



Cross Creek Channel Improvements: Preliminary Design Scope of Services

City Council Work Session:
August 4, 2025

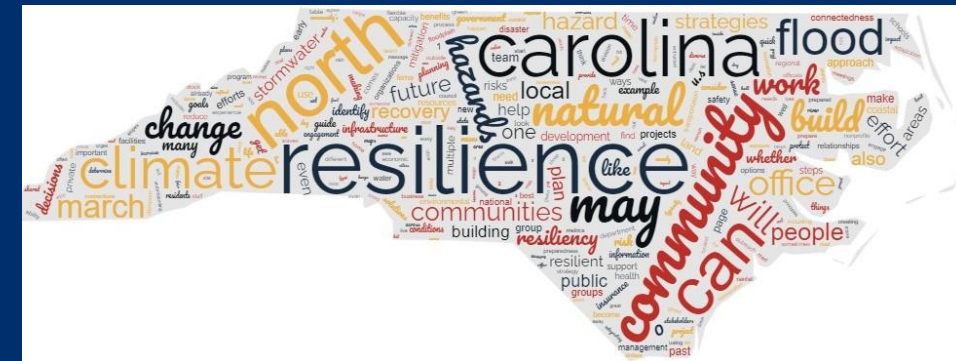
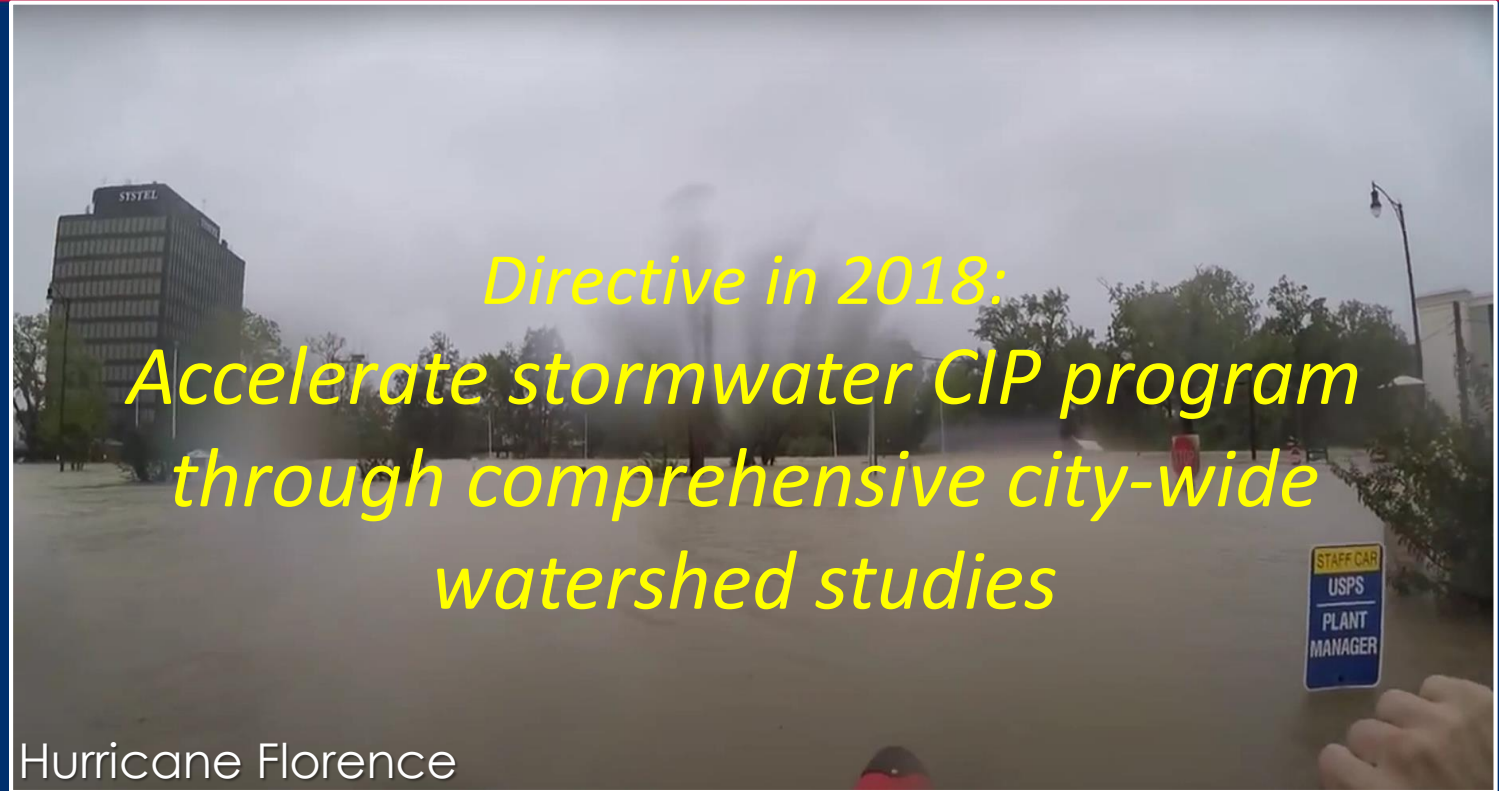


- Introduction:
 - Provide an overview of Watershed Studies - *City*
 - Provide an overview of Cross Creek Watershed – *City*
- Cross Creek Channel Improvements:
 - Present scope of work for 15% Design – *Hazen Sawyer*
 - Request consensus to proceed with the 15% Design - *City*

