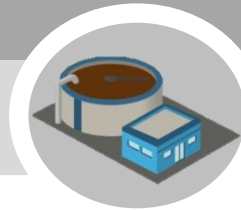
Water Distribution



Wastewater Collection



Wastewater Treatment



Stormwater Services



DWR Mission

*To provide superior
water service at an
excellent value*

**Protecting public
health**



County Priorities

DWR focuses on County Priorities by:



**Providing a
safe & healthy
community**



**Being a smart
& sustainable
government**



**Enabling a strong
& vibrant
economy**

Continuing to Work Toward Being a Utility of the Future



DWR strategy

Continuous improvement through personal commitment, innovation, efficiency, and education

*Provide
fundamental
services*



Step 1

*Optimize
operations
and services*



Step 2

*Transform
operations
and services
to meet
future needs*



Step 3

*Continue to
be a utility of
the future*



Step 4

The Water Tower at Gwinnett

Where water innovators thrive





The Water Tower at Gwinnett

A hub for water professionals to

- Connect
- Test ideas
- Build solutions
- Grow talent

Phased campus master plan



The Water Tower at Gwinnett: Next Steps



Fall 2019

- *Announce The Water Tower at Gwinnett*
- *Initiate programming*
- *Formalize County-Nonprofit relationship*

Spring 2020

- *Initiate construction*

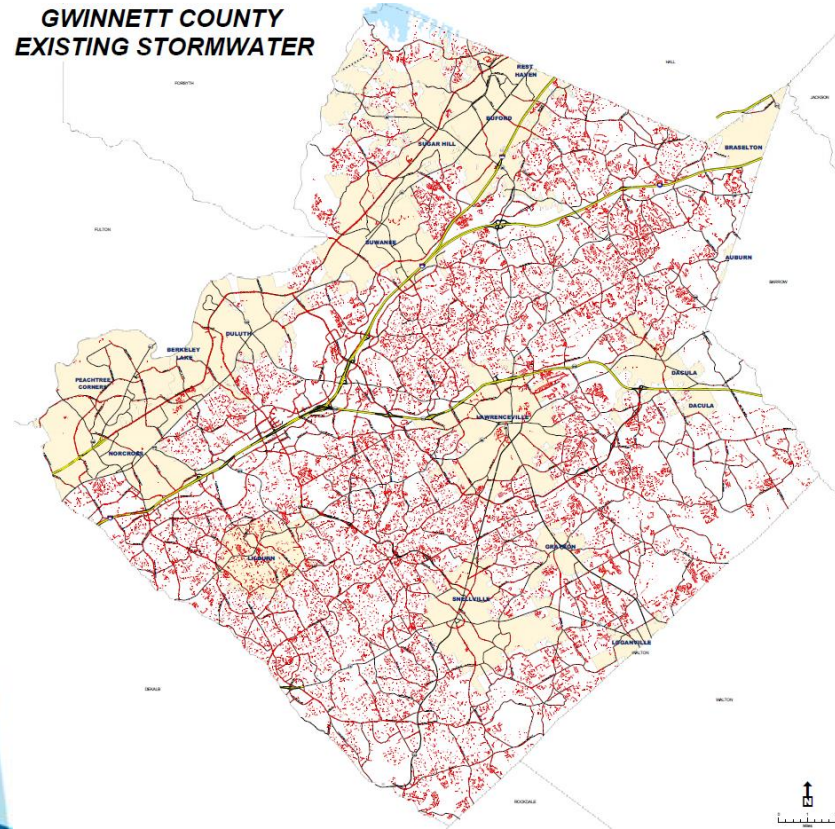


DWR Report Card





Stormwater System



**Asset value
\$3 Billion**

**Miles of
stormwater
pipe
1,467**

**GC maintained
dams
25**

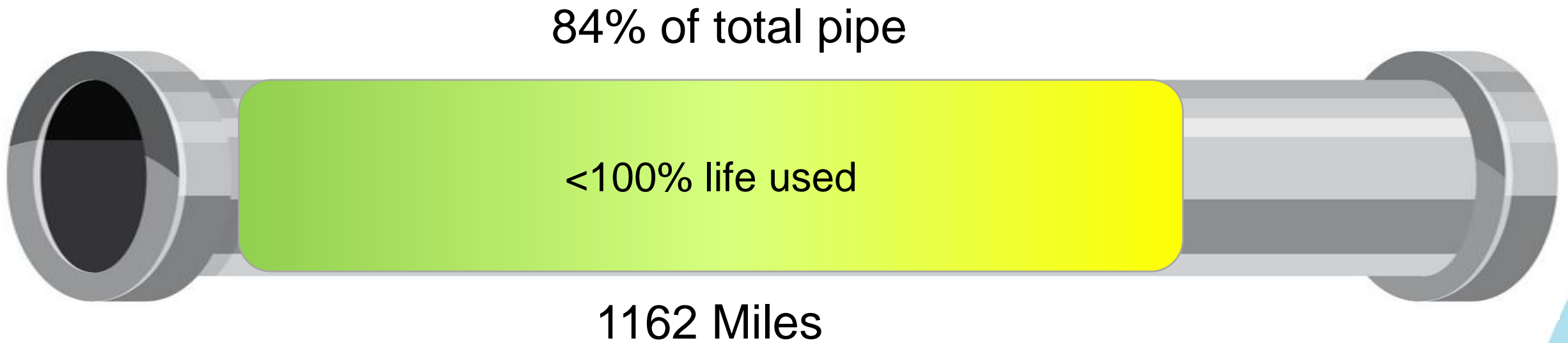


Stormwater Assets



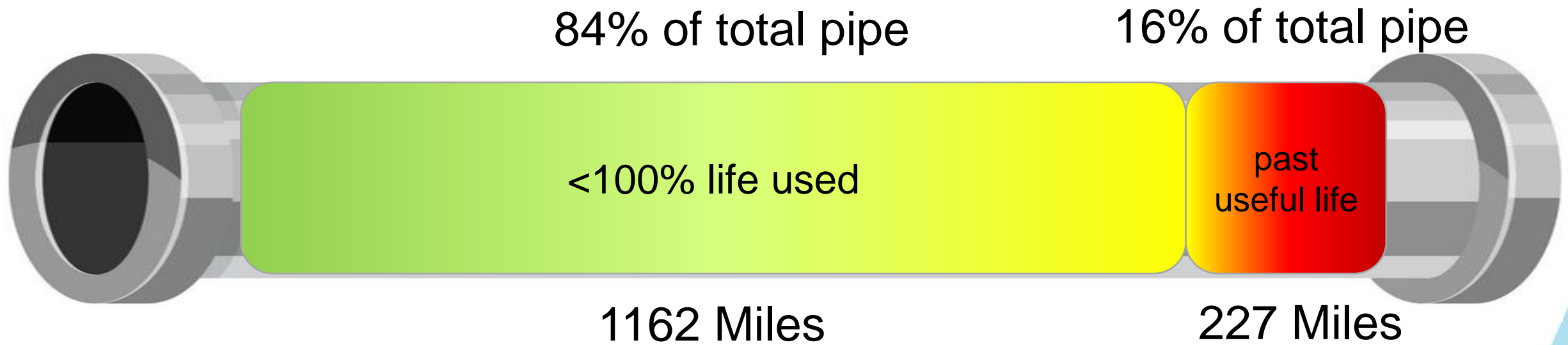


Stormwater Assets

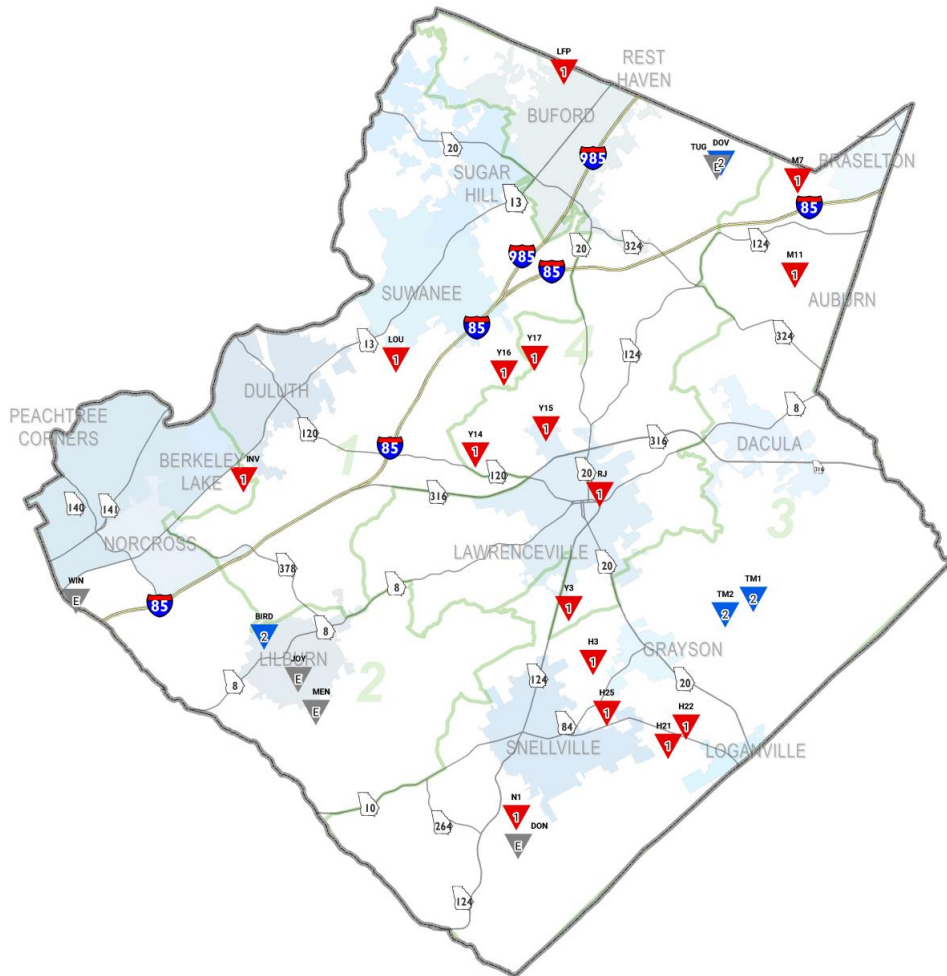




Stormwater Assets



Dams

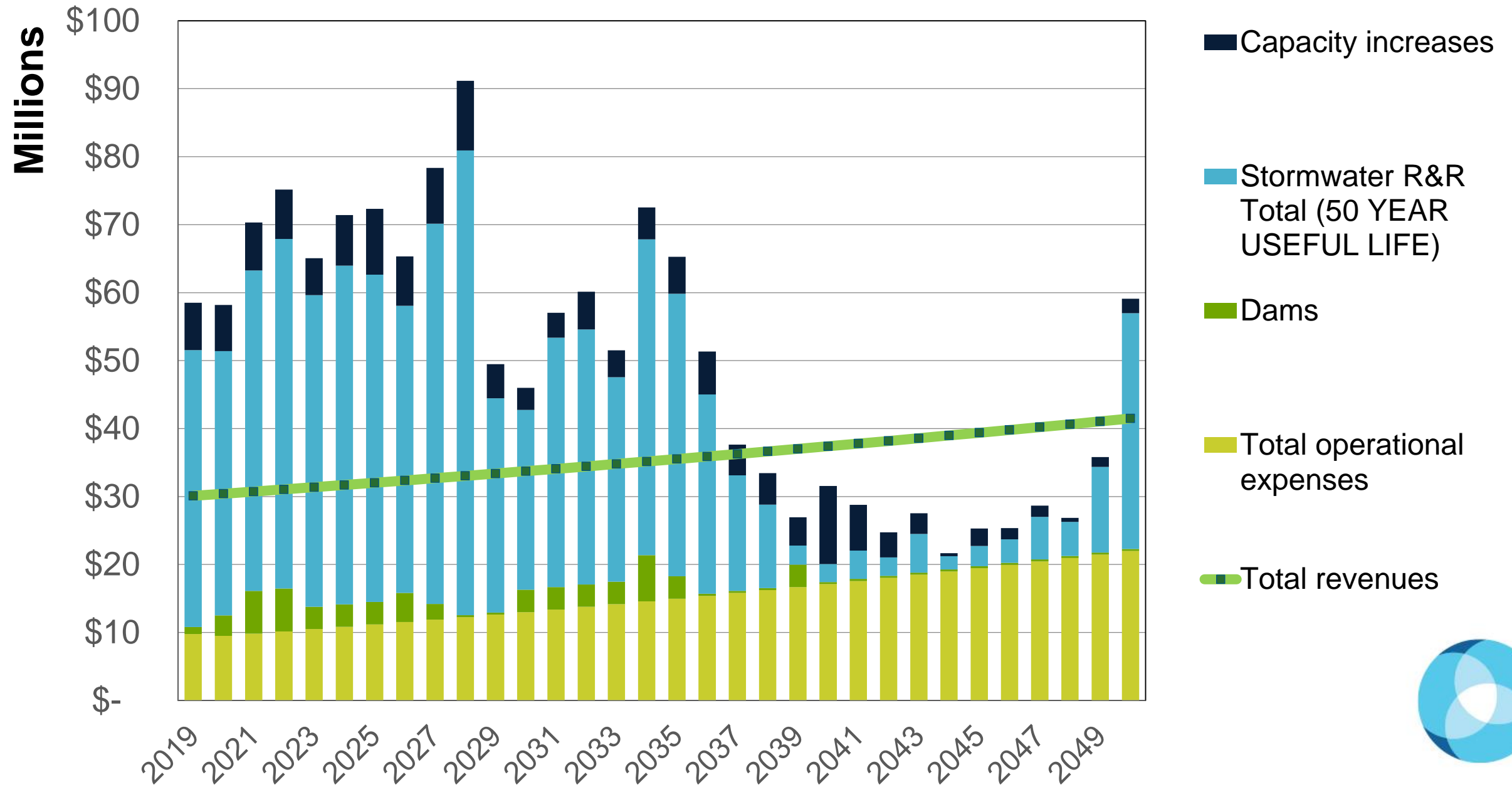


DWR maintains 22 dams in unincorporated Gwinnett County and 3 in Lilburn

Dam maintenance requirements

- Quarterly inspections
- Yearly report to Georgia Safe Dams Program
- Ongoing maintenance and improvements

