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# Queens Storm Drainage Improvement Project

**Public Meeting  
February 28, 2023  
Planning Phase**

# Project Team

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CMSWS

**Kate Goodman**  
Project Manager  
Storm Water Services  
City of Charlotte



**David Meyer**  
Senior Public  
Information Specialist  
City of Charlotte



Consultant

**Steve Godfrey**  
Vice President  
Design Consultant  
Woolpert



**Paul Smith**  
Project Manager  
Design Consultant  
Woolpert



# Program Overview

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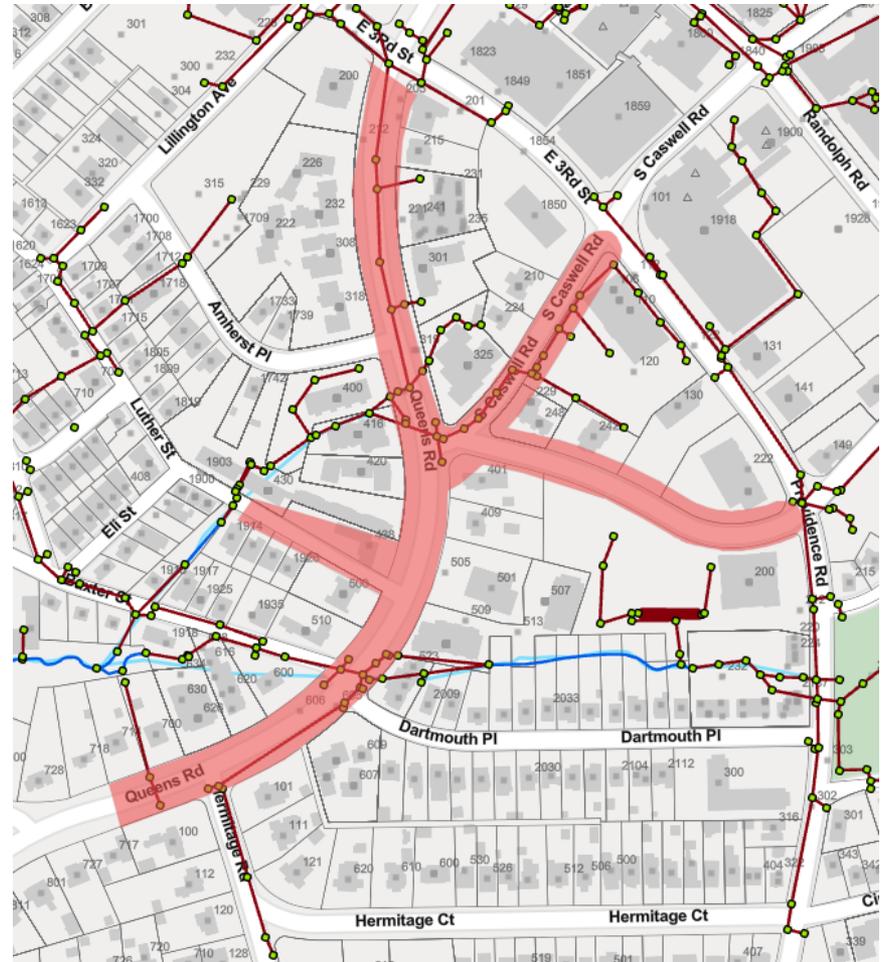
## City of Charlotte Storm Water Services

- ◁ Established in 1993 as a joint municipal city county stormwater utility
- ◁ Works year-round to repair and replace aging infrastructure, manage runoff from rainfall, reduce flood risks and protect and improve surface waters
- ◁ Addresses multiple service requests within neighborhoods through storm drainage improvement projects

# Project Selection

## Why are we here:

- Service requests from property owners
- Observed flooding events
- Aging and deteriorating infrastructure
- Inadequate infrastructure



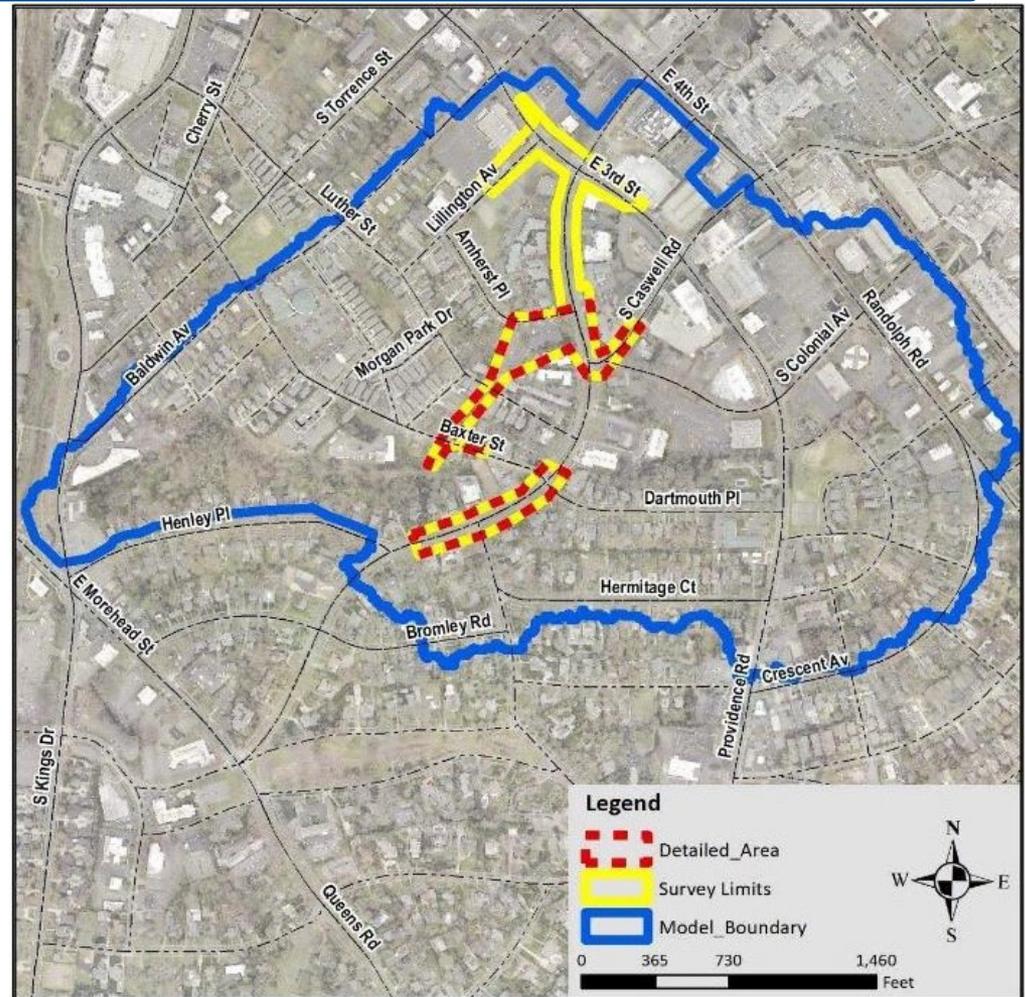
# Example of Undersized Inlet and pipe system at 714 Queens Road



Existing Inlet

# Project Area

- ◁ Watershed: 205 Acres +/-
- ◁ 16,500 LF of Closed pipe system
- ◁ 2,800 LF of Open channels
- ◁ 7 number of service requests
- ◁ Queens Road - Major Thoroughfare



