



CITY OF ATLANTA  
Kasim Reed, Mayor  
Kishia L. Powell, Commissioner

The Department of Watershed Management  
&  
Atlanta Memorial Park Conservancy

# Community Open House 2.0

5/10/17



## **AGENDA**

- Opening Remarks and Introductions
  - Honorable Councilmember Yolanda Adrean, District 8
  - DWM Commissioner Kishia L. Powell
  - Catherine Spillman, AMP Executive Director
- Department of Watershed Management -- Presentation
- Group Discussion / Q&A
- Closing Remarks



## **AMPTAG-DWM COLLABORATIVE**

The Atlanta Memorial Park Technical Advisory Group (AMPTAG) and the City of Atlanta Department of Watershed Management (DWM) are engaged in ongoing discussions and scheduled workshops associated with the following goals:

- Eliminate wet weather overflows within and near Memorial Park and within the Peachtree Creek Sewer Basin
  - Protect water quality in Peachtree Creek



## RESULTS OF HYDRAULIC MODELING AND ANALYSIS

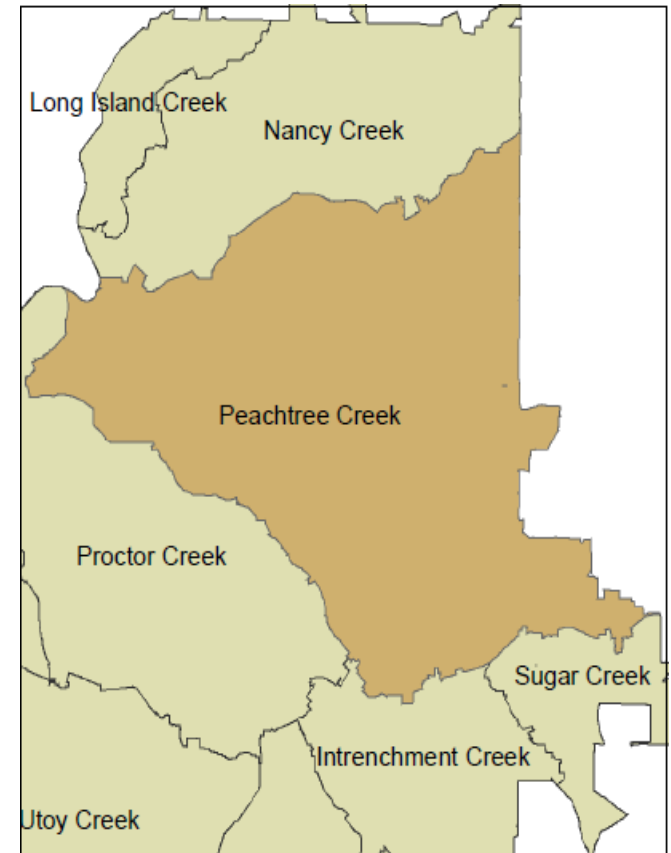
- Peachtree Creek Sewer Basin
- Short-Term Preventive Maintenance Measures
- Hydraulic Modeling
- Optimization of Existing Operations
- Planned Projects (2-Yr Design Storm)
- Future Potential Projects (5-Yr and 10-Yr Design Storms)
- Protection of water quality in Peachtree Creek

*\*As discussed at our last open house, no quick and easy solutions – will require incremental improvements to achieve the goal*



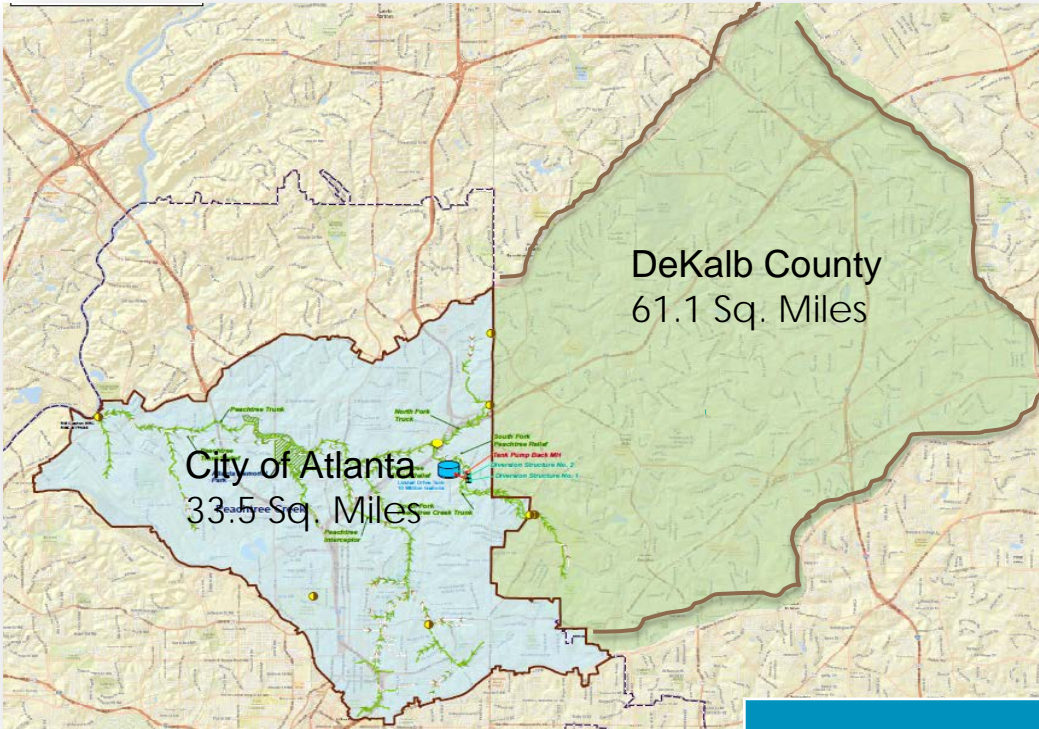
## Peachtree Creek Sewer Basin: Overview