30-year Stormwater Revenues and Estimated Need

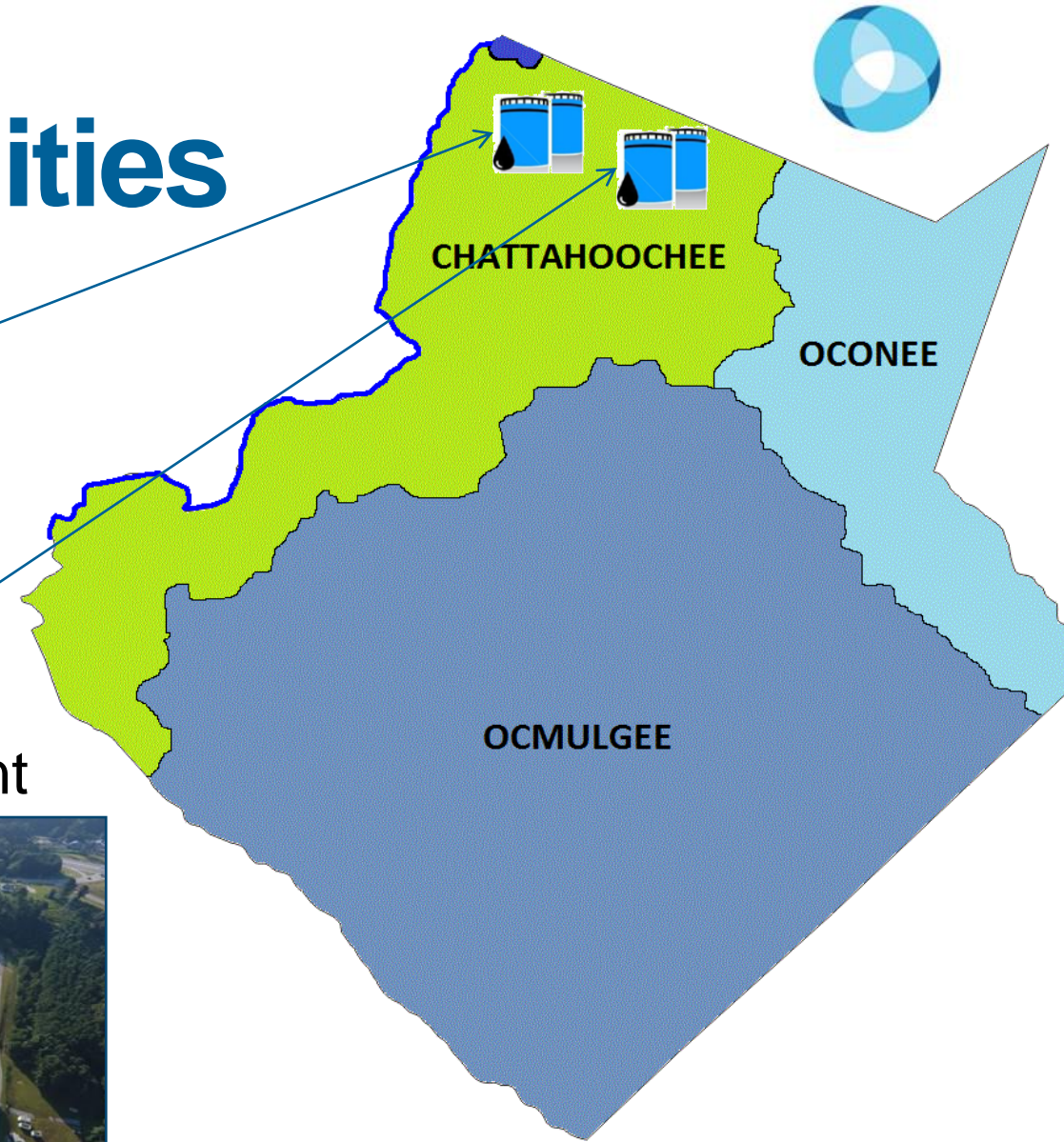


Water Production Facilities

Shoal Creek Filter Plant



Lanier Filter Plant





Water Production Facilities

Under development

Evaluation of asset
useful life

Facility master plan

- Efficiency
- Future requirements



Water Production Compliance

Currently 100% compliant

122,000 readings and results submitted to EPD annually

When was the last violation?

7 years since last reporting violation

Distribution System



44,200 Fire Hydrants



10 Water Tanks



9 Water Booster Stations

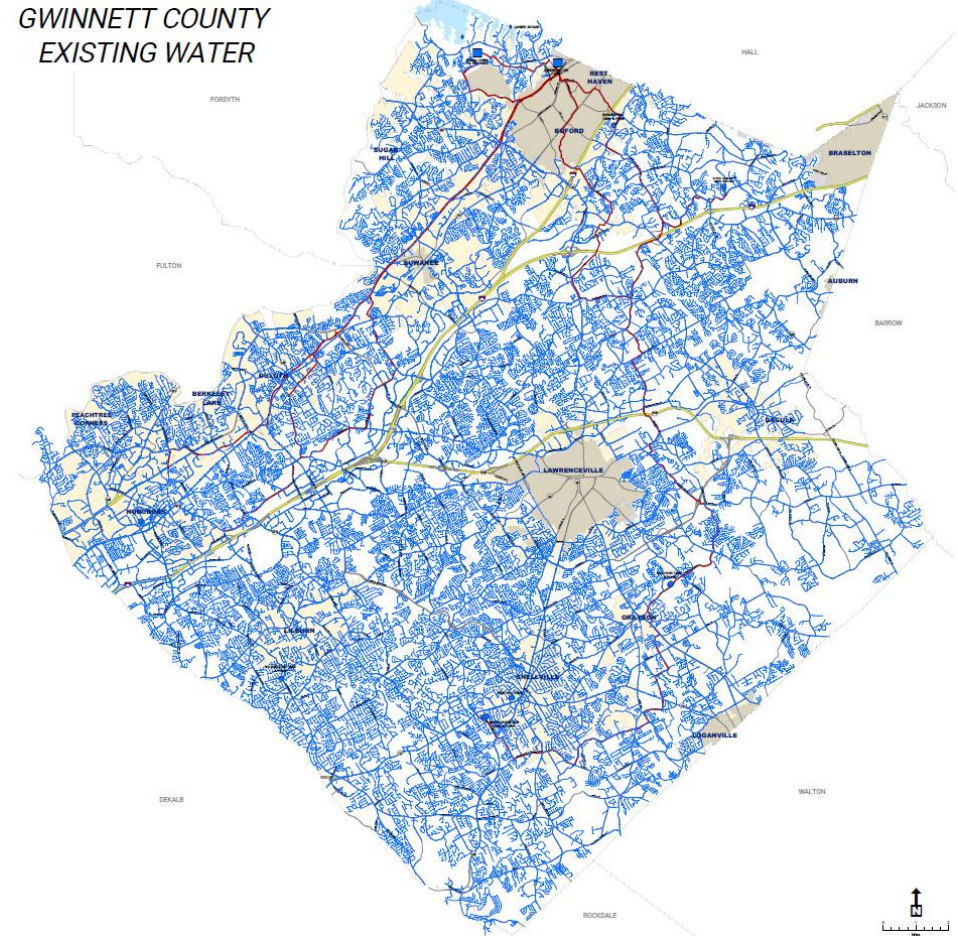


265,792 Water Meters



3,803 miles of pipe

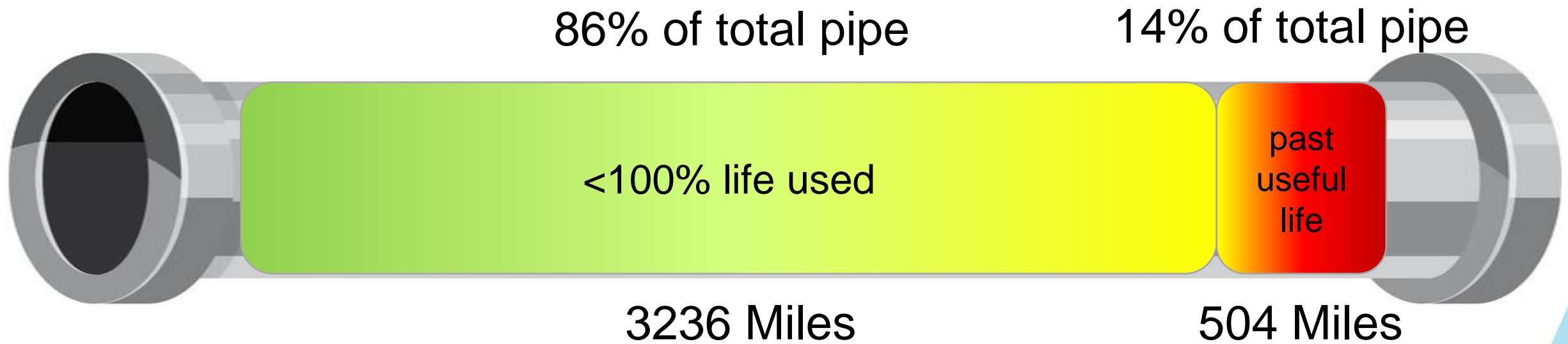
GWINNETT COUNTY
EXISTING WATER



Asset replacement value
\$2.7 Billion



Distribution System Assets





Pressure Management Progress

2011

Continuous SCADA
monitoring &
distribution system
model validation

2012

Zones implemented
and new zones are
being designed

2018

New real-time pump
performance
monitoring

2019

Fill valve
replacement using
new technology

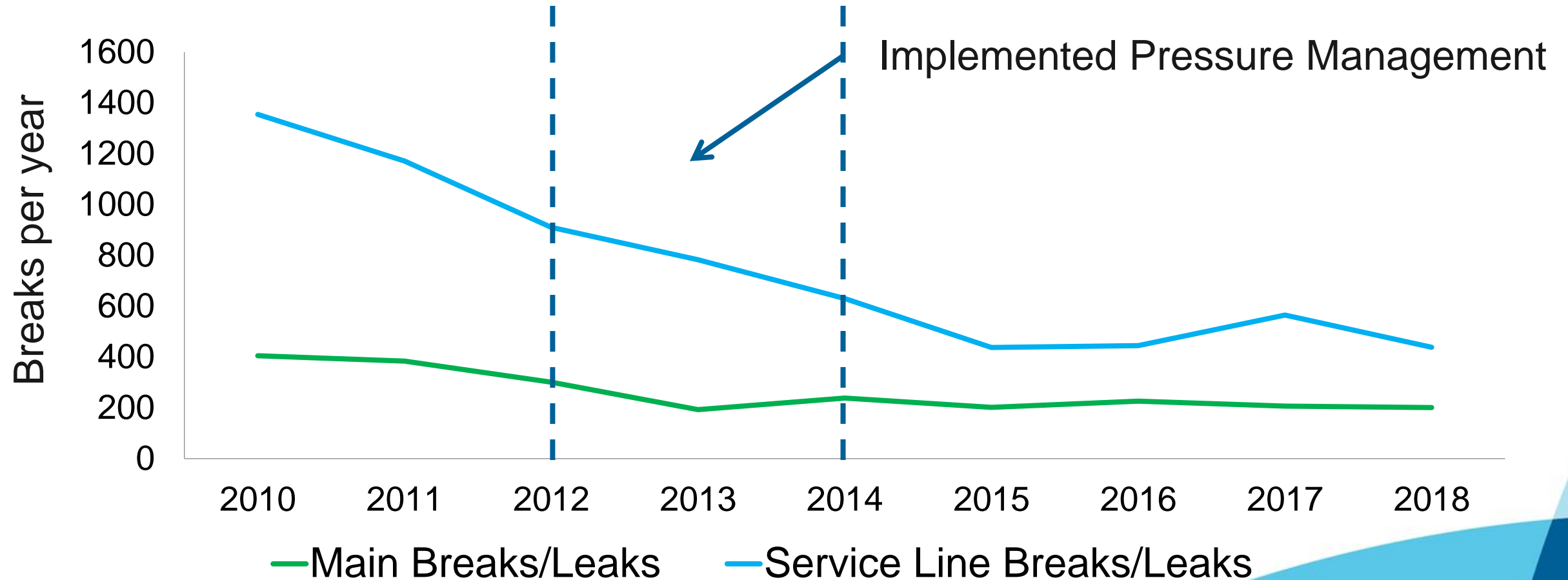


The chart displays two data series over a 24-hour period, from 12:00:00 PM to 12:00:00 PM the following day. The y-axis represents a numerical value ranging from 0 to 250 in increments of 50. The blue line, labeled 'The Day Before', shows a fluctuating pattern with values generally between 150 and 200. The red line, labeled 'The Day After', shows a similar but lower fluctuating pattern, generally between 120 and 140. Both lines exhibit a similar trend of peaks and troughs throughout the day.