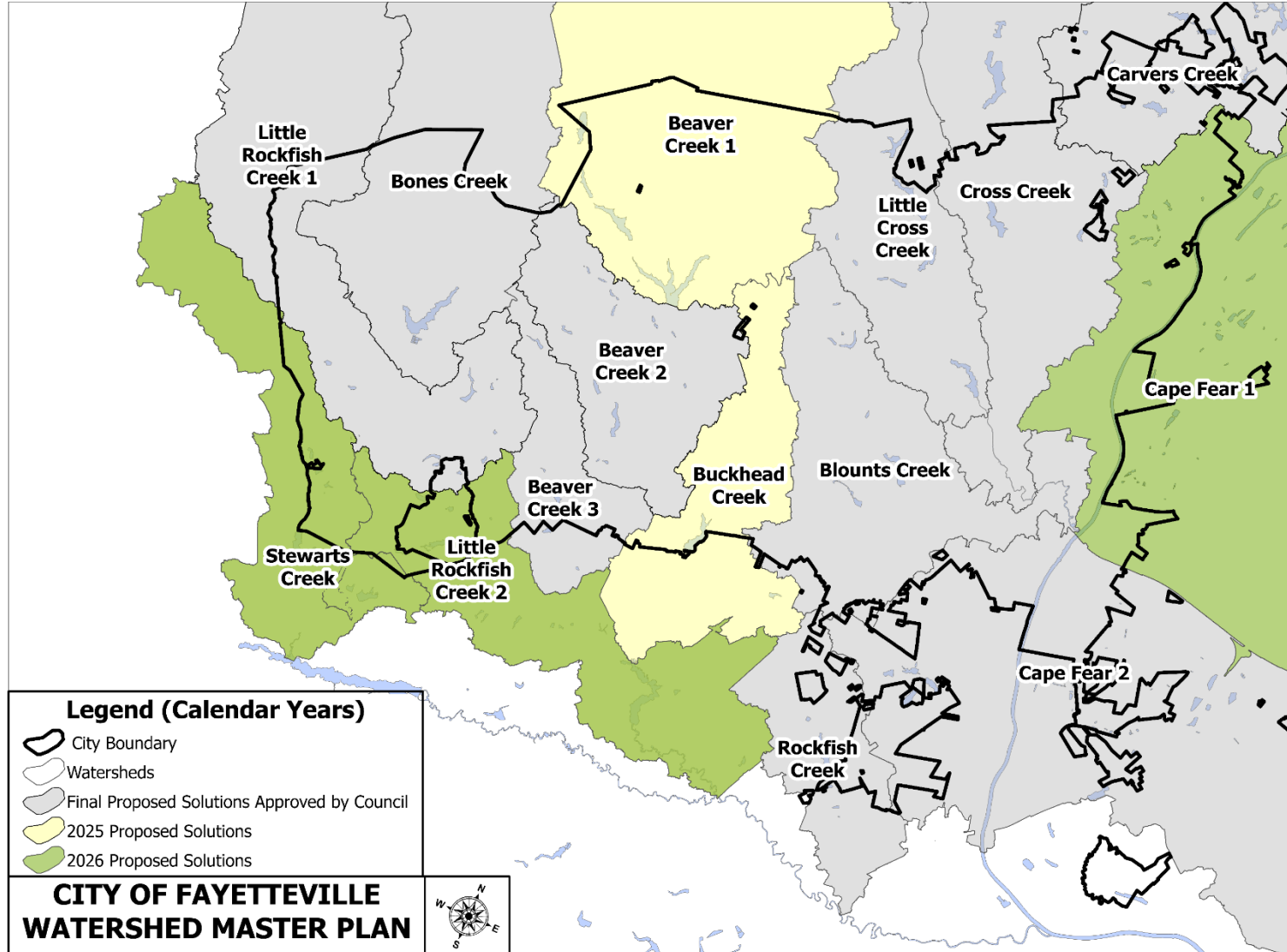




Visualize a Flood Resilient Fayetteville



Proposed Solutions Approved by Council for CIP



Study Area

755 – Total Sub-basins
227 – Priority I Sub-basins
37 – Sq. Miles

Study Identified

683 – Concern Areas (CAs)
367 – CAs Selected
364 – Proposed Solutions

Miles of Impacted Lane Length
Identified – 177 | Resolved – 132

Number of Traverse Road Crossings
Identified – 638 | Resolved – 443

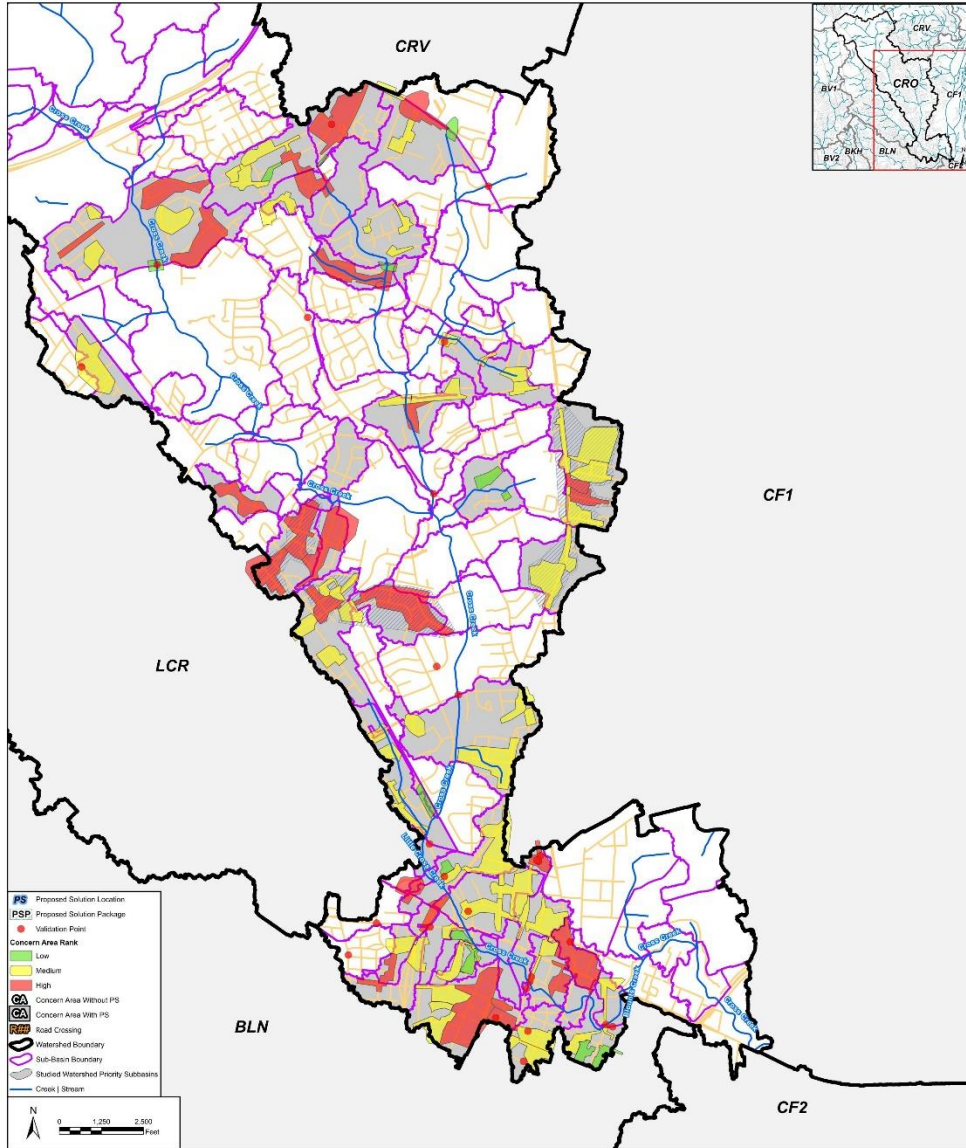
Number of Disconnected Structures
Identified – 2033 | Resolved – 1799

Number of Impacted Structures
10-yr | 25-yr | 50-yr
Identified – 609 | 928 | 1053
Resolved – 420 | 627 | 752

Current Estimated Total Cost \$1.13 B

- 2022 – Started Cross Creek Study
- Sept. 2023 – Presented to Council draft of proposed solutions
- May 2024 – Presented to Council update on proposed solutions
- June 2025 – Presented Final Deliverables to Council
- August 2025 – Presenting Channel Improvements Preliminary Design Proposal to Council





Study Area

128 – Total Sub-basins

42 – Priority I Sub-basins

4.4 – Sq. Miles

Study Identified

108 – Concern Areas (CAs)

