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# Valleybrook Storm Drainage Improvement Project

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

# Project Team

## Engineering

**Shawn McDonald**  
Project Manager  
Storm Water Services  
City of Charlotte



**Katherine Goodman**  
Senior Project Manager  
Storm Water Services  
City of Charlotte



## Consultant

**Andrew Martin**  
Project Manager  
Design Consultant  
ESP Associates, Inc



## Communications

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



# Program Overview

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## City of Charlotte Storm Water Services

- ▶ Mission: To serve the City of Charlotte by improving surface waters and conveying rainwater safely through well-maintained storm drainage systems.
- ▶ We maintain, repair and replace aging infrastructure, reduce flood risks, protect and improve surface waters, and educate the community about stormwater.
- ▶ Investigate and evaluate reported drainage concerns to identify future storm drainage improvements.

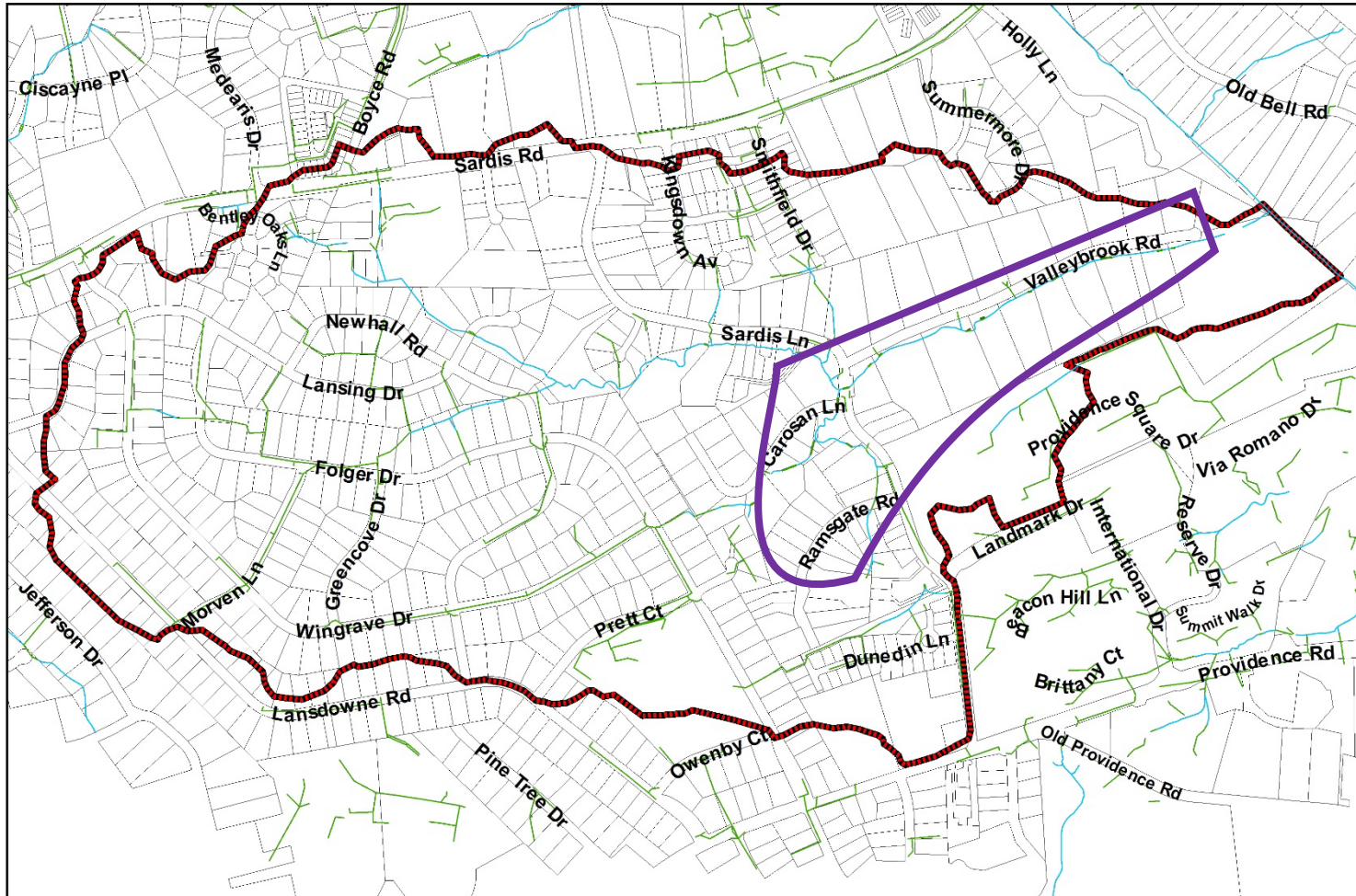
# Project Selection

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## Why are we here:

- ▶ Drainage concerns reported by property owners
- ▶ Observed flooding events
- ▶ Aging and deteriorating infrastructure
- ▶ Inadequate infrastructure
- ▶ Previous public meeting held 3/1/2022 to present design alternatives and selected alternative. Public feedback provided necessitated further investigation into additional alternatives.