The Day Before

The Day After

Results – Reduced Main and Service Line Breaks



Indian Trail Water Main Break

RY • DEVELOPING STORY • DEVELOPING

NORCROSS

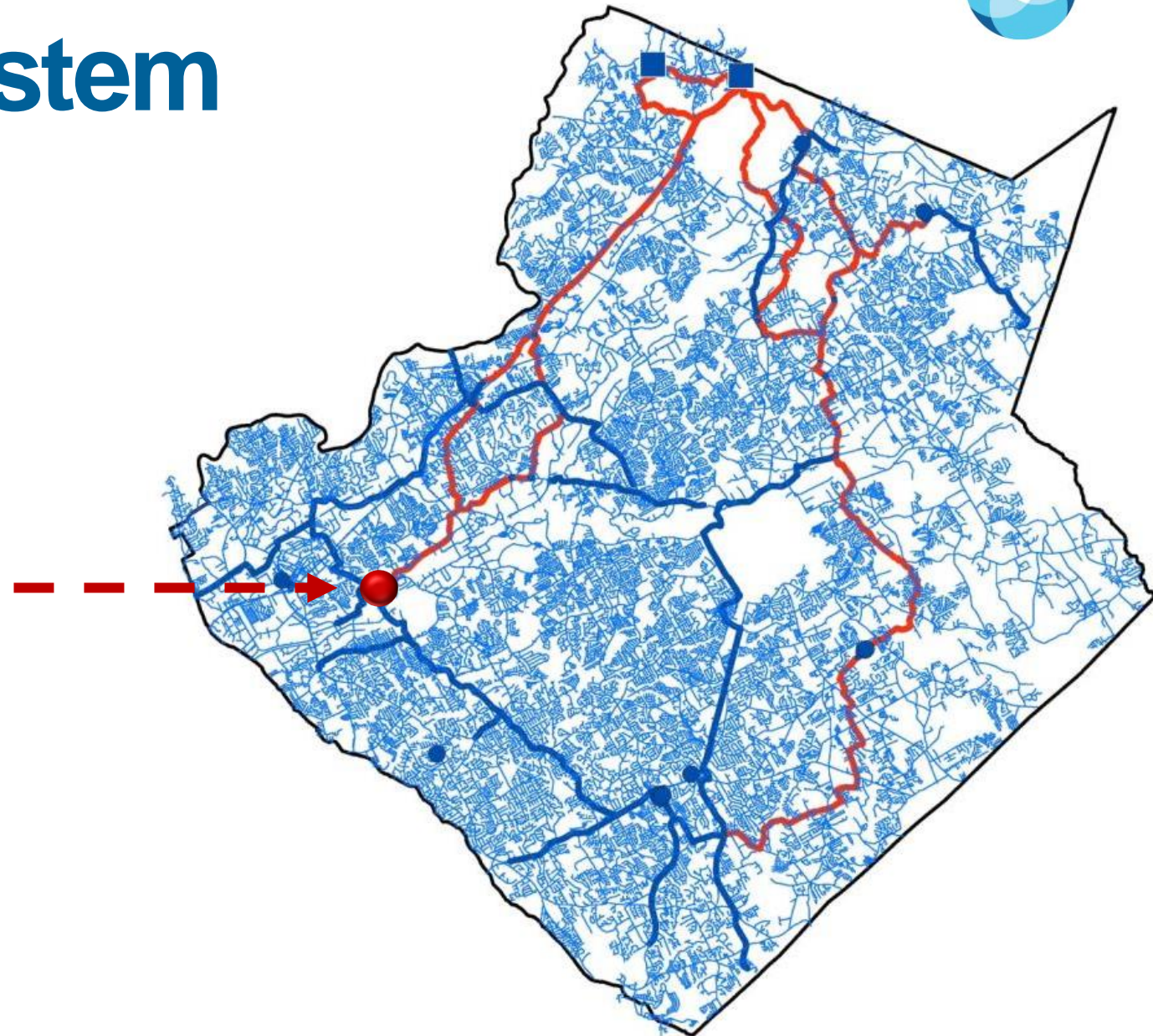
FOX 5

5:04 39°

SINKHOLE AT I-85 AND INDIAN TRAIL

• DEVELOPING
STORY

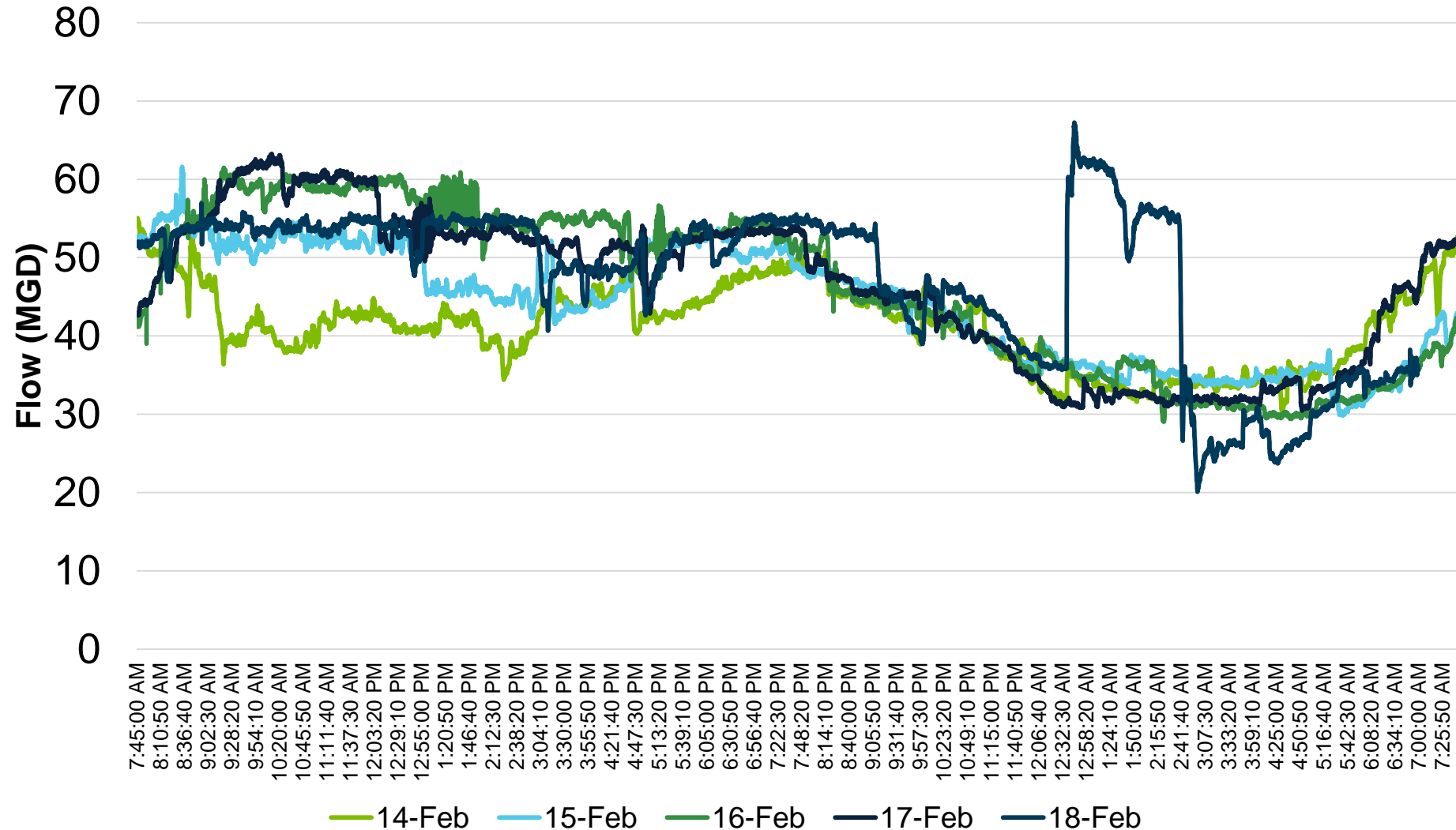
Looped Water System



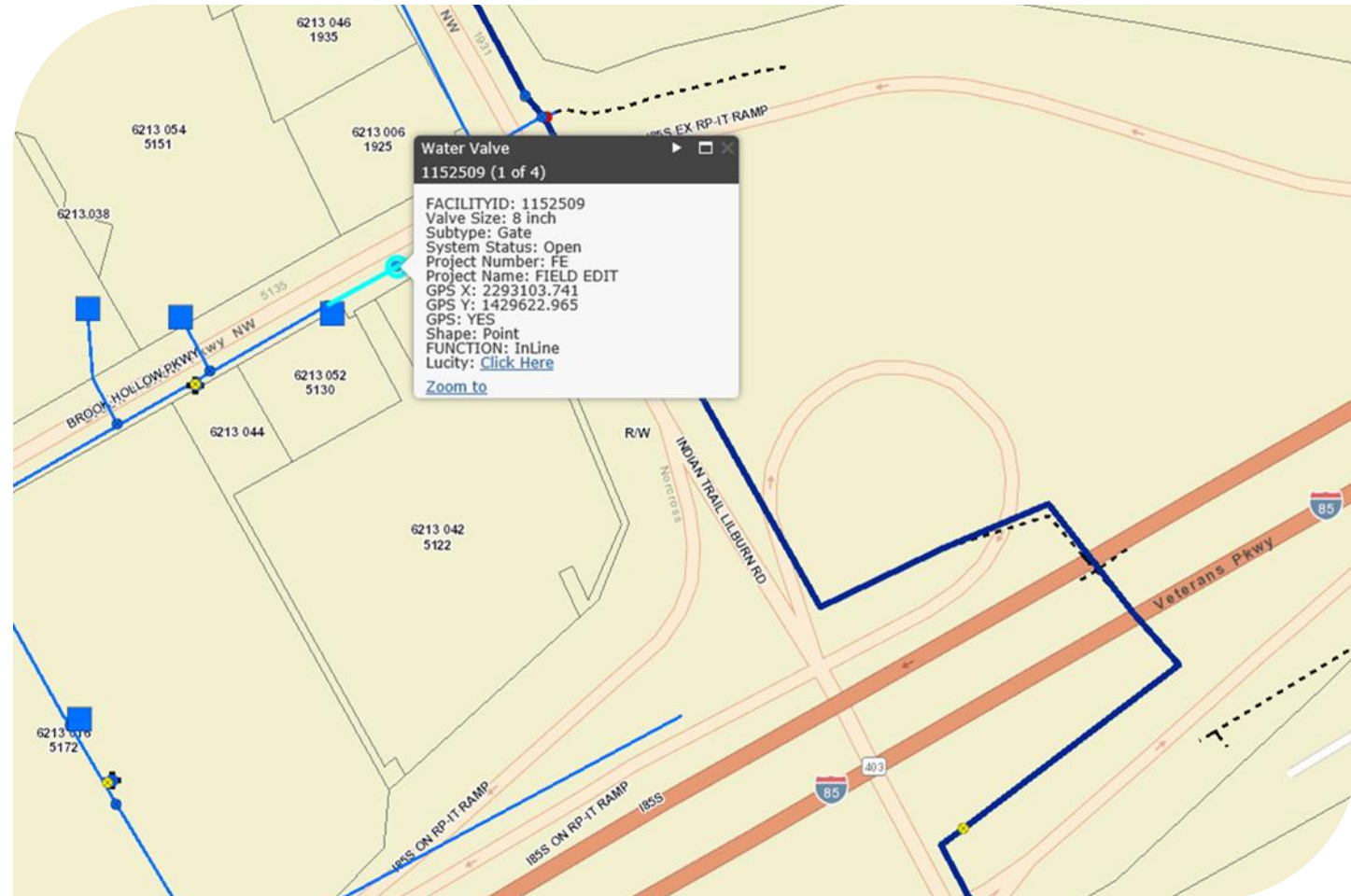


SCADA System

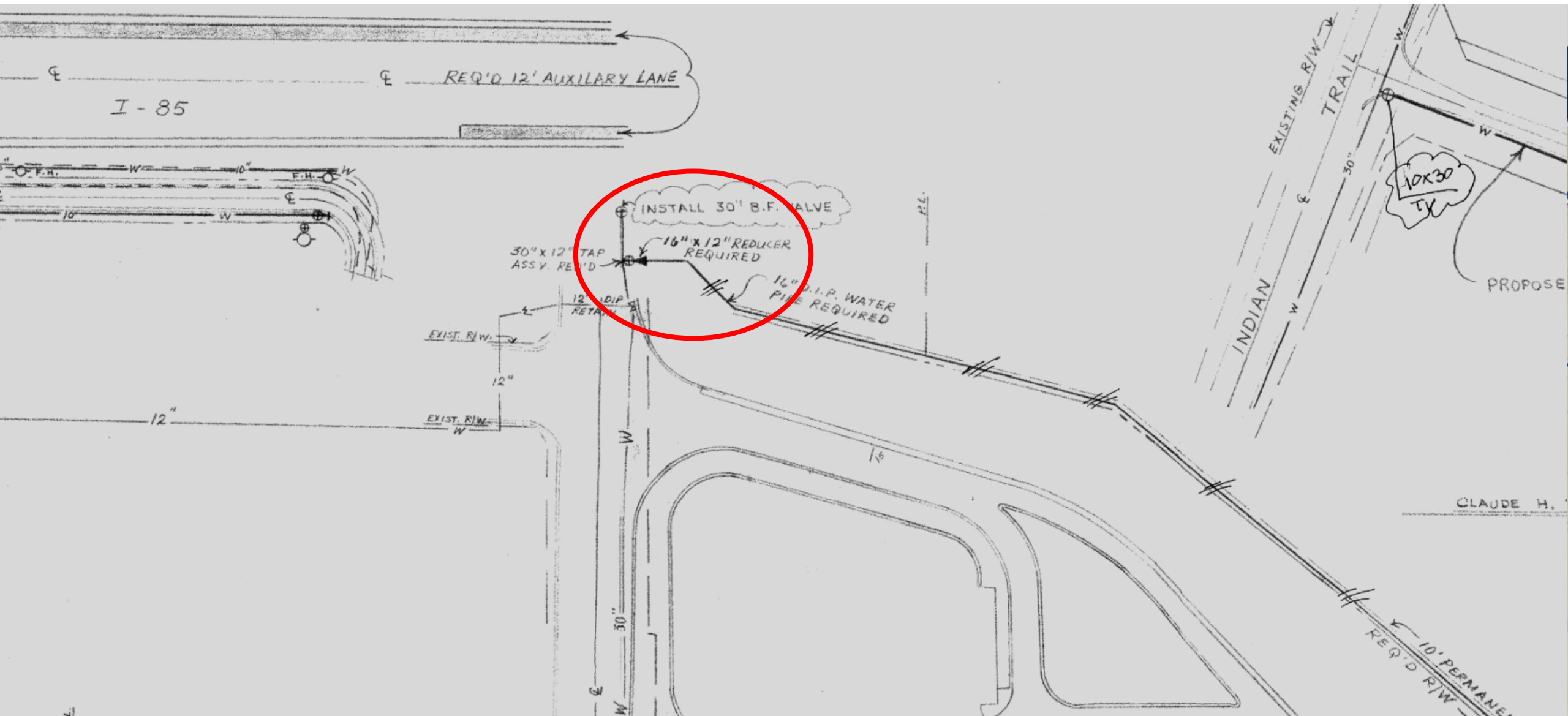
- Plant saw increased flow at 12:37am
- Started second pump to keep up with demand
- Immediately called Dispatch



Valve Inspection and Exercising Program



GIS/Asset Information System







Parts

Materials needed:

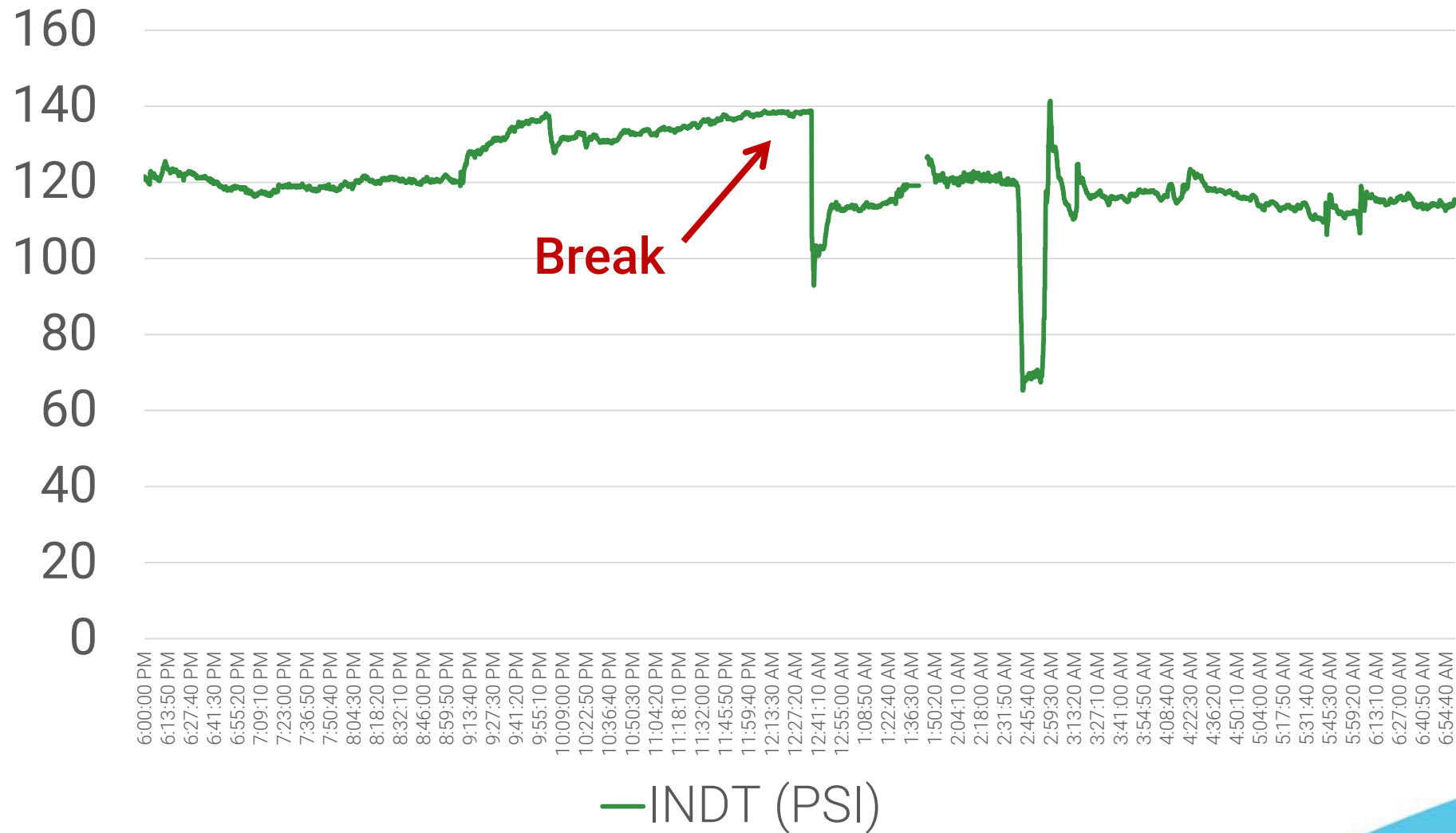
- 12-inch mechanical joint plug
- Junction box base and top
- Bricks
- Mortar
- Quickcrete
- 220 tons of rock and crusher run
 - 18 truck loads
- Tree save fence



Equipment and Tools



Pressure Sensors





**Dedicated
people**

Line Repaired With Road Opened in 26 Hours



NORCROSS

FOX 5

10:06 44°

**SINKHOLE REPAIRED
ON INDIAN TRAIL ROAD**

**STORM
ALERT**

Collection Systems



80,294 Manholes



278 Miles of force main

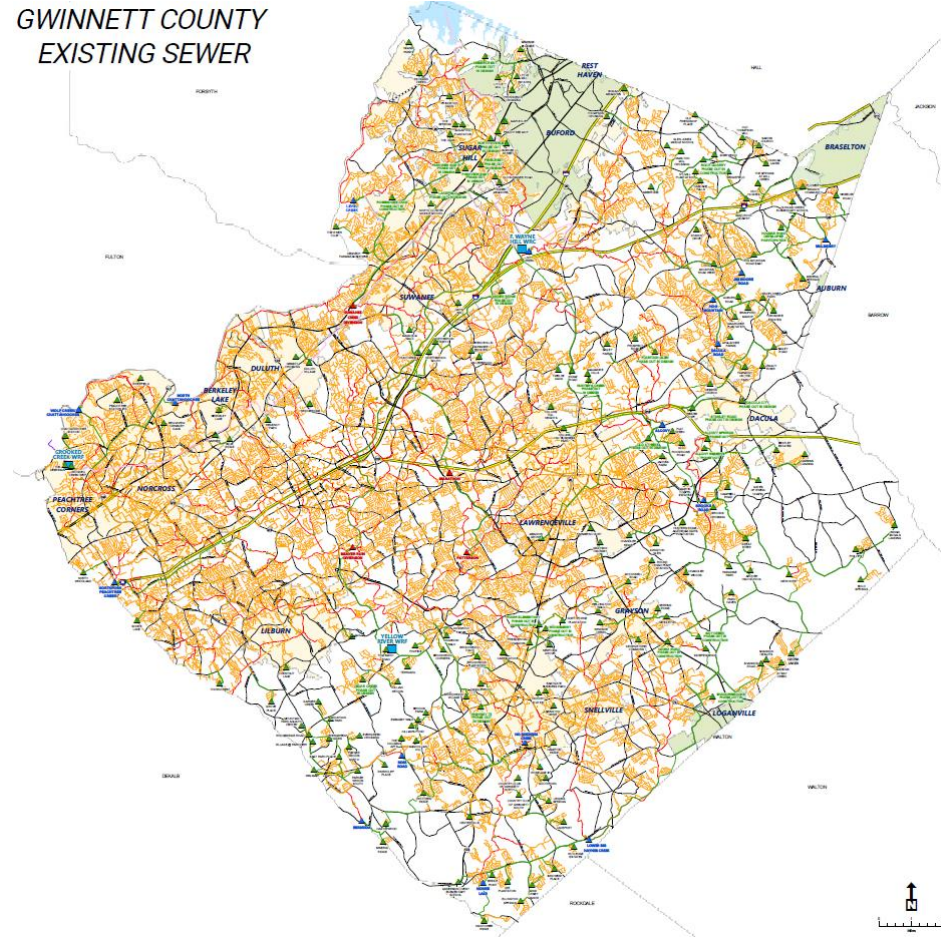


218 Sewage pump stations



2,815 Miles of gravity pipe

GWINNETT COUNTY
EXISTING SEWER



***Asset Replacement Value
\$2.6 Billion***



Collection System Assets



2% of total pipe
Past useful life



98% of total pipe

<100% life used

2828 Miles

34 Miles





Condition Assessment



Closed circuit television
(CCTV) pipe inspections
Manhole Inspections

Since 2009

- Inspected 60% of entire system
- Inspected 83% of non-PVC pipe



Assessment Results

Identifying Aging infrastructure



Rehab Toolbox



Cured in Place Pipe (CIPP)