83 – CAs Selected

83 - Proposed Solutions

Miles of Impacted Lane Length

Identified – 79.1 | Resolved – 54.7

Number of Traverse Road Hazards

Identified – 405 | Resolved – 286

Number of Disconnected Structures

Identified - 72 | Resolved – 36

Number of Impacted Structures

10-yr | 25-yr | 50-yr

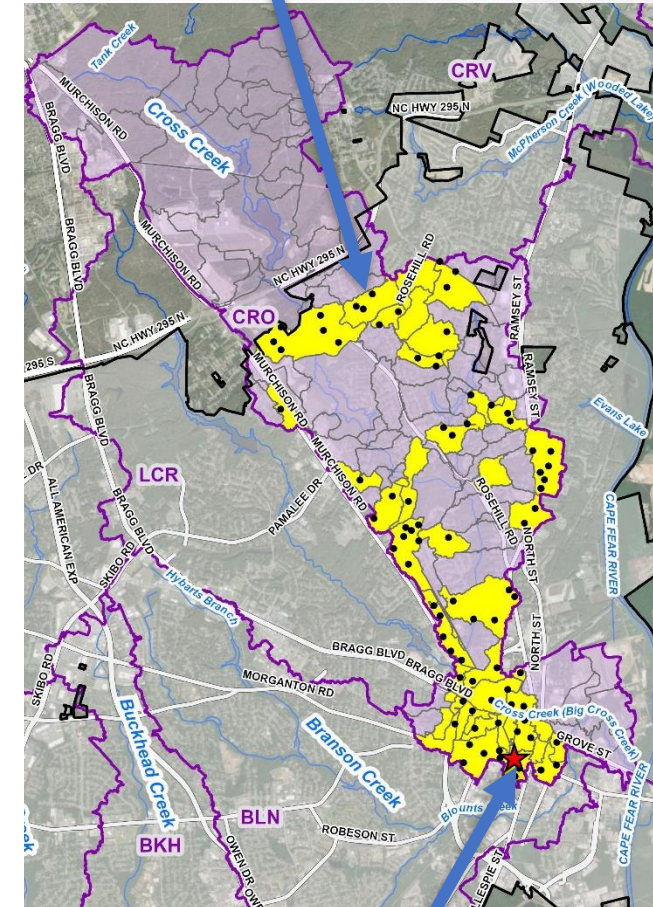
Identified – 148 | 241 | 290

Resolved – 86 | 147 | 163

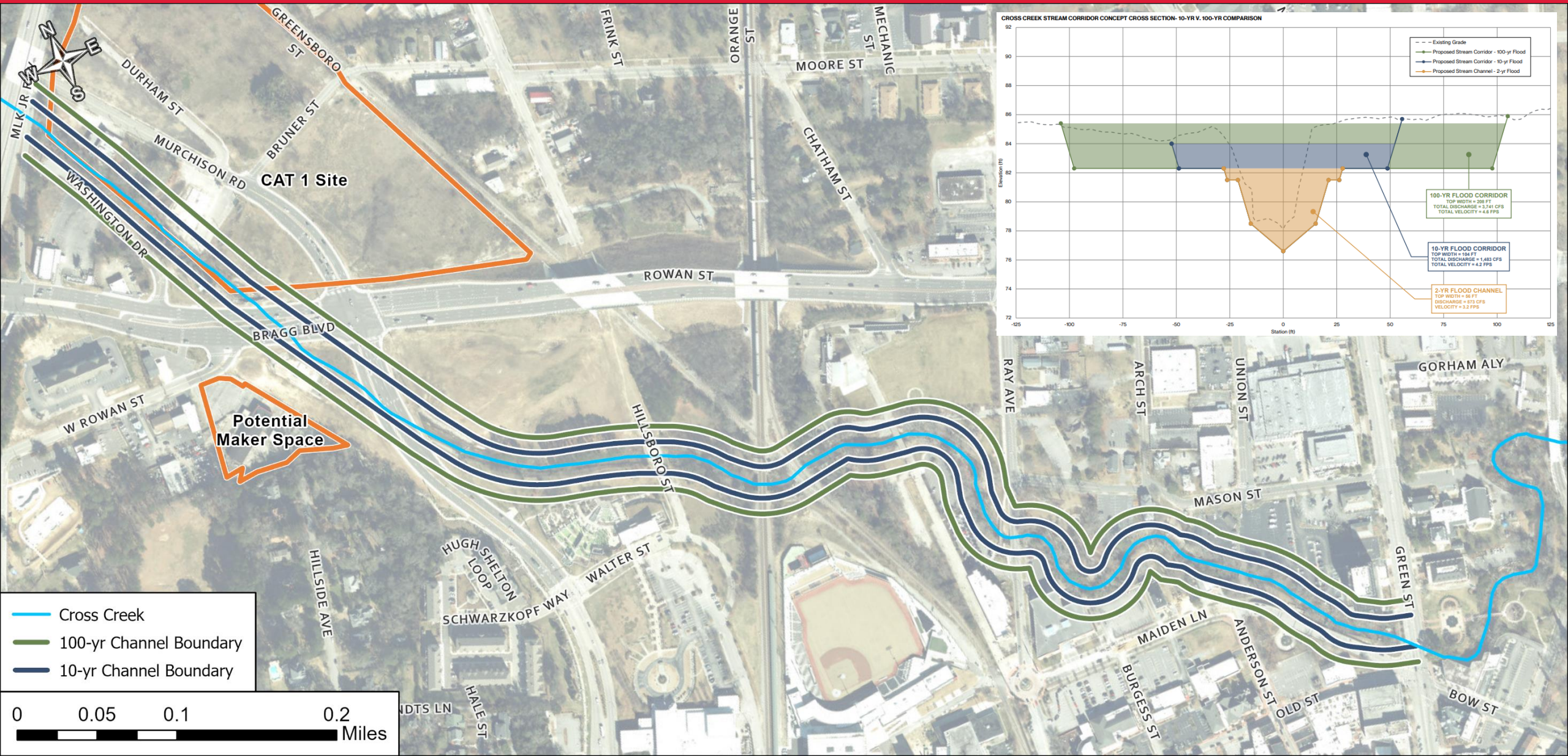
Current Total Cost \$386,600,000*

* Downtown channel improvement project represents \$50M of total cost

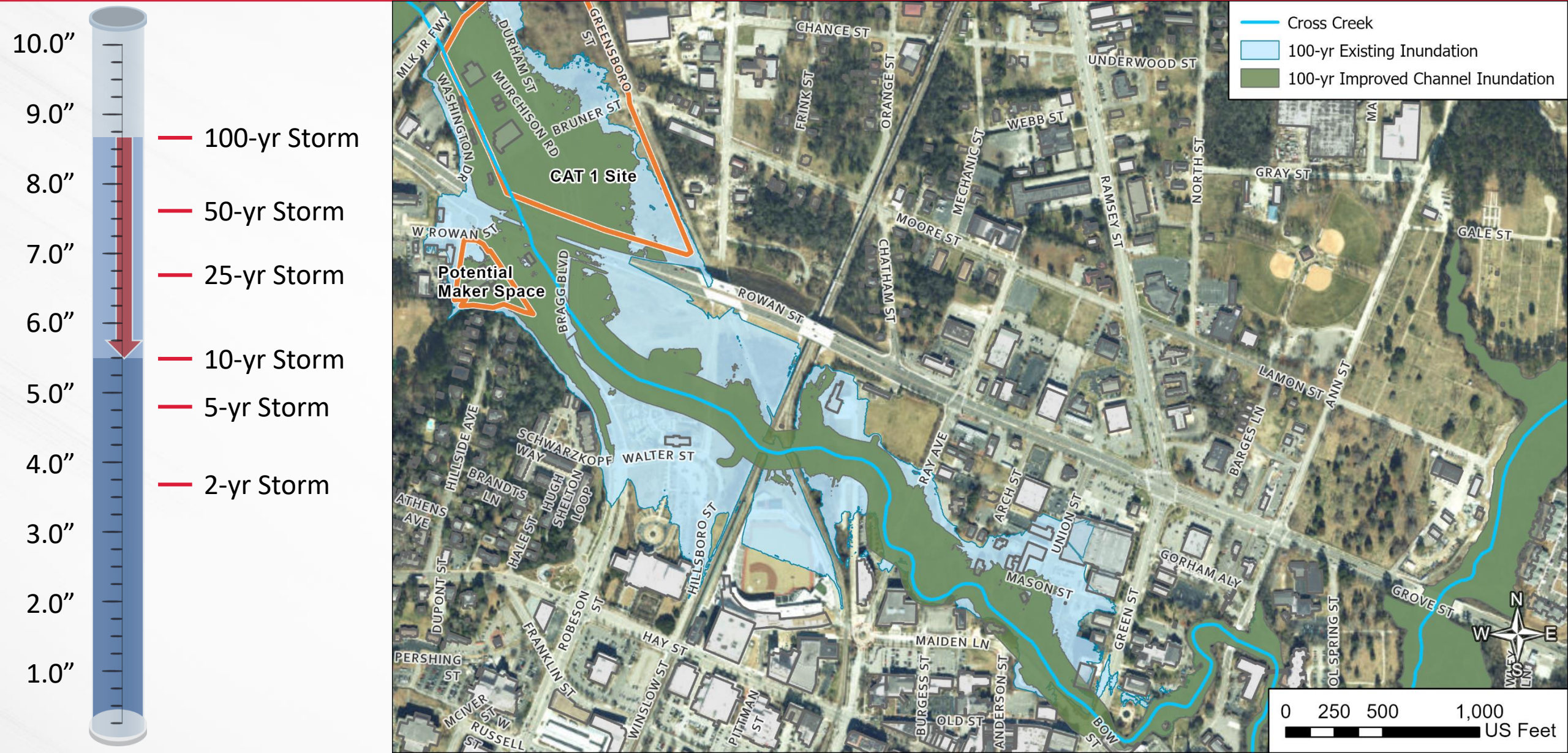
Cross Creek Watershed



Downtown Fayetteville







- Supplemental Survey Data Collection
- Literature Review & Environmental Constraints Analysis
- Alternatives Analysis
- Preliminary Design
 - Including Stakeholder Outreach
 - 15% Design Plans
- Preliminary Design Report
 - Document preliminary design for future project planning, grant applications, and detailed design

Hazen
Hazen and Sawyer
4011 WestChase Blvd., Suite 500
Raleigh, NC 27607 • 919.833.7152



Cross Creek Channel Improvement Preliminary Design Report

Options:

1. Council provides consensus to approve Cross Creek Channel Geometry Improvements Preliminary Design Project to advance to a 15% Design
2. Council does not provide consensus to approve project to advance and remands back to staff with additional guidance.

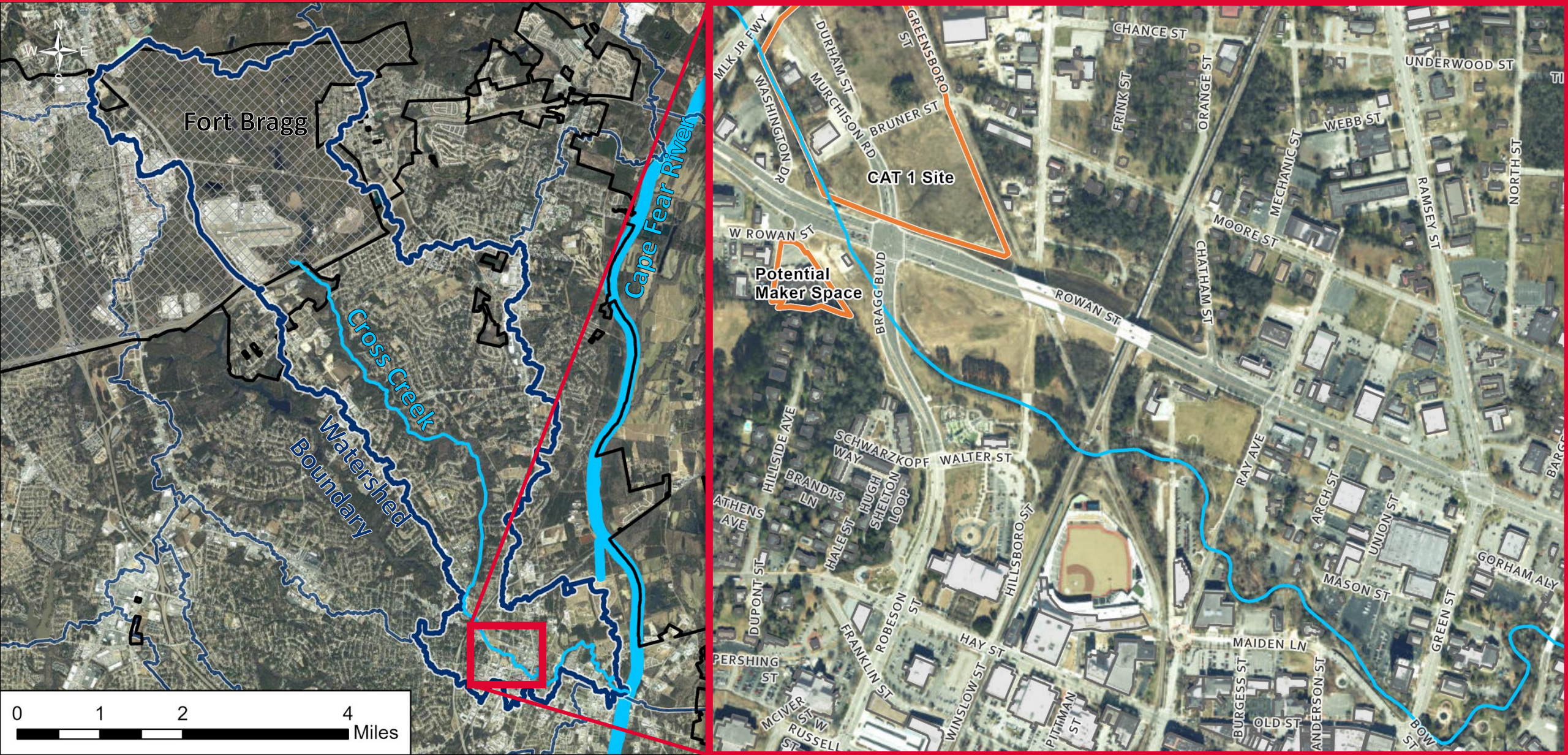
Recommended Action:

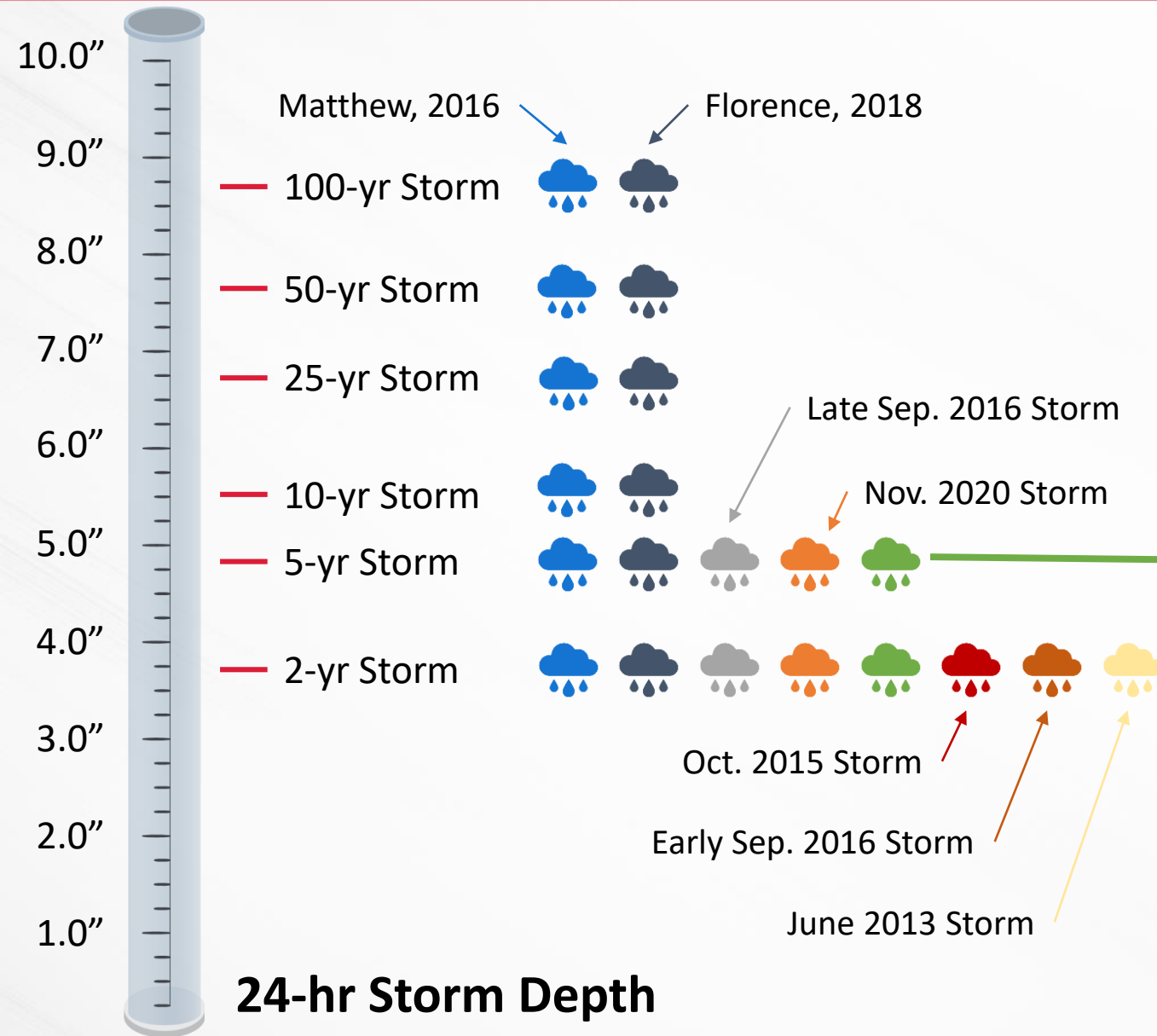
Council provides consensus to approve Cross Creek Channel Geometry Improvements Preliminary Design Project to advance to a 15% Design



