

# CIP 2021 DEFINITION & FUNDING REPORT

## Overview to CIPAG of CIP 2021

March 12, 2021



# CIP 2021

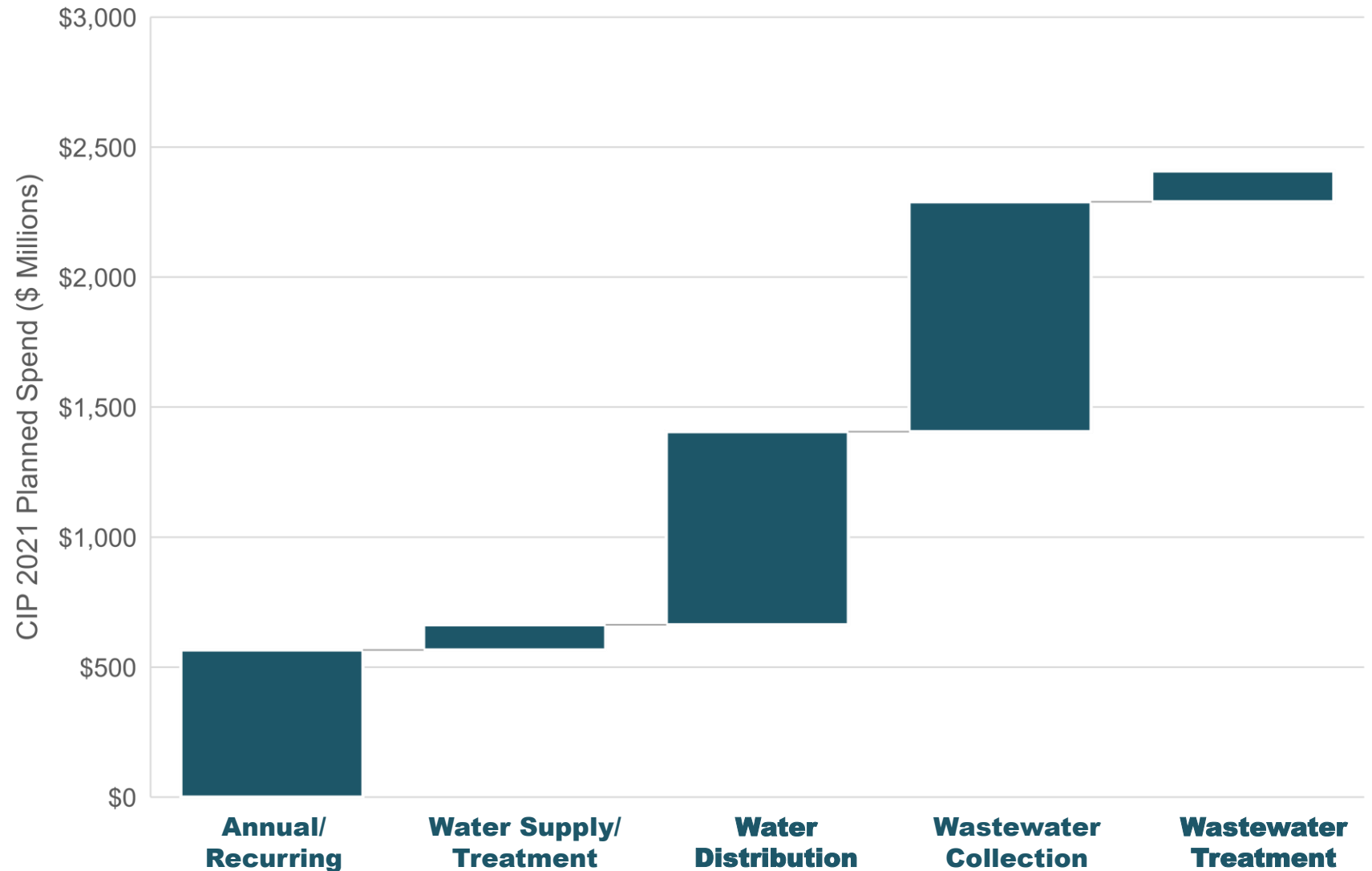
**PROPOSED  
PLANNED SPEND  
\$240 M/YR**

*Average annual investment*

## **5 PROJECT CATEGORIES**

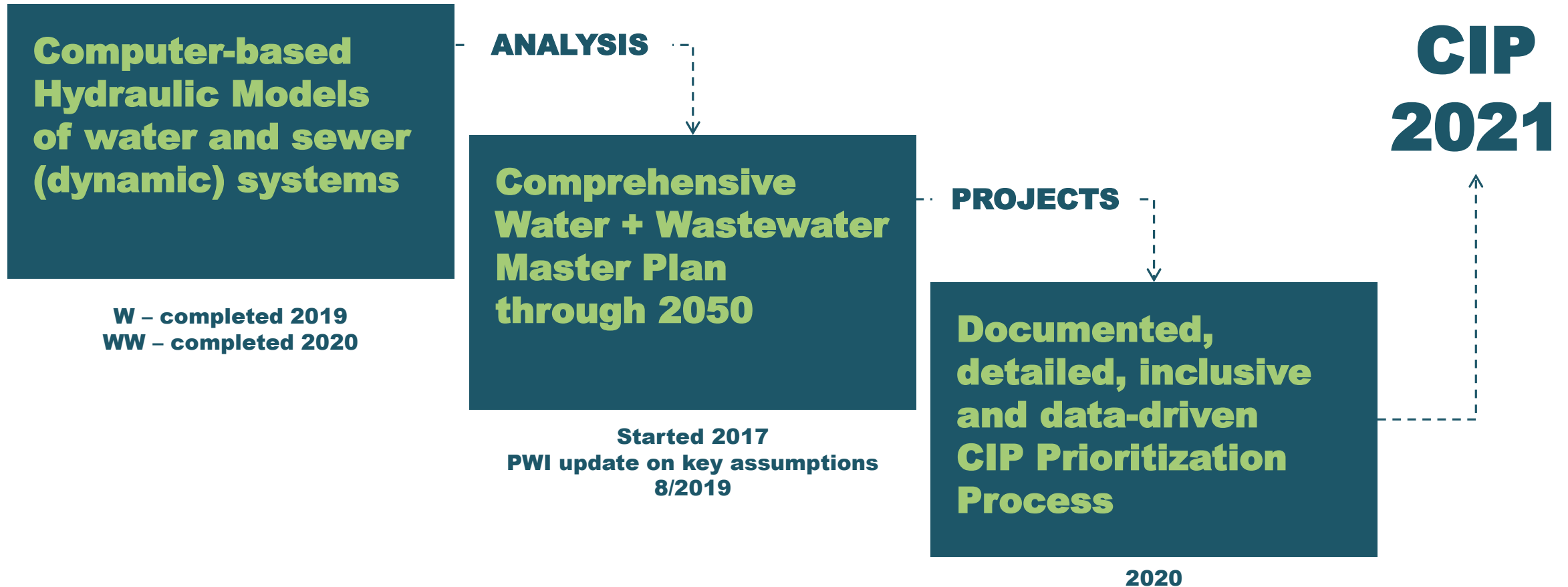
*Annual/Recurring  
Water Supply and Treatment  
Water Distribution  
Wastewater Collection  
Wastewater Treatment*