Pipebursting



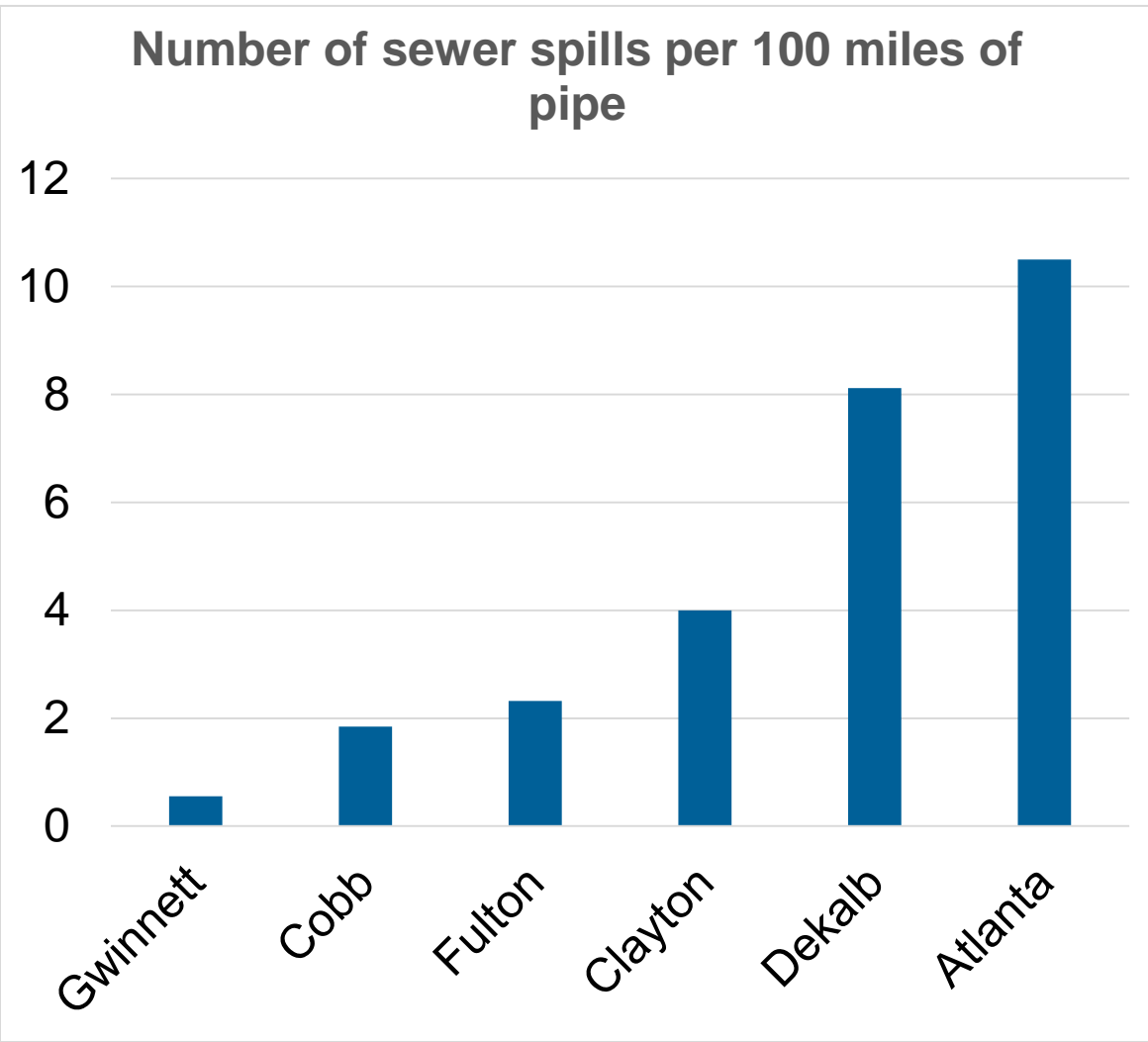
Sliplining



Manhole/Structure repair and rehab



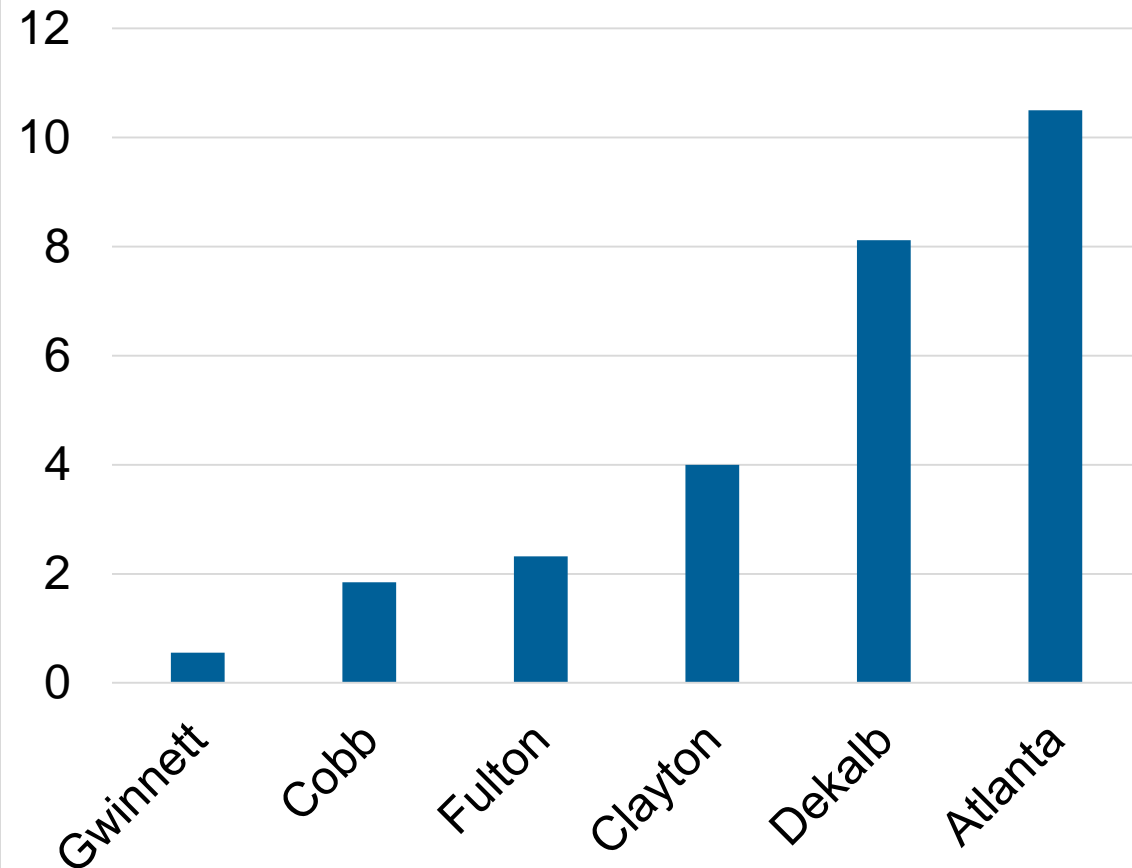
Results – Reduced Sewer Spills



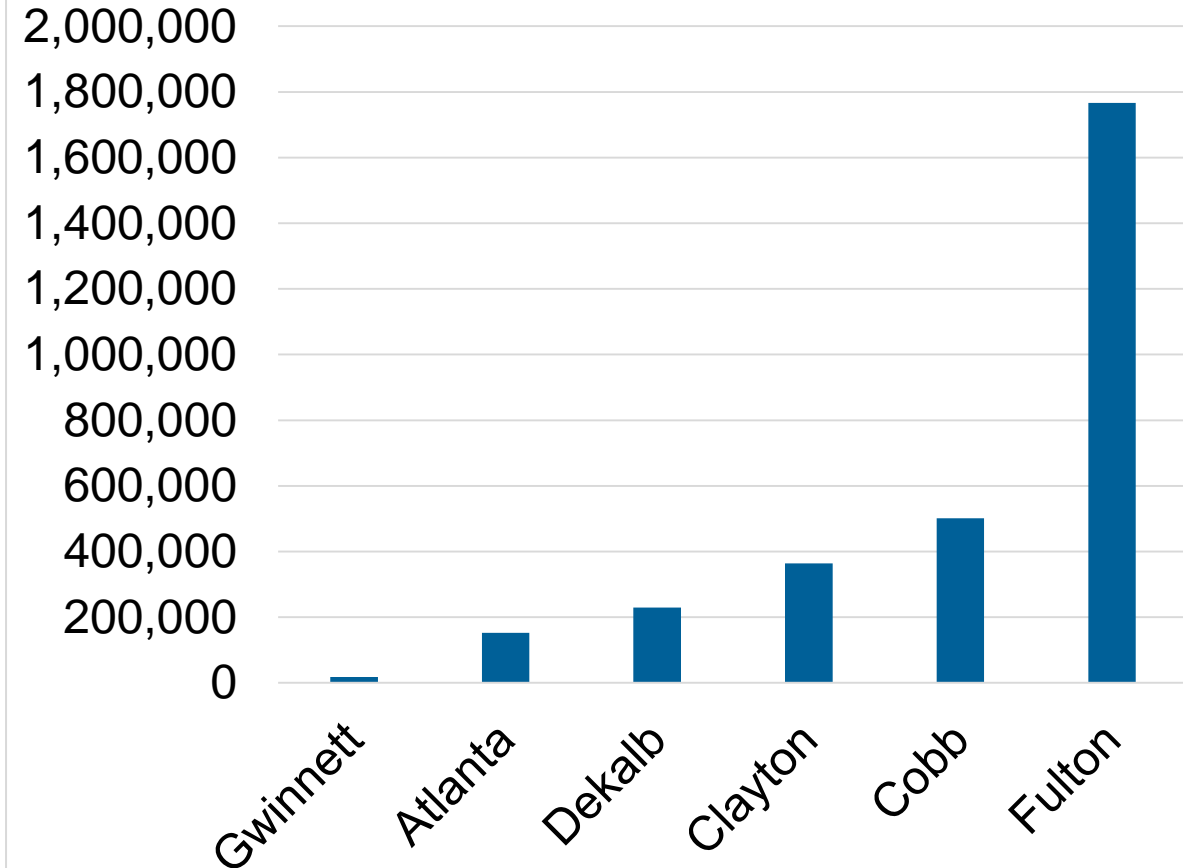


Results – Reduced Sewer Spills

Number of sewer spills per 100 miles of pipe



Volume of sewage spills in gallons per 100 miles of pipe



Georgia Association of Water Professionals Annual Collection System Audit



Audit criteria:

- Sanitary sewer evaluation
- Operator certification score
- Program reviews
 - Management
 - Force mains and manholes
 - Pump stations
 - Capacity