Summary of Prior Work







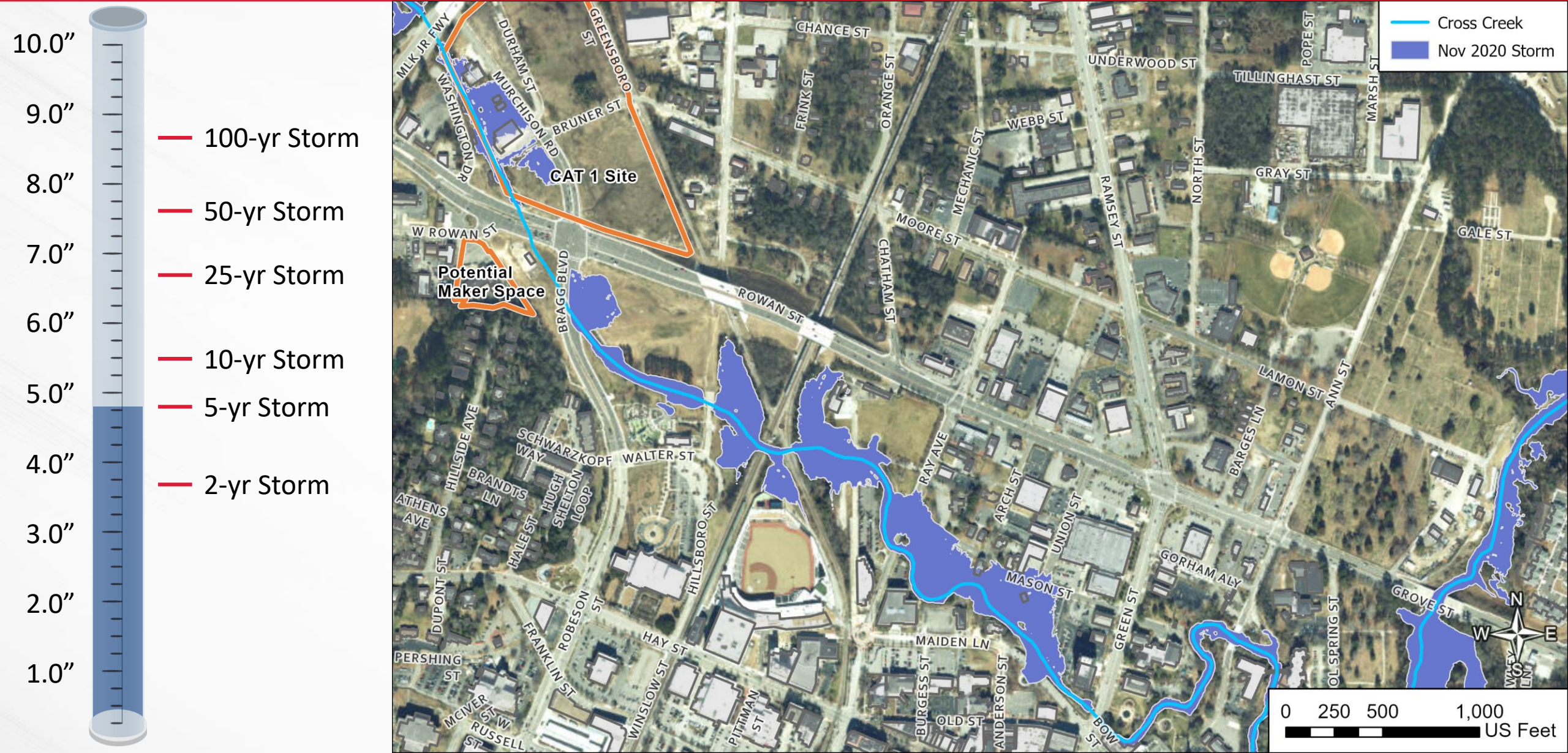
TS Debby Flooding at Festival Park
Aug. 8, 2024