CIP 2021 Planned 10-Year Spend by Category



# CREATION OF CIP 2021

STATE-OF-THE-ART TOOLS ALLOW  
BEST-PRACTICE PLANNING & PRIORITIZATION

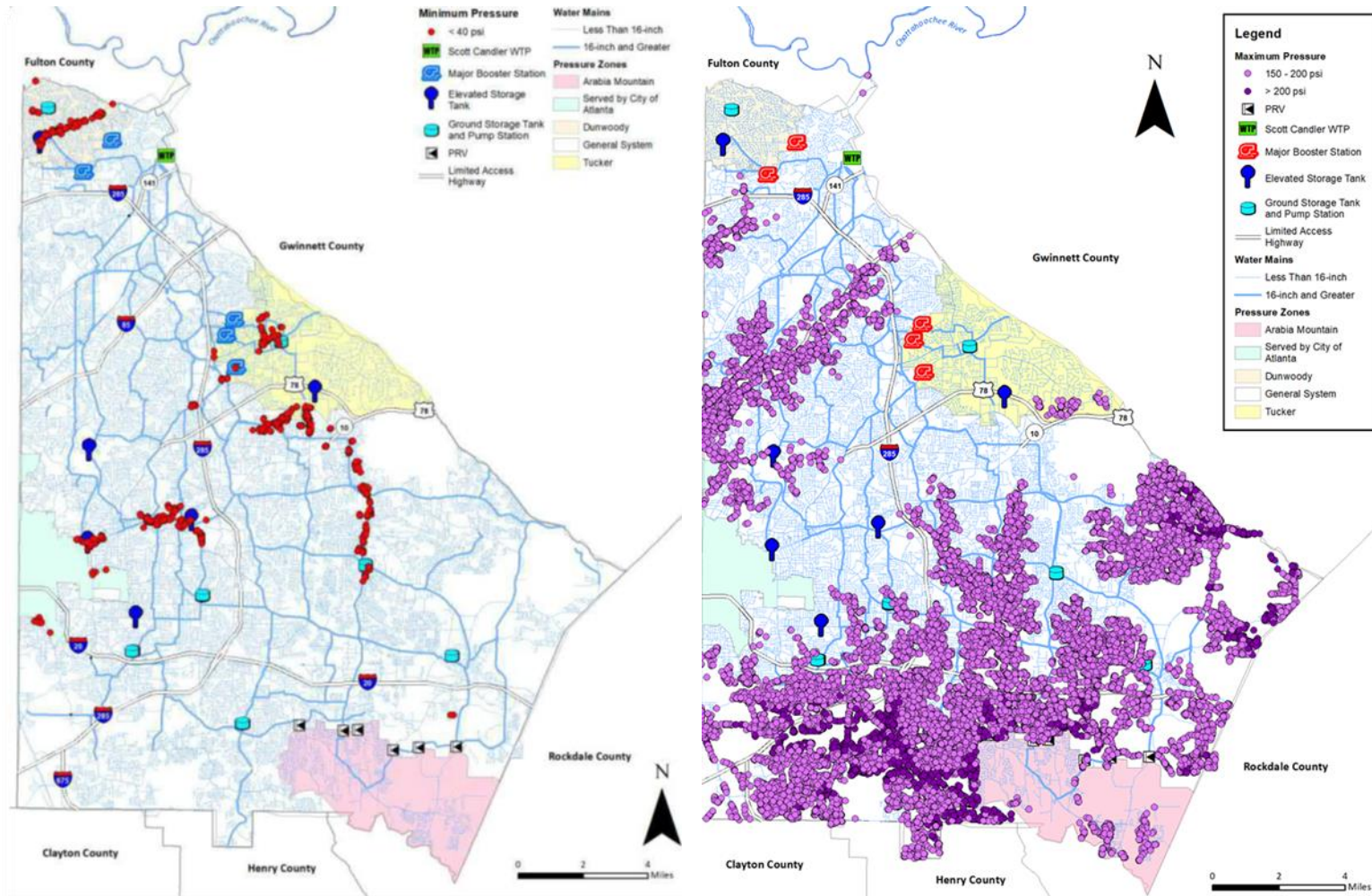




# COMPUTER-BASED HYDRAULIC MODELS

Allow new level of understanding of the performance of DWM's system

- ▶ Identify & troubleshoot system issues (e.g. Briarcliff 2019)
- ▶ Evaluate and compare alternative future scenarios
- ▶ Compare costs and benefits of different alternative servicing solutions



