



Cross Creek Channel Improvements: Preliminary Design Scope of Services

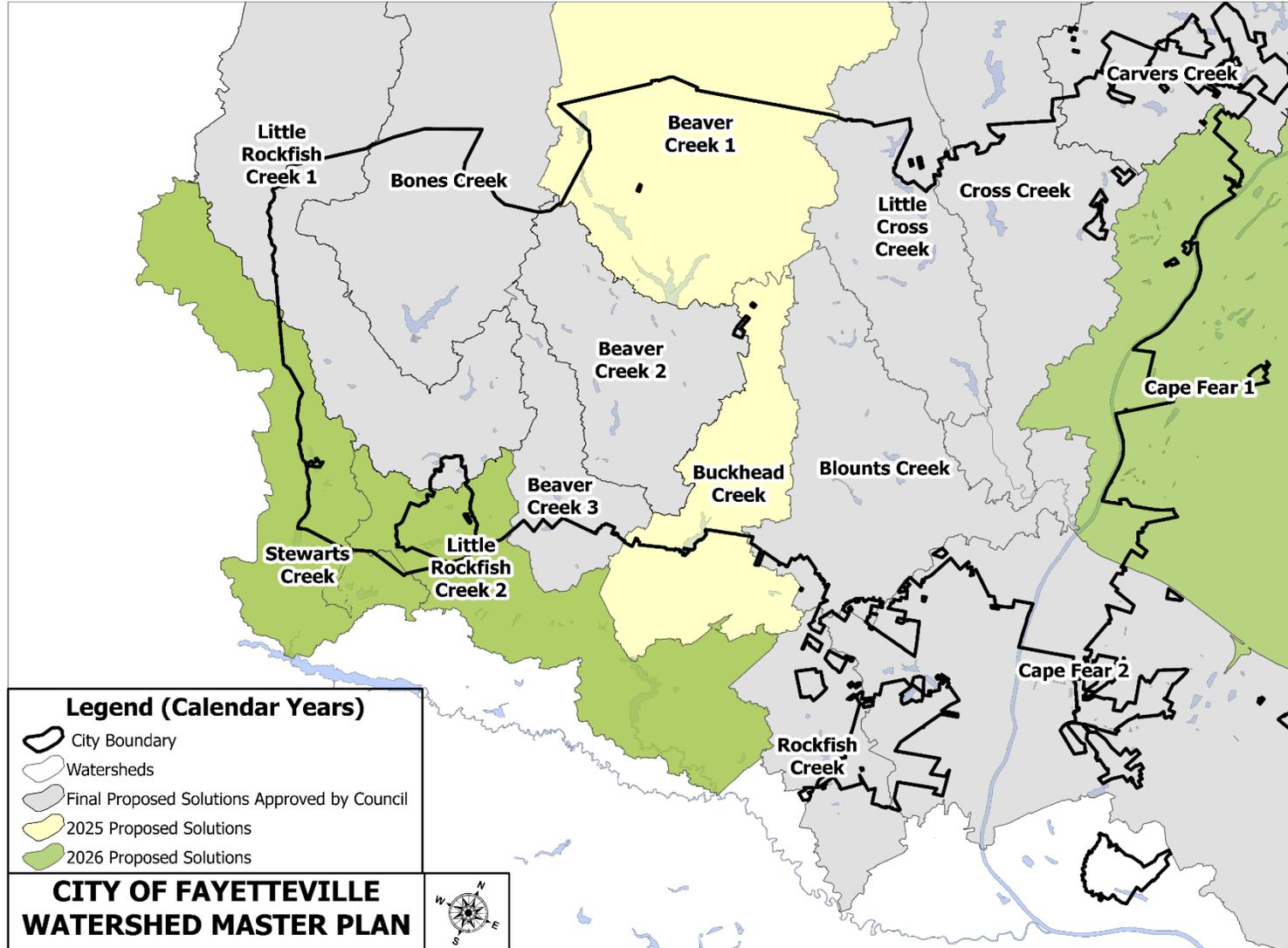
City Council Work Session:
August 4, 2025