Georgia Association of Water Professionals Annual Collection System Audit



Gold



2011

2012

2013

2014

Platinum achieved in 2015



2015

2016

2017

2018



Water Reclamation Facilities

Crooked Creek WRF

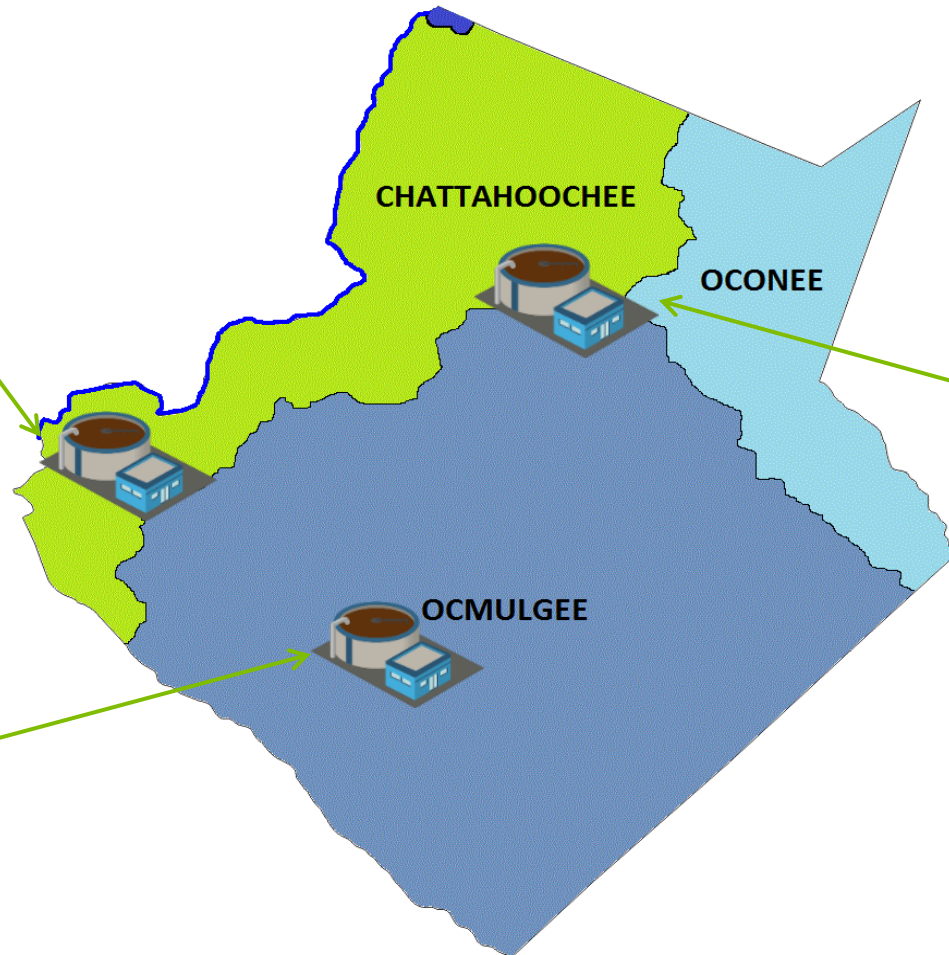


16 MGD

Yellow River WRF



22 MGD



F. Wayne Hill WRC



60 MGD

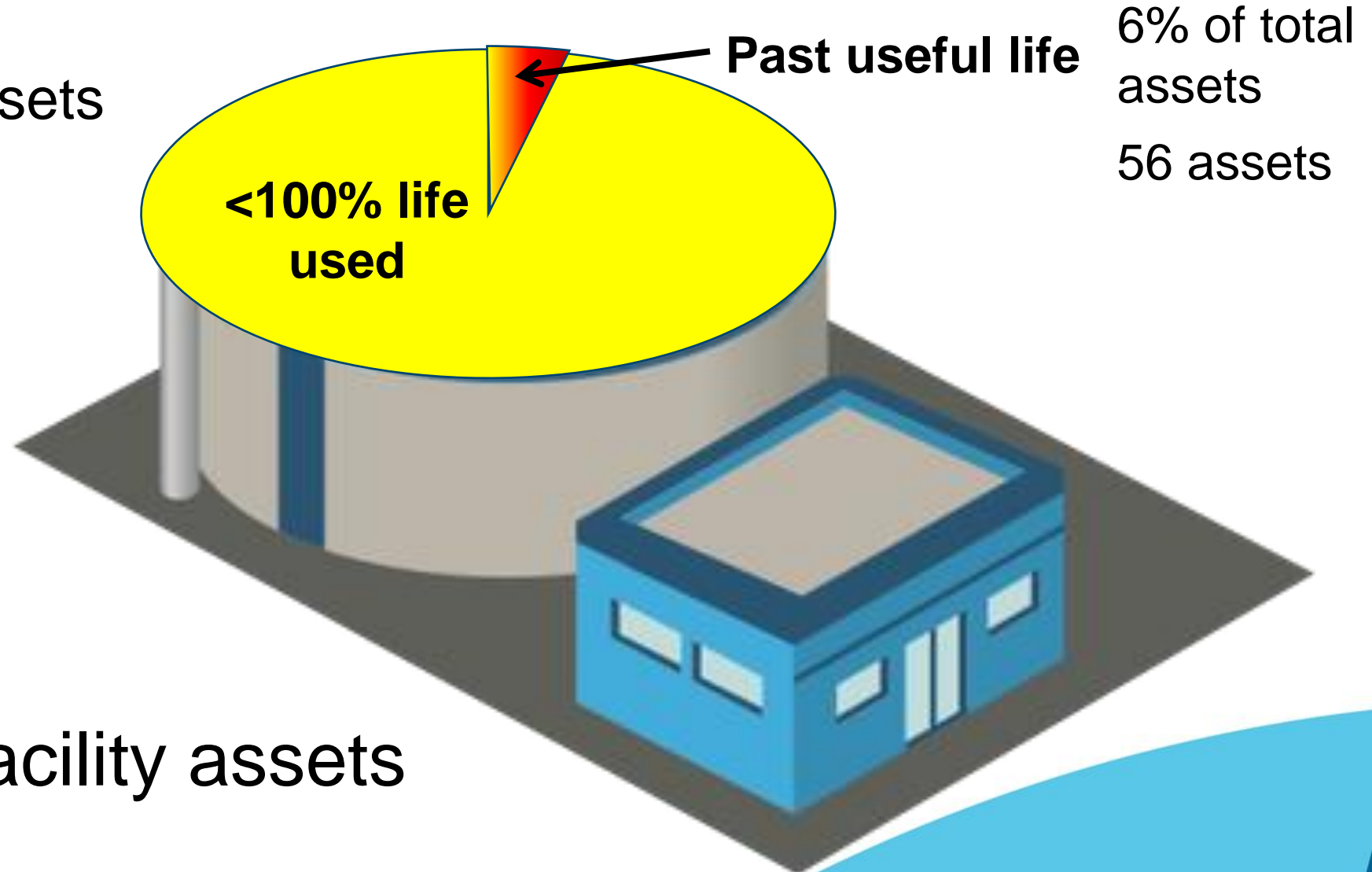
Construction Update: Crooked Creek



Yellow River WRC Assets



94% of total assets
2,032 assets

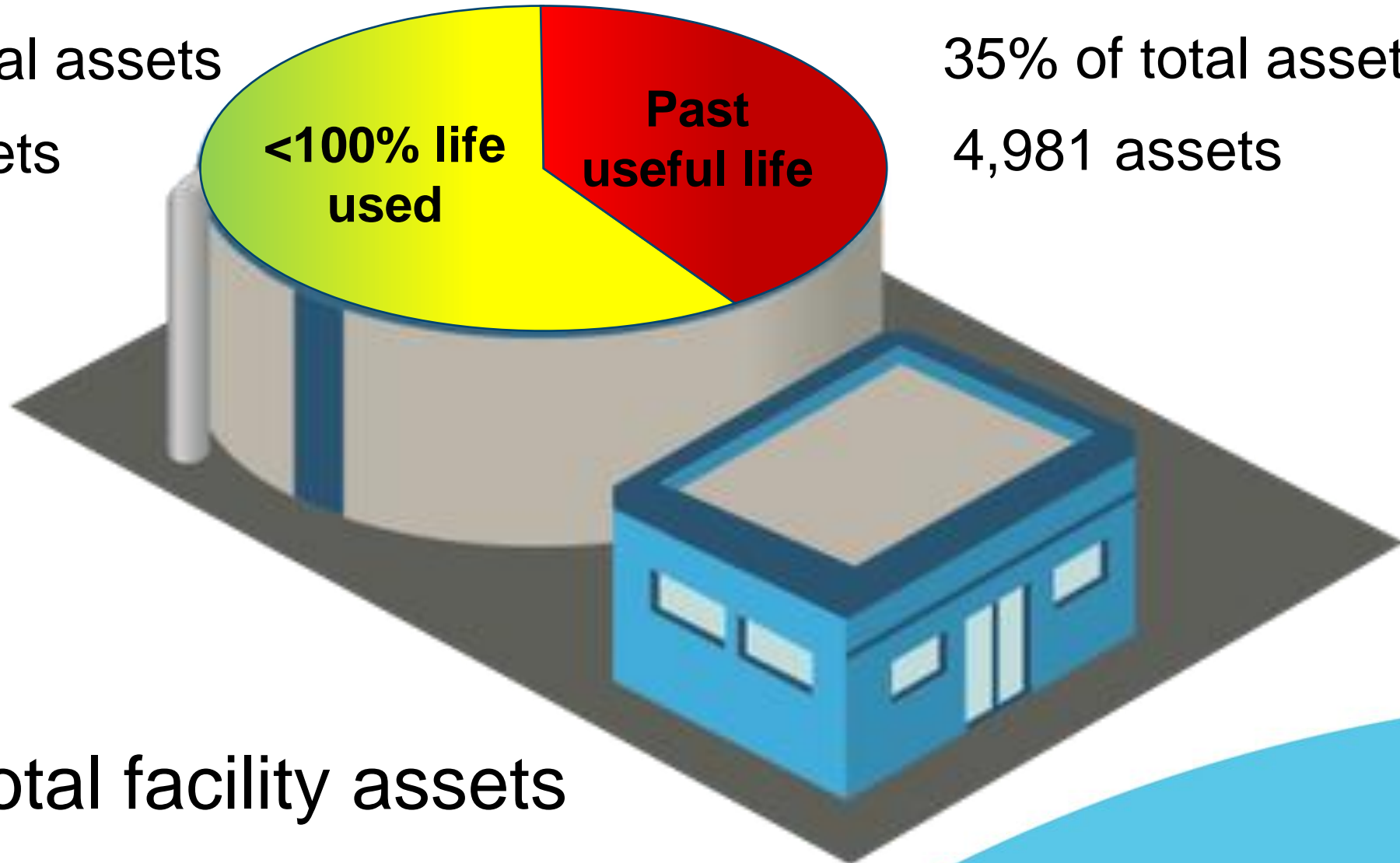


2,180 total facility assets

F. Wayne Hill WRC Assets



65% of total assets
9,331 assets



35% of total assets
4,981 assets

14,312 total facility assets

Predictive and Preventative Maintenance



Infrared thermography

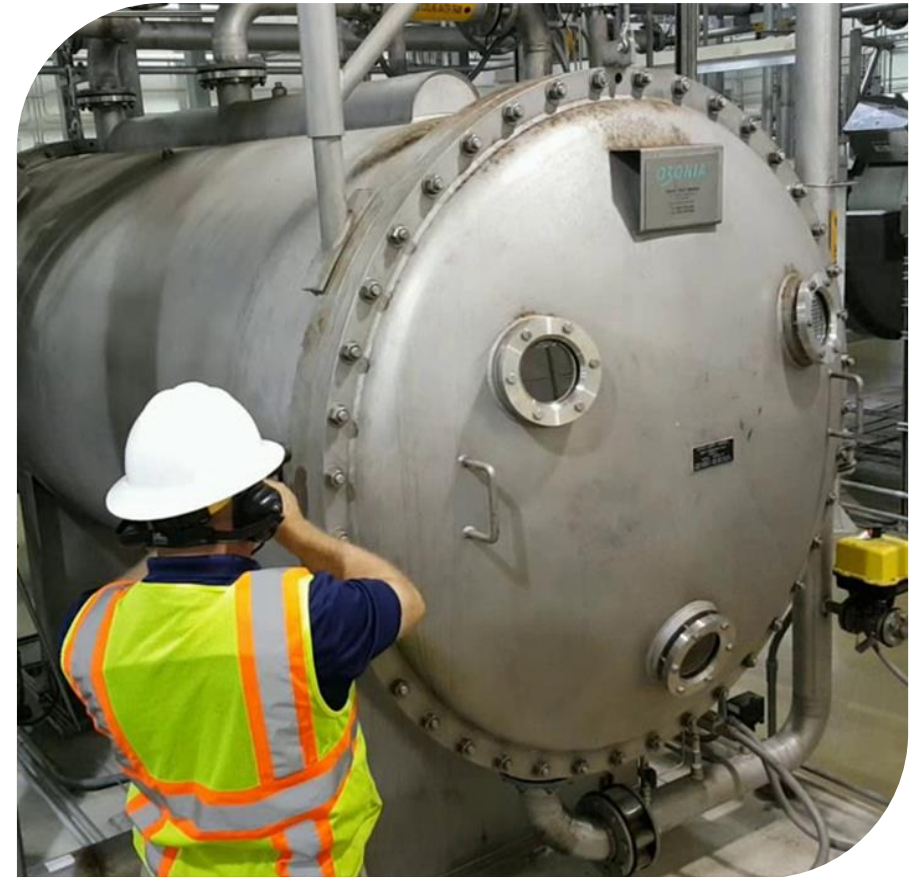
2015-2018

Infrared cost avoidance: **\$322,244**

Vibration analysis

2015-2018

Vibration cost avoidance: **\$1,451,927**

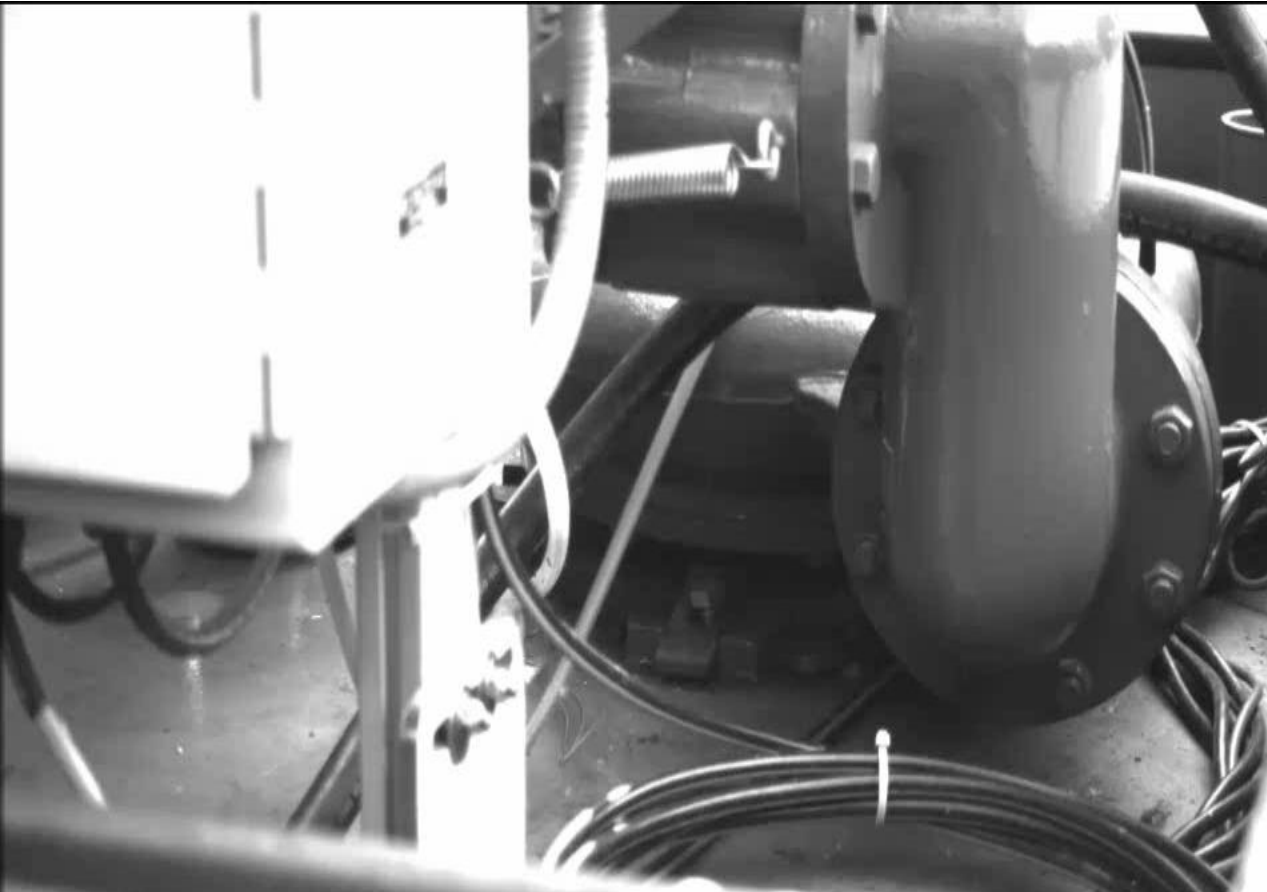


DWR Asset Maintenance Innovation

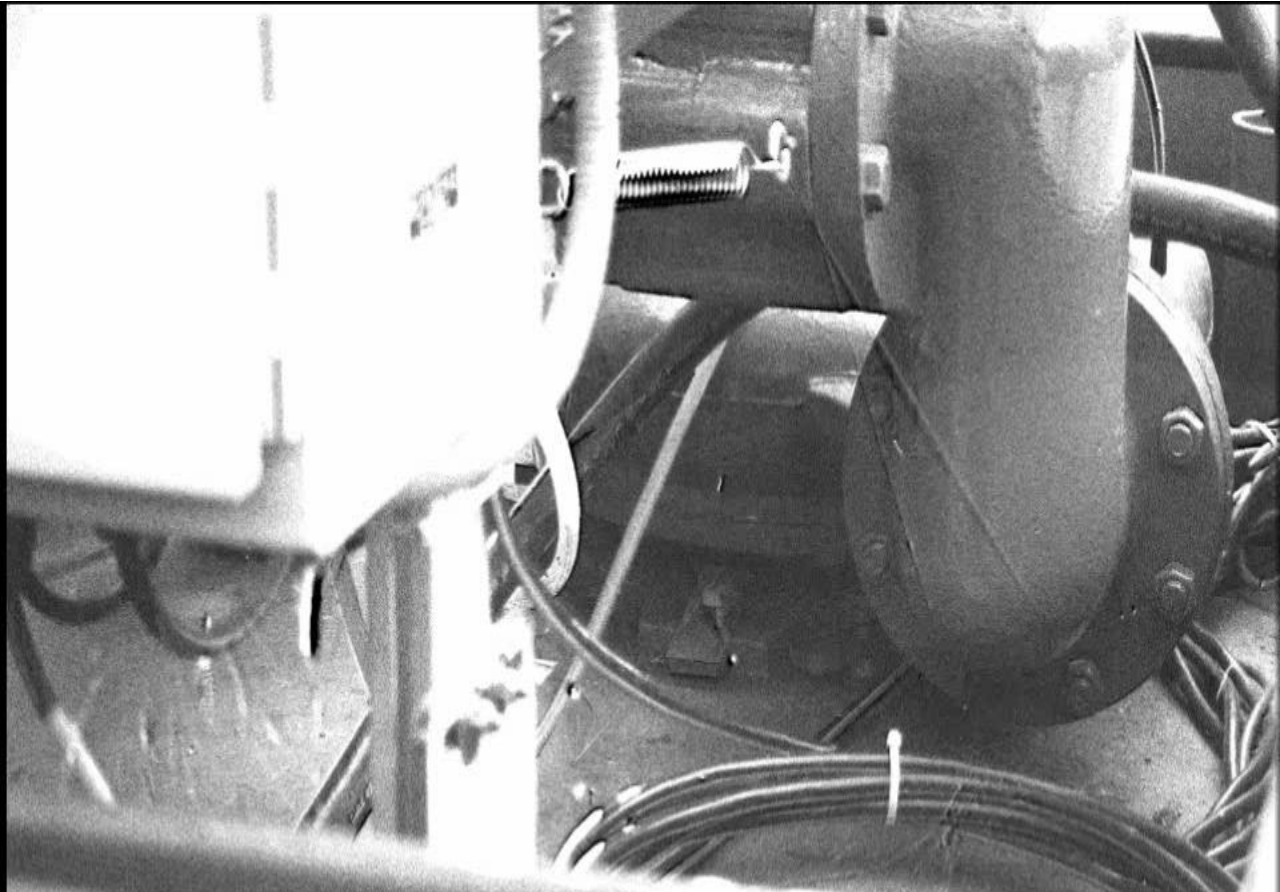


Motion amplification technology

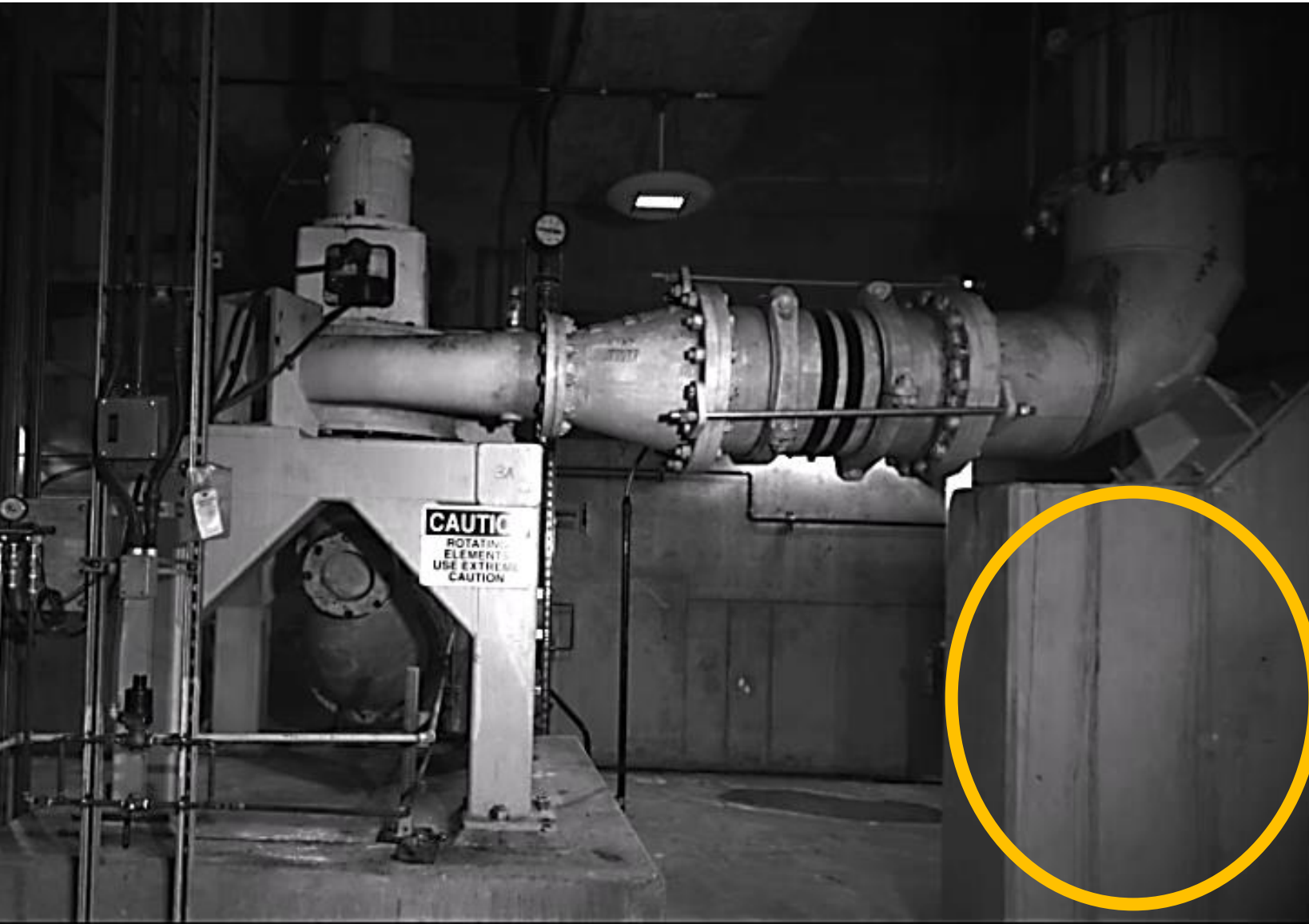
Normal video of the asset



Asset under 4x amplification



DWR Asset Maintenance Innovation



Suwannee Creek
pump 3A thrust
block

Concrete block:
estimated at 5,400
pounds



DWR Asset Maintenance Innovation

Motion amplification technology

Normal video of the asset

Asset under 4x amplification



Results - Wastewater Permit Compliance



Currently 100% compliant

3,482 readings and results submitted to EPD annually

When was the last violation?