**WATER MODEL SAMPLE OUTPUT**

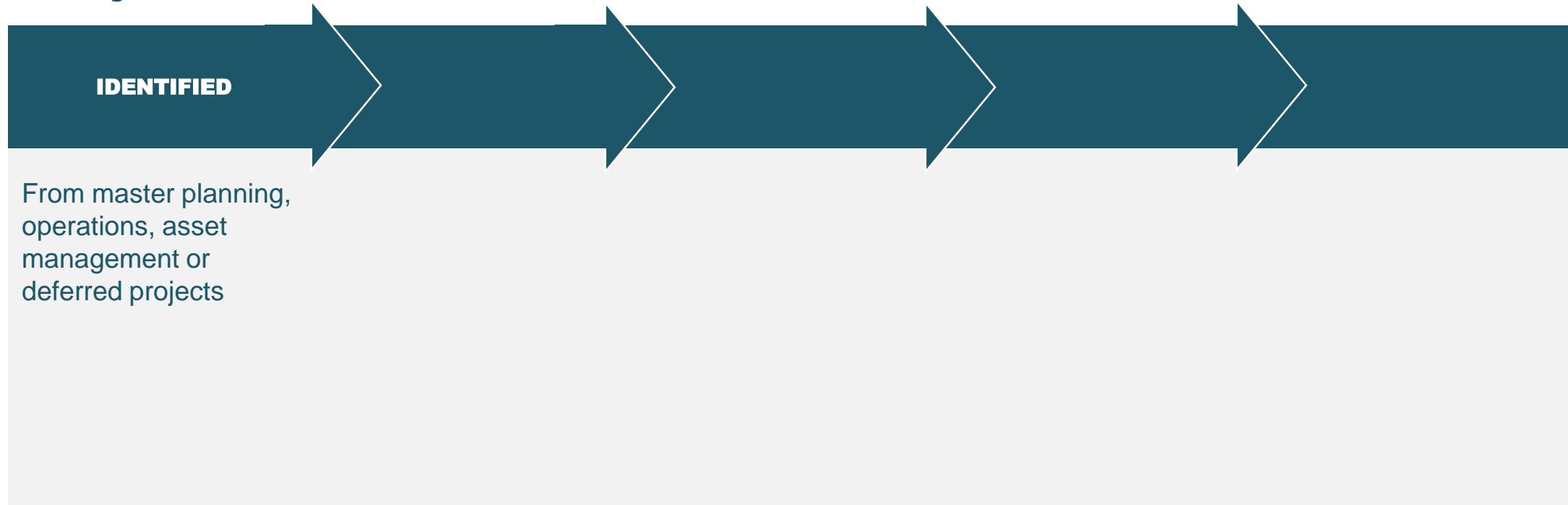
# CIP PRIORITIZATION

Documented, Detailed, Inclusive & Data-driven



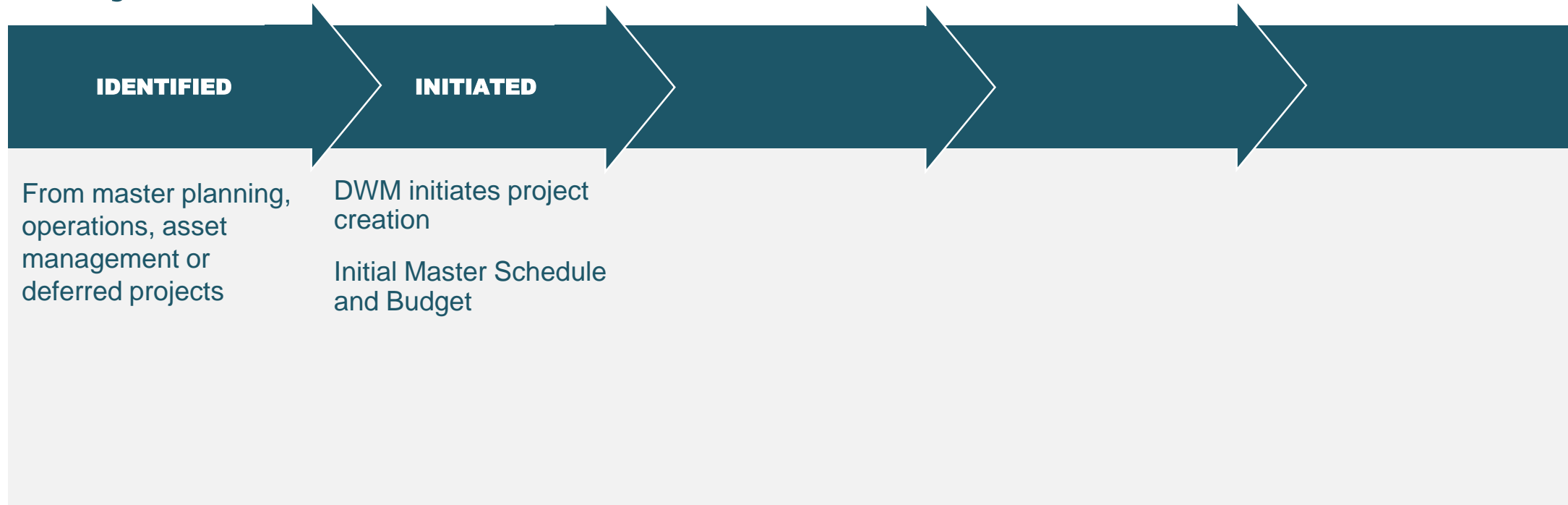
# DATA-DRIVEN, BEST-PRACTICE PRIORITIZATION PROCESS

Projects are:



# DATA-DRIVEN, BEST-PRACTICE PRIORITIZATION PROCESS

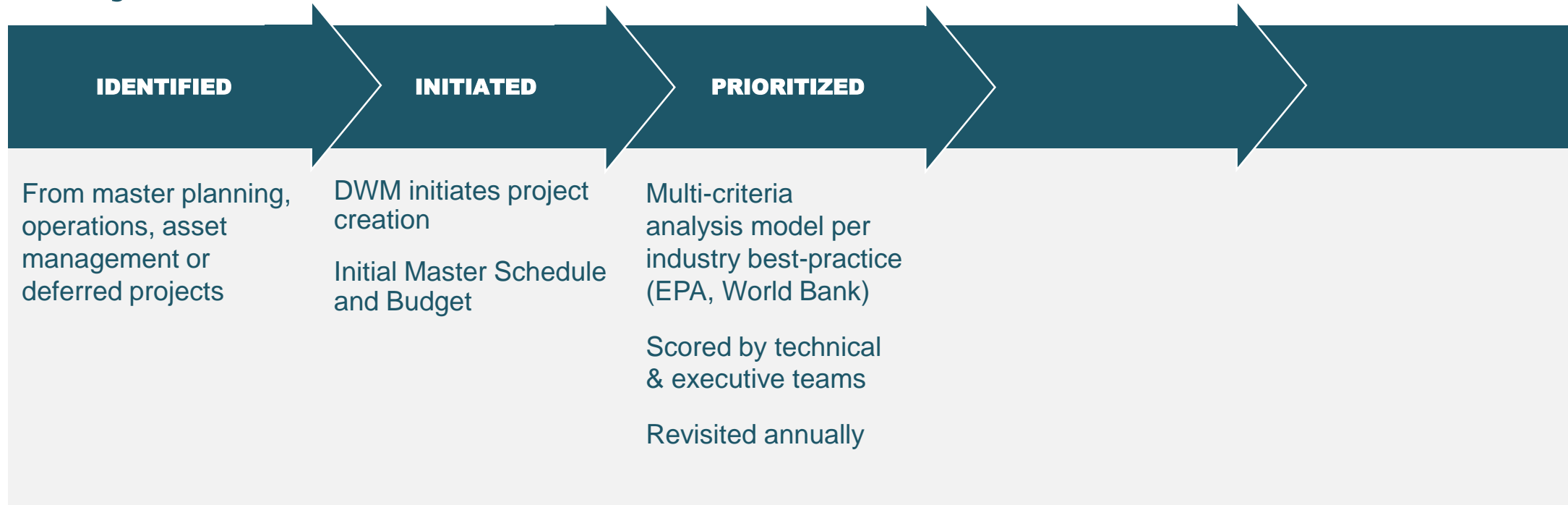
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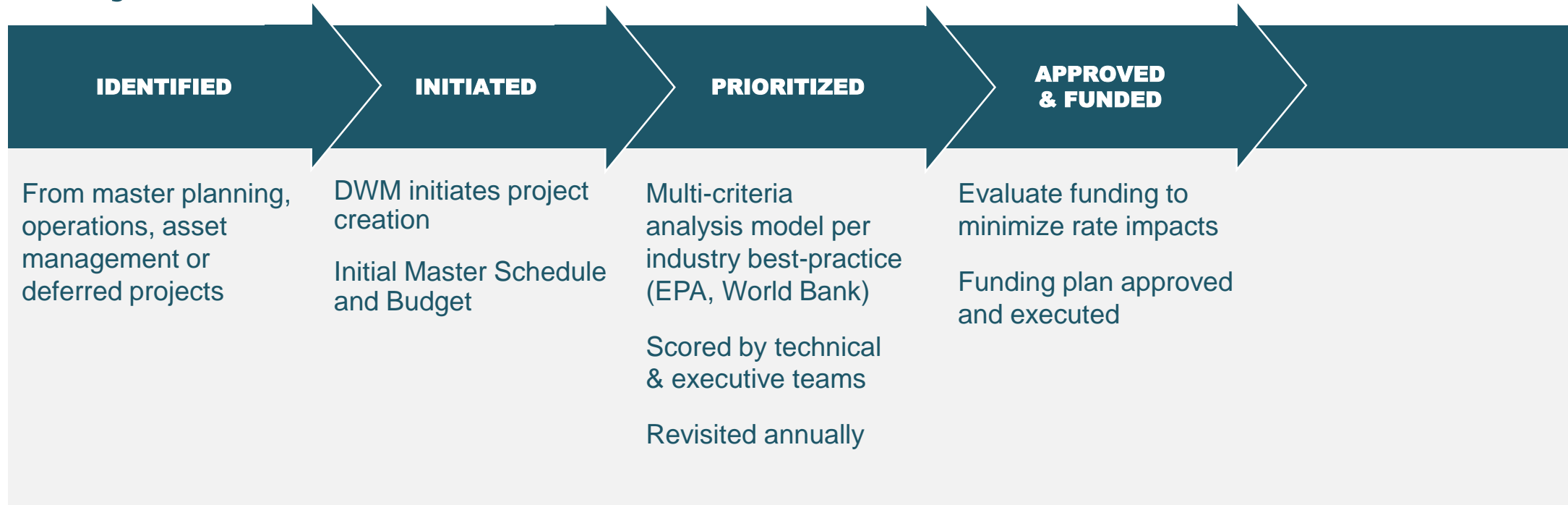
Projects are:





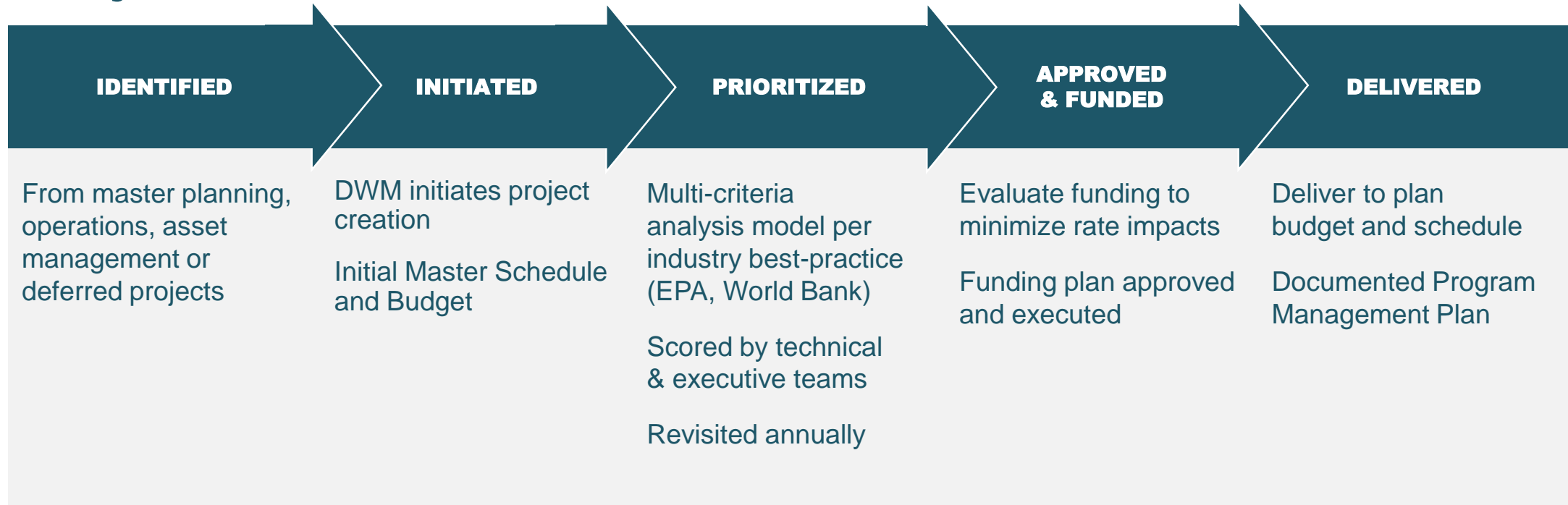
# DATA-DRIVEN, BEST-PRACTICE PRIORITIZATION PROCESS

Projects are:




# DATA-DRIVEN, BEST-PRACTICE PRIORITIZATION PROCESS

Projects are:



# PROJECTS DEFINED & SCORED

DWM CIP Program - Project Information 

Project Manager: \_\_\_\_\_


Project Name	Project Number	Proposed Planning Budget	Date Created	Commissioner District	Project Manager
Dunwoody Ground Tank Replacement	W - DS GT01	\$6,733,000		XXXXX	
<b>Design Schedule (anticipated)</b>					
Duration		100% Design Submittal	Bid Document to P&C		
<b>Procurement Schedule (anticipated)</b>					
Advertisement	Pre-Proposal Conference	Proposal Opening	BOC Date	NTP	
<b>Design Schedule (anticipated)</b>					
Duration Days		Substantial Completion	Final Completion		


**Description**  
 10 ft of 8-inch Water Main  
 8-inch FCV and valve vault  
 Dunwoody Existing Ground Tank Decommission  
 Dunwoody Ground Storage Tank - 1 x 3 MG GST

**Implementation Considerations**  
 implementation Considerations test

**Details**  
 details test

**Benefits**  
 benefits test



 **DWM Project Prioritization CIP Program**

**Project Name**  
*Dunwoody Ground Tank Replacement*

**Overall Score**  
*3.3/5*

Class	Criteria	Score	Justification
<b>Environmental</b>	Drinking Water Quality	Low	
	Leak Reduction	Medium	
	Energy Efficiency	Medium	
	Impact to Natural Resources	Medium	
	Permittability/ Regulatory Complexity	Medium	
<b>Financial</b>	Revenue Generation	Medium	
	Reduction of Operational Cost	Medium	
	Concurrence with Other CIP Projects	Medium	
<b>Social</b>	Employment (Job Creation)	Medium	
	Supporting Growth & Development	Medium	
	Quality of Life/Customer Satisfaction /Resilience	High	
	Public Health/Safety (Fire Protection)	High	

# SUMMARY

Multi-criteria tool allows competing priorities to be systematically evaluated by a broad group of stakeholders

The process is best-practice, defensible, and reproducible

44 water and 105 wastewater projects identified, prioritized, and ranked

~80% of identified projects are in CIP 2021

Effective identification, scoring, and prioritization have been made possible with the Master Plan and hydraulic models



A blue-tinted photograph of a construction site. In the foreground, a deep trench is visible with wooden shoring. Several workers in hard hats and safety vests are scattered throughout the site. A large pipe lies on the ground to the right. In the background, a CAT excavator and other construction equipment are visible. The overall scene is busy and active.

# PROJECTS OVERVIEW



# ONGOING/RECURRING

## INTERGOVERNMENTAL AGREEMENTS (IGA)

- ▶ City of Atlanta treats ~50% of the County's sewer load
- ▶ Coordinated projects with GDOT
- ▶ Gwinnett County

## EMERGENCY & ANNUAL CONTRACTS

- ▶ Address unforeseen projects
- ▶ Task orders based on "bid tab" pricing

## OTHER ANNUAL CONTRACTS

- ▶ Water meter installation, water service replacement and renewals, manhole raising, fire line & fire hydrant replacement, easement clearing, ongoing OSARP assessments

## DWM STAFF, RENT, CONSULTANT & OVERHEAD COSTS





# WATER TREATMENT

- ▶ Scott Candler Water Treatment Plant (SCWTP) rebuilt in 2007 and remains state-of-the-art
- ▶ Key projects address resiliency.
- ▶ Smallest spend category at 4% of CIP 2021 budget

◀ SCWTP is the sole drinking water plant in DeKalb and can treat up to 150 million gallons per day



^ Snapfinger Wastewater Treatment Plant

✓ Photo: Google Maps



# WASTEWATER TREATMENT

- ▶ Snapfinger
  - ▶ Phase 2 complete in 2022, Phase 3A to follow immediately
  - ▶ Bulk of project category spend
- ▶ Pole Bridge
  - ▶ Minor system upgrades and resiliency
- ▶ Wastewater Treatment is 5% of CIP 2021 budget