# Project Area



- ▶ Watershed: 435 acres.
- ▶ 1,330 feet of closed pipe system
- ▶ 3,750 feet of open channels
- ▶ 44 reported drainage concerns

# Planning Phase

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## Process:

- ▶ Survey of topographic and underground utility data
- ▶ Existing Conditions Analysis to determine system function and condition
- ▶ Hydrologic/Hydraulic Analysis to identify alternatives
- ▶ Selection of preferred alternative



# Resident Involvement

- ▶ Flooding
- ▶ Erosion
- ▶ Culvert Impairments
- ▶ Blockages
- ▶ Public Meeting Input



# Resident Involvement





# Resident Involvement

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## During the project:

- ▶ Project update mailers at various project stages
- ▶ Project Webpage Updates:  
<https://charlottenc.gov/StormWater/Projects/Pages/Valleybrook.aspx>
- ▶ Email and phone communication with individual property owners as needed

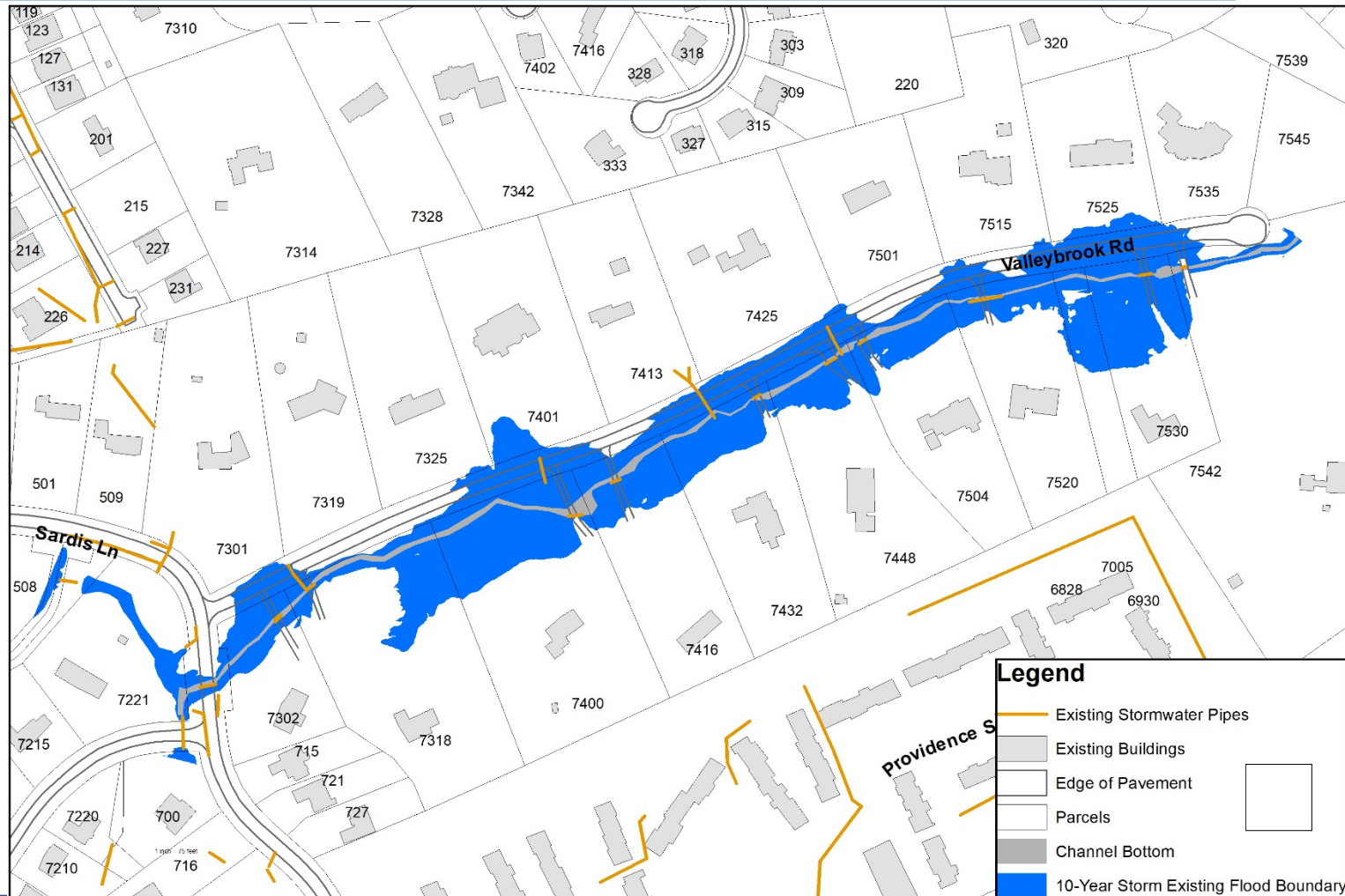
# Flood Mapping

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## Computer Models Built to Analyze and Illustrate Predicted Extent of Flooding:

- ▶ 2-Year Storm Event – 50 percent chance of a specific storm event occurring in any given year
- ▶ 5-Year Storm Event – 20 percent chance of a specific storm event occurring in any given year.
- ▶ 10-Year Storm Event – 10 percent chance of a specific storm event occurring in any given year.
- ▶ 100-Year Storm Event – 1 percent chance of a specific storm event occurring in any given year.

# Existing Conditions Flood Map



# Previous Alternatives Summary

## Alternative A

### Design:

- ▶ Remove flooding in 100-year storm event
- ▶ Create a flood bench ( $\pm 120'$ )
- ▶ Replace and upsize driveway culverts

### Anticipated Cost:

- ▶ \$24,800,000

## Alternative B

### Design:

- ▶ Remove flooding in 10-year storm event
- ▶ Create a flood bench ( $\pm 35'$ )
- ▶ Replace and upsize driveway culverts

### Anticipated Cost:

- ▶ \$7,500,000

## Alternative C

### Design:

- ▶ Remove flooding in 10-year event
- ▶ Install an 8'x5' RCBC down Valleybrook Road
- ▶ Replace cross systems
- ▶ Additional sewer line replacements
- ▶ No driveway culvert replacements

### Anticipated Cost:

- ▶ \$11,600,000

## Alternative D

### Design:

- ▶ Keep road dry during 10-year storm event
- ▶ Raising the elevation of the grade of Valleybrook Road
- ▶ Creating a roadside ditch on the eastern side
- ▶ Improving the cross pipes