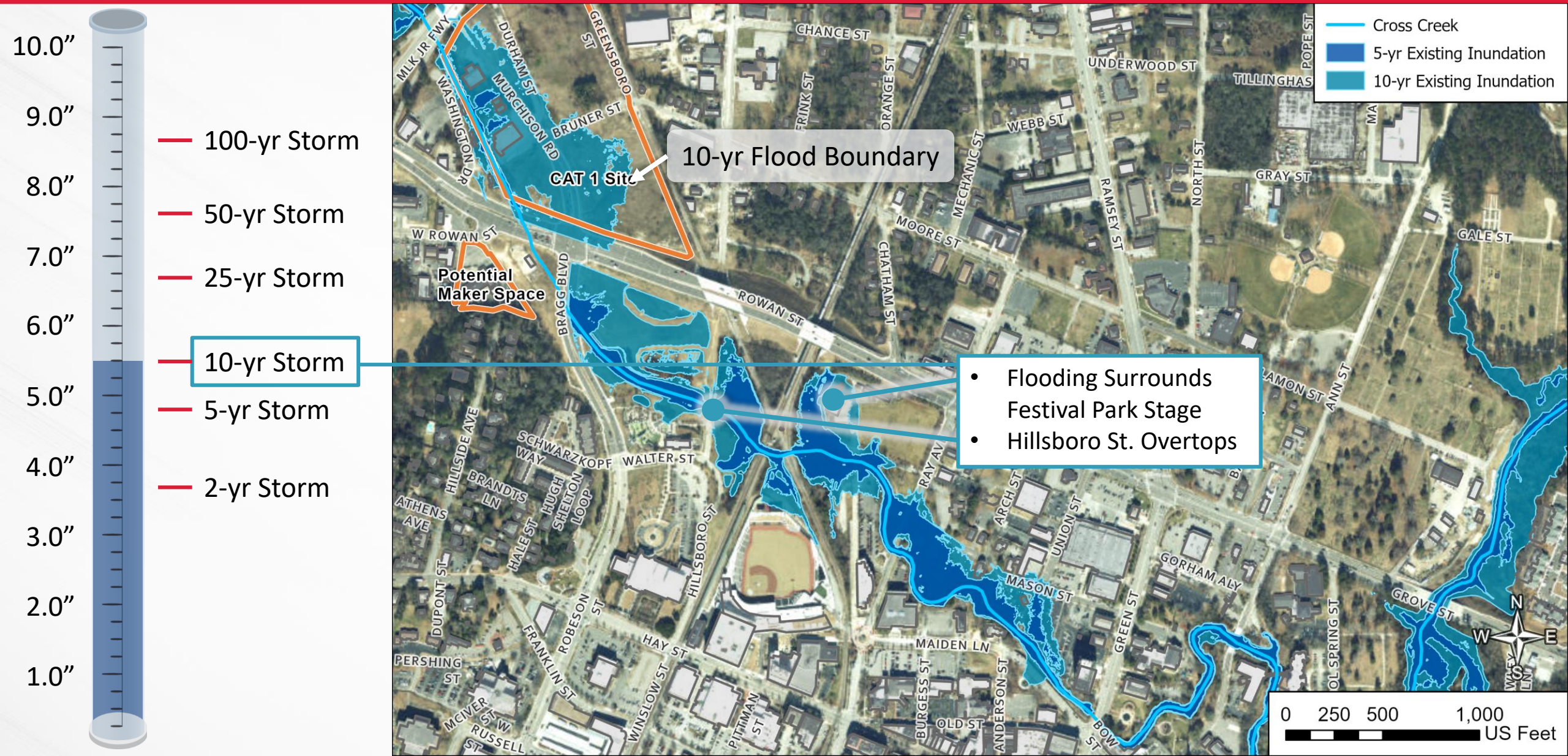
Existing Flooding: 5-yr Storm



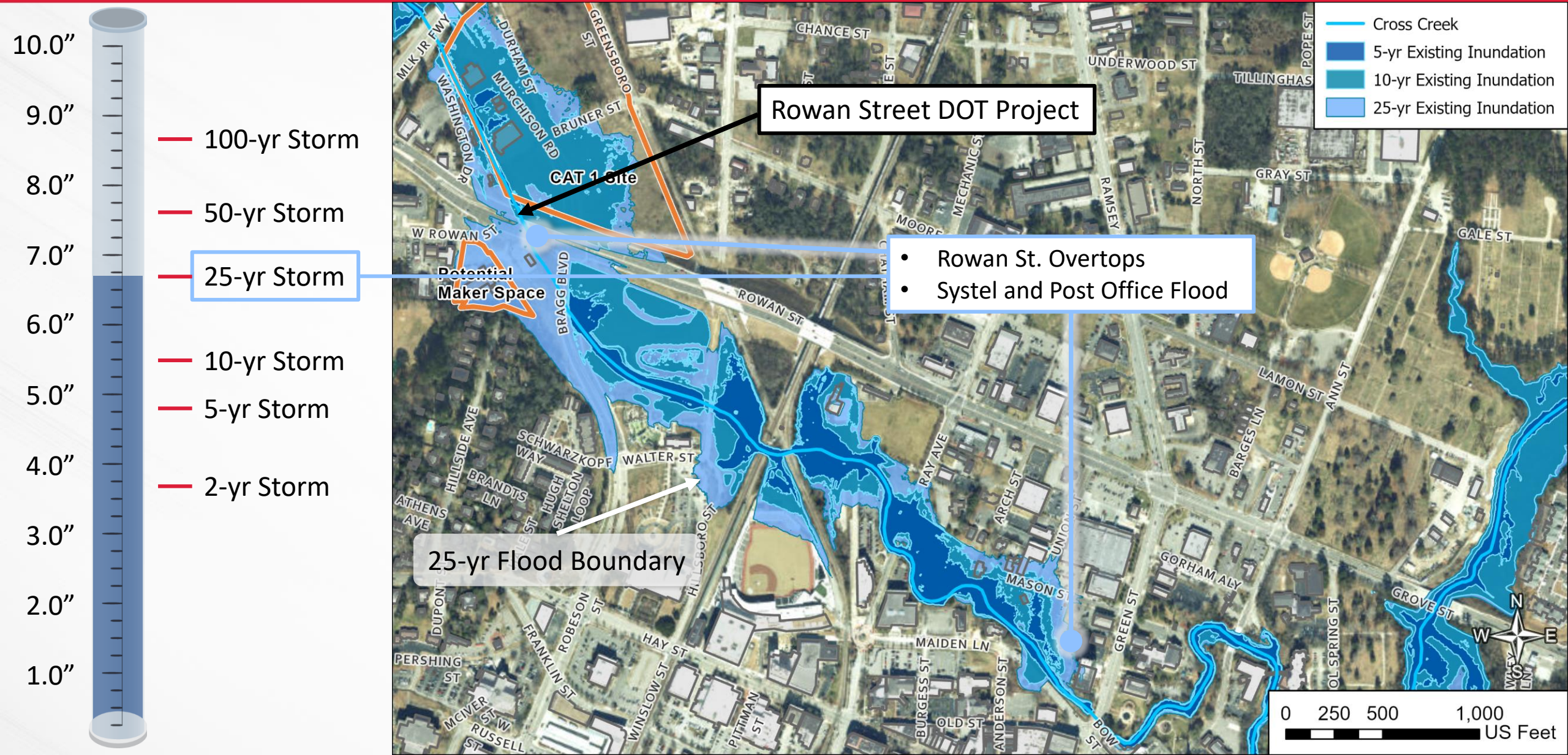
Existing Flooding: November 2020



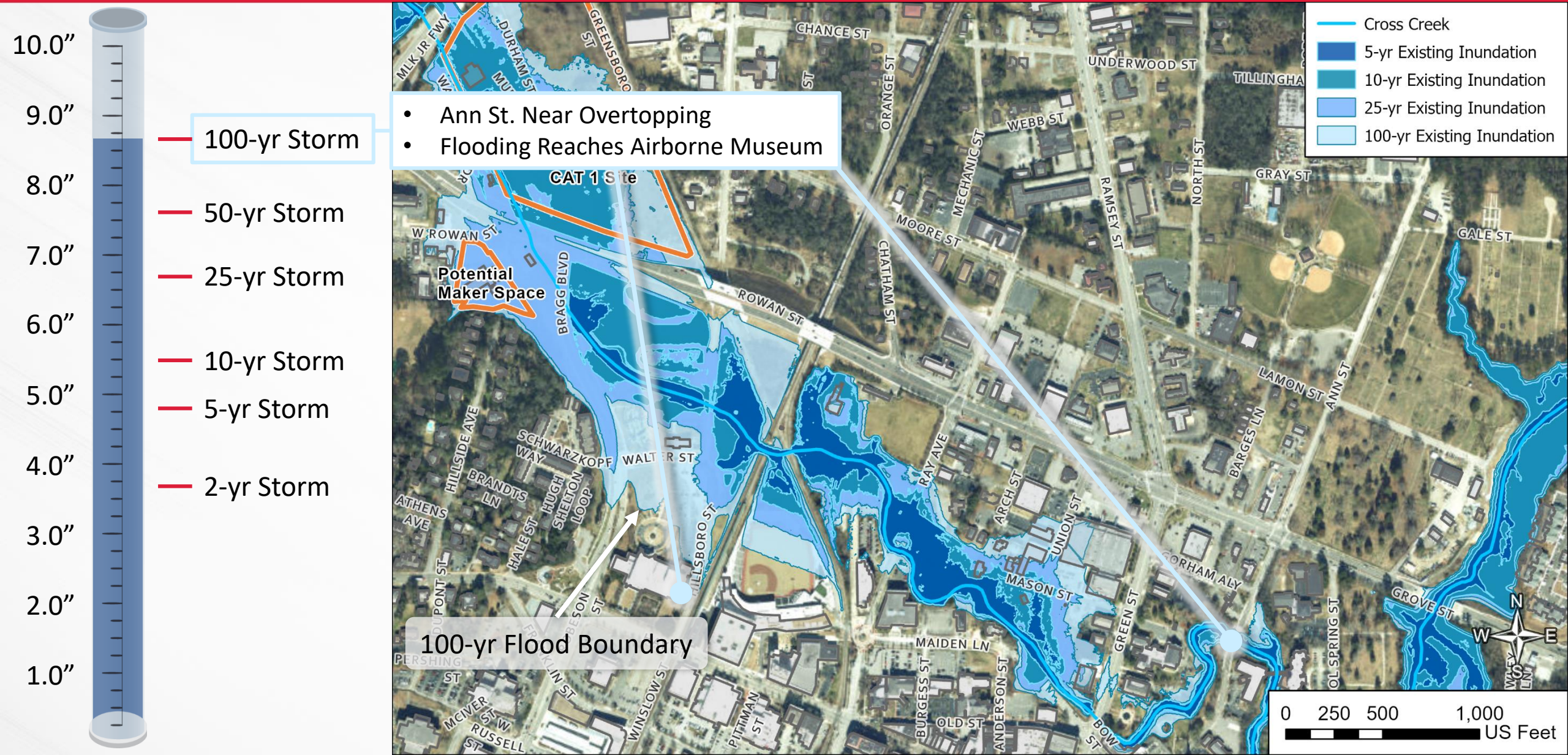
Existing Flooding: 10-yr Storm



Existing Flooding: 25-yr Storm



Existing Flooding: 100-yr Storm



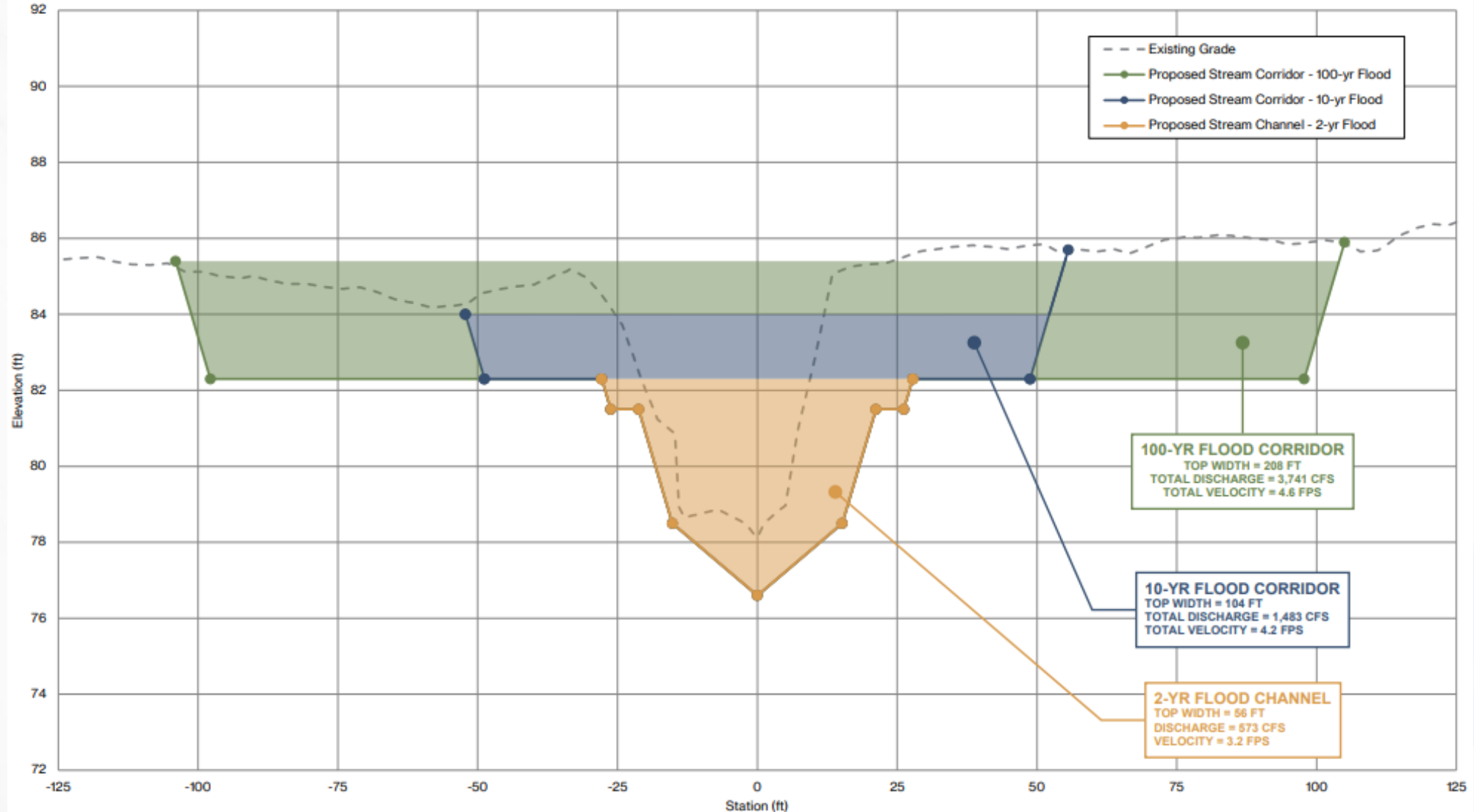
Downtown Channel Geometry

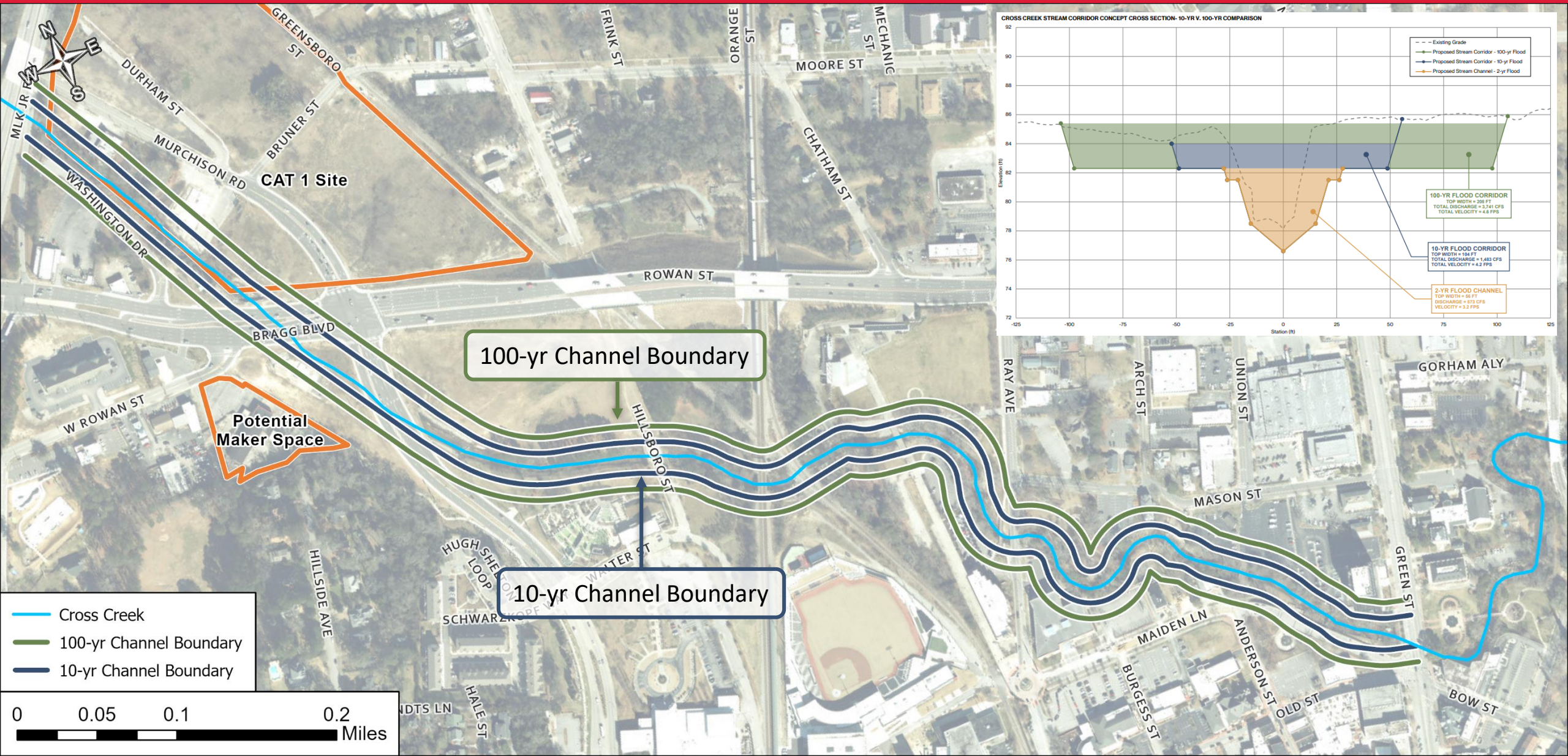




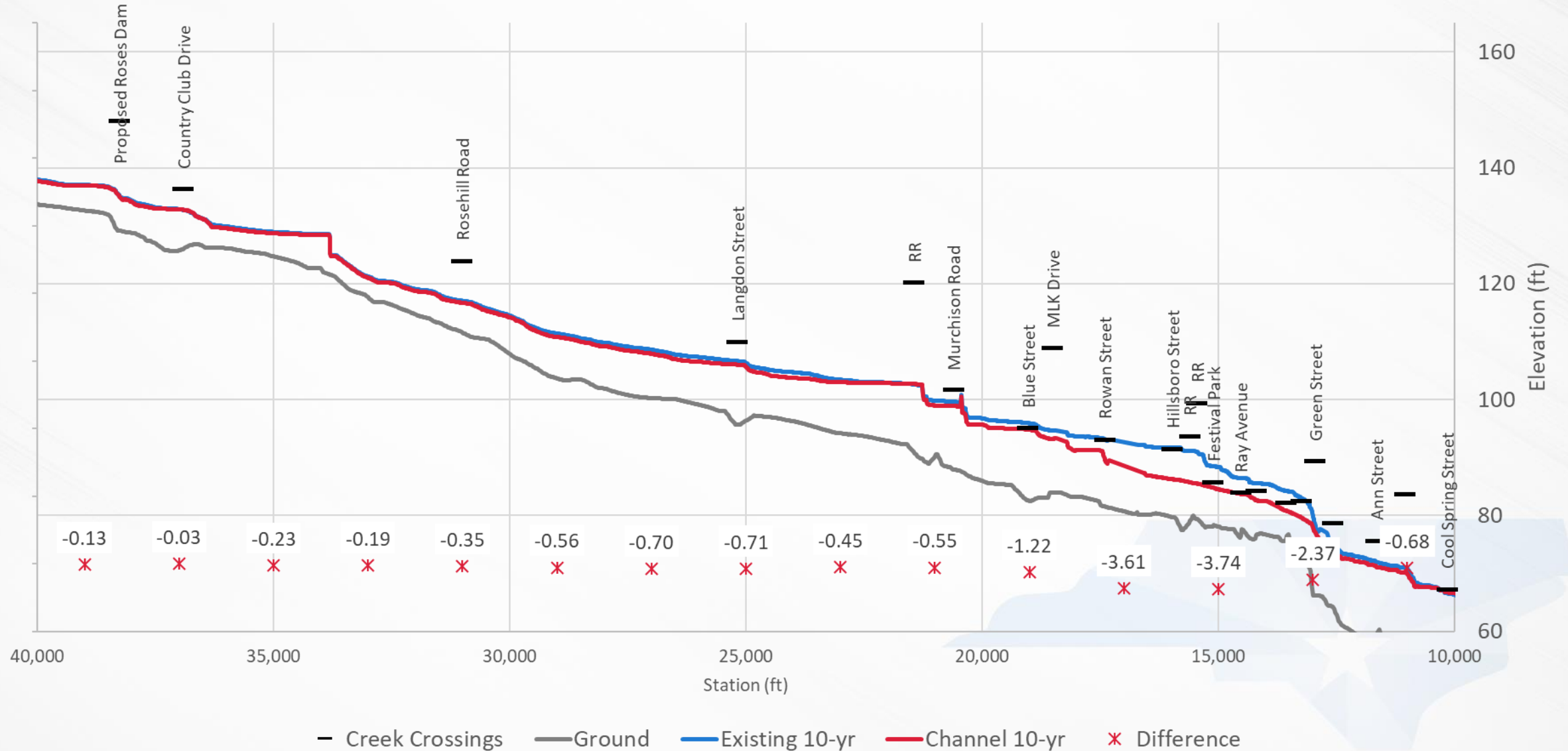


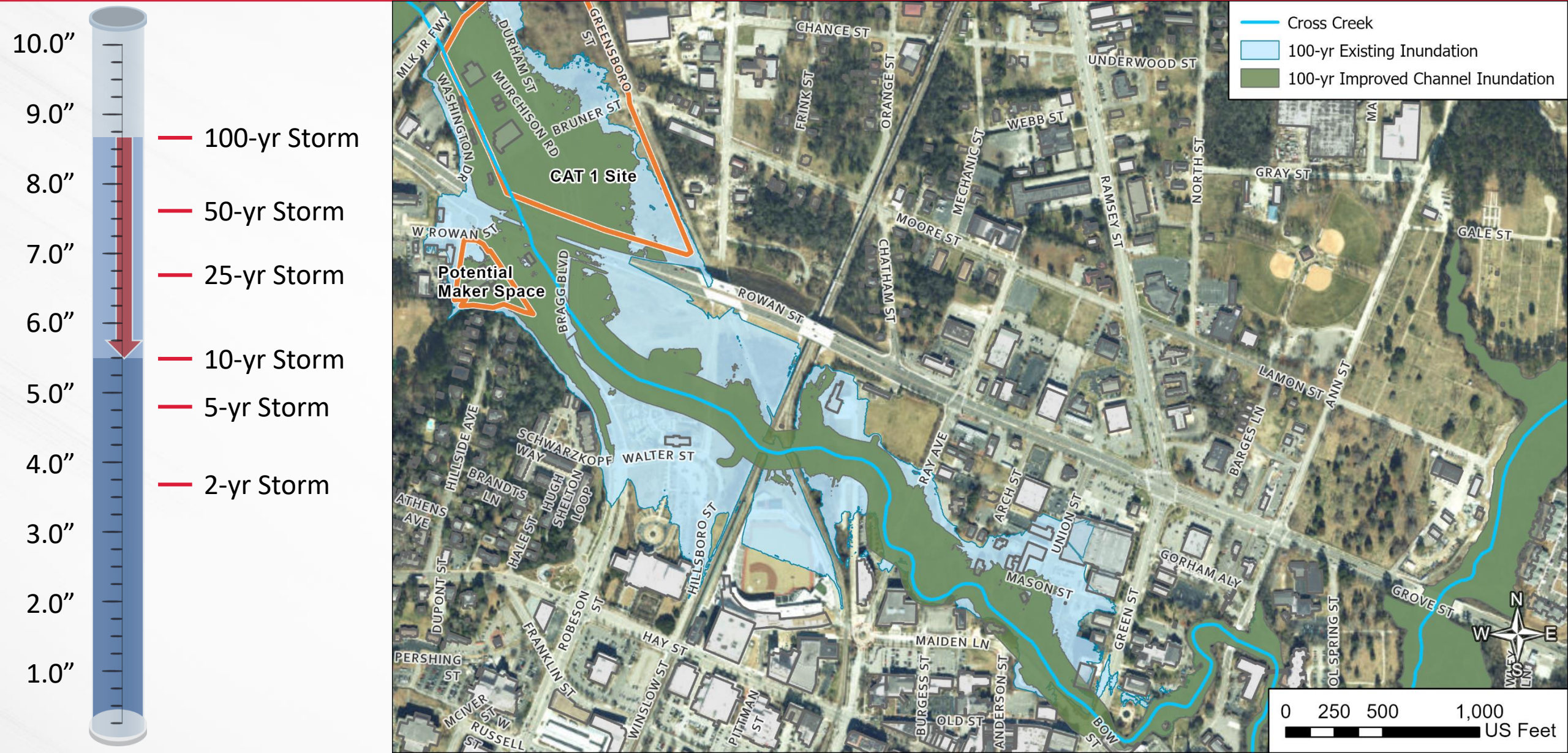
CROSS CREEK STREAM CORRIDOR CONCEPT CROSS SECTION- 10-YR V. 100-YR COMPARISON