Major Investment 1 -  
**Next Phase of Consent  
Decree Projects**

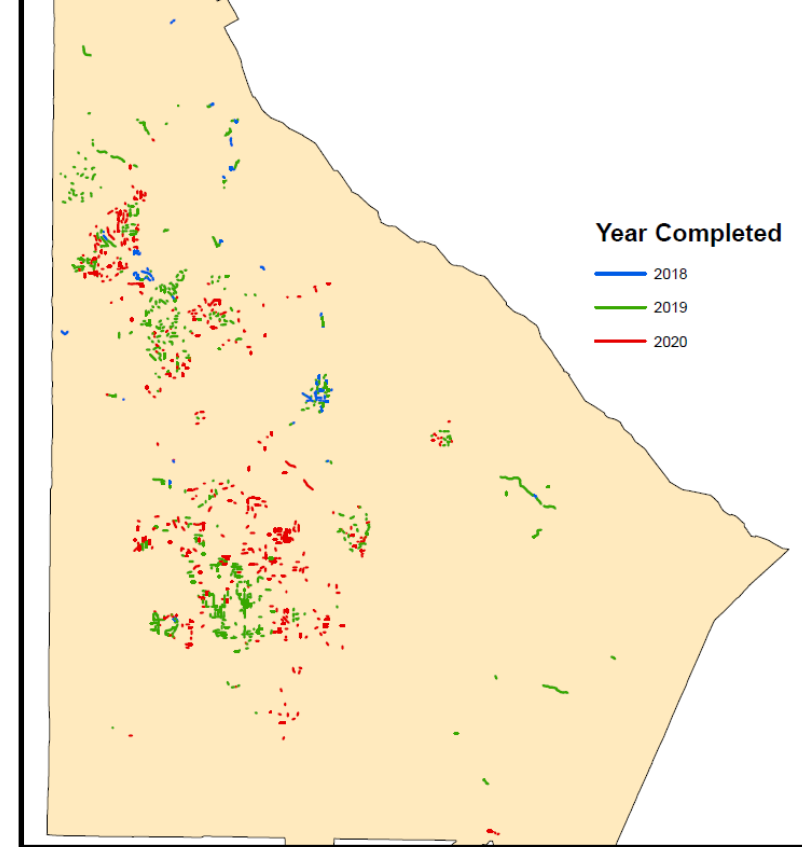
# TO DATE

## Maintenance Activities Completed

- ▶ 2910 tons of debris removed
- ▶ 6,315 creek crossings inspected
- ▶ 435 miles of sewer pipes treated for root control
- ▶ 2,992 vented manhole covers replaced
- ▶ 20 million square feet of easement cleared

## CD-Required Rehabilitation

- ▶ 133 miles of pipe lining
- ▶ Spot repairs on 28 miles
- ▶ 10 miles of pipe replacement
- ▶ 35 miles of small diameter sewer pipe upsizing

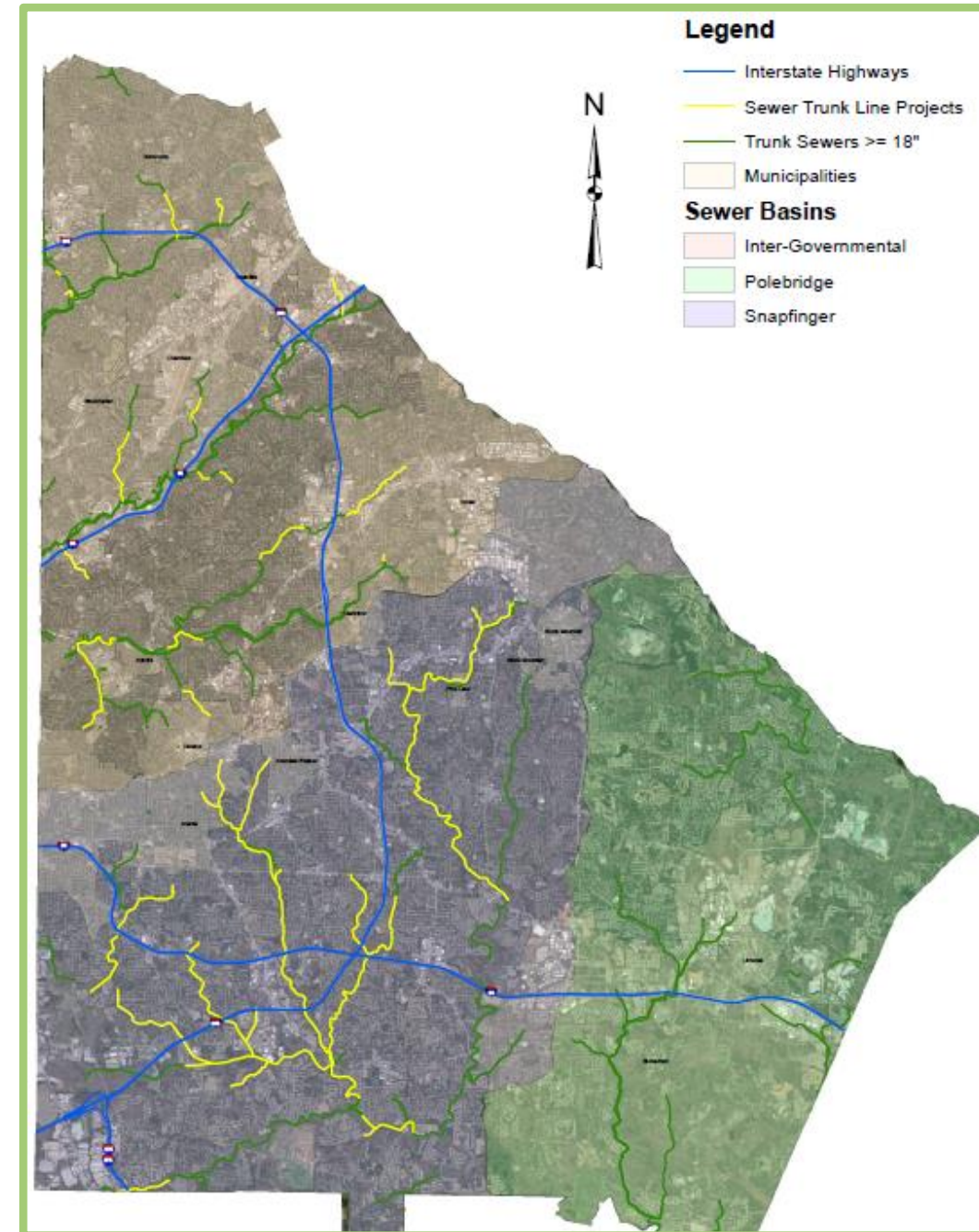




# Repair, Replace, or Install 59 miles of New Trunk Sewer Lines

SEWER BASIN	LENGTH (MILES)
Snapfinger	41
Pole Bridge	3
South Fork Peachtree Creek	10
North Fork Peachtree Creek	4
Nancy Creek	1
<b>TOTAL</b>	<b>59</b>

**Greatest needs are in the Snapfinger Basin (~41 miles)**



# What is a trunk sewer?

- ▶ The county's trunk sewer lines range from 30 inches to 72 inches in diameter.
- ▶ Trunk sewers receive wastewater from many tributary feeder branch sewer lines.
- ▶ They convey the combined flows to the treatment plants.