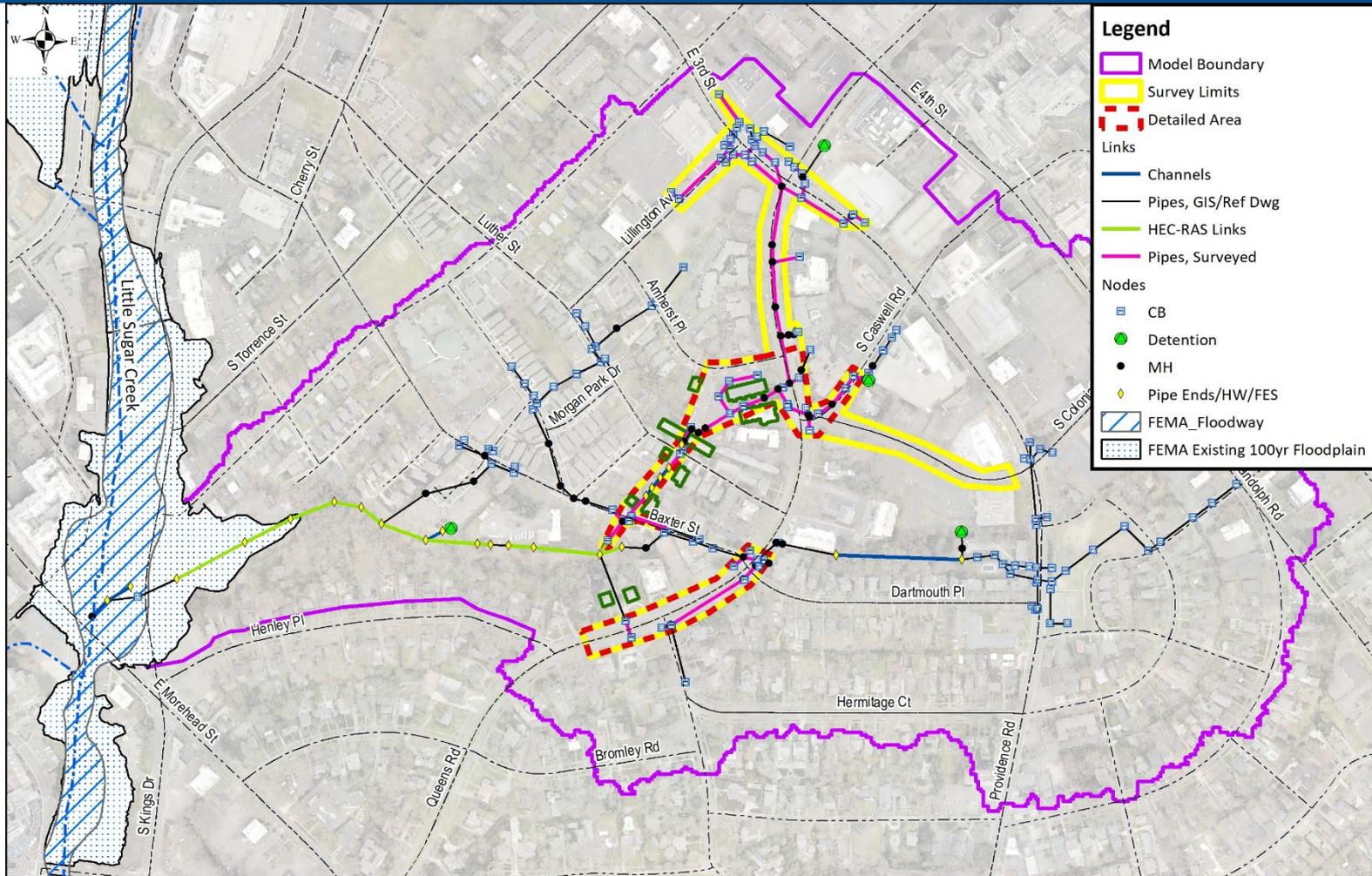
# Planning Phase

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## Process:

- ◁ Survey of topographic and underground data
- ◁ Existing Conditions Analysis to determine sufficiency and structural deficiencies
- ◁ Hydraulic/Hydrologic Analysis to determine multiple proposed alternatives
- ◁ Selection of preferred alternative

# Overall Boundary with Detailed Study Areas



# Storm Water Basin Modelling Evaluated Storm Events

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- ◁ 2-Year 6-hour Storm – 50% Probability of occurring in any given Calendar Year
- ◁ 10-Year 6-hour Storm – 10% Probability of occurring in any given Calendar Year
- ◁ 25-Year 6-hour Storm – 4% Probability of occurring in any given Calendar Year
- ◁ 50-Year 6-hour Storm – 2% Probability of occurring in any given Calendar Year
- ◁ 100-Year 6-hour Storm – 1% Probability of occurring in any given Calendar Year

# Existing Conditions Flood Maps

## 2-Year and 10-Year Storm Events

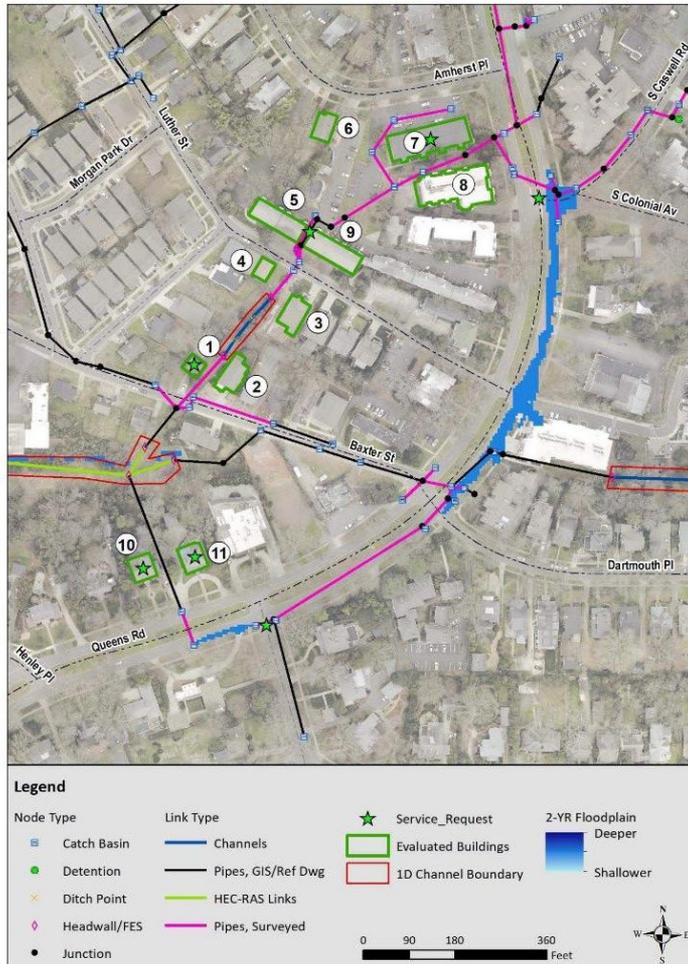


Figure EC- 23: Inundation Map of Detailed Study Area, 2-yr 6-hr Storm, Existing Conditions

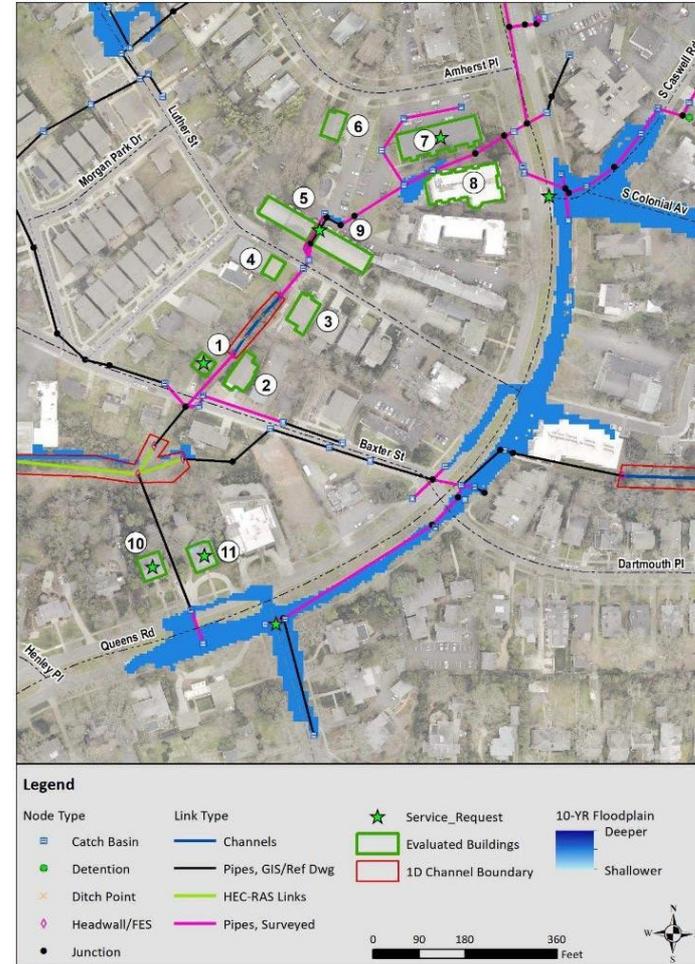


Figure EC- 24: Inundation Map of Detailed Study Area, 10-yr 6-hr Storm, Existing Conditions

# Existing Conditions Flood Maps

## 25-Year and 50-Year Storm Events

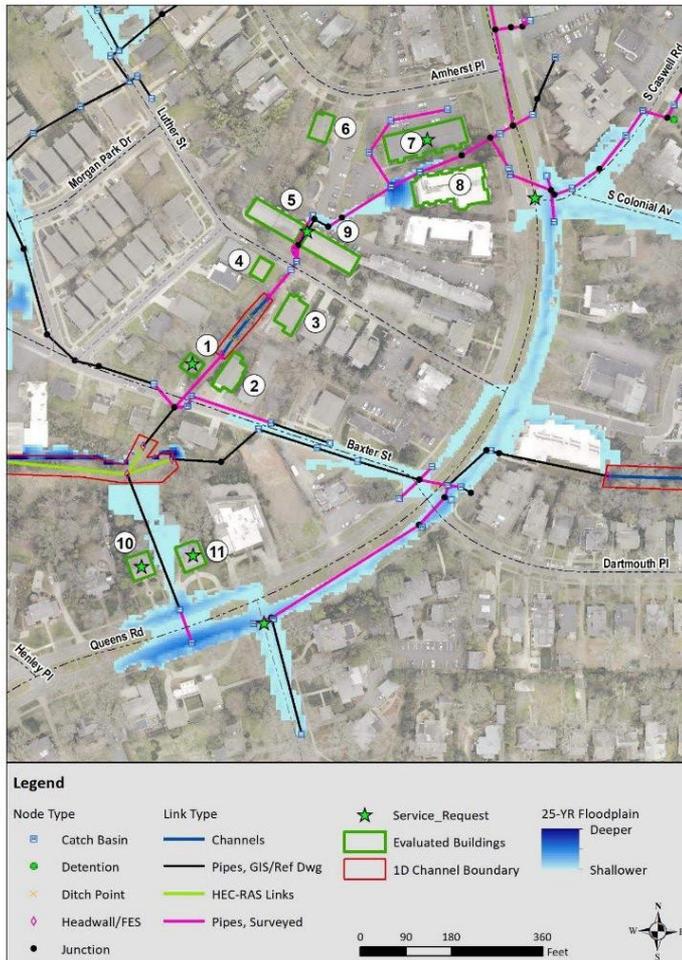


Figure EC- 25: Inundation Map of Detailed Study Area, 25-yr 6-hr Storm, Existing Conditions

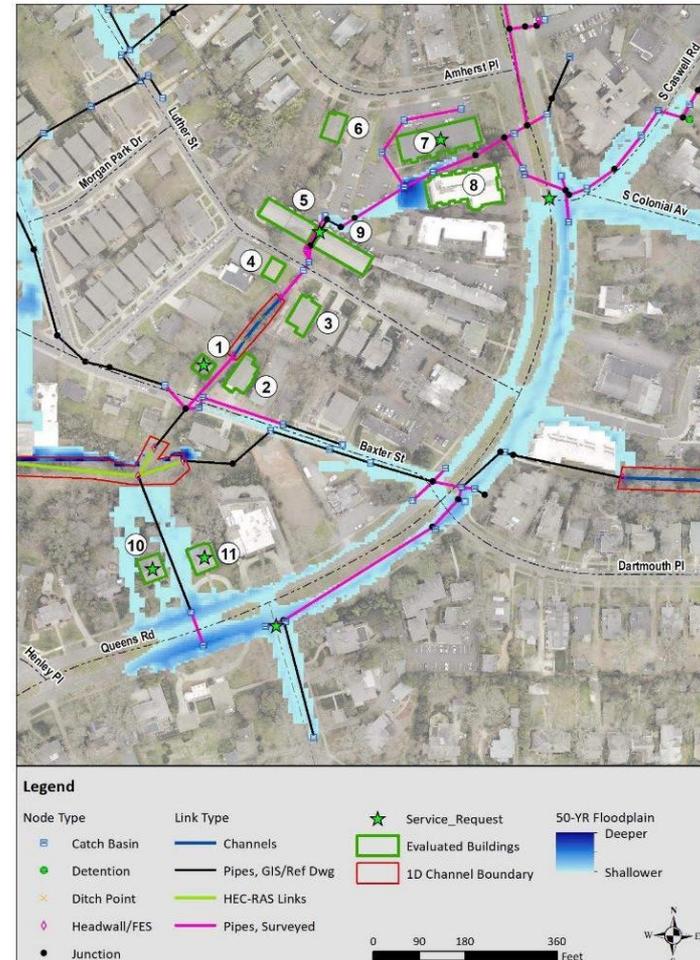
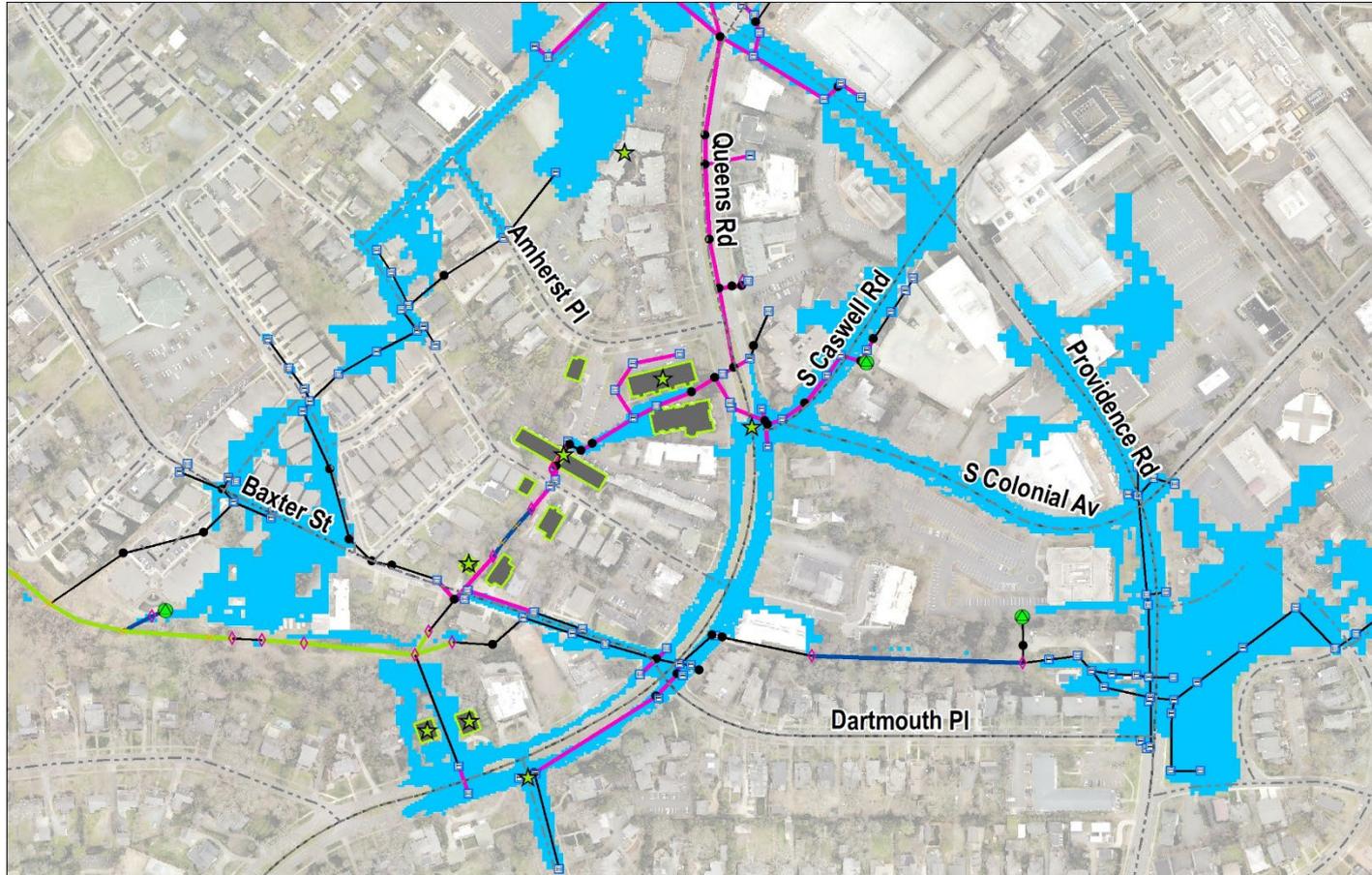
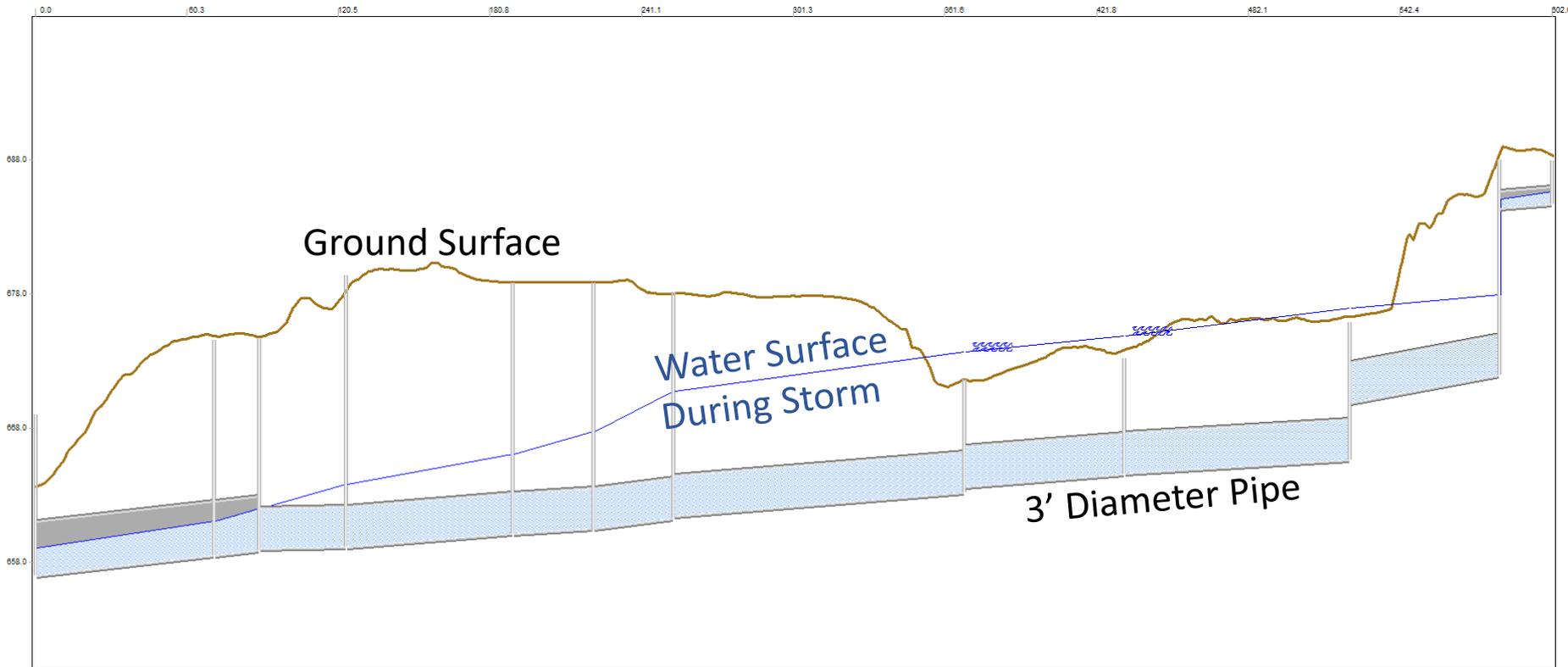


Figure EC- 26: Inundation Map of Detailed Study Area, 50-yr 6-hr Storm, Existing Conditions

# Existing Conditions Flood Maps 100-Year Storm Event



# Existing Storm Water System Pipe Profile Example ~ 10-year Storm Event



# Evaluating Alternatives

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## Determining the 'best' solution:

- ◁ Public Safety
- ◁ Private Property Impacts
- ◁ Public Cost
- ◁ Long-term Maintenance
- ◁ Private utility impacts

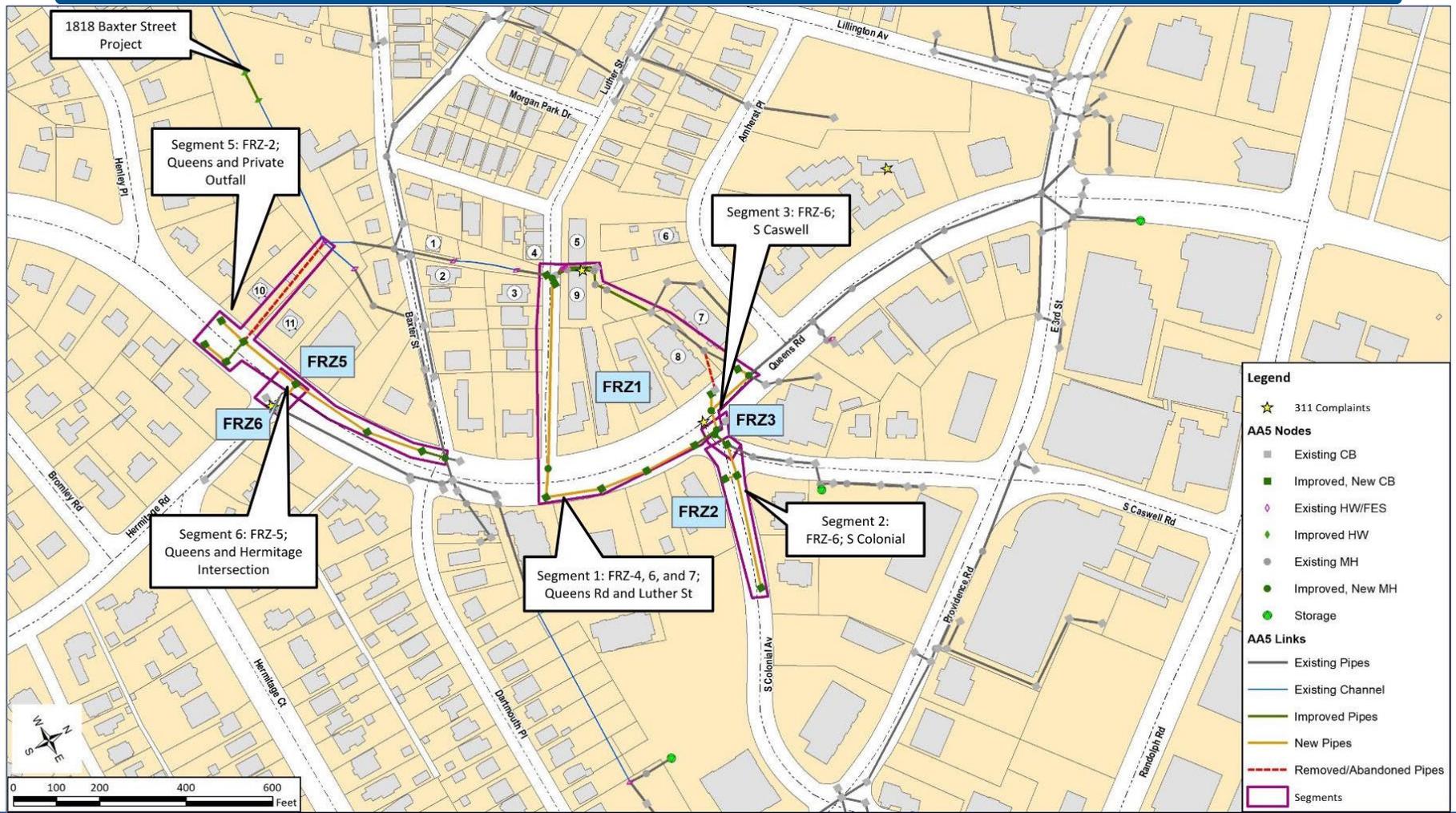
# Evaluating Alternatives

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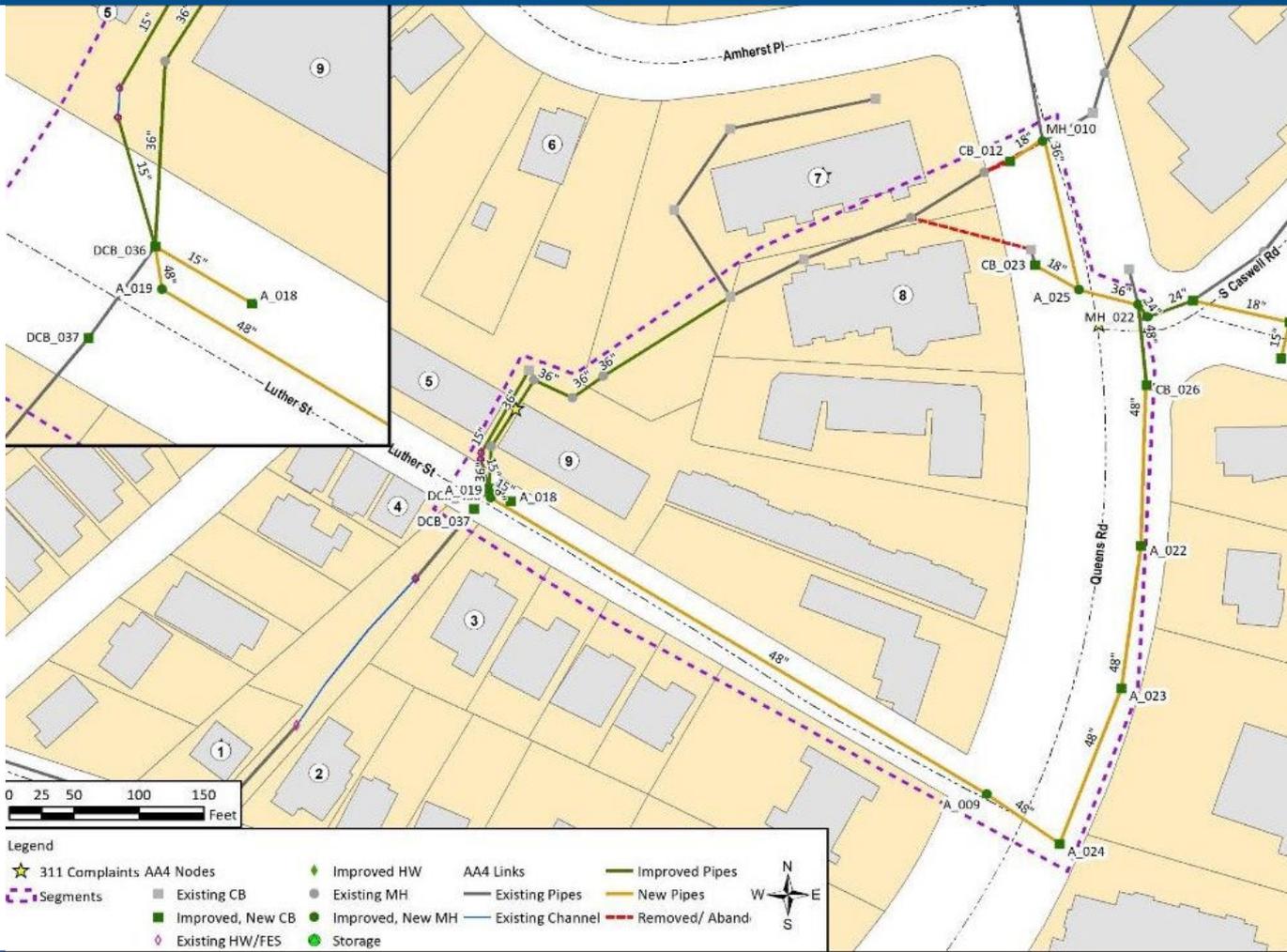
## Types of Alternatives Considered:

- ◁ Replacing or rehabilitating failing pipes
- ◁ Upgrading pipe sizes and materials
- ◁ Adding inlets and pipes in areas that have little infrastructure
- ◁ New alignments to keep public infrastructure in the right-of-way
- ◁ Detaining water to reduce flow
- ◁ Stream or channel improvements
- ◁ Long-term Maintenance
- ◁ Private utility impacts
- ◁ Downstream Evaluation

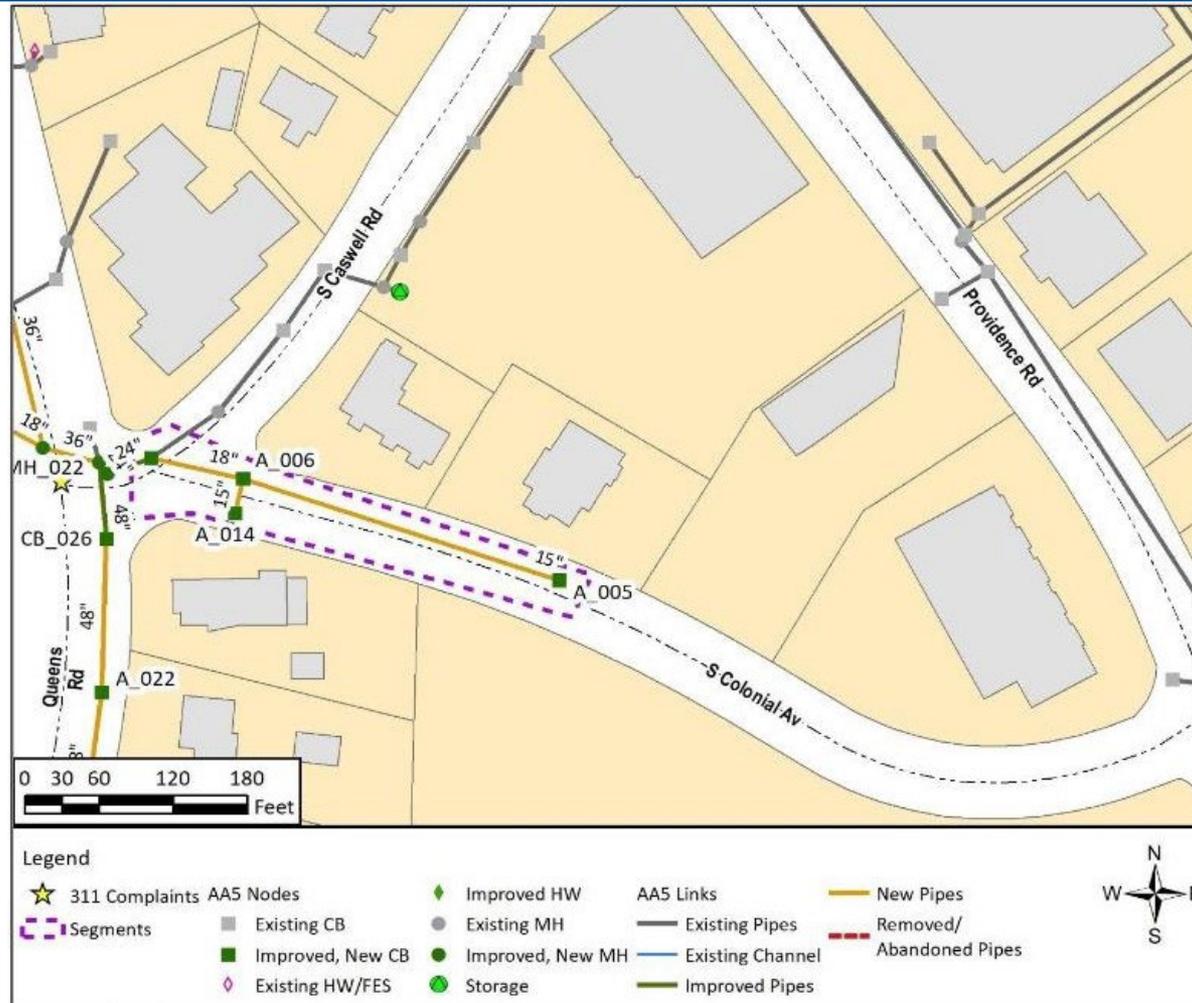
# Preferred Alternative Overall Map



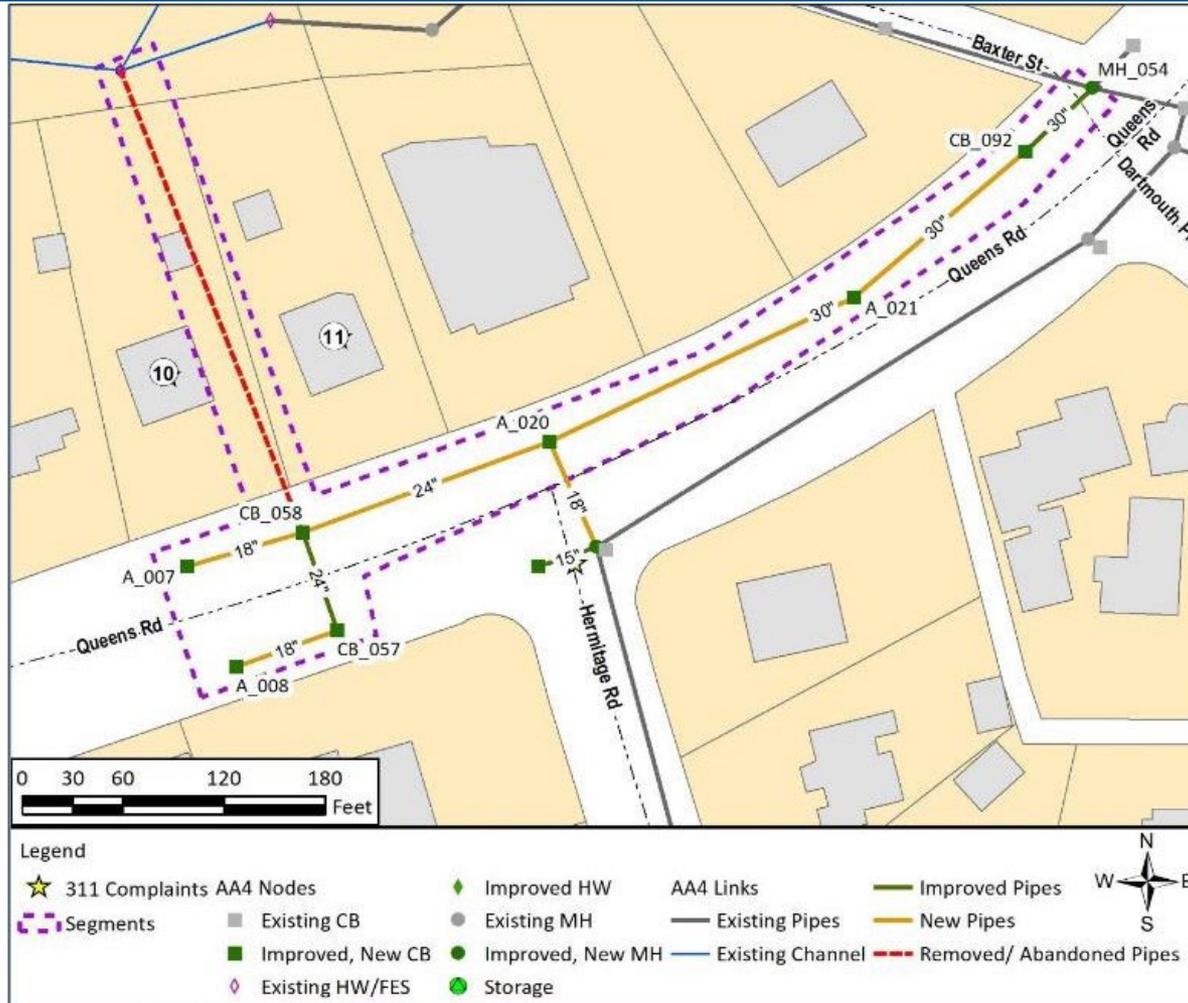
# Preferred Alternative Queens Road and Luther Street



# Preferred Alternative S. Colonial Ave. and S. Caswell Rd.

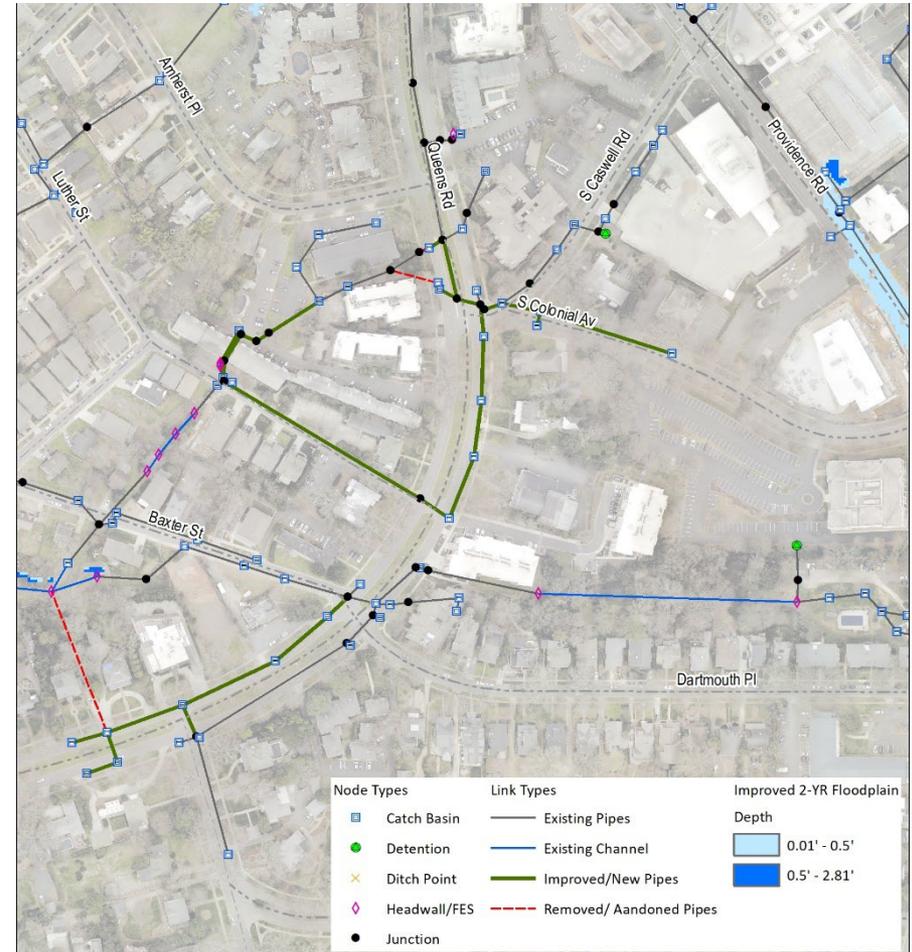


# Preferred Alternative -Queens Rd Hermitage Rd to Baxter St

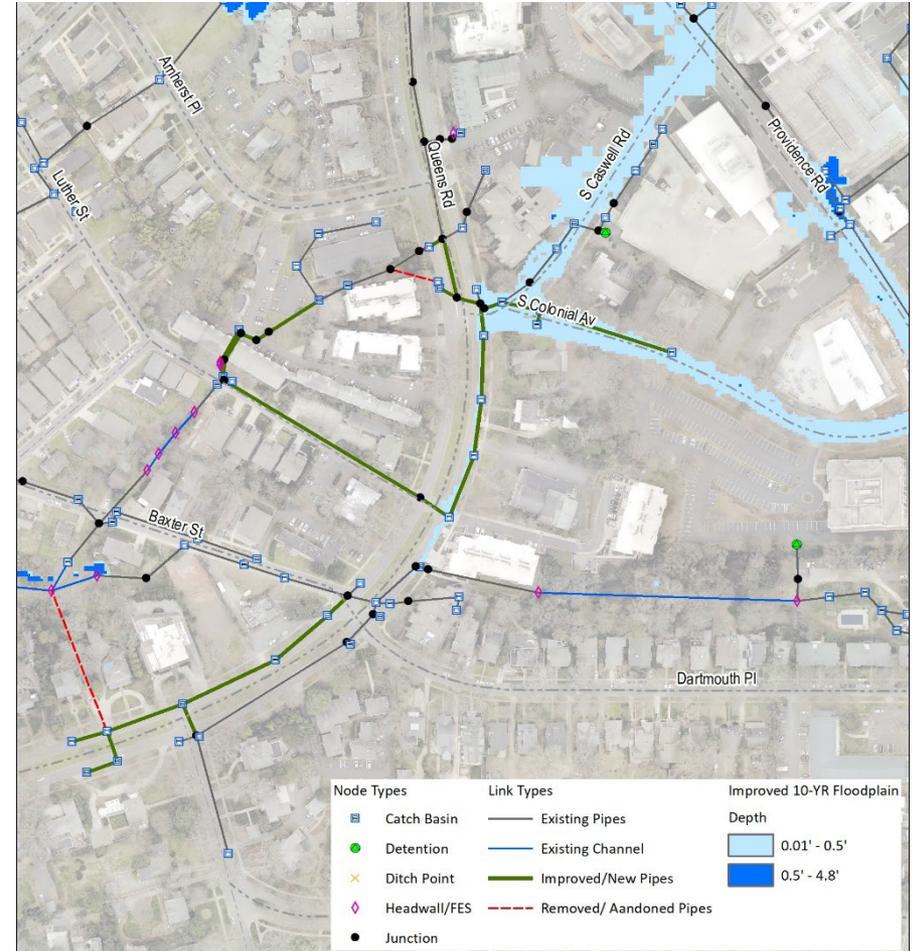
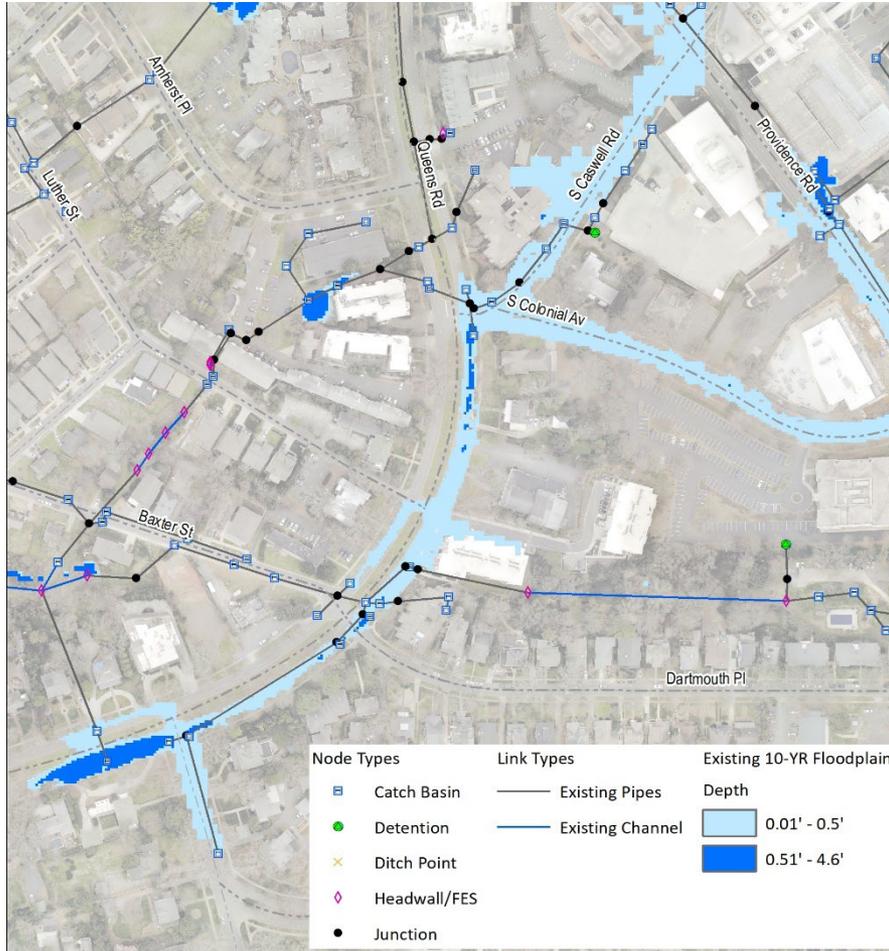


# 2-Year Storm Events Flood Maps

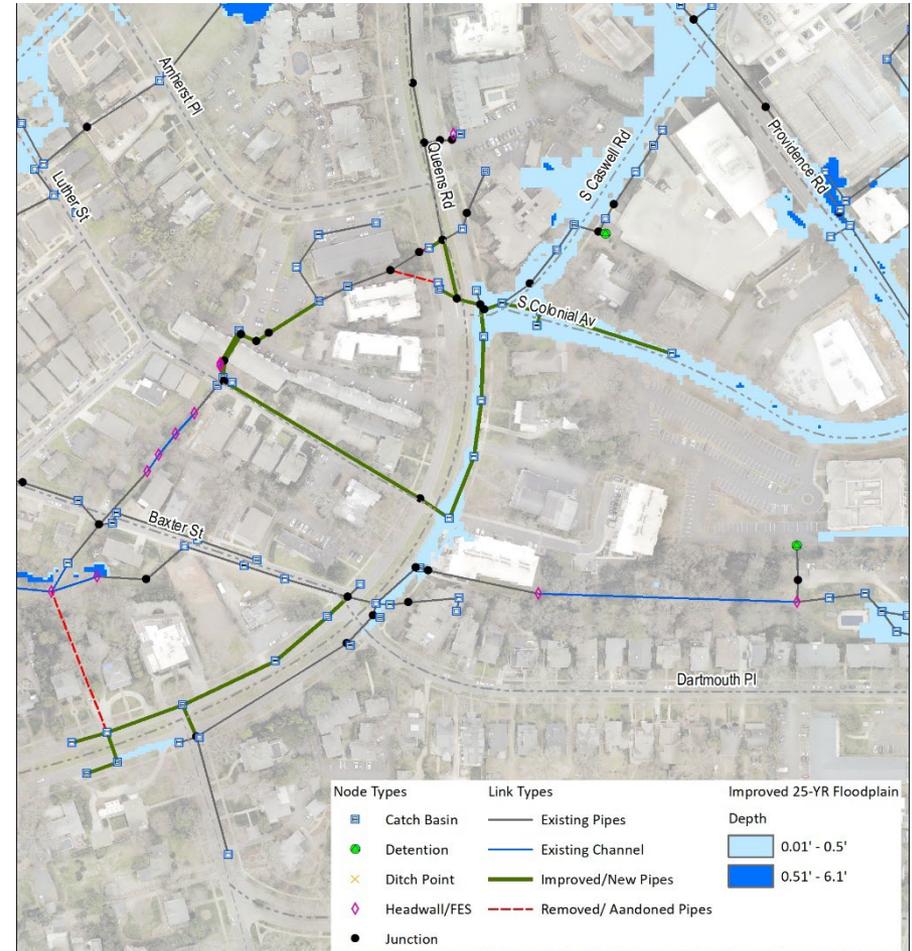
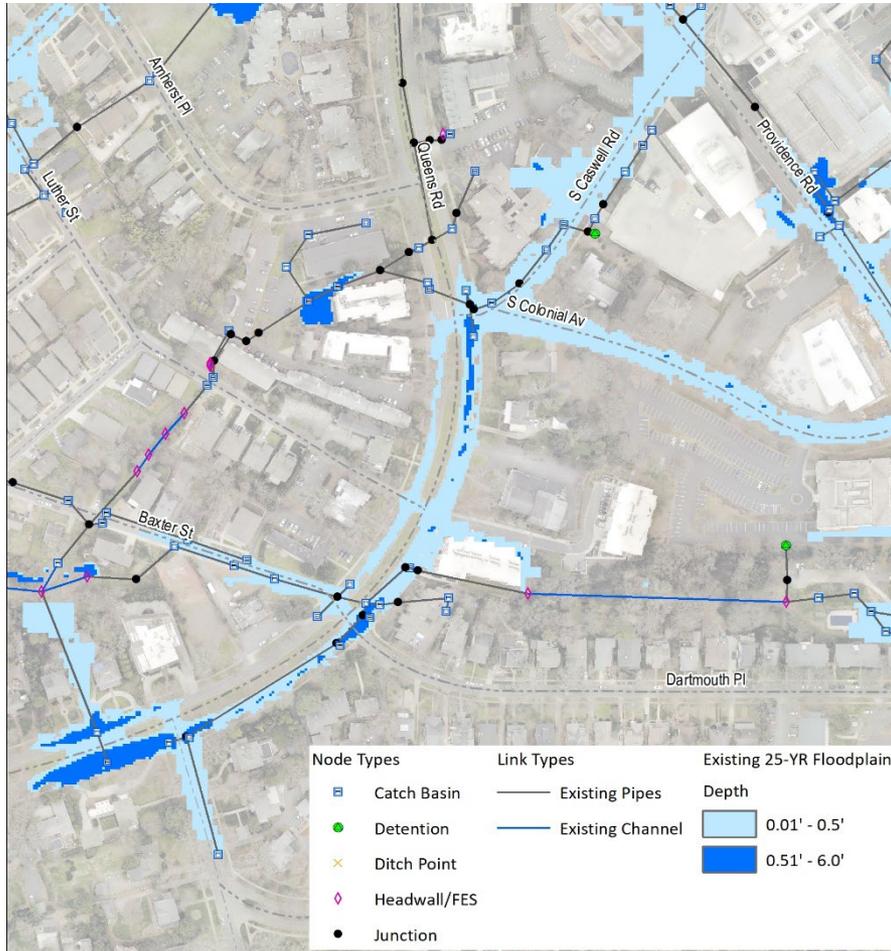
## Existing Condition vs Improved



# 10-Year Storm Events Flood Maps Existing Condition vs Improved



# 25-Year Storm Events Flood Maps Existing Condition vs Improved



# Next Steps

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- ◁ Additional information obtained during this meeting will be considered and incorporated into the proposed alternatives, where applicable.
- ◁ The alternative will be finalized
- ◁ Design phase will begin once a design contract is secured
- ◁ Another public meeting will be held once the City has produced design plans that are approximately 75% complete and the real estate phase begins.

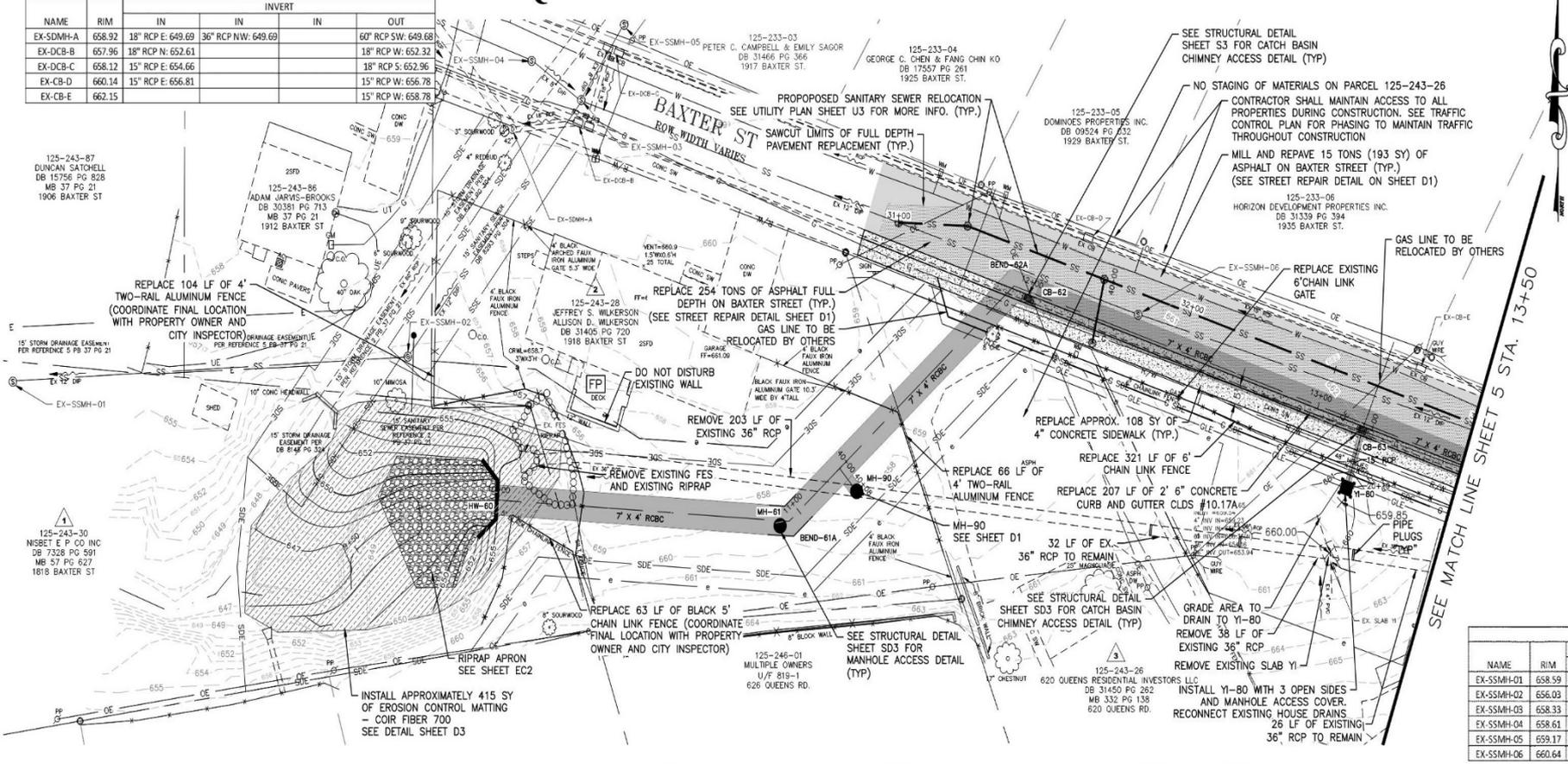


# Reference Slide 2

## Recently completed project construction plan sheet along Baxter Street

### QUEENS RD PHASE II STORM DRAINAGE IMPROVEMENTS

NAME	RIM	EXISTING STORM TABLE			
		INVERT			
		IN	IN	IN	OUT
EX-SDMH-A	658.92	18" RCP E: 649.69	36" RCP NW: 649.69		60" RCP SW: 649.68
EX-DCB-B	657.96	18" RCP N: 652.61			18" RCP W: 652.32
EX-DCB-C	658.12	15" RCP E: 654.66			18" RCP S: 652.96
EX-CB-D	660.14	15" RCP E: 656.81			15" RCP W: 656.78
EX-CB-E	662.15				15" RCP W: 658.78



NAME	RIM
EX-SSMH-01	658.59
EX-SSMH-02	656.03
EX-SSMH-03	658.33
EX-SSMH-04	658.61
EX-SSMH-05	659.17
EX-SSMH-06	660.64

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# Questions?

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- ◁ Meeting presentation will be posted on the project website:
  - <https://charlottenc.gov/StormWater/Projects/Pages/Queens.aspx>
  
- ◁ If you have specific property questions email or call:
  - **Kate Goodman**
  - **(980) 293-1464**
  - **Kate.Goodman@charlottenc.gov**