### Anticipated Cost:

- ▶ \$4,300,000

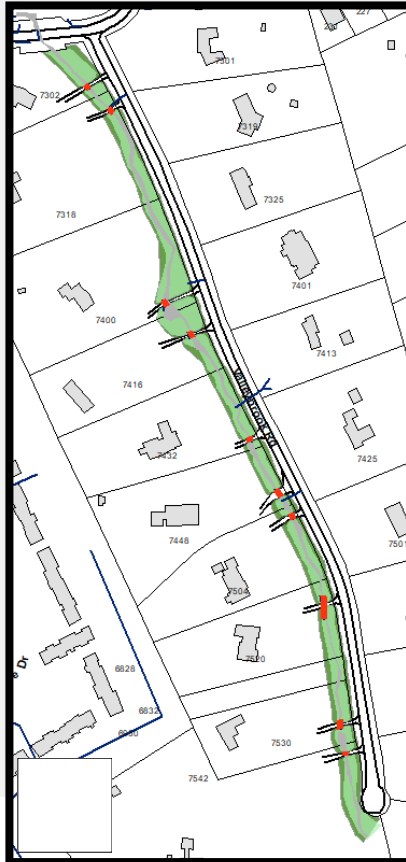


# Previous Alternatives Summary: Design

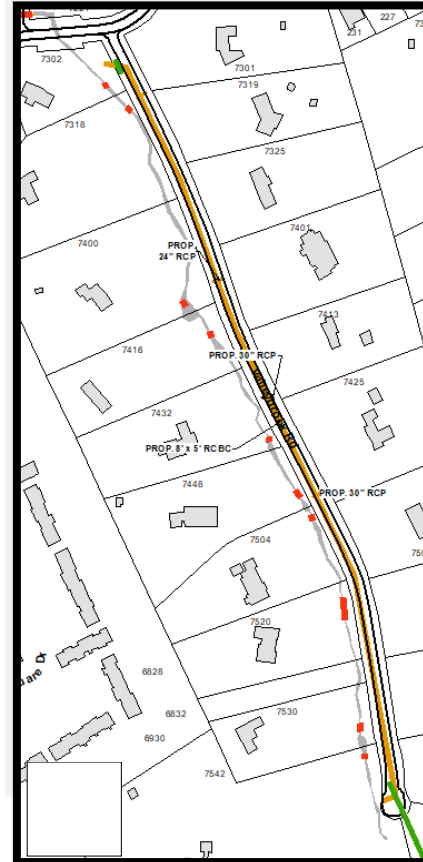
Alternative A



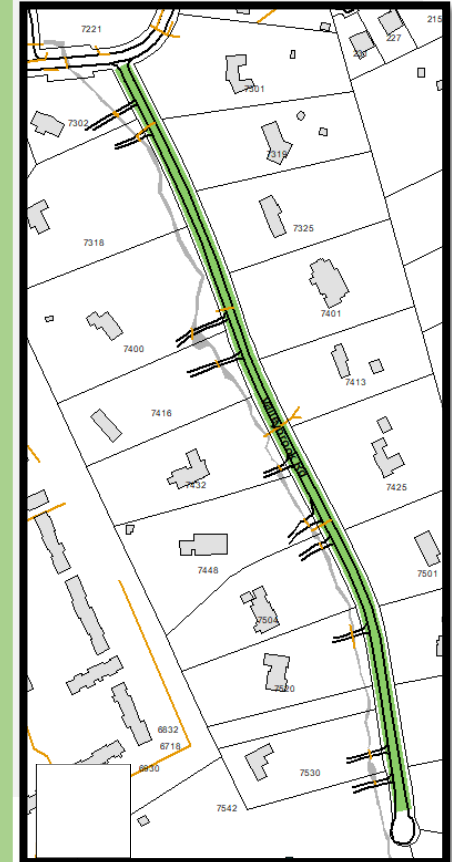
Alternative B