# Snapfinger Basin Project Example

## Part of the Snapfinger Basin Project includes the Shoal Creek Trunk Sewer Upgrade

Initial studies and procurement started

### Size

- 10 miles of major trunk sewer capacity projects
- Up to equivalent of 72-inch main
- Storage tanks up to 20 million gallons

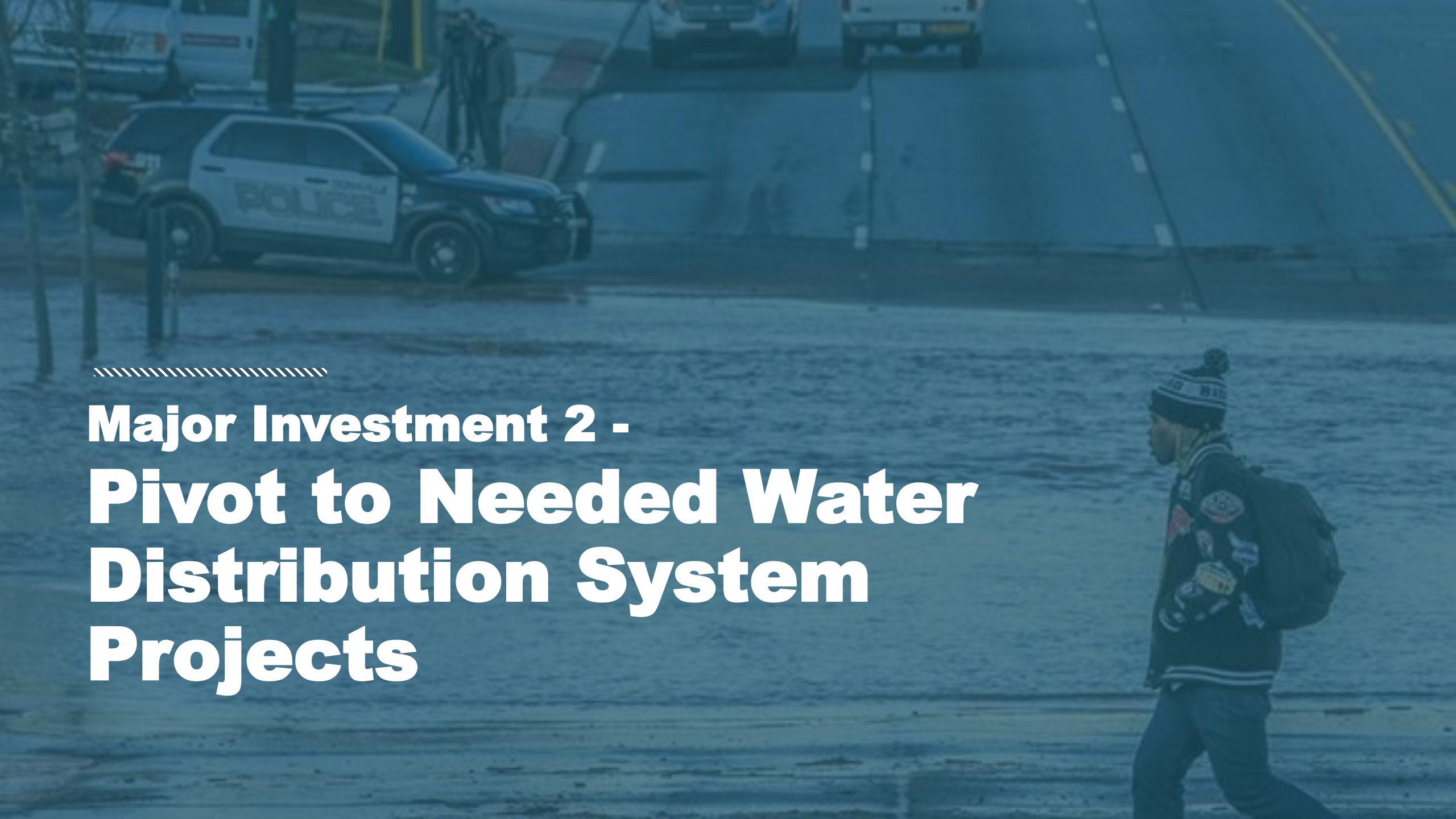
### Permit Challenges

- 3 highway crossings (Memorial Dr., Glenwood Rd., Flat Shoals Pkwy.)
- 2 interstate crossings (I-20 and I-285)
- Mostly adjacent to Shoal Creek and South River

126 properties on main Shoal Creek trunk alone

# Trunk Sewer Project Cost Estimates

<b>Project Type</b>	<b>Snapfinger Basin</b>	<b>Whole County</b>
Trunk Sewer Pipe Capacity	\$193 million	\$268 million
Sewer Tank Storage	\$170 million	\$170 million
<b>TOTAL</b>	<b>\$363 million</b>	<b>\$438 million</b>



Major Investment 2 -  
**Pivot to Needed Water  
Distribution System  
Projects**

# WATER DISTRIBUTION



✓ Tuberculation: build-up of corrosion that restricts water flow

✓ Aging AC pipe is past its service life and prone to breaks.