August 2014 – Crooked Creek

Award Winning Organization



Peak Performance Award
Platinum 2010-2019
Excellence in Management
Platinum 2018



Utility of the Future
2016



**Transformational
Innovation**
2018



**Green Community
Partner**
2018



**Adopt-A-Stream
Watershed Award**
2018



**Biosolids/Residuals
Program of Excellence**
2016, 2018
Outstanding Operation
2017



Challenges



Challenges

- Biosolids disposal
- Workforce retention and development
- Growth and development
- CIP delivery - pipes





Biosolids Challenges

- Biosolids from both F. Wayne Hill and Yellow River treated at F. Wayne Hill Facility
- Expected to reach biosolids treatment capacity by 2029 – had a capital project planned
- Landfill costs have tripled in the last year
- Re-evaluating our future processes for treatment and disposal of biosolids





Workforce Challenges

Recruitment

- Co-ops and Interns

Retention

- Customer care
- Field operations

Development

- Employee Skills Development Program

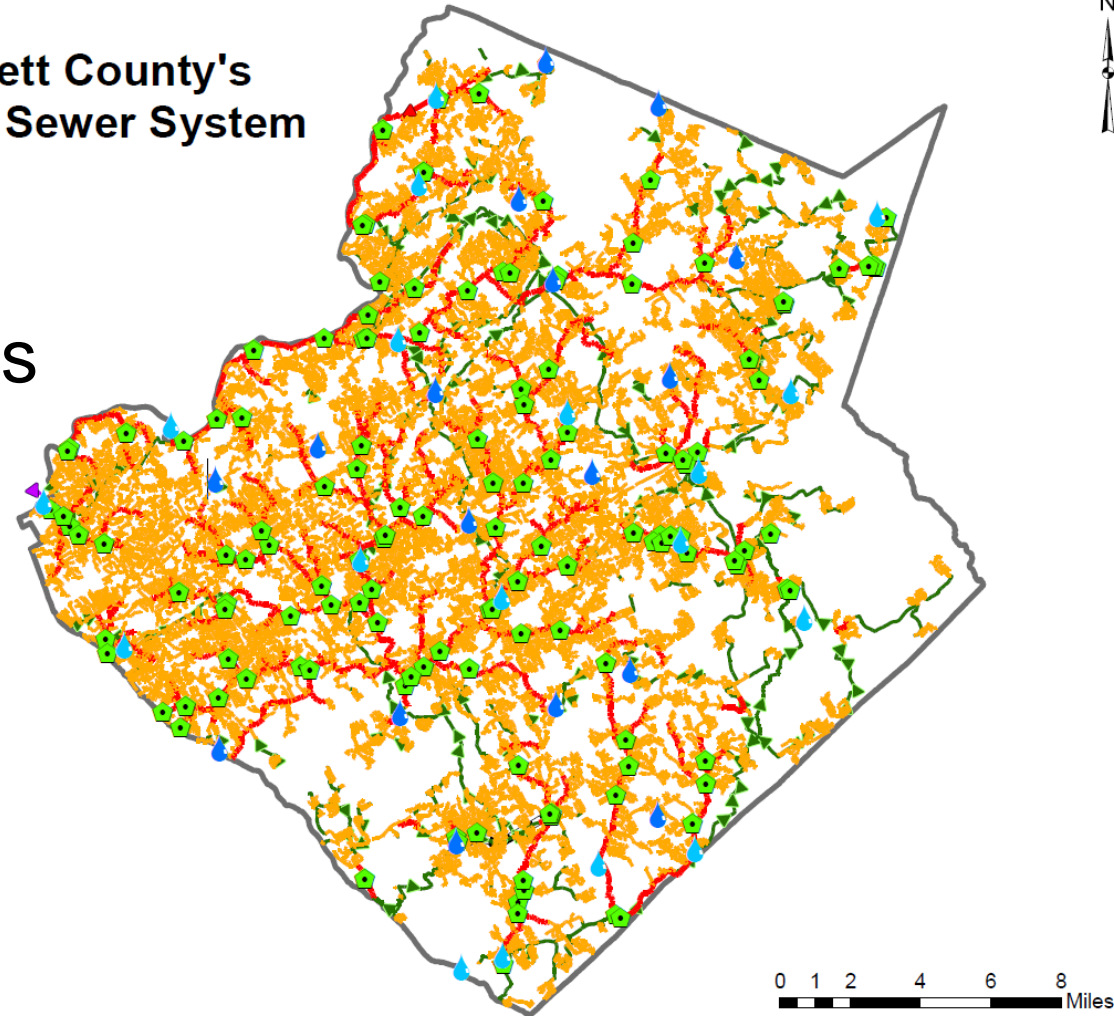


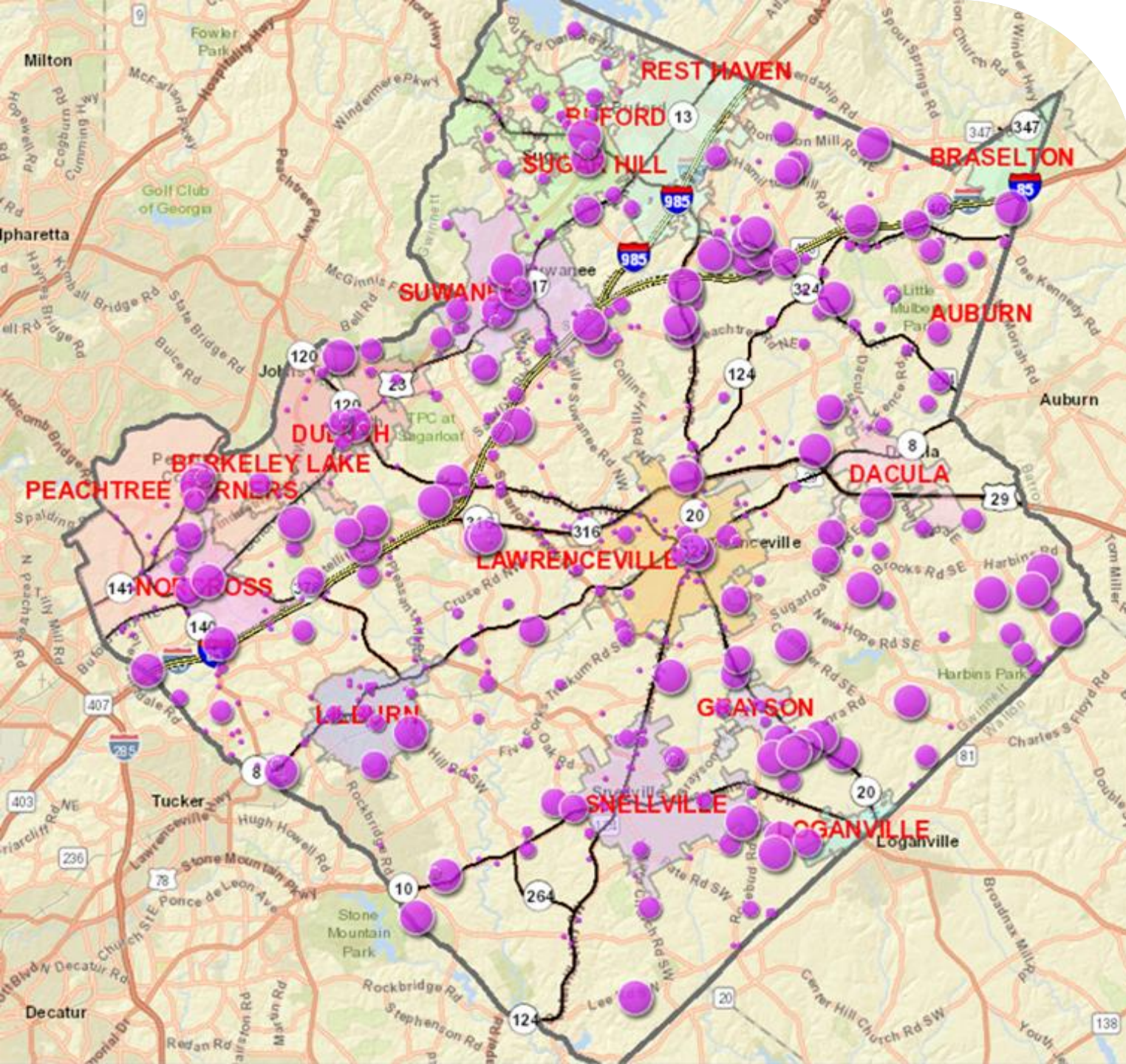
Growth and Development Challenges



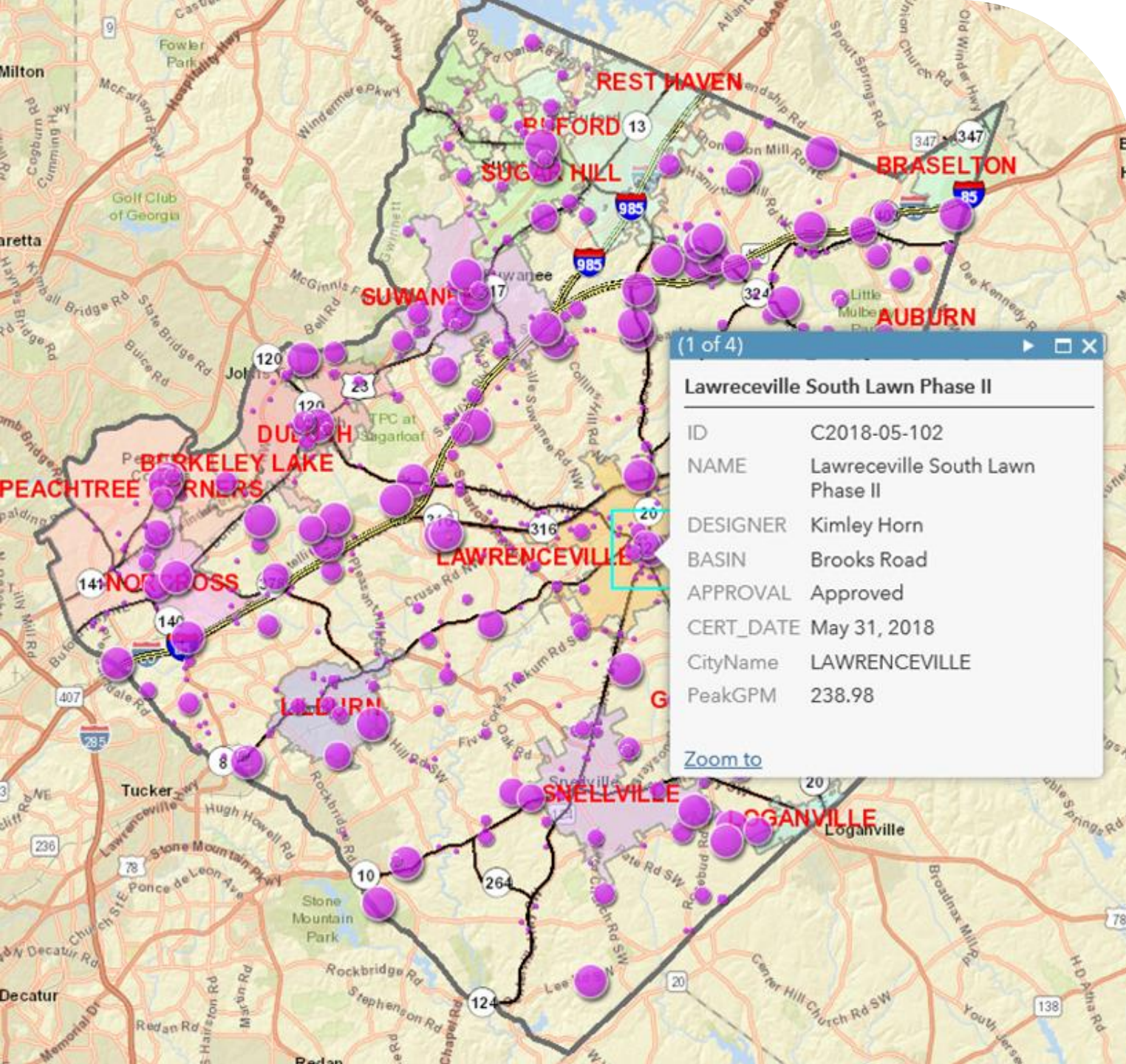
- 137 Flowmeters in sewers
- Calibrated sewer and water models
- Sewer Capacity Certification for new development and redevelopment