- 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*



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

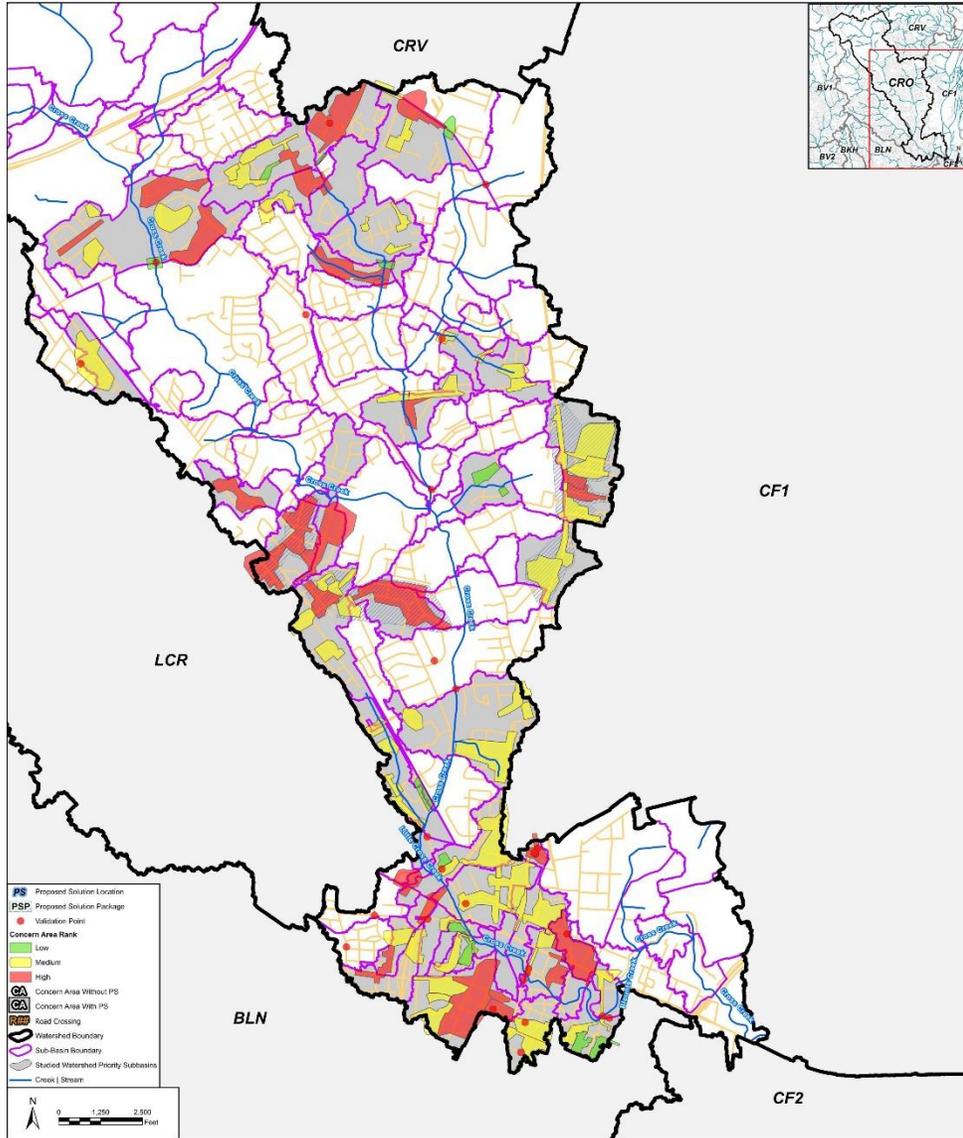
Number of Impacted Structures

	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

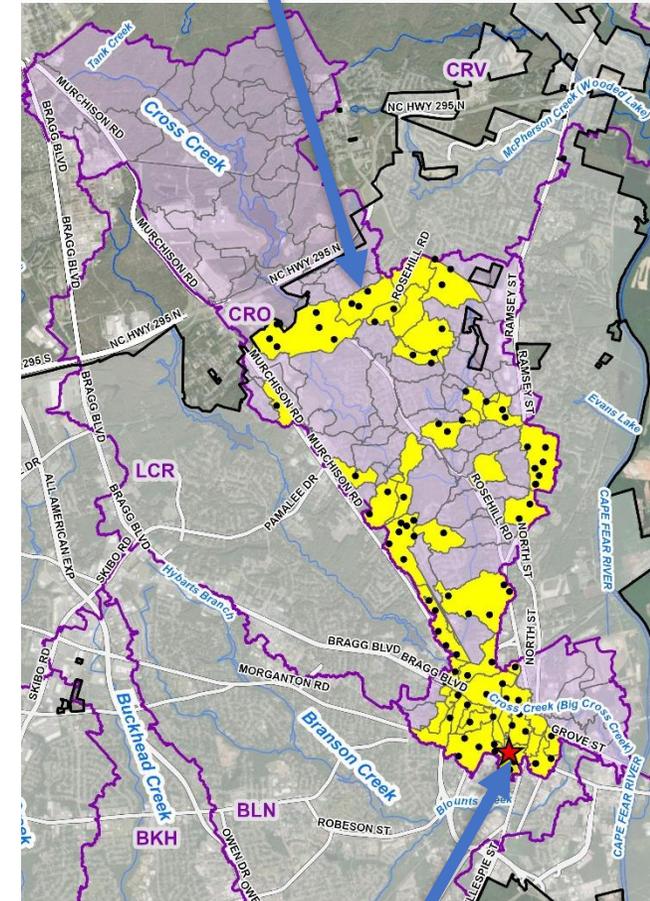
Number of Disconnected Structures
 Identified - 72 | Resolved – 36

Number of Impacted Structures

	10-yr	25-yr	50-yr
Identified	148	241	290
Resolved	86	147	163

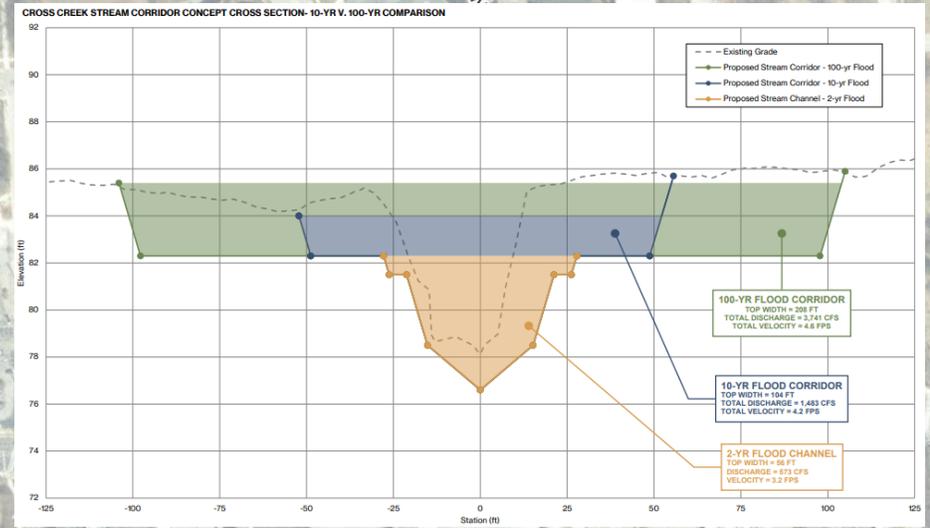
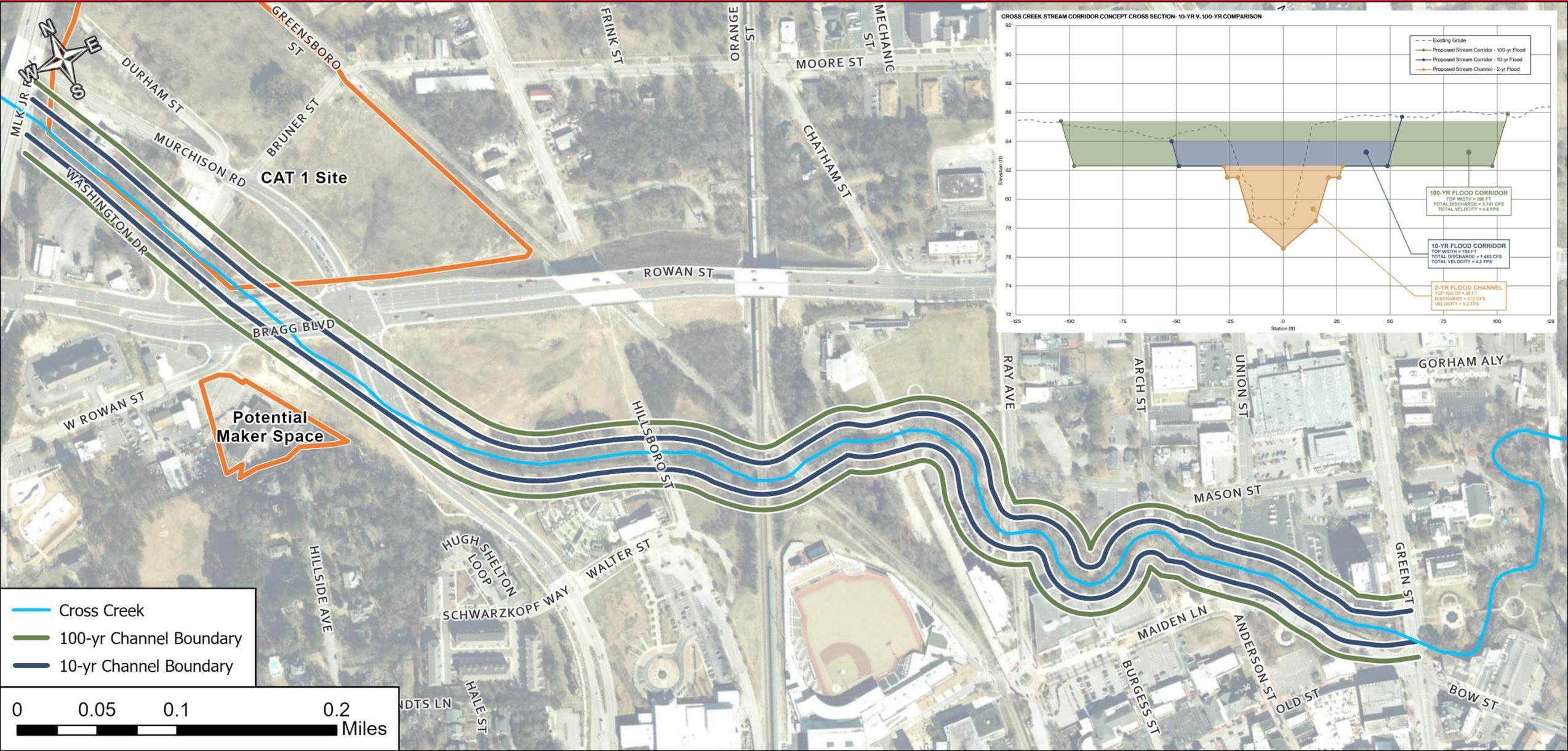
Current Total Cost \$386,600,000*
 * Downtown channel improvement project represents \$50M of total cost

Cross Creek Watershed



Downtown Fayetteville

Channel Improvement Concept



- 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.

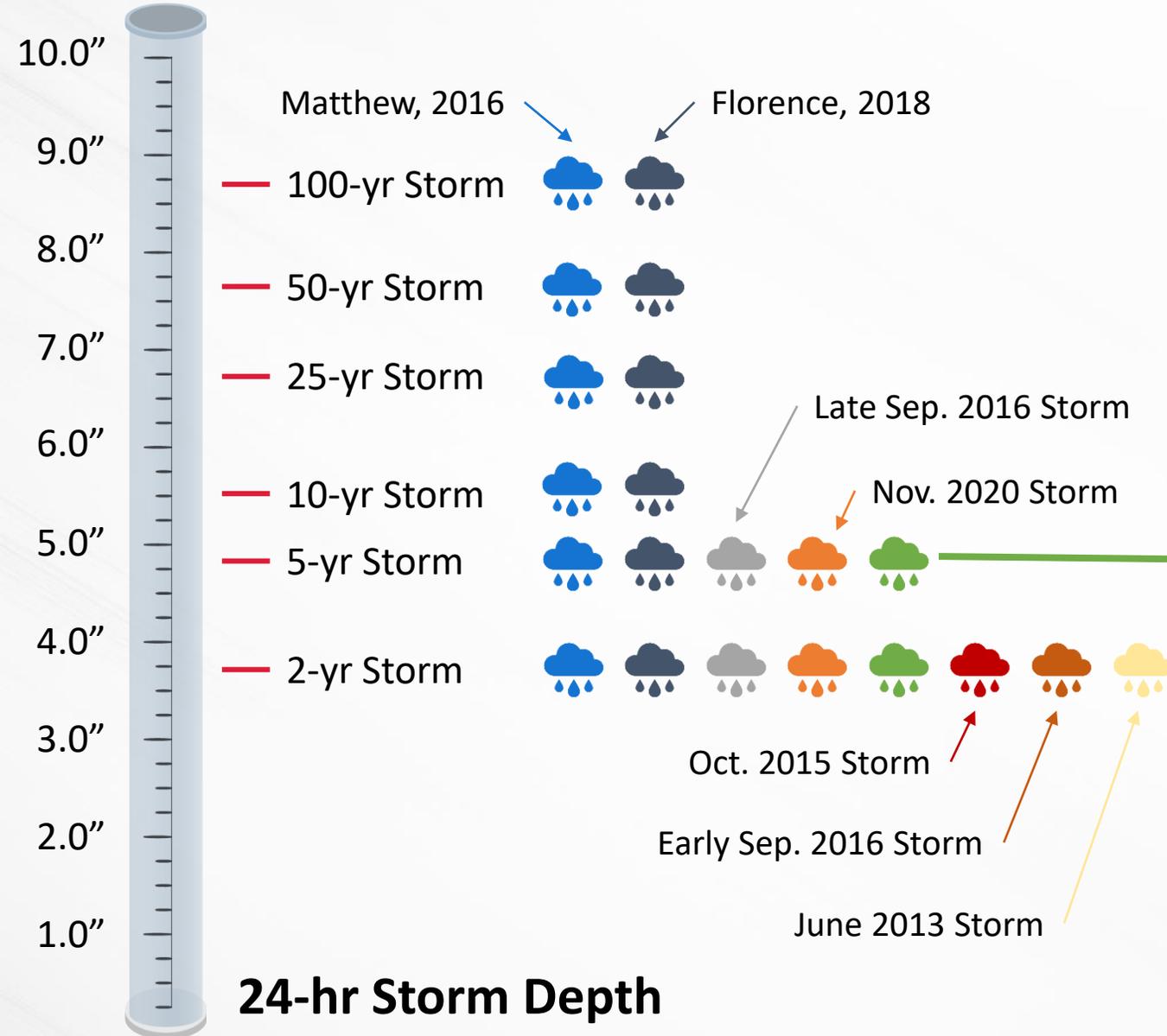
Recommended Action:

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



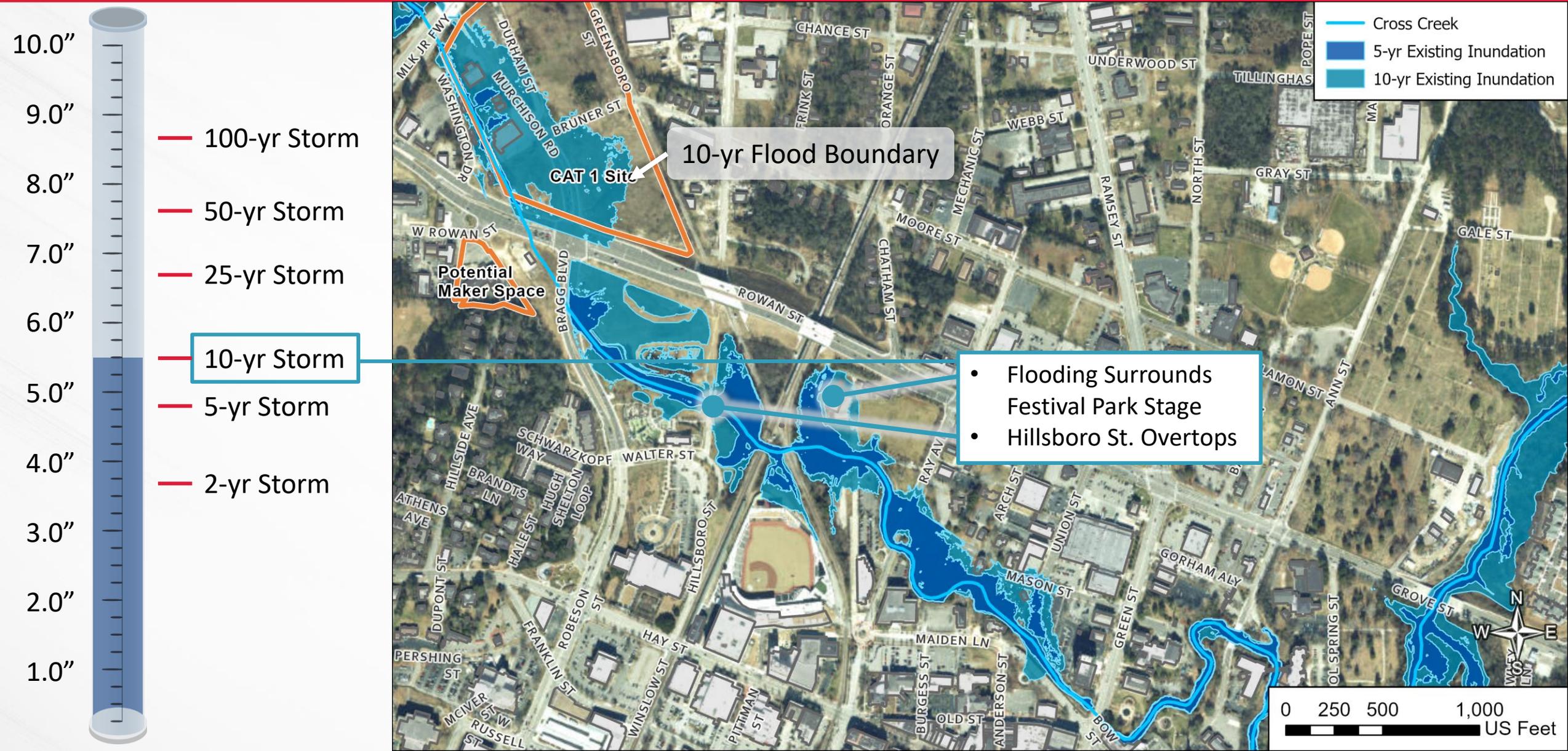
Existing Flooding: 5-yr Storm



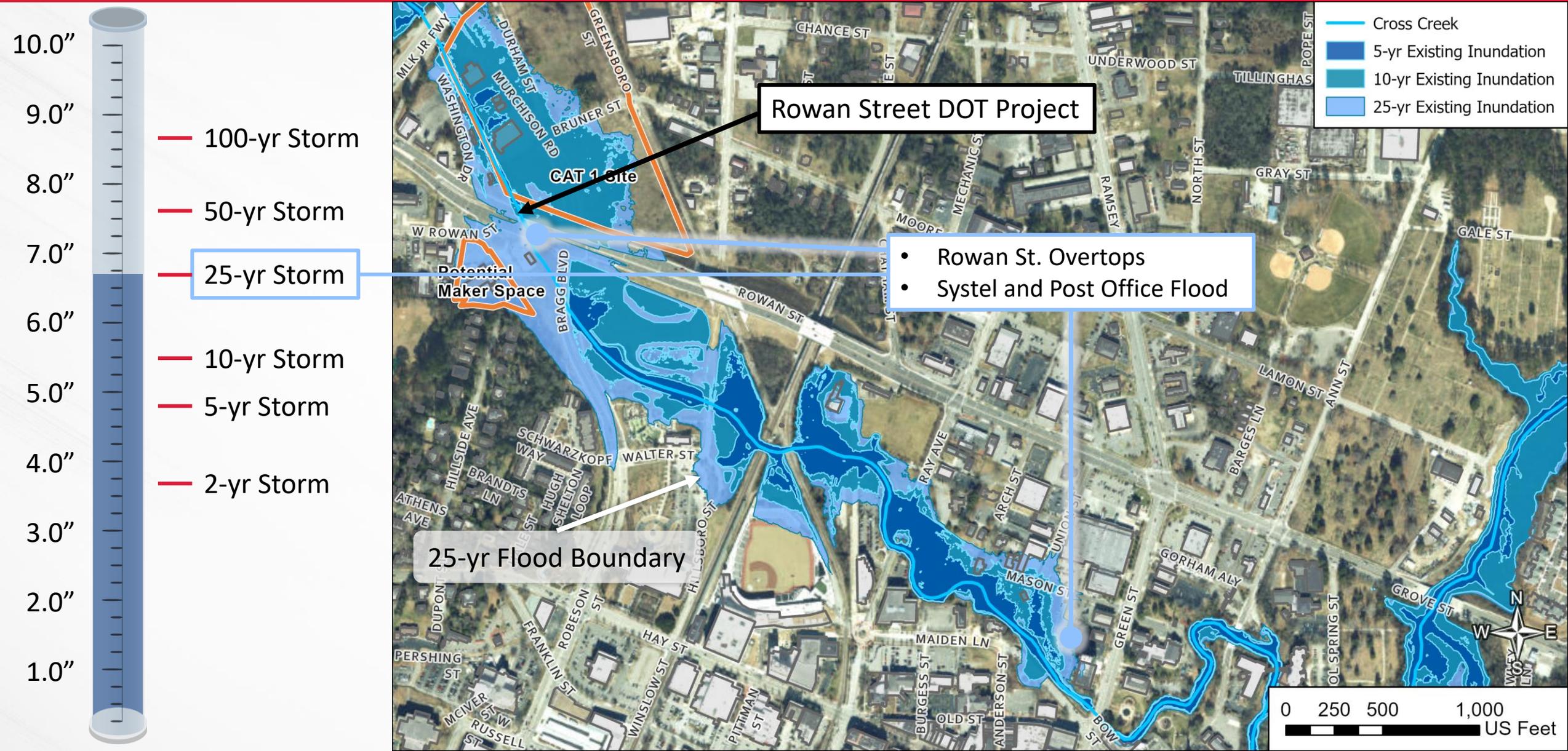
Existing Flooding: November 2020



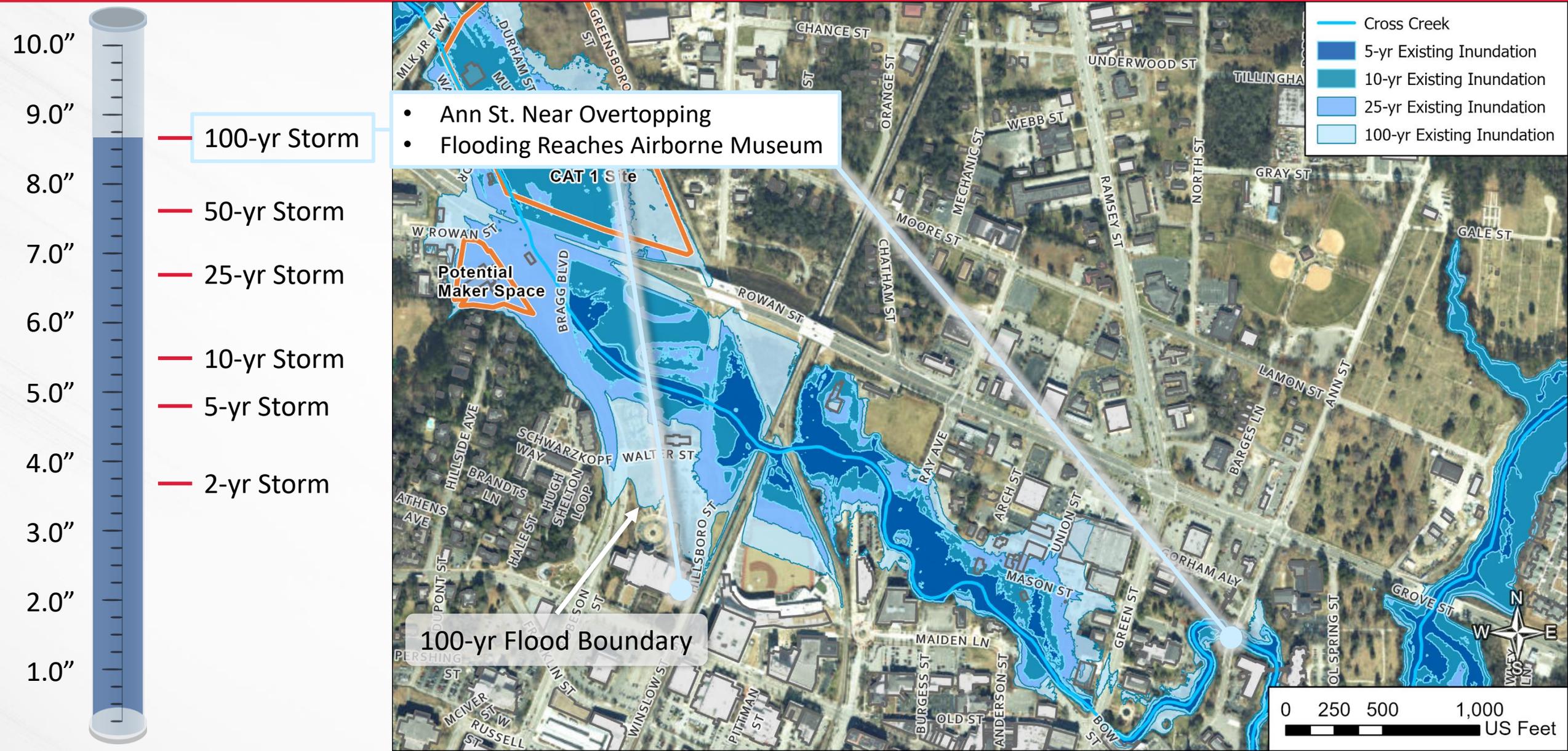
Existing Flooding: 10-yr Storm



Existing Flooding: 25-yr Storm



Existing Flooding: 100-yr Storm



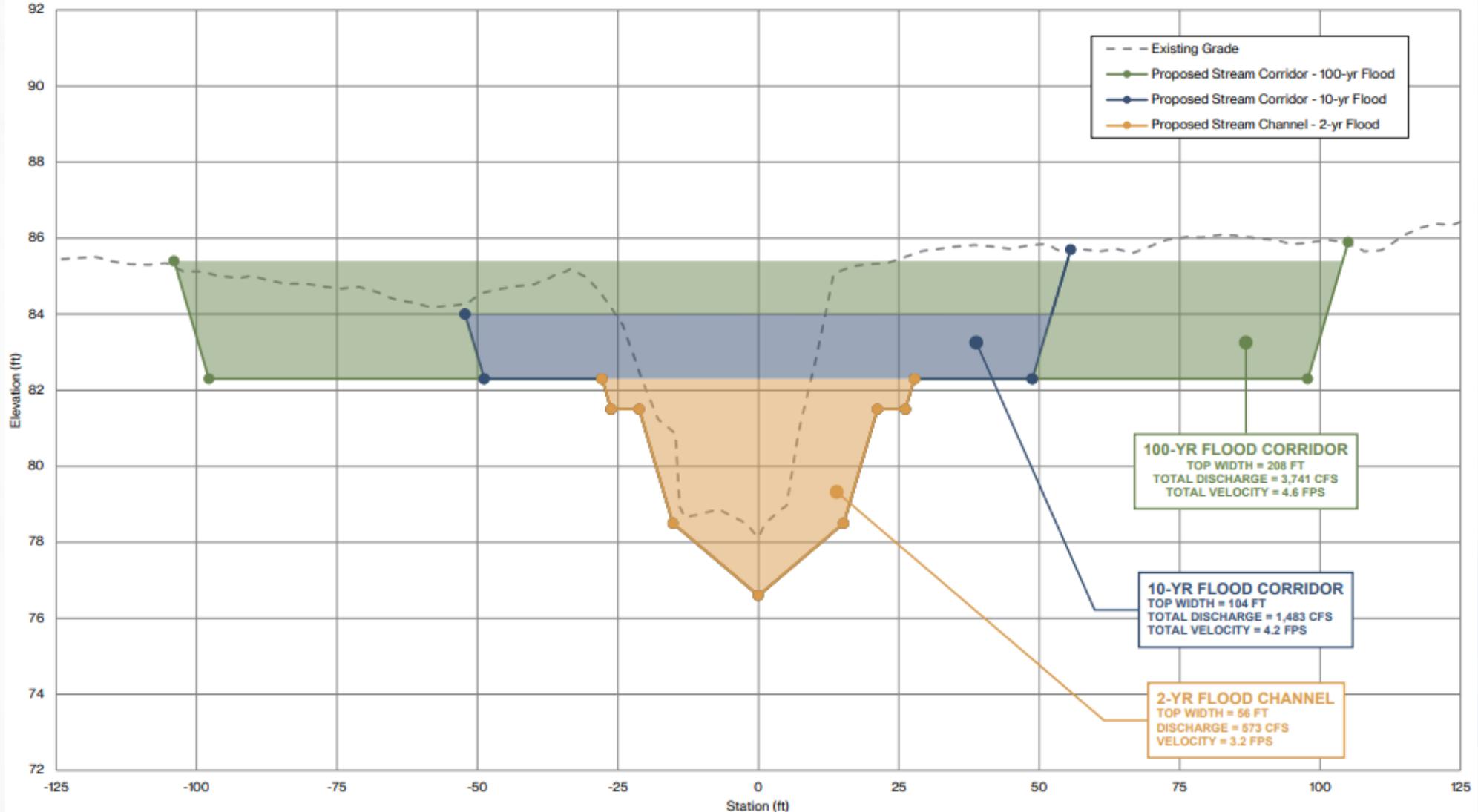
Downtown Channel Geometry

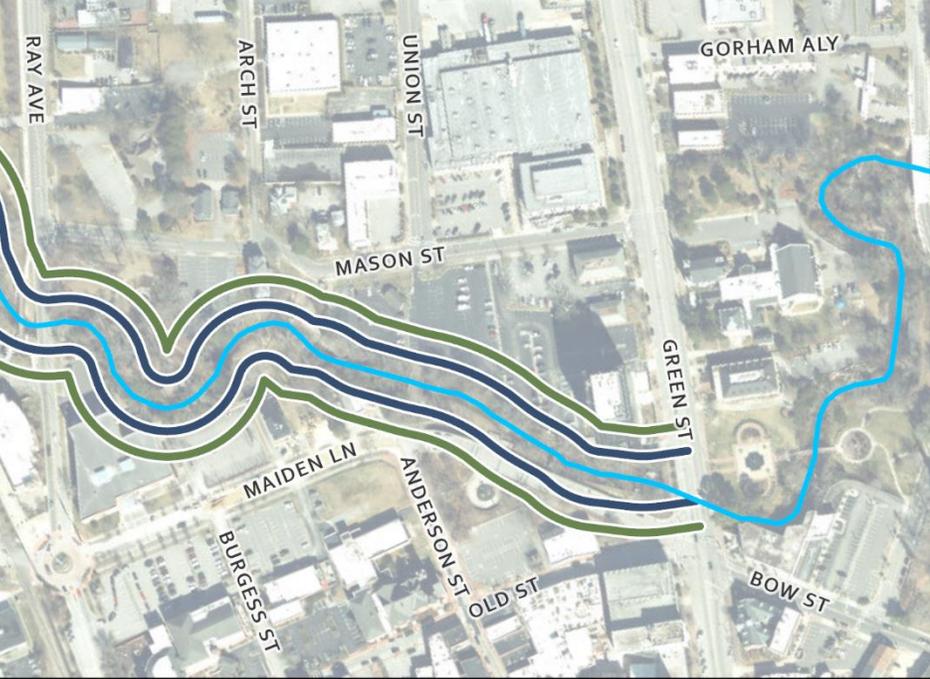
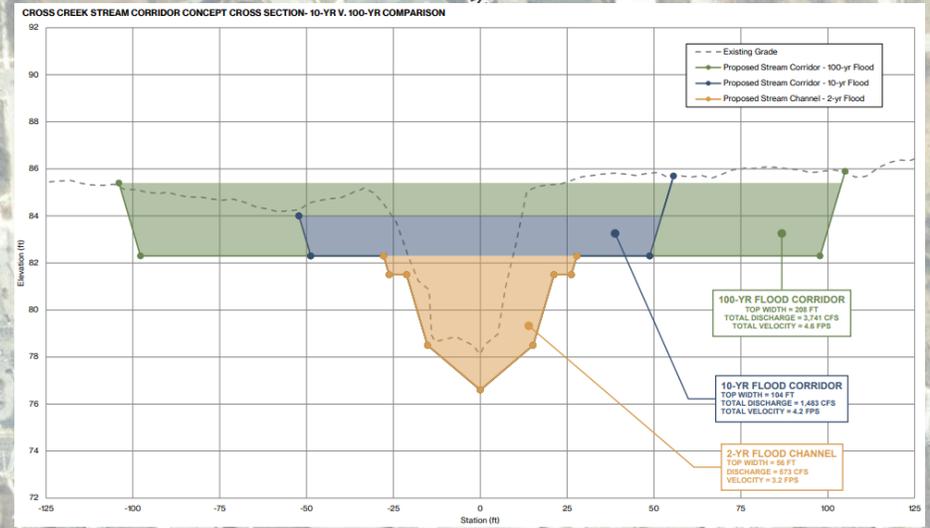