Alternative C

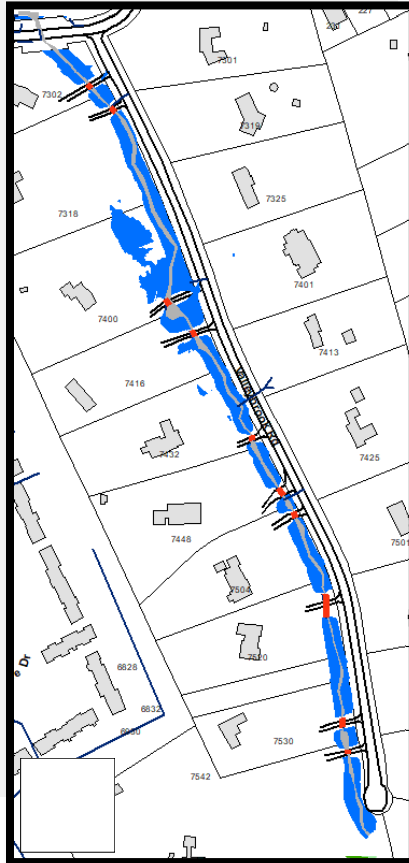


Alternative D

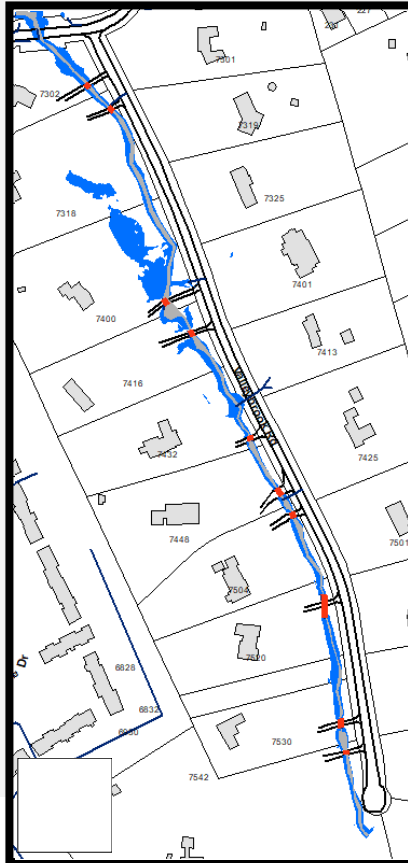


# Previous Alternatives Summary: Inundation

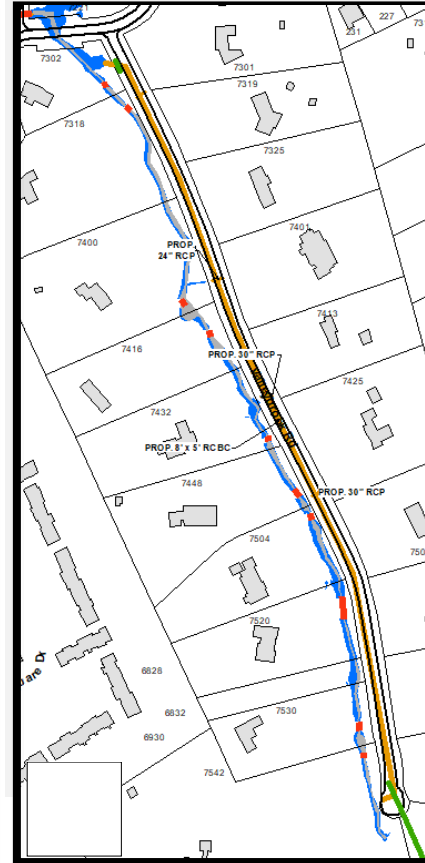
Alternative A