Gwinnett County's
Sanitary Sewer System



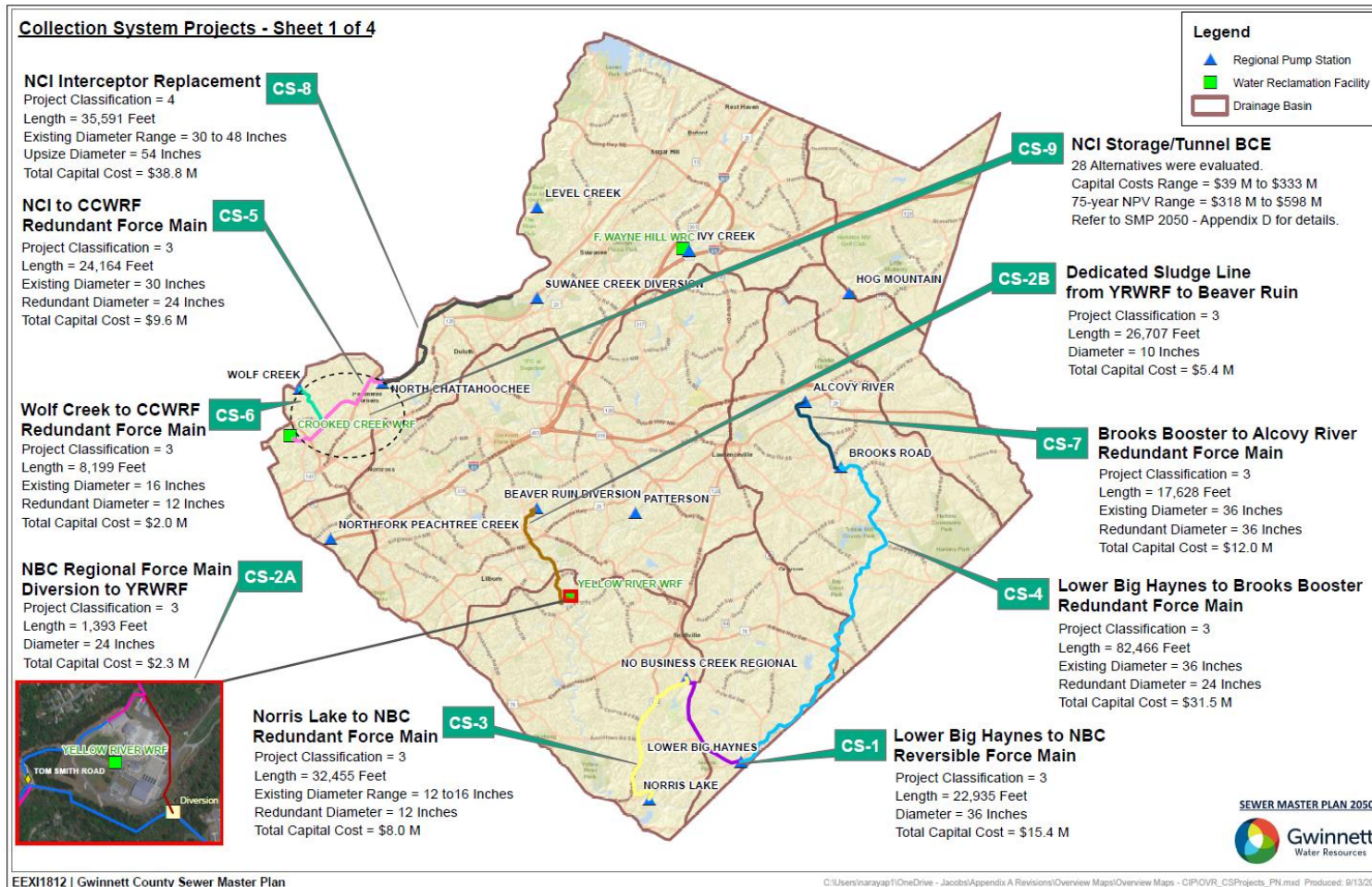


Sewer Capacity Certifications



Sewer Capacity Certifications

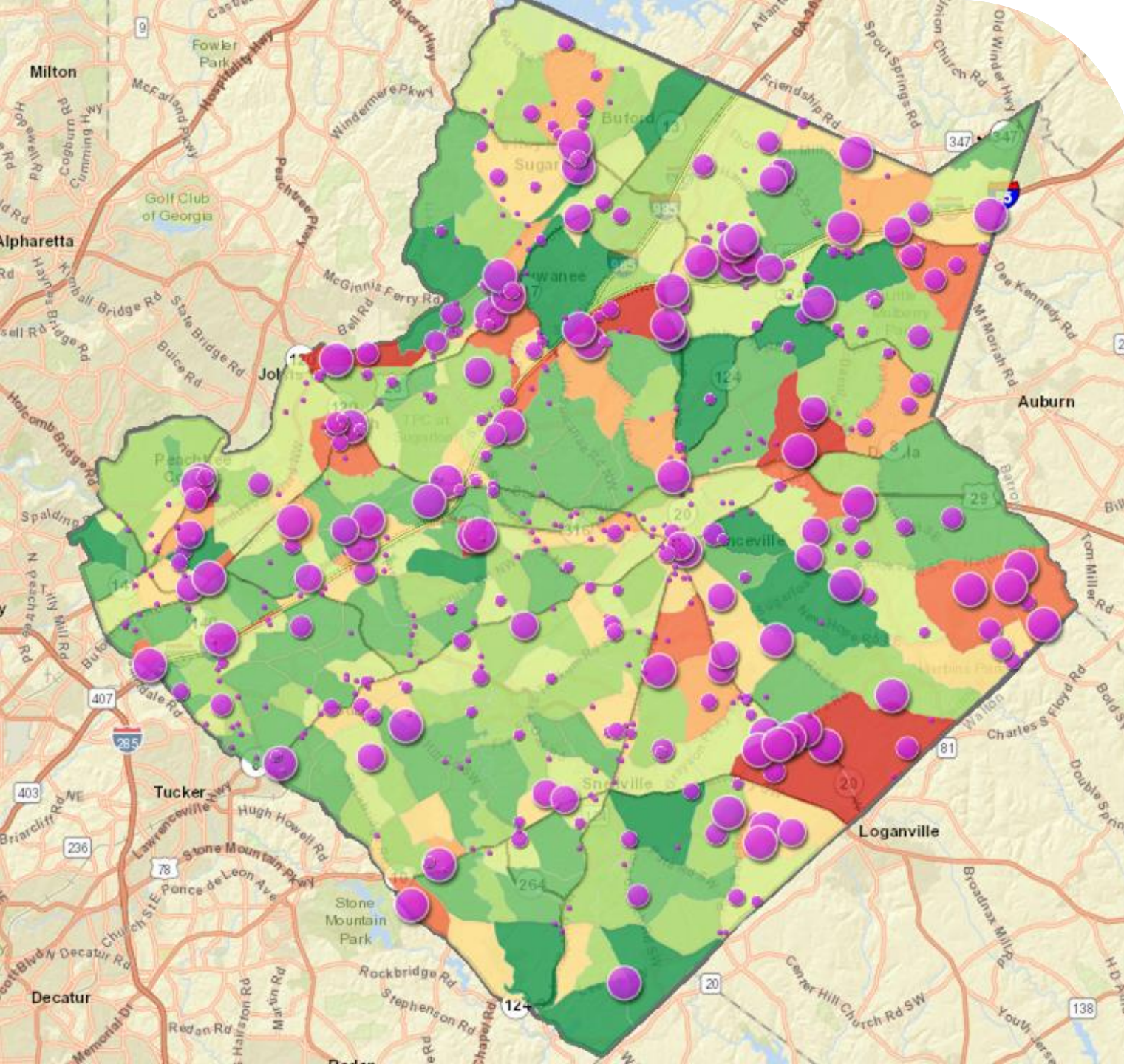
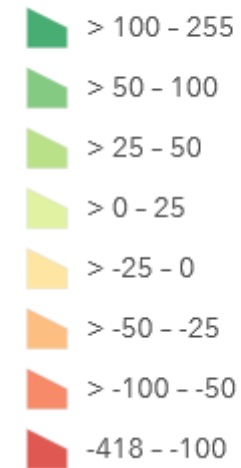
Collection Systems Master Plan





Sewer Projected Need vs. Approved Capacity Certifications

Difference between projected growth and approved capacity (GPM)













Hydro-Jetting Equipment



Decision Package 002

	Priority		Safe and Healthy Community
			
	Strategy		Ensure access to basic human needs
			
	Tactic		Develop an industry leading asset management program
			
	Project or Initiative		Continue to ensure capacity of existing sewers is available - \$254,000

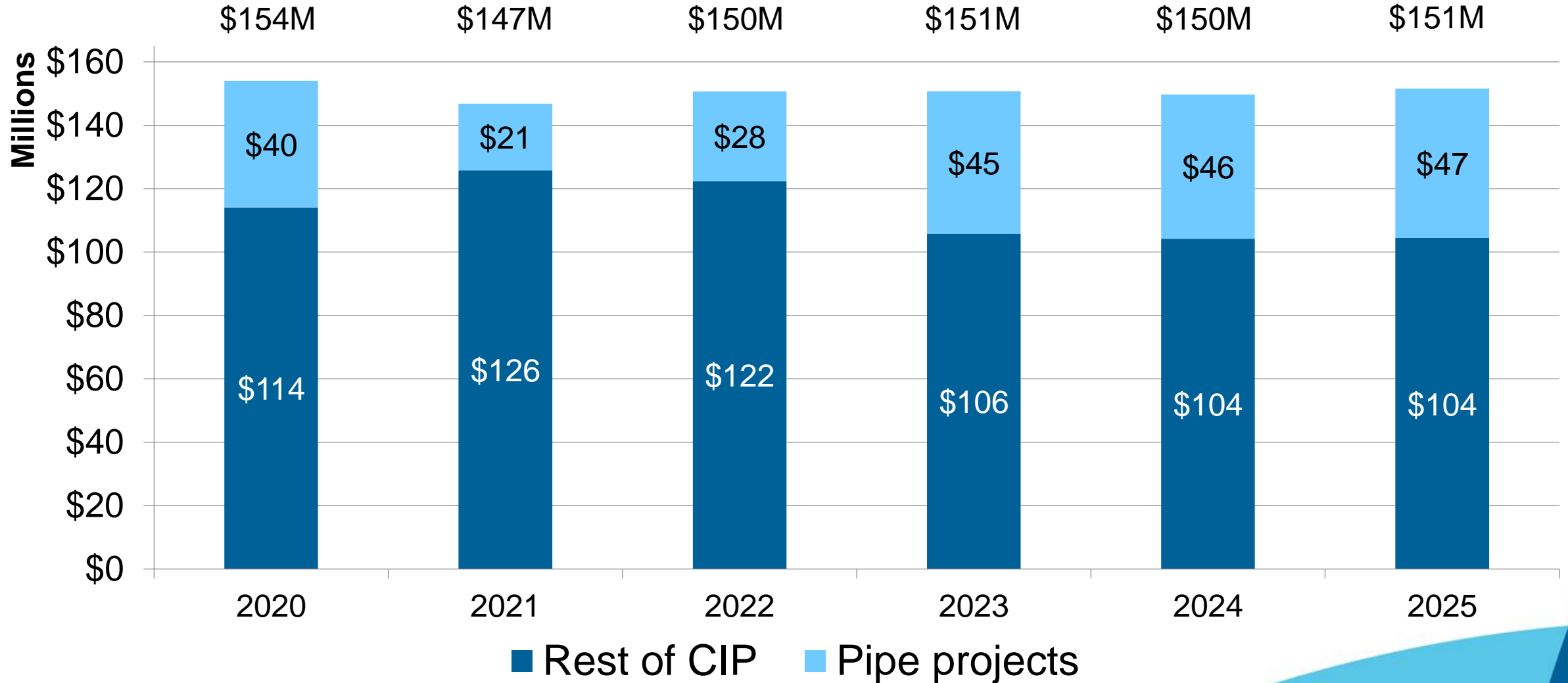


Decision Package: Hydro-Jet Easement Vehicle



800 miles of difficult to access easements

CIP Delivery Challenge





Construction Inspectors – Pipes









On site to ensure

- Compliance
- Restoration
- Traffic control
- Proper payment quantities
- Coordination with public, project manager and other agencies





Decision Package 001

	Priority		Safe and Healthy Community
			
	Strategy		Ensure access to basic human needs
			
	Tactic		Develop an industry leading asset management program
			
	Project or Initiative		Provide quality construction management and oversight – net cost \$231,740



Decision Package: Construction Inspectors (4)

Pipe CIP/DOT Projects

- 55 projects under construction at any given time
- \$38 million annual spend on pipe projects

Currently have 7 staff, supplementing with 2 consultant inspectors

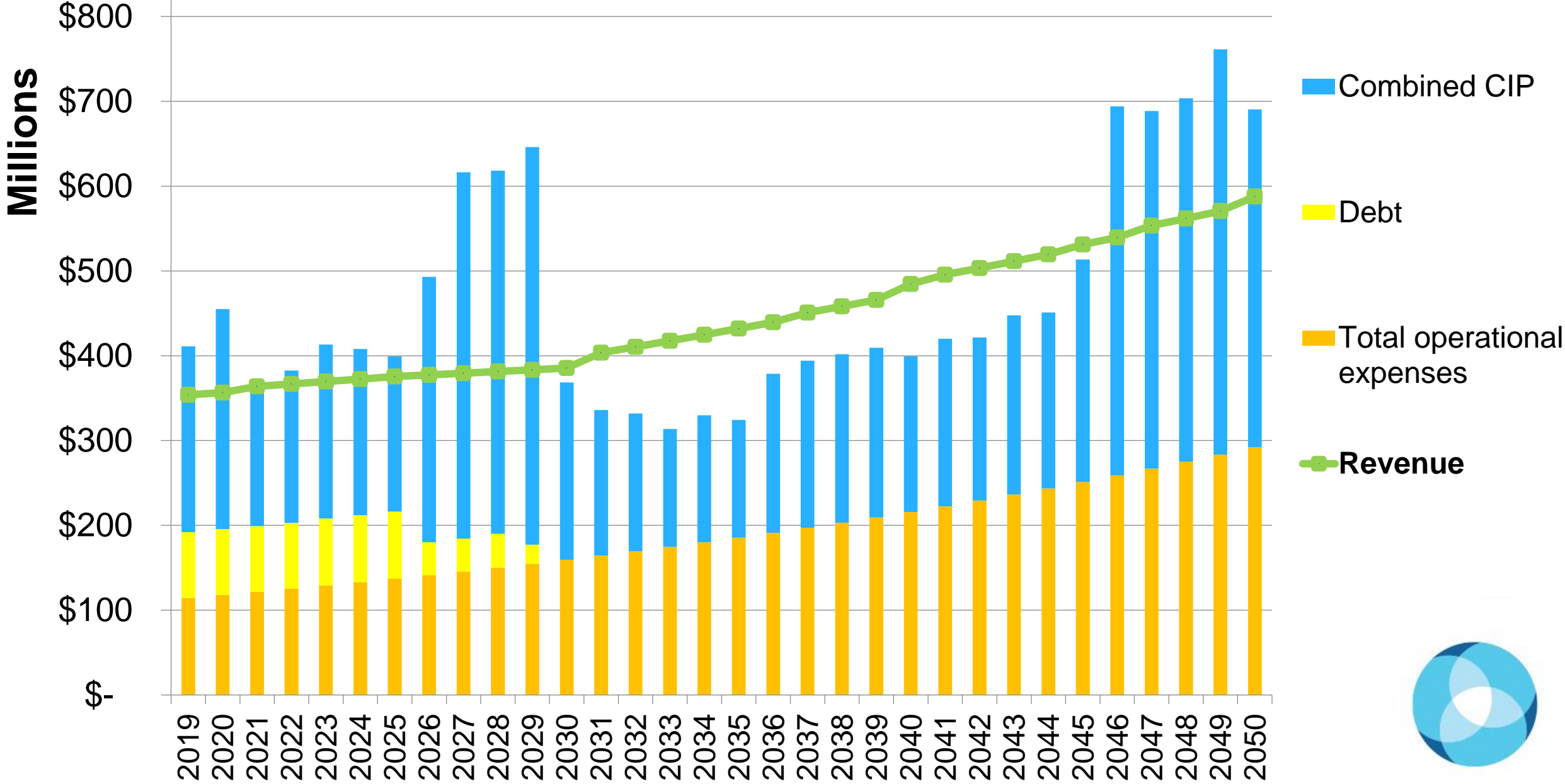
Not meeting desired level of service

Reduction in consultant cost of \$242K year one



Financials

30-Year Water and Sewer Revenue and Estimated Need Forecast



Presenting the Numbers



FUND	2019 Adopted	2020 Requested	% Change
Water and Sewer	\$399,011,699	\$383,283,798	-4%
Stormwater	\$41,561,415	\$29,476,344	-29%
Total base requests	\$440,573,114	\$412,760,142	-6%
Total Decision Package Requests		\$485,990	
TOTAL 2020 BUDGET REQUEST		\$413,246,132	



Decision Package Summary

4 requested
positions

Total decision package cost:
\$485,990

Decision packages
0.11% of total budget

2019 Adopted	Changes to Base	Decision Packages	2020 Proposed
\$440,573,114	-\$27,812,972	\$485,990	\$413,246,132



Questions?