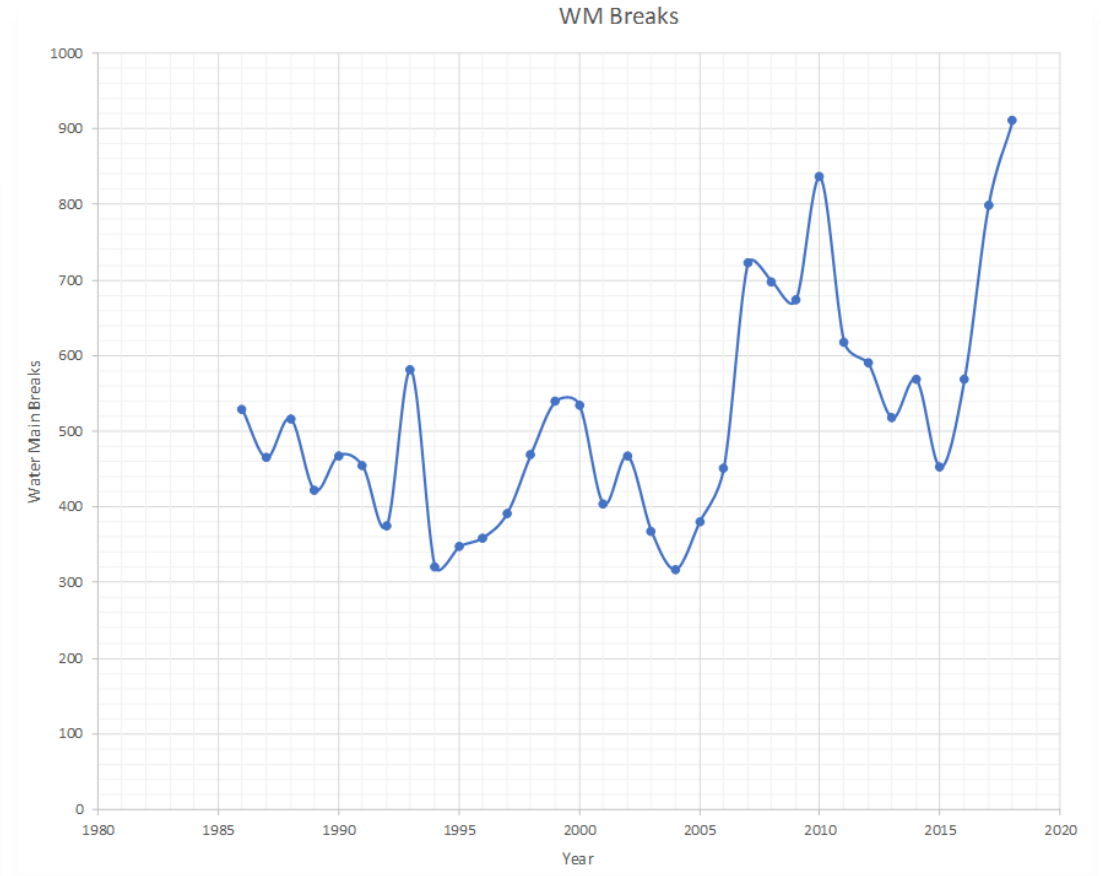
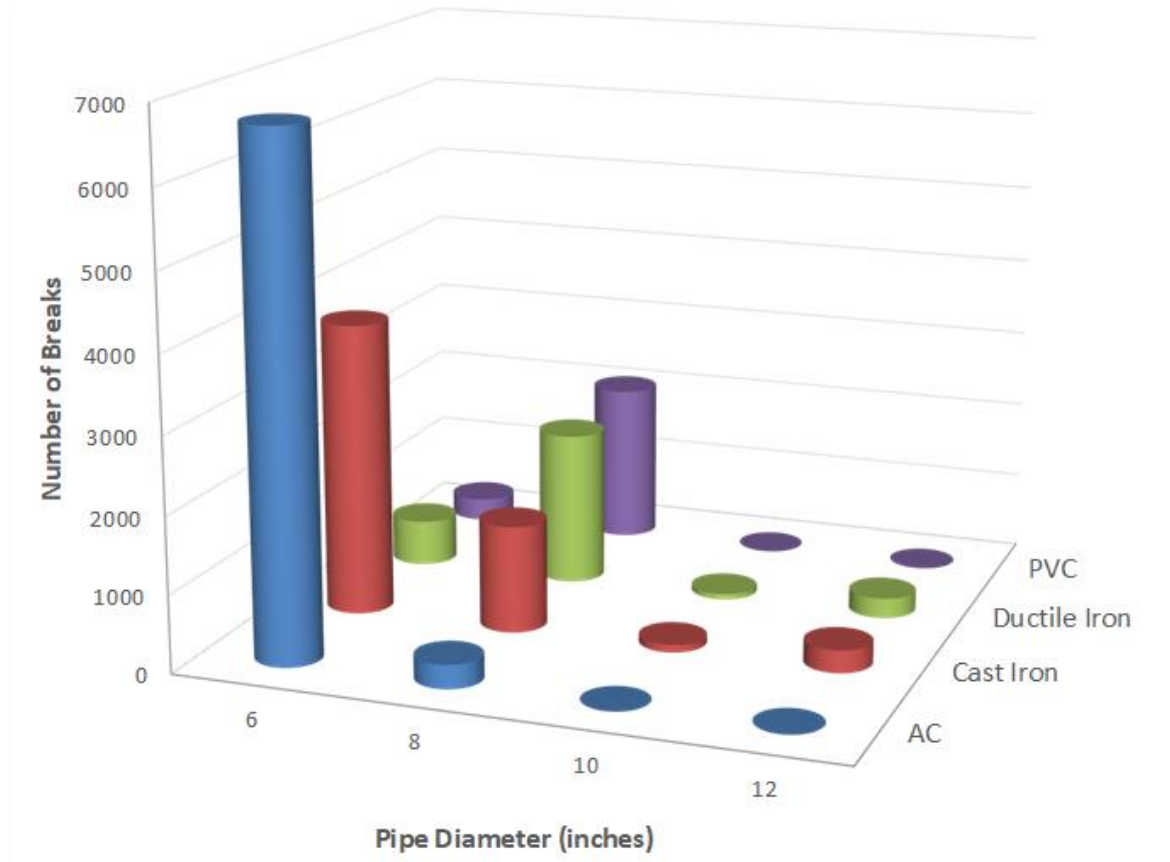


- ▶ By 2030 ~600 miles of water pipe needs replacement due to age, size or material type
- ▶ Age of pipes can cause risk of breaks or tuberculation
- ▶ Now prioritizing projects based on a new risk-based approach and hydraulic modeling, ensuring a need and operational efficiency from each project implemented
- ▶ Non-revenue water at unacceptable levels
- ▶ 36% of CIP 2021 budget



# COSTS OF AN AGING WATER SYSTEM

- ▶ Breaks are increasing as the water distribution system ages



- ▲ Water main breaks per year (1986-2018)
- ◀ Breaks by pipe type and size (1986 to 2018)