Alternative B



Alternative C



Alternative D



\*Inundation is shown during the 10-year storm event for all alternatives.

# Alternative E

## Goal:

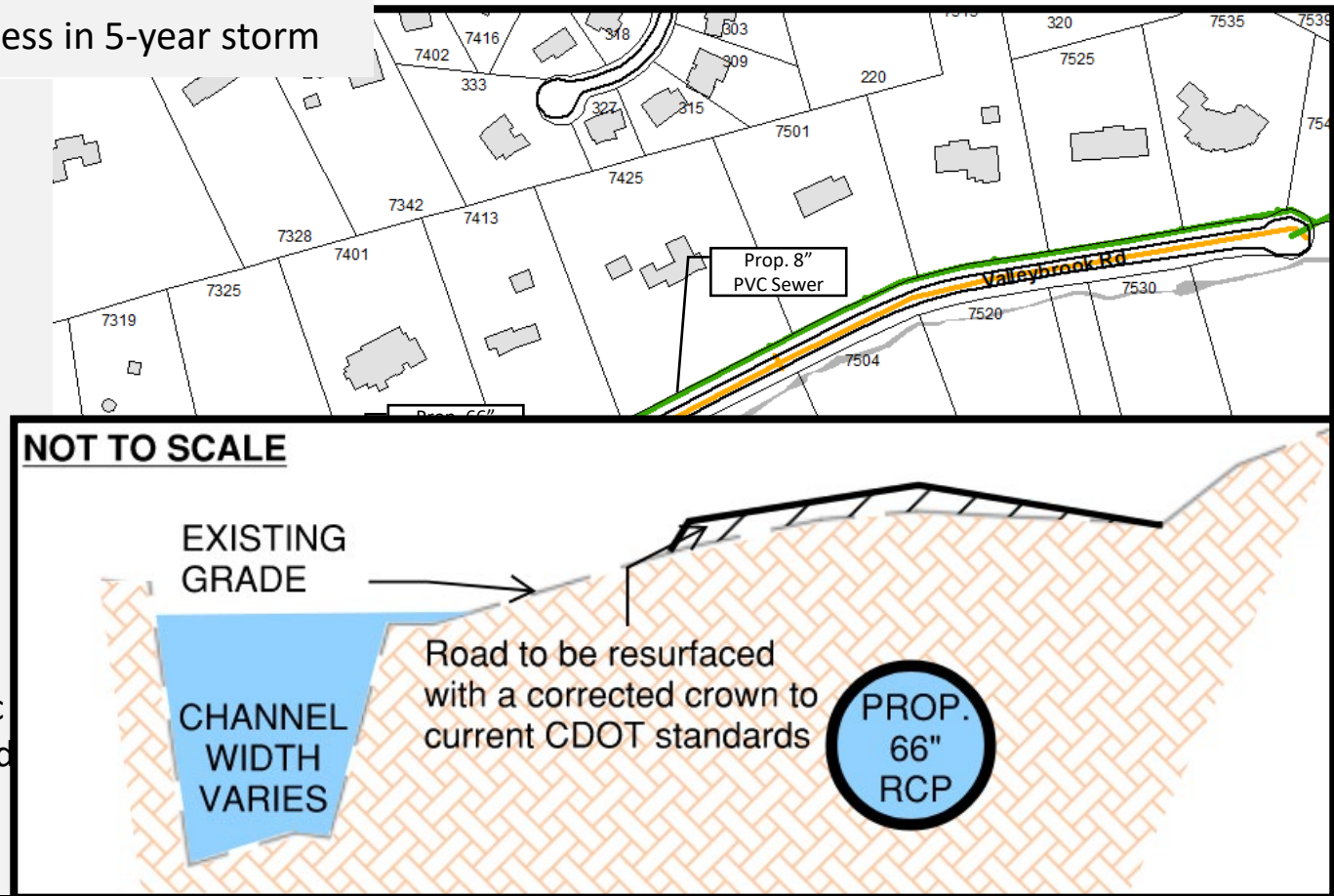
- ▶ Emergency vehicle access in 5-year storm