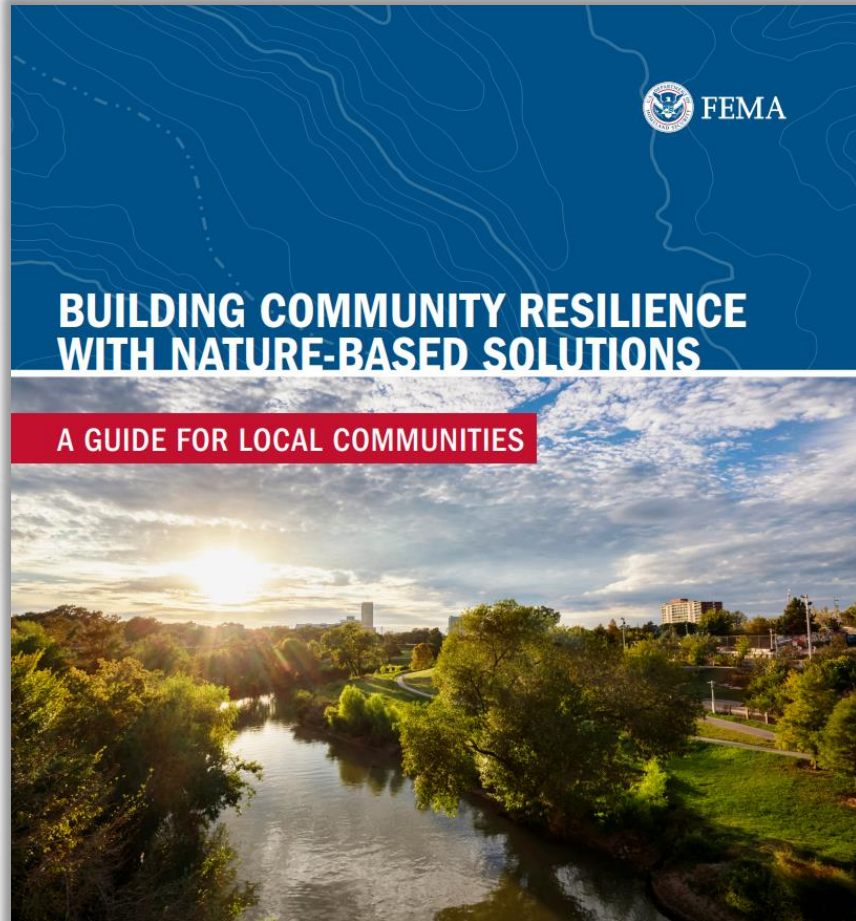


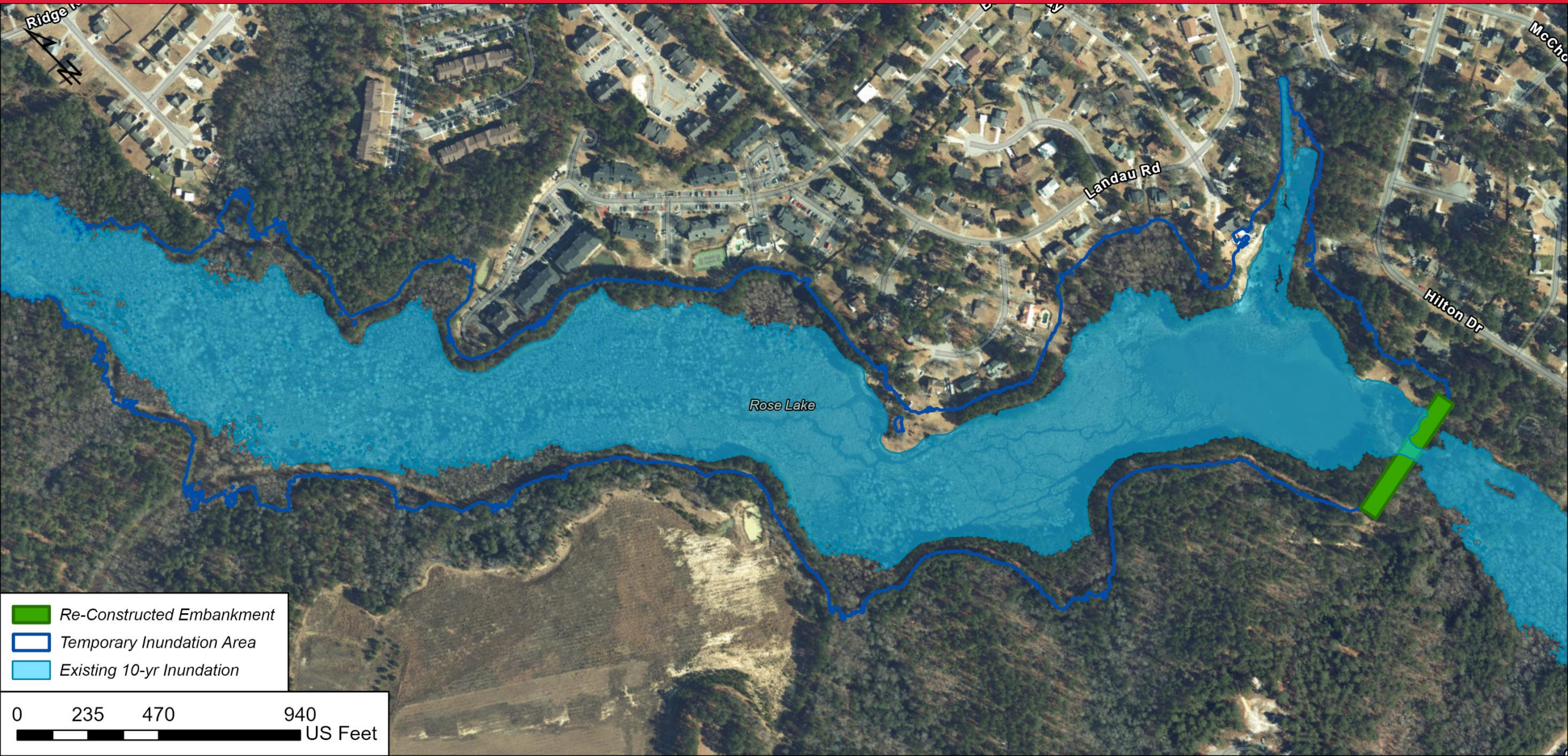




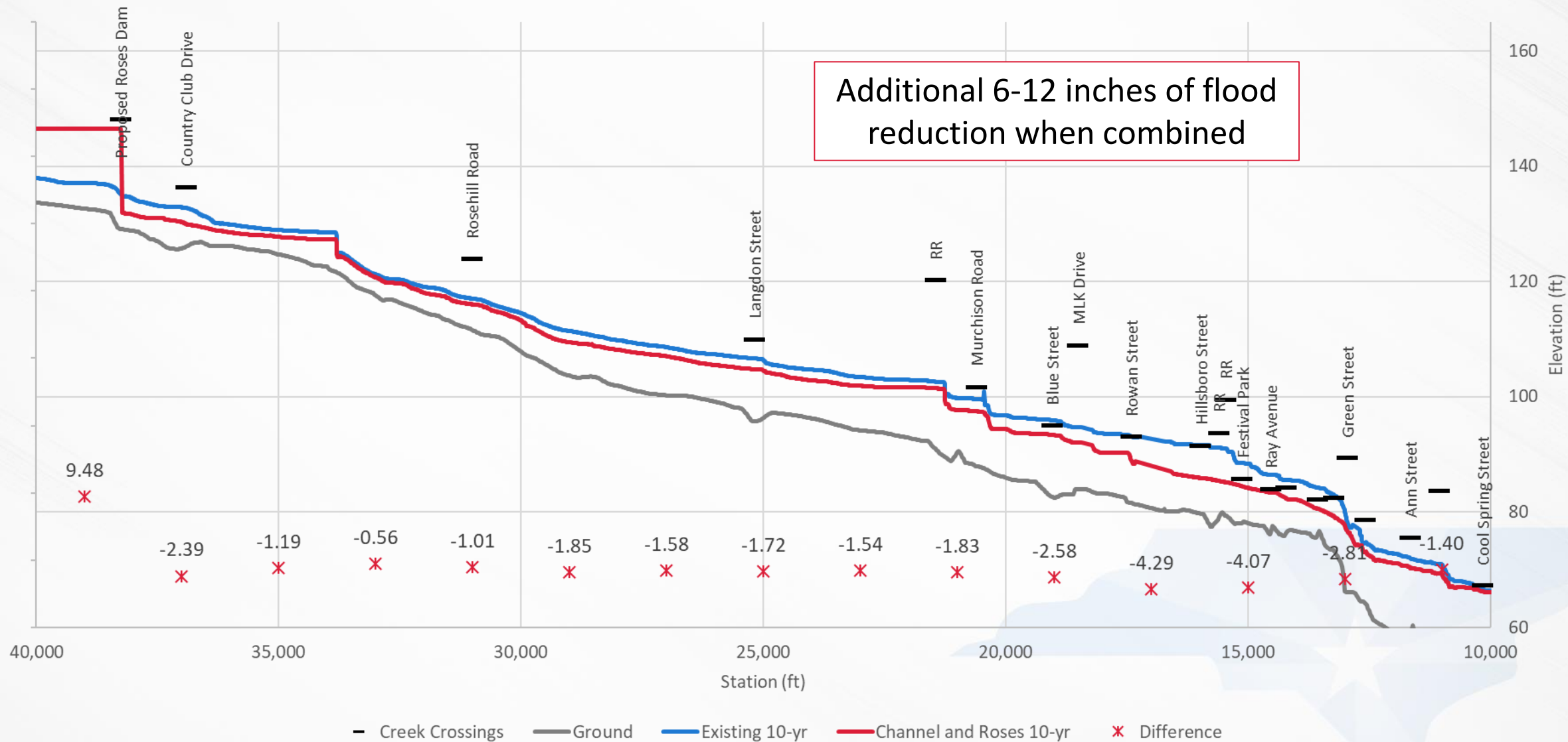


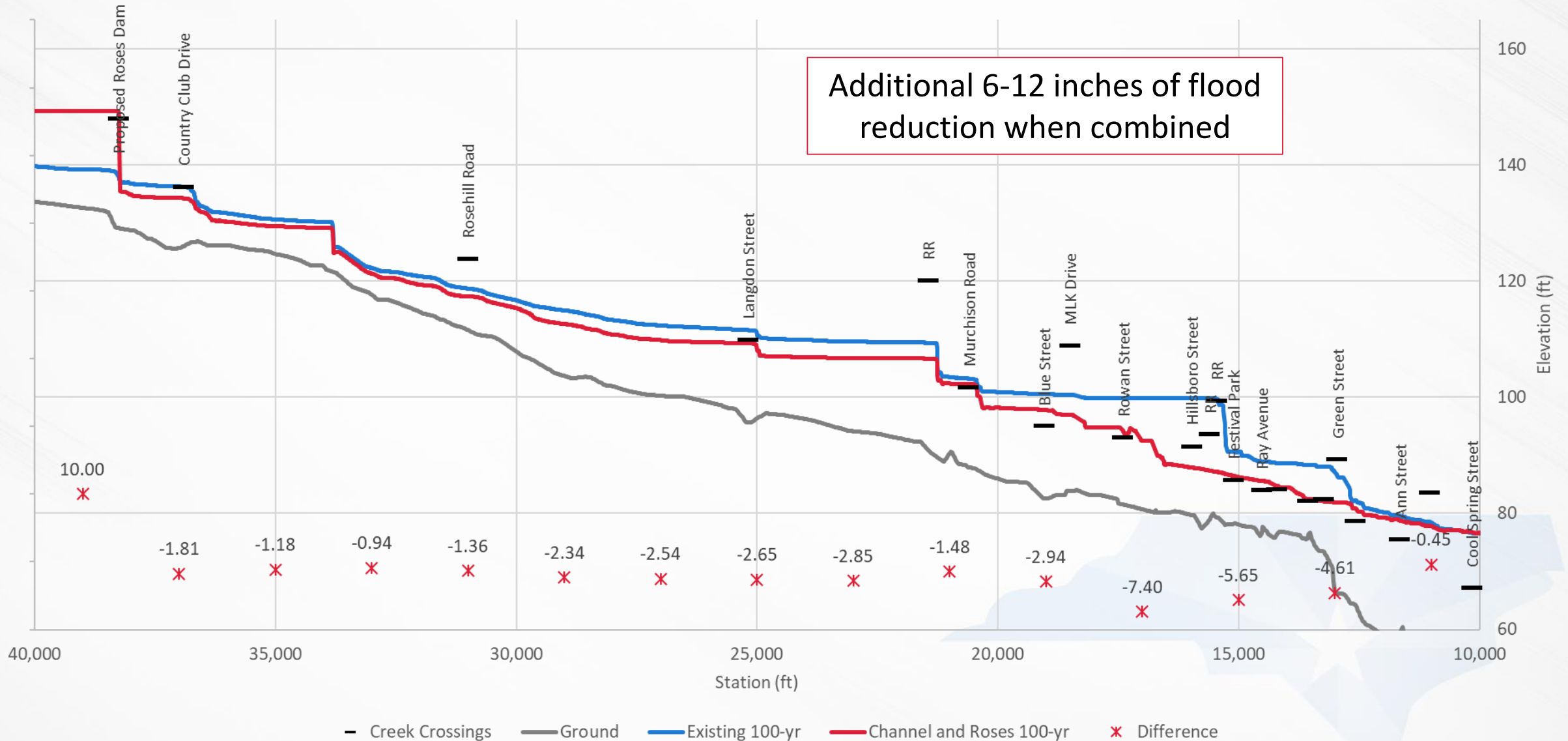






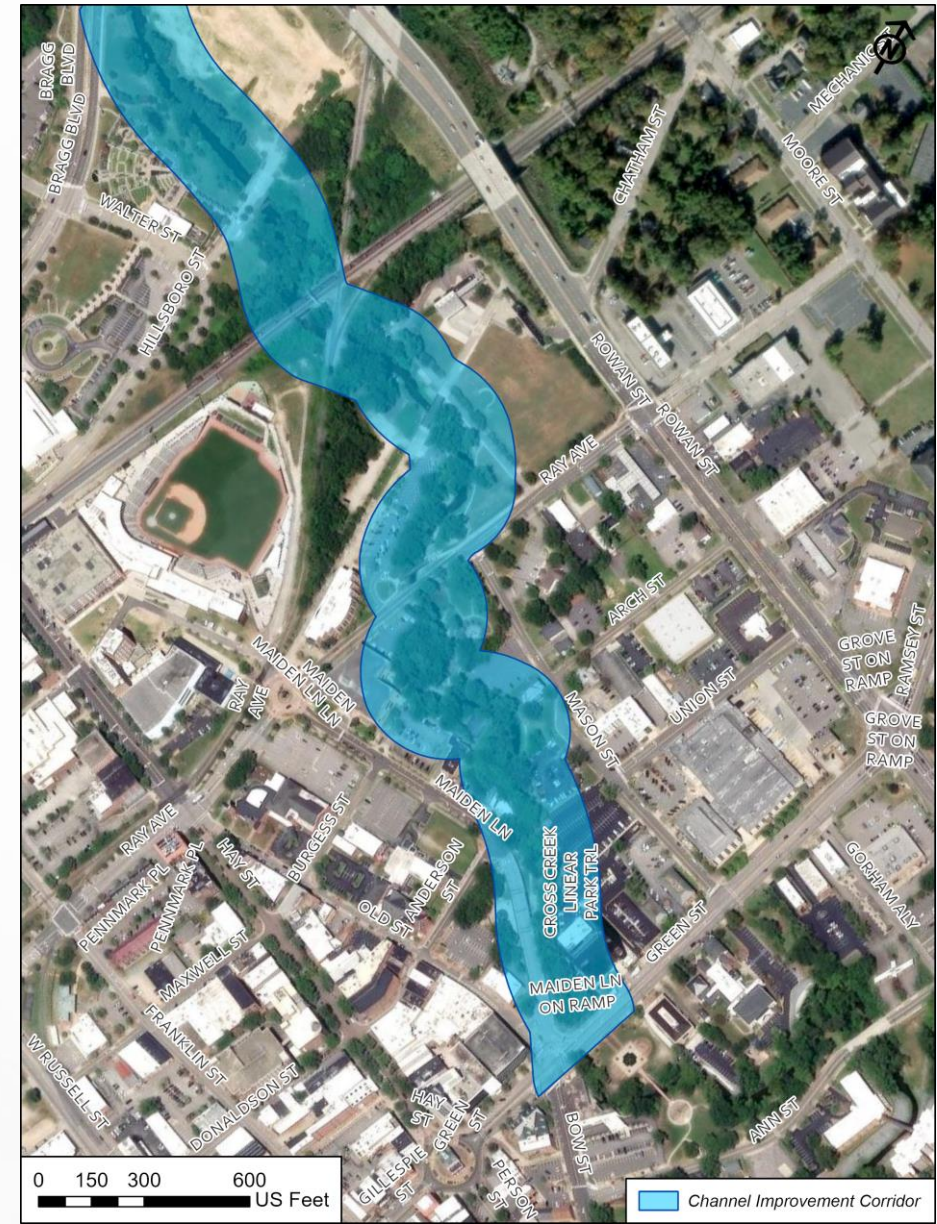
Combined Channel and Rose 10-yr

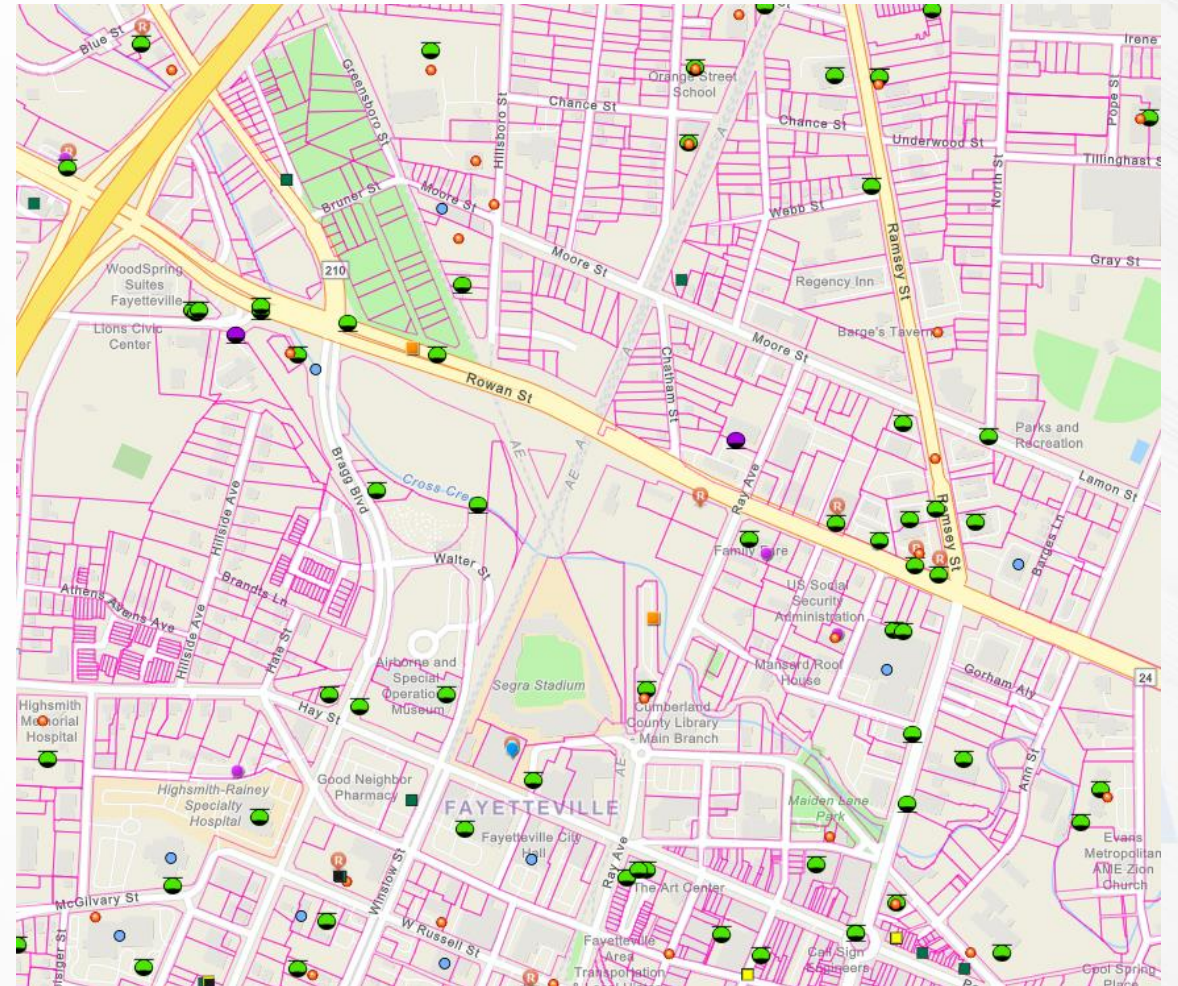




- Supplemental Survey Data Collection
- Literature Review & Environmental Constraints Analysis
- Alternatives Analysis
- Preliminary Design
- Preliminary Design Report







Preliminary evaluation of potential environmental or historic preservation constraints that may affect design

- Develop up to three channel alternatives
- Identify potential intersecting projects (i.e. greenway, urban park, etc.)
- Develop prioritization for most and least viable land resources
- Estimate costs and evaluate flood reduction benefits
- Potential differences in alternatives include:
 - Lateral and longitudinal extents
 - General geometry
 - Hydraulic capacity
 - Approach to road crossings



- Advancing design of selected alternative
- Examine the following:
 - Channel geometry, grading and stabilization
 - Road crossing analysis
 - Hydrologic and hydraulic analysis
 - Co-benefits and aesthetic design
 - Stakeholder outreach
- Deliverables will generally represent a 15% design



- Document preliminary design for future project planning, grant applications, and detailed design

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Recommended Action:

Council provides consensus to approve Cross Creek Channel Improvements Preliminary Design Project to advance to a 15% Design





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