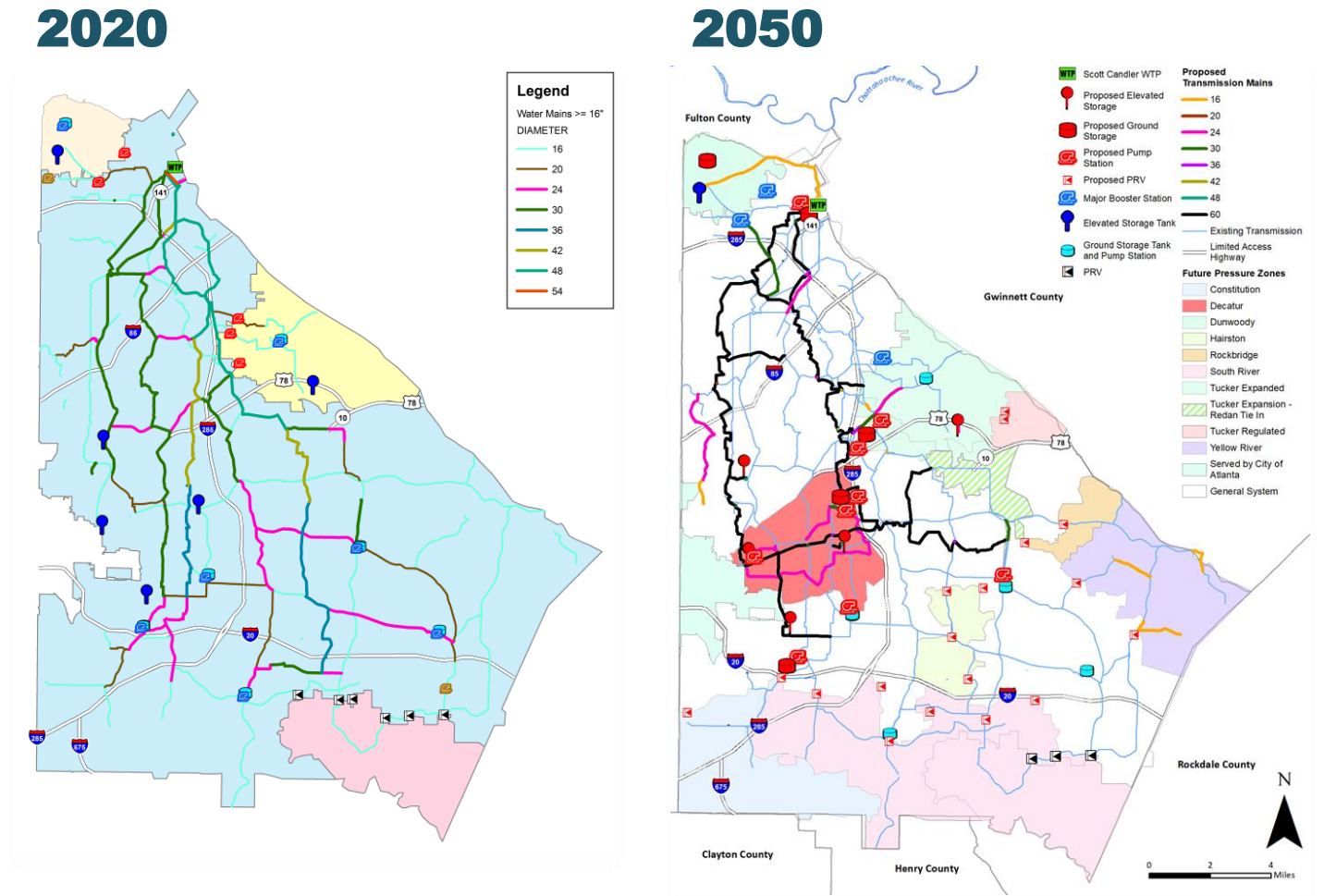
# PROBLEMATIC PIPE TYPES

MATERIAL	LENGTH (MILES)	BREAKS (% of overall)	CHALLENGE
<b>PRESTRESSED CONCRETE PRESSURE PIPE (PCCP)</b>	7	<1	9x as likely to break as other materials, often catastrophically
<b>ASBESTOS CEMENT (AC)</b>	522	35	High break rate after 50-70 years of service (132 miles already greater than 65 years old)
<b>POLYVINYL CHLORIDE (PVC)</b>	210	12	
<b>CAST IRON (CI)</b>	820	27	Pipe will tuberculate with age, substantially reducing water flow (e.g. Briarcliff water pressure project)

- ▶ Miles of water pipe reaching 70 years old:
  - ▶ Now (2020): 215 miles (install date 1950 or earlier)
  - ▶ By 2030: 596 miles (install date 1960 or earlier)
  - ▶ By 2040: 1290 miles (install date 1970 or earlier)
  - ▶ By 2050: 1745 miles (install date 1980 or earlier)

# SYSTEM DEVELOPMENT

- ▶ Looped mains are industry best-practice for resiliency
- ▶ Additional capacity of water service “backbone” required to:
  - ▶ Meet levels of service in future years
  - ▶ Increase resiliency
- ▶ New pressure zones recommended to manage:
  - ▶ High and low pressures
  - ▶ Local storage
  - ▶ Reduce breaks and non revenue water

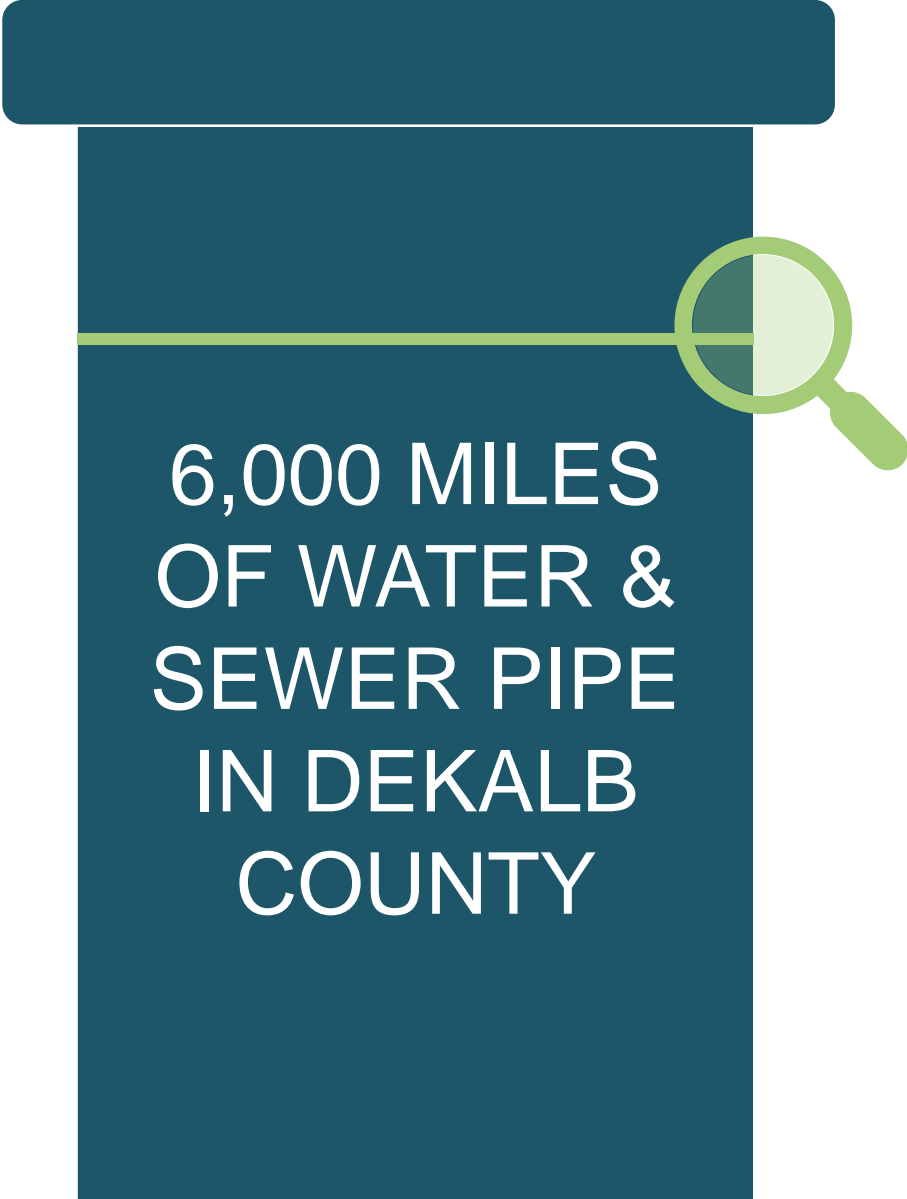




# RULES OF THUMB

## ONCE THE SYSTEM IS STABILIZED ... CAN MOVE TO 1% RULE ON PIPES

- ▶ Pipe lifespan: ~100 years
- ▶ Minimum 1% of pipe needs to be replaced per year

A vertical bar with a dark teal background and a lighter teal top section. A horizontal line with a magnifying glass icon is positioned over the bar. The magnifying glass is green and white, with a green handle. The text '6,000 MILES OF WATER & SEWER PIPE IN DEKALB COUNTY' is written in white on the bar.

6,000 MILES  
OF WATER &  
SEWER PIPE  
IN DEKALB  
COUNTY

**1% = 60 MILES**  
**60 MILES =**  
**~\$100 M/YR to**  
**replace**

# NEXT STEPS



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# Next Steps

**CIP 2021  
Approved**

**Governing Authority approval of projects and priorities.**

**Revenue  
Optimized**

**Ensure we are optimizing revenues and minimizing costs, and all are paying their fair share.**

**Funding Plan  
Approved**

**Implement plan to fund in a responsible and sustainable way.**



# QUESTIONS?



DeKalb County  
Contractor  
New Day Project

NEW DAY PROJECT  
WATER METER  
REPLACEMENTS IN  
PROGRESS

Questions?

Call (404) 378-4475 or visit [www.dekalbcountyga.gov/newdayproject](http://www.dekalbcountyga.gov/newdayproject)