## Design:

- ▶ Install a 66" storm pipe down Valleybrook Road
- ▶ Replace cross systems
- ▶ Associated utility improvements
- ▶ No driveway culvert replacements
- ▶ Limited work on private property
- ▶ Little effect on aesthetic look of Valleybrook Road

## Anticipated Cost:

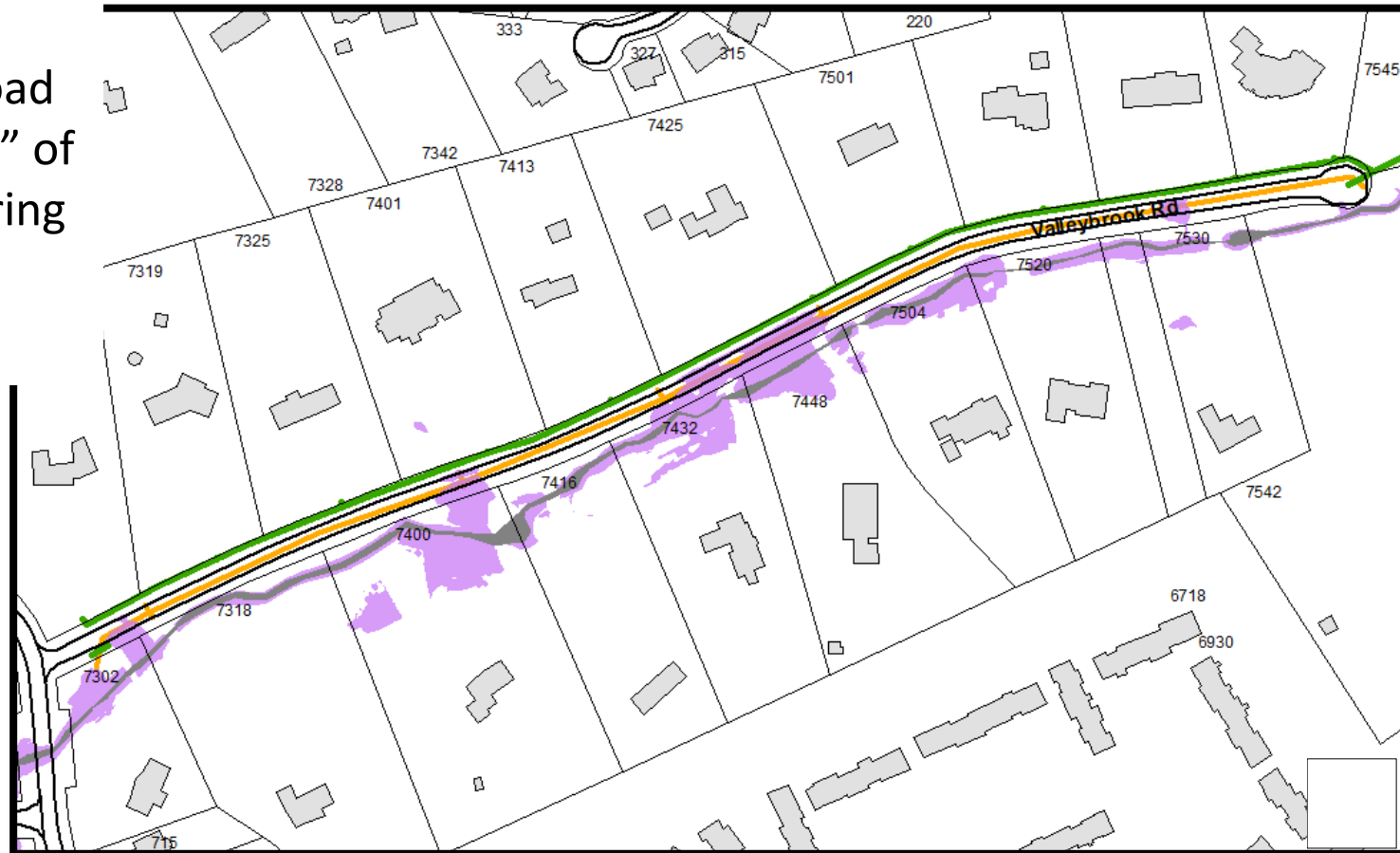
- ▶ \$5,600,000