- The Peachtree Creek Basin is one of (10) sewer basins and is located in the northern portion of the City's sewer system.
- Wastewater flows collected within the Peachtree Creek Basin are conveyed to the Peachtree Creek Trunk System and onward to RM Clayton WRC for treatment.
- Wastewater generated by Dekalb County is also conveyed through City trunk and relief sewers to the RM Clayton WRC and is covered by the terms of an inter-jurisdictional (I-J) agreement

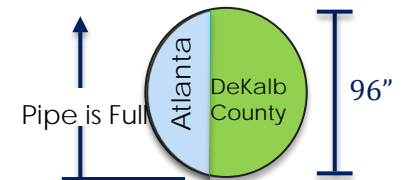




# Peachtree Creek Sewer Basin: Drainage Area



Dry Weather Flow in  
 Peachtree Trunk



1.5" of Rain in  
 Peachtree Basin

	City of Atlanta	DeKalb County	Total
Drainage area to Peachtree Creek Basin	33.5 sq. mi.	61.1 sq. mi.	94.6 sq. mi.
Average Dry Weather Flow	20 MGD	23 MGD	43 MGD



## SHORT-TERM PREVENTIVE MAINTENANCE MEASURES

- During our ongoing dialogue, AMPTAG identified repeat wet weather sewer overflows at several locations within the Memorial Park area
- DWM investigated and identified several sewers with significant grit deposits and partial blockages (grit, grease, debris)
- As discussed in previous workshops, the existing Peachtree Creek trunk sewers along Memorial Park have relatively flat slopes, and flow 2/3 full at dry weather
  
- ✓ **RECOMMENDED: Improved Preventative Maintenance**  
Schedule periodic sewer inspection and cleaning along strategic sections of the trunk and relief sewers to maintain capacity and reduce wet weather overflows. Install camera for remote visual monitoring
  
- **ELIMINATED: Raising Additional Manholes**  
Would cause new upstream overflows along Peachtree Creek, thus not recommended