# Alternative E

## Flood Map

- ▶ Valleybrook Road has less than 6" of inundation during 5-Year storm



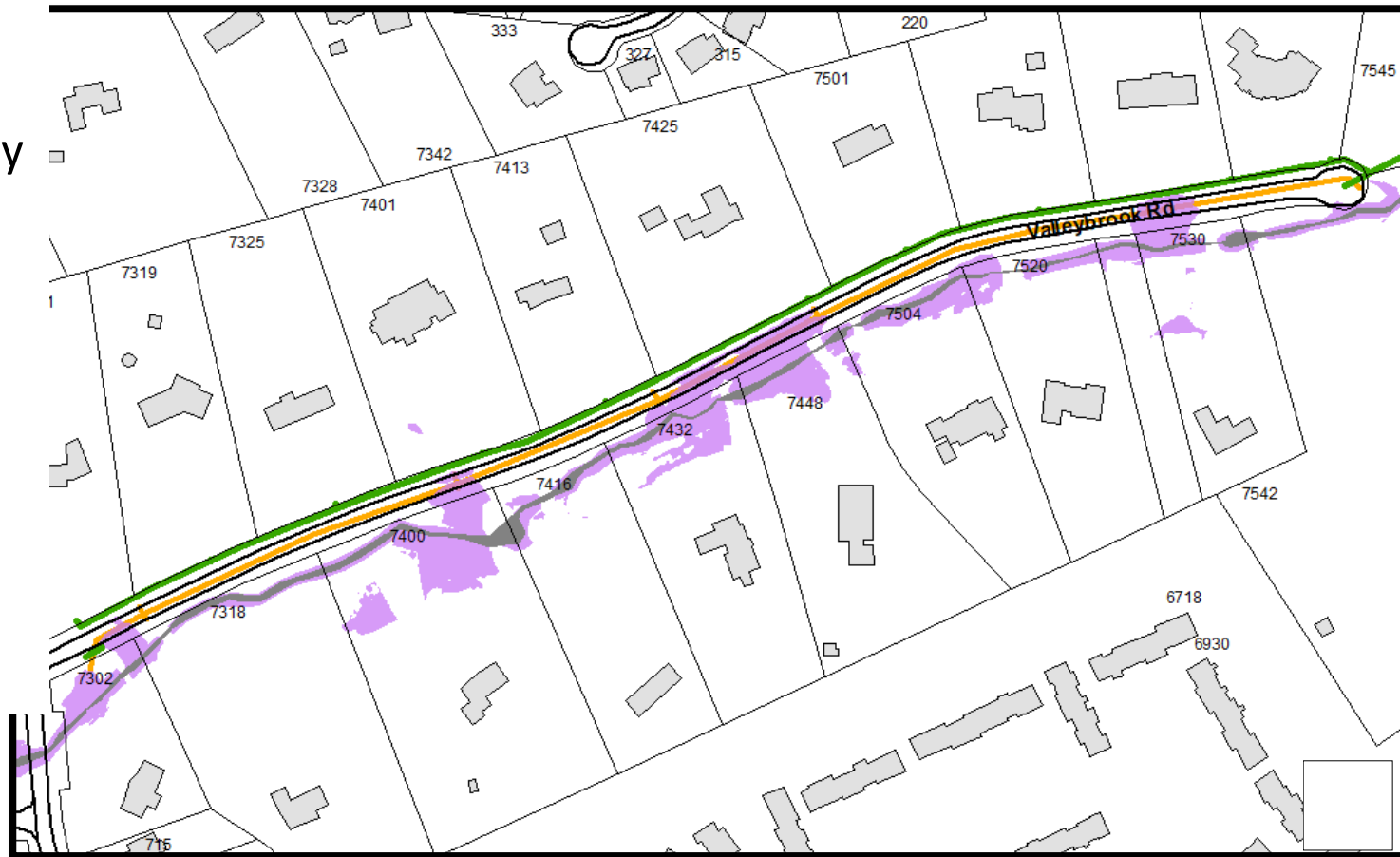
\*Inundation is shown during the 5-year storm event.



# Alternative E: McAlpine

## Flood Map

- ▶ McAlpine is a FEMA floodway
- ▶ Southern portion of Valleybrook Road will be inundated in larger storm events



\*Inundation is shown during the 5-year storm event.