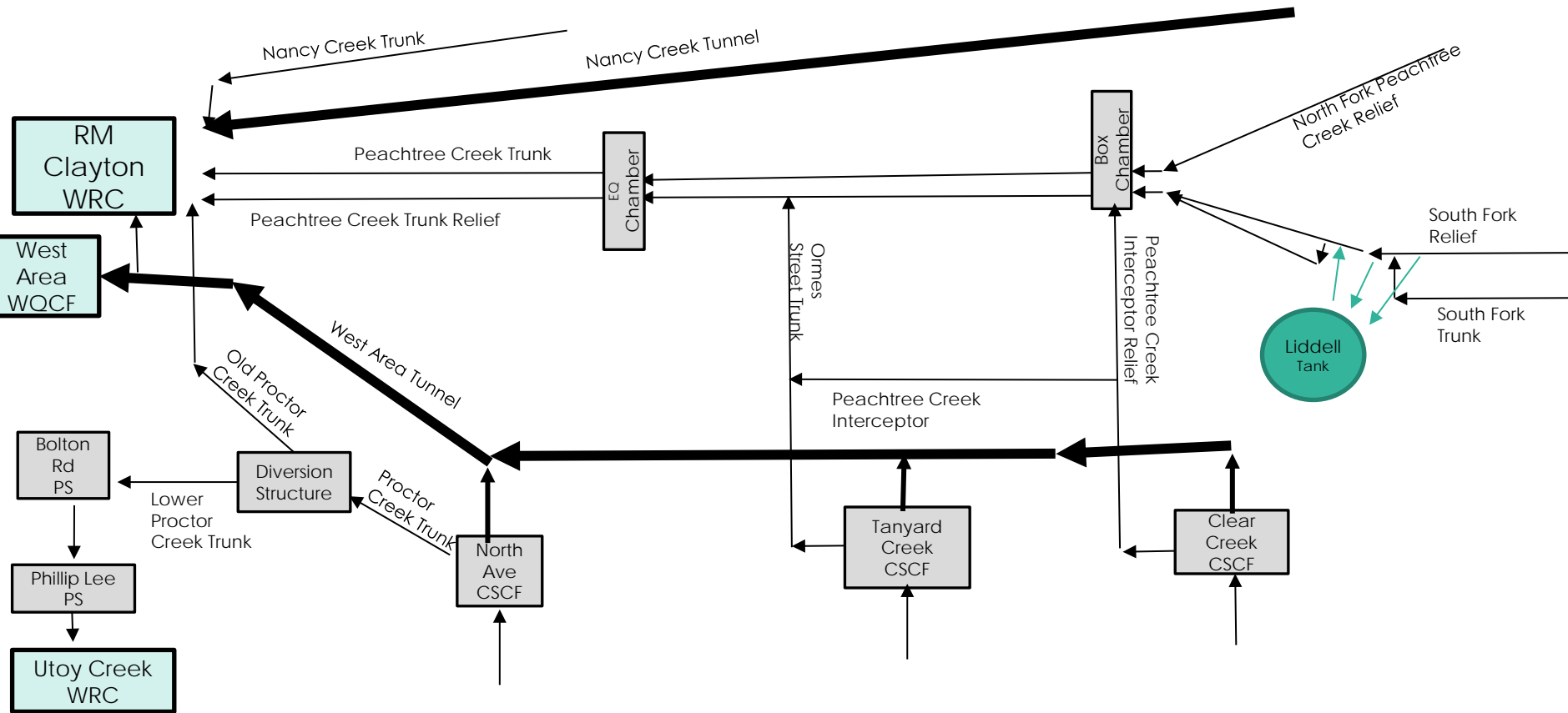
## HYDRAULIC MODELING

- RM Clayton Water Reclamation Center (WRC) receives flow from 3 sewer basins – Proctor Creek, Nancy Creek and Peachtree Creek
- The Nancy Creek Tunnel/PS serves as the primary control for wet weather flows thru the WRC
- The hydraulic gradient at the headworks of the WRC directly impacts the hydraulic grade lines in the upstream Peachtree Creek trunk sewers
- Therefore, it was necessary to develop an integrated model of the trunk sewer system for all 3 basins, to determine the impact of wet weather flows within the Peachtree Creek Basin





## HYDRAULIC MODELING – EXISTING SYSTEM



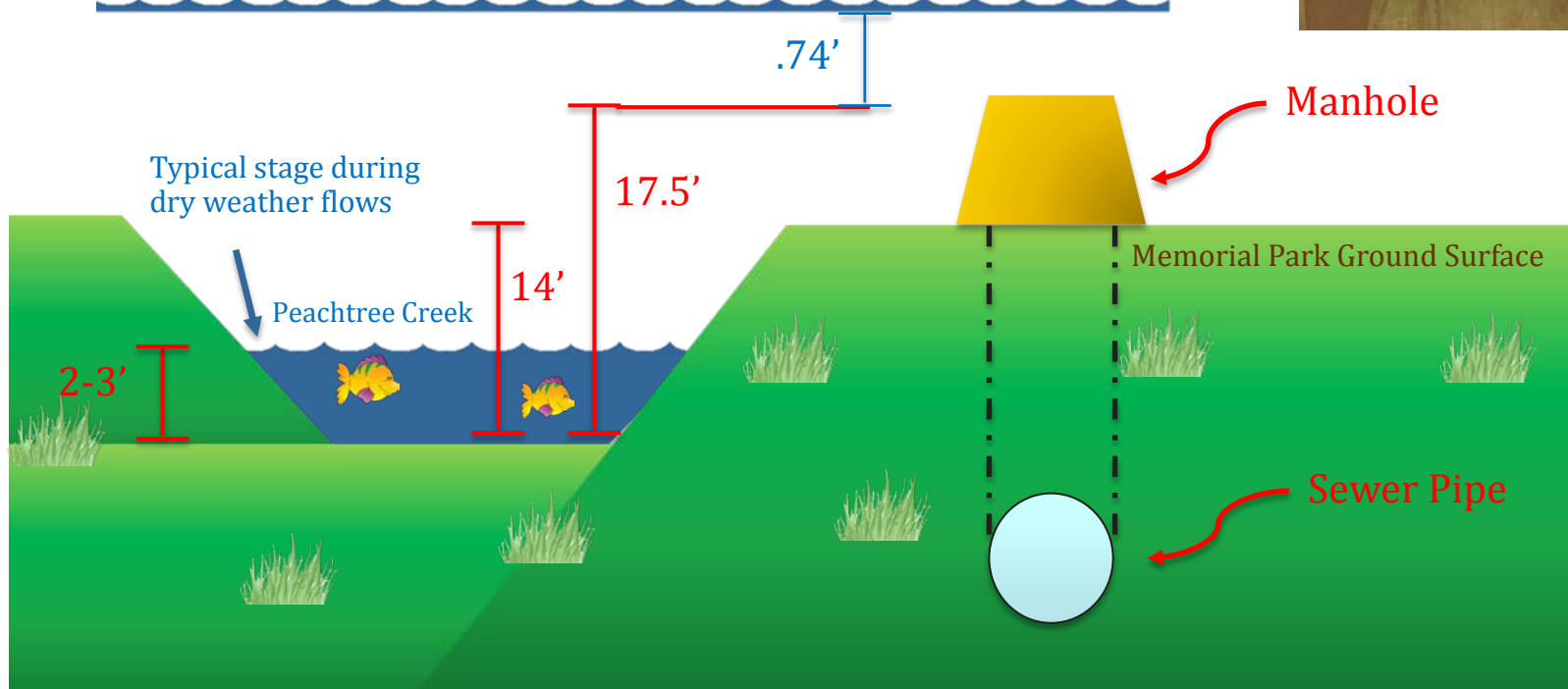


## EXISTING SYSTEM -- STORM EVENT OF 4/5/17

- 9:00 am – Creek rose above its banks and into Park; wet weather overflow from manhole
- Rainfall event – 3.58 inches in 14 hours; size of storm estimated at 2yr 6hr; > 2-yr system design capacity



Flood stage on April 5, 2017 (18.24')





## HYDRAULIC MODELING - (2-YR DESIGN STORM)

- Upon completion of the Liddell Storage Tank, the PTC trunk sewer system has hydraulic capacity to convey future (year 2050) wet weather flows from the 2-yr design storm
- Dry Weather -- Peachtree Creek trunk sewers at Memorial Park area **flow at 2/3 full depth**, due to flat slopes and backwater effect from RM Clayton WRC
- Wet Weather (2-Yr Design Storm) – Peachtree Creek trunk sewers at Memorial Park area **flow full (HGL at crown of pipe)**
- Since 2009, within the Peachtree Creek Basin near Memorial Park, **5 storms exceeded the 2-yr design storm**

Date	Duration (Hours)	Total Rainfall (Inches)	Peak Intensity (In/Hr)	Return Frequency (Yrs)
9/19/09	62	11.44	5.12	50-100year
11/10/09	46	5.72	0.88	5-10 year
5/3/10	10	4.25	3.52	5-10year
12/23/15	76	4.87	2.36	2-5year
4/5/17	14	3.58	2.32	2-5 year
5/4/13	41	4.40	0.60	1-2year
10/12/09	15	3.58	1.56	1-2year
4/6/14	26	3.97	1.12	1-2year
11/1/15	38	3.69	1.44	<1year
11/6/15	82	3.03	1.04	<1year
7/2/13	53	3.40	1.48	<1year



## OPTIMIZATION OF EXISTING OPERATIONS

Performed hydraulic modeling and analysis to optimize wet weather operations within existing systems, with the following results (at 2-yr Design Storm):

- Divert 8 MG of additional flow from RMC Headworks to NC Tunnel (storage)
- Delay diversion of flow to Liddell Tank by 30 minutes (storage)
- In 2<sup>nd</sup> Qtr. 2016, the West Area Tunnel/Treatment Operations Team implemented revised standard operating procedures and operational parameters, with demonstrated improved results

The above projects can be implemented with changes to operational parameters – no construction required

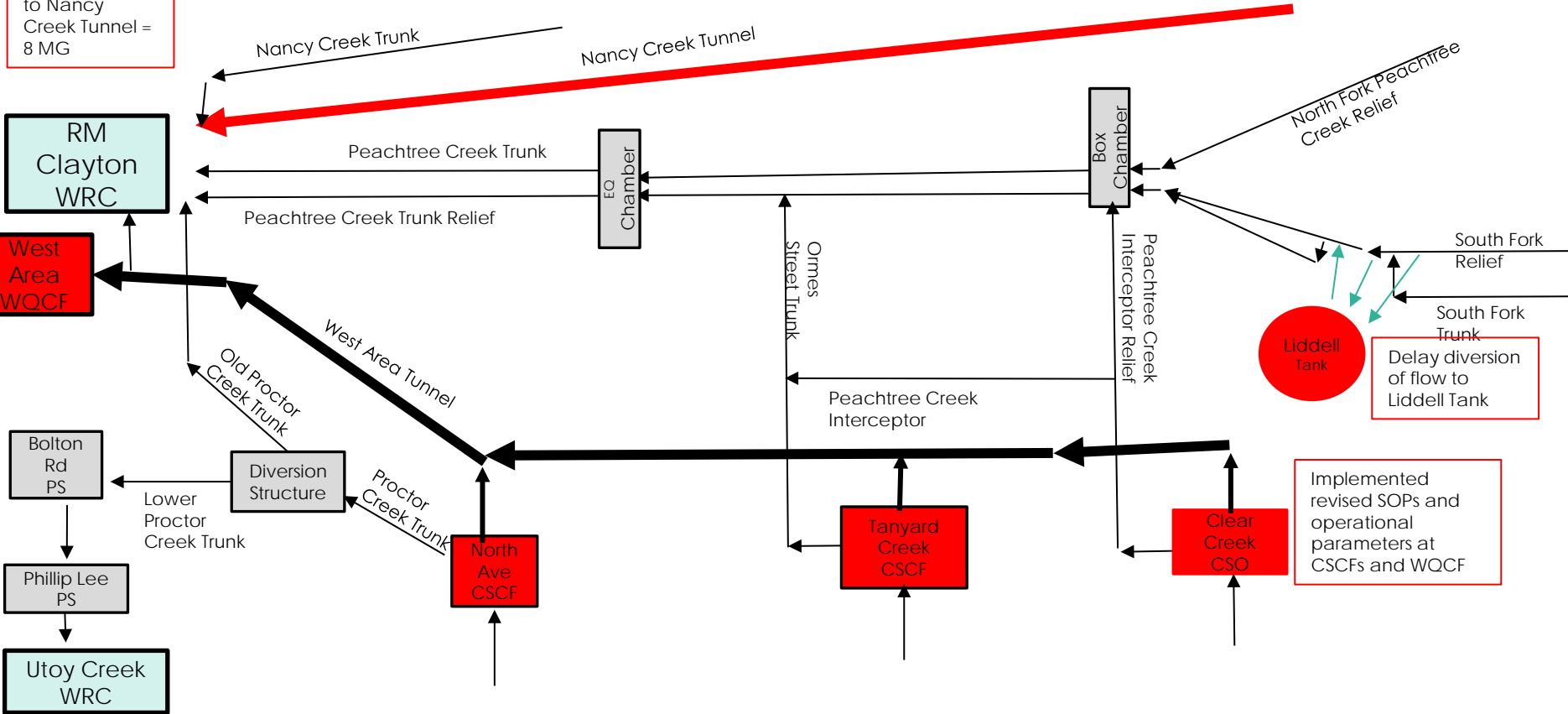
### **Beneficial Impacts**

- Net decrease of 15 MGD of peak wet weather flow to RM Clayton WRC
- 4 discharges from CSCFS within last 12 months, versus rolling average of 6/year



# OPTIMIZATION OF EXISTING OPERATIONS

Divert additional flow to Nancy Creek Tunnel = 8 MG





## PEACHTREE CREEK BASIN – PLANNED PROJECTS (2-YR DESIGN STORM)

As presented at the previous Open House for AMPTAG, DWM is implementing **funded** projects that will provide direct beneficial impact to Memorial Park and/or the Peachtree Creek Basin:

Planned Project	Beneficial Impact	Year	\$
New Headworks at RM Clayton WRC	Increase treatment capacity from 210 MGD to 240 MGD	2018	56.9M
PTC Trunk Stabilization	Estimated 60% reduction of wet weather I/I along route	2019	32M
Howell Mill & Oldfield Outfalls	Eliminate 2 aerial crossings (repeat spills)	2018	2.5M
Proctor Creek Diversion/Bolton Rd PS	Divert up to 12 MGD from RMC to Utoy Creek	2019	0.2M
Civic Center Storage Vault (4MG)	Reduce peak stormwater flow to combined sewers	2019	16.3M
Advanced SG4 Rehab (PTC Basin)	Estimated 20% reduction of wet weather I/I	2020	4.4M
SG5 Rehab (PTC Basin)	Estimated 20% reduction of wet weather I/I	2026	24M
SG5 & SG6 Capacity Relief (PTC Basin)	Upstream sewer capacity – design storm	2027	27M+
		<b>Total</b>	<b>161M+</b>

### Beneficial Impacts (confirmed thru hydraulic modeling)

- Contained overflows in other areas of the system
- Reduction of 8 MGD of peak wet weather flow during design storm
- System-wide capacity for the CD design storm (2-Yr, 3-Hr)



## PLANNED PROJECT – RM CLAYTON WRC HEADWORKS

### Scope:

- Construct new plant headworks

### Beneficial Impact:

- Improve flow hydraulics and capacity entering the facility
- Improve grit removal and reduce the damaging effects of grit on subsequent unit processes
- Installation of new influent flow monitoring equipment to accurately monitor flows

### Schedule:

- Construction:  
Start – Qtr. 1 2014; Complete – Qtr. 1 2018





## PLANNED PROJECT – PTC TRUNK STABILIZATION

### Scope:

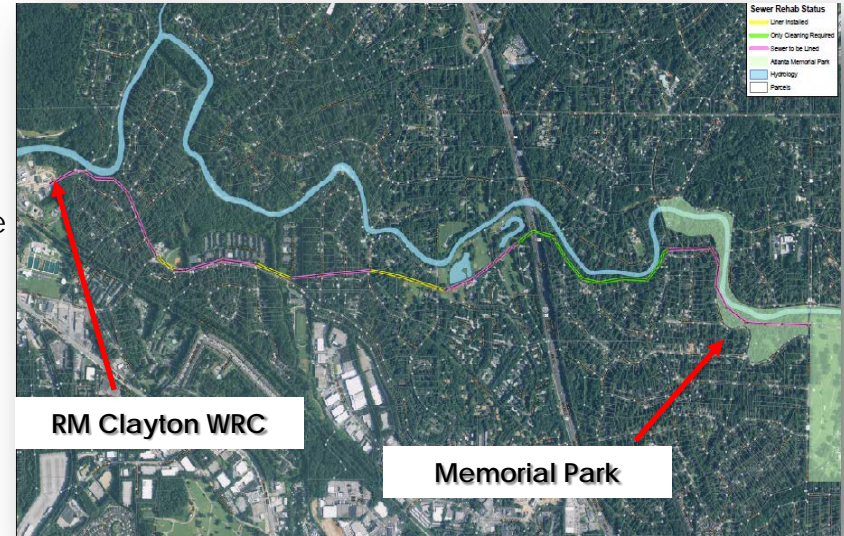
- Clean: 700 LF of 96" pipe, 1,300 LF of 90" pipe, and 1,800 LF of 66" pipe.
- Installation of approx. 11,000 LF of grouted PVC profile liner system
- Clean Woodward Way Siphon that is located within the vicinity of Bobby Jones Golf Course.

### Beneficial Impact:

- Reduce I/I from entering sewer and robbing needed capacity
- Safeguard against future breaches and ensures public health and safety
- ensures long-term structural integrity of 90" diameter trunk sewer for 50+ years

### Schedule:

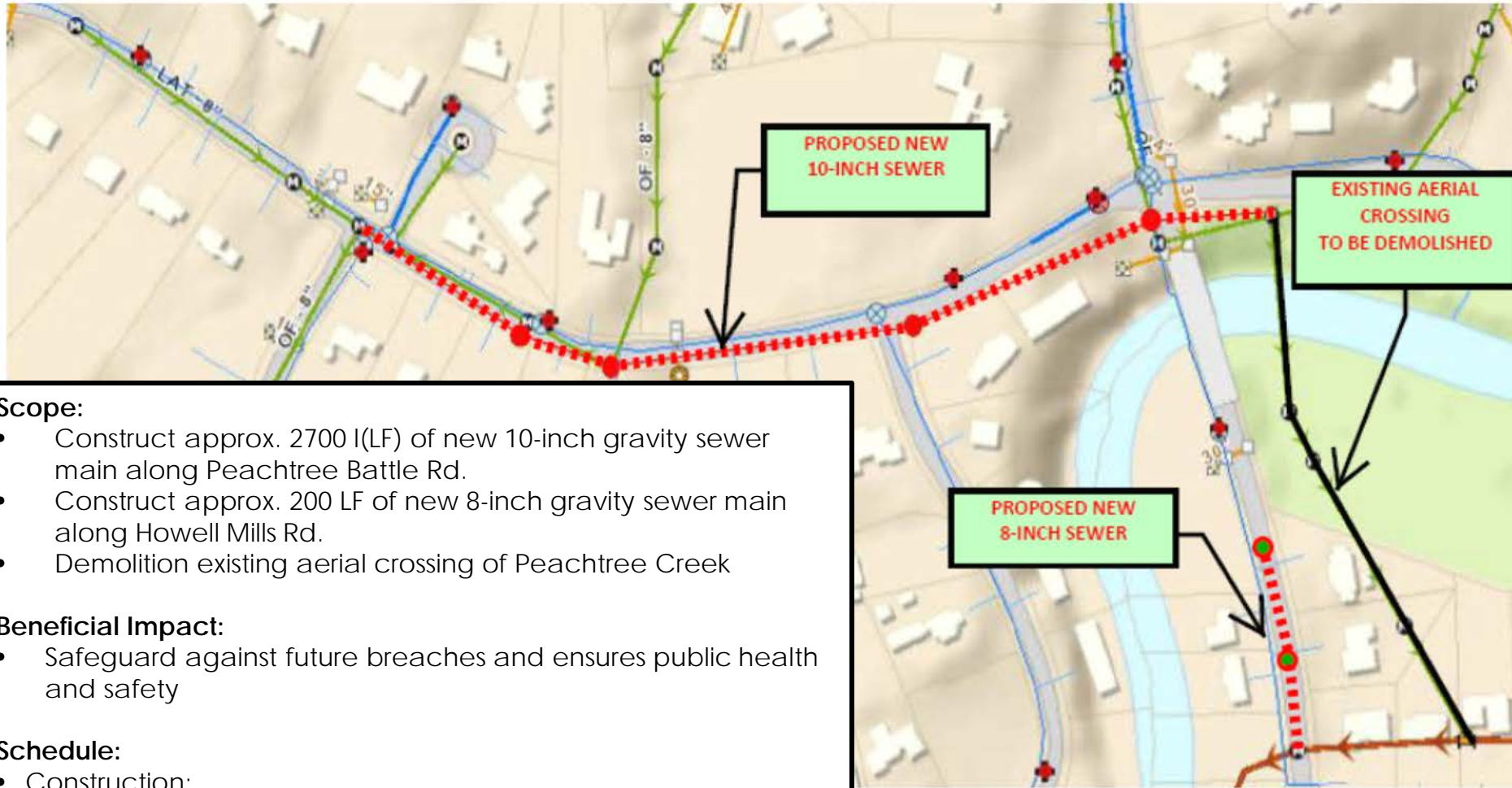
- Construction:  
Start - Qtr. 4 2017; Complete – Qtr. 2 2019







## PLANNED PROJECT – HOWELL MILL RD. OUTFALL SEWER REALIGNMENT



### Scope:

- Construct approx. 2700 l(LF) of new 10-inch gravity sewer main along Peachtree Battle Rd.
- Construct approx. 200 LF of new 8-inch gravity sewer main along Howell Mills Rd.
- Demolition existing aerial crossing of Peachtree Creek

### Beneficial Impact:

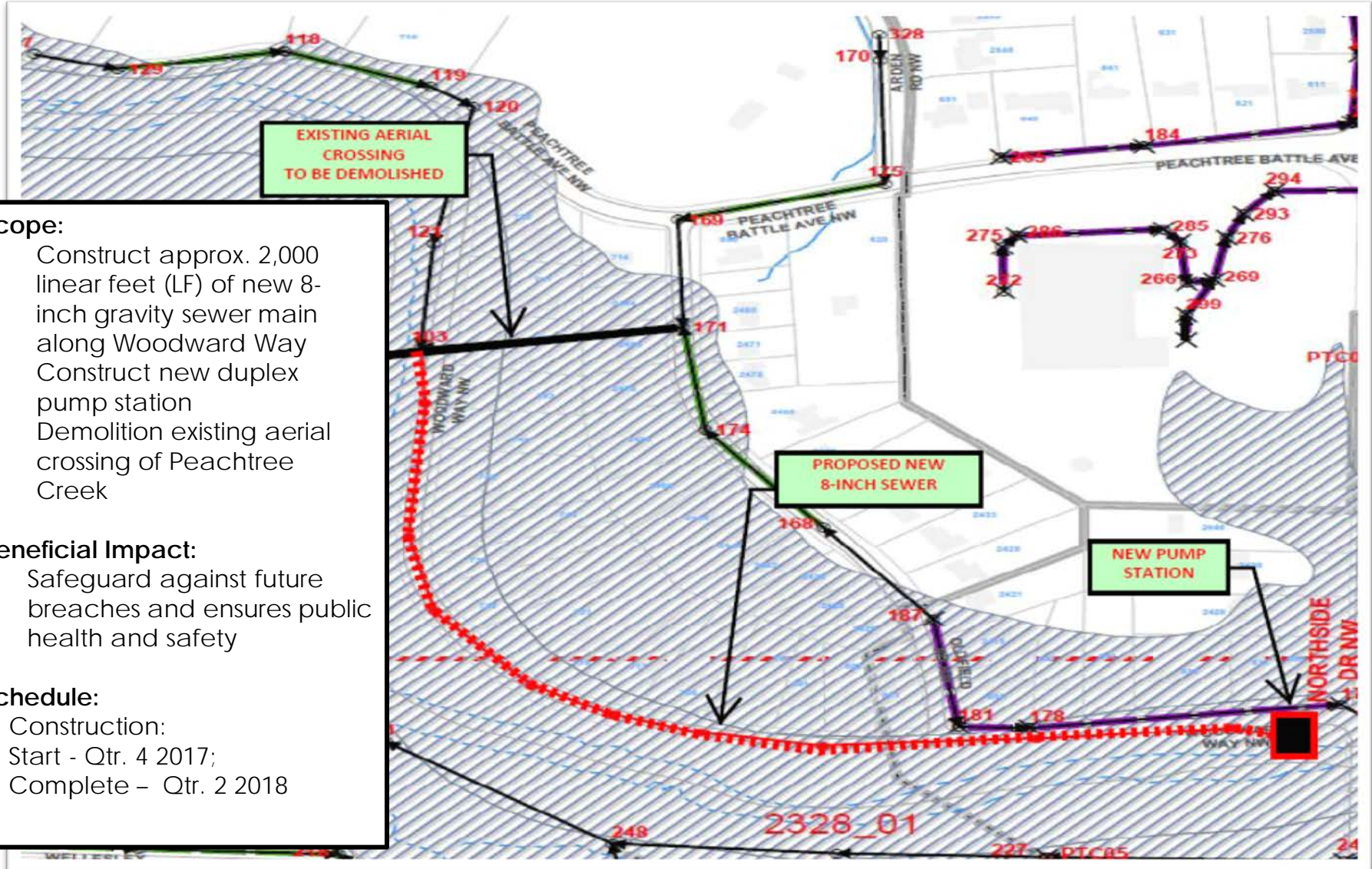
- Safeguard against future breaches and ensures public health and safety

### Schedule:

- Construction:  
Start - Qtr. 4 2017; Complete – Qtr. 2 2018



## PLANNED PROJECT – WOODWARD WAY/OLDFIELD OUTFALL SEWER REALIGNMENT





## FUTURE POTENTIAL PROJECTS (5-YR/10-YR DESIGN STORMS)

### Hydraulic Modeling – Assumptions and Conditions

- Incorporated the optimization of existing operations
- Incorporated all planned projects – system wide capacity for the CD design storm (2-yr, 3-hr)
- Assumed conservative 10% I/I reduction within future DeKalb peak flow contributions
- Assumes no interaction between creek and sewer
- Applied future 50-yr population growth projections (ARC) and documented reduction in per capita water consumption (due to plumbing code changes, conservation efforts, and reduced irrigation demand)
- Results -- Flow projections used in the future model thru 2050 can be extended thru 2070, offering a buffer against potential climate change impacts
- **All potential projects modeled to achieve capacity for 5-Yr & 10-Yr design storms; and existing trunk sewers along memorial park convey the peak flow at 80% full depth – not surcharged**



## **FUTURE POTENTIAL PROJECTS – DESCRIPTION OF ALTERNATIVES**

### **Alt. 1 – Additional South Fork Storage Tank (at Liddell Site)**

- No land acquisition required; space for additional tank
- Existing tank utilizes available peak flow – not viable alternative to 5/10 Yr storms
- Existing Liddell project maximized potential benefits for storage tank at South Fork

### **Alt. 2 – North Fork Storage Tank and Pump Station**

- 10 MG for 5-yr storm; 15 MG for 10-yr storm; 30 MGD pump station (\$95M)

### **Alt. 3 – Storage/Conveyance Tunnel from North Fork to NC Tunnel**

- 10-ft diameter, 3.3. mile deep tunnel; ; connection to NC Tunnel (\$162M)

### **Alt. 4 – Peachtree Creek Tunnel and Pump Station (at RM Clayton WRC)**

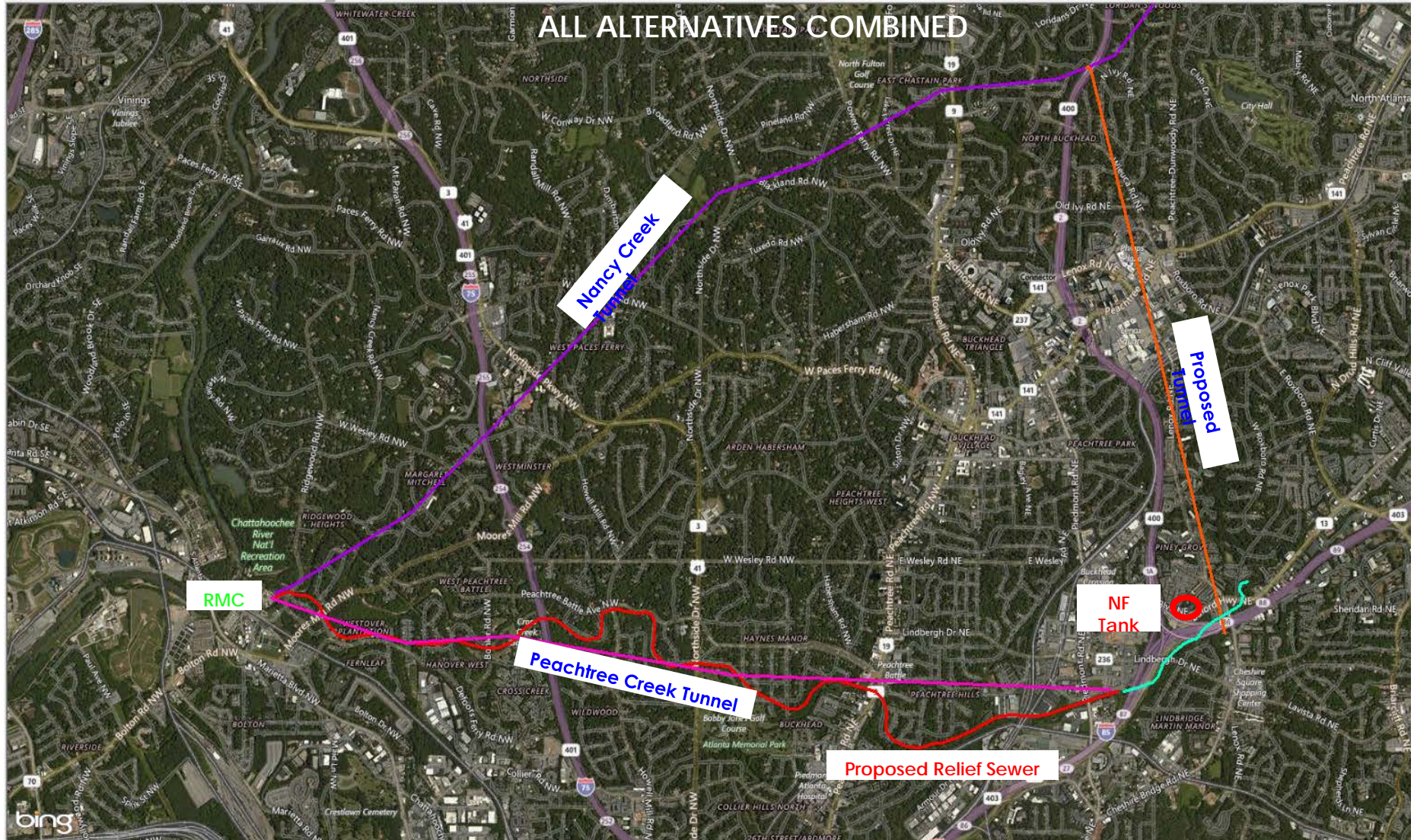
- 10-ft diameter, 5.1 mile deep tunnel; 60 MGD pump station at RMC (\$325M)

### **Alt. 5 – Parallel Peachtree Creek Sewer to RM Clayton**

- 5.9 miles of 72"/78" relief sewer; cross connections w/existing trunk/relief (\$167M)



## ALTERNATIVES 1 THRU 5 -- AERIAL VIEW





## SUMMARY OF MODELING RESULTS & ANALYSIS – POTENTIAL PROJECTS

### Highest Ranked Project – Alt. 2 North Fork Storage Tank & Pump Station

- Lowest estimated capital cost -- (\$75M 5-yr storm; \$95M 10-yr storm)
- Shortest time for project completion – 4 years (design, construction)
- Smallest footprint – no lengthy conveyance, but requires site acquisition
- 2<sup>nd</sup> lowest operating costs – 30 MGD pump station (low head)
- All other alternatives require significant linear construction, with land acquisition, easements, utility relocation
- Implement for 10-yr design storm (marginal cost difference)

### Benefits

- Trunk sewers along Memorial Park convey peak flow at 80% full depth
- Entire PTC Trunk sewer system conveys peak flow at 10-yr design storm
- No overflows during 9 of 10 largest storms since 2009

### Next Steps

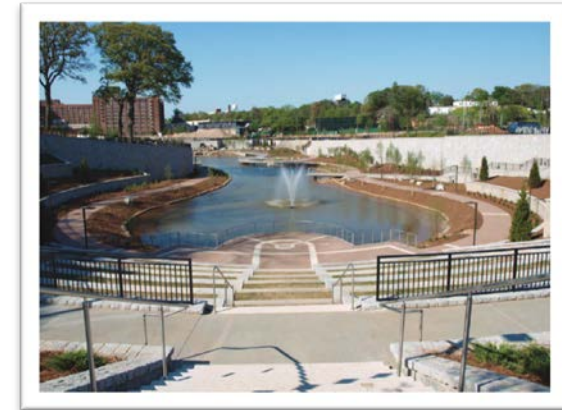
- Identify potential sites and conceptual study (proof of concept)
- Identify capital funding (DeKalb responsible for 50%)



# PROTECTION OF WATER QUALITY IN PEACHTREE CREEK

## Green Infrastructure Projects

- DWM continues to explore potential for Green Infrastructure Projects, to reduce the peak rate of stormwater runoff into the combined sewer systems and separate storm sewer systems. Such projects will enhance, but not eliminate, planned future capital projects.
  - *Notable Project: Old Fourth Ward Pond*
  - *In Progress: Clear Creek Green Infrastructure projects*
- Funding for Green Infrastructure Projects is limited to the combined sewer basins. Reducing flow to combined sewer basins allows use of water/sewer funding.
- Use of MOST proceeds to initiate Green Infrastructure Projects within the separate storm sewer systems are in planning stage.

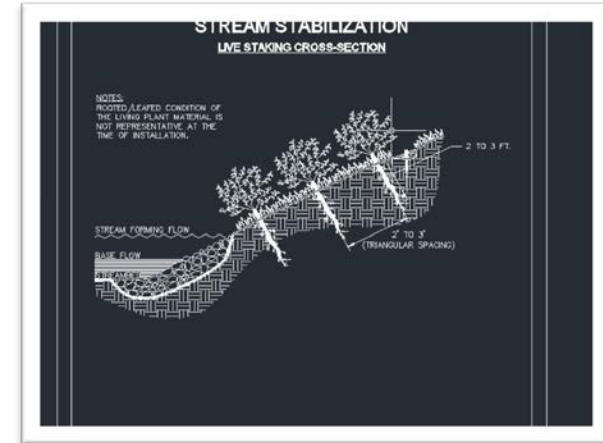




# PROTECTION OF WATER QUALITY IN PEACHTREE CREEK (Cont'd)

## Green Infrastructure Projects (Cont'd):

- Explore potential for Green Infrastructure Projects within Peachtree Creek Basin, to reduce the rate of stormwater runoff into the combined sewer systems and separate storm sewer systems
- Explore stream bank stabilization within Peachtree Creek Basin to reduce flow velocities that increase erosion, filter pollutants from stormwater runoff, enhance vegetation growth, and habitat growth



## Operation of West Area Tunnel/Treatment System (Combined Sewer System)

- 80% reduction to number & volume of discharges from CSCFs to Peachtree Creek
- 4 discharges from CSCFs to Peachtree Creek within last 12 months, versus rolling average of 6 per year – discharges receive equivalent primary treatment (first flush and settleable solids captured by tunnel, removal of floatables, screening, disinfection and de-chlorination)







# QUESTIONS & DISCUSSION