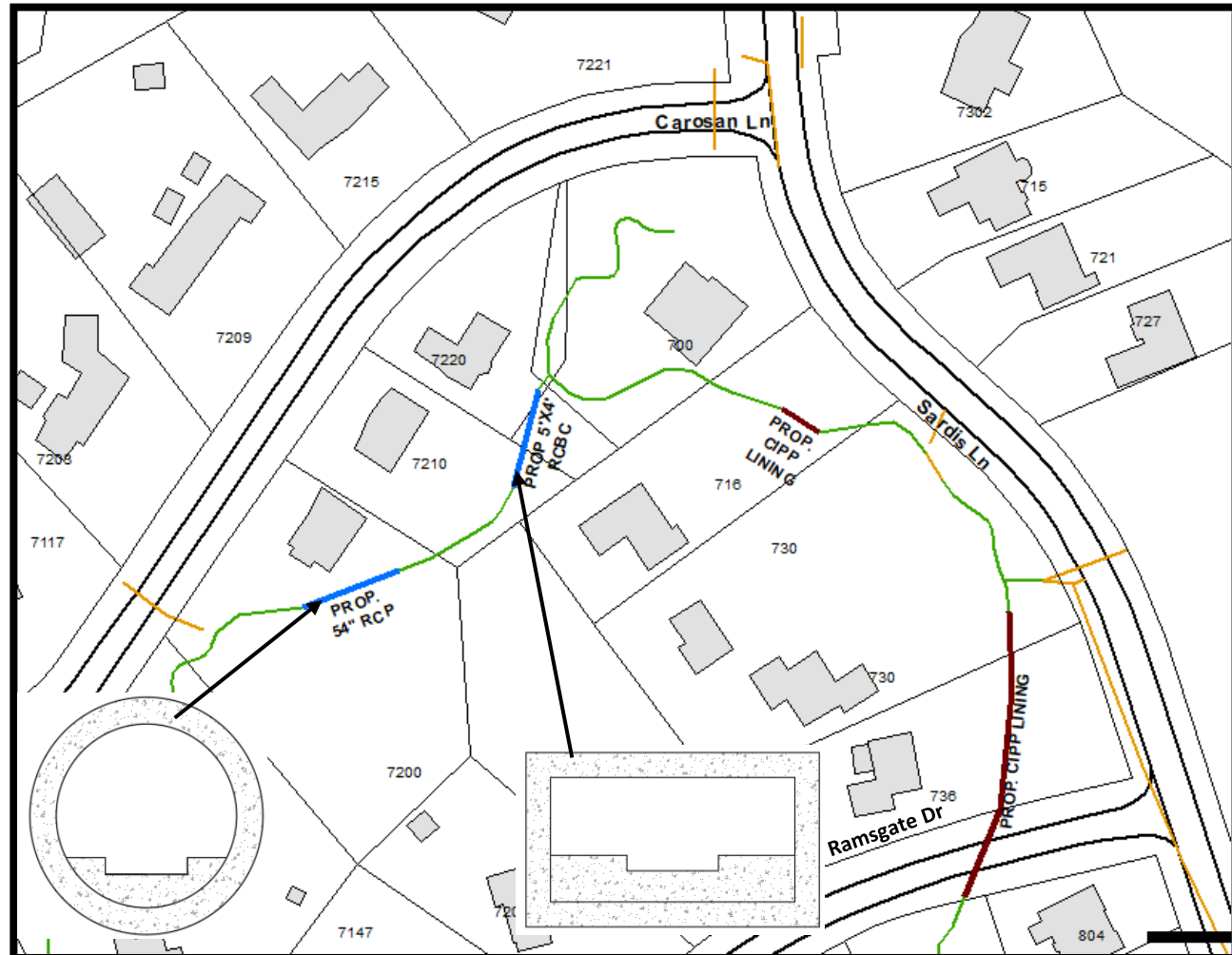
# Alternative E: Northern Culverts

## Design:

- ▶ Re-evaluated northern culverts for Alternative E
- ▶ Culvert invert buried minimum 1'
- ▶ Dry weather flow consistent in culvert

## Anticipated Cost:

- ▶ \$703,000



# Next Steps

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- ▶ Additional information obtained during this meeting will be considered and incorporated into the additional alternative, where applicable
- ▶ The alternative will be finalized
- ▶ Design phase will begin
- ▶ Another public meeting will be held once the City has produced plans that are approximately 70% complete
- ▶ Real Estate Acquisitions and Bidding phase will begin
- ▶ Construction will begin in 2-3 years

# Questions?

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- ▶ Please add any questions or comments using the Q&A feature
  
- ▶ Meeting recording will be posted on the project website:
  - <https://charlottenc.gov/StormWater/Projects/Pages/Valleybrook.aspx>
  
- ▶ If you have specific property questions email or call:
  - **Shawn McDonald, Project Manager**
  - **(980) 297-9243**
  - **Shawn.McDonald@charlottenc.gov**



# Thank you for joining us!



Scan QR code to take  
the Public Meeting Survey

# We welcome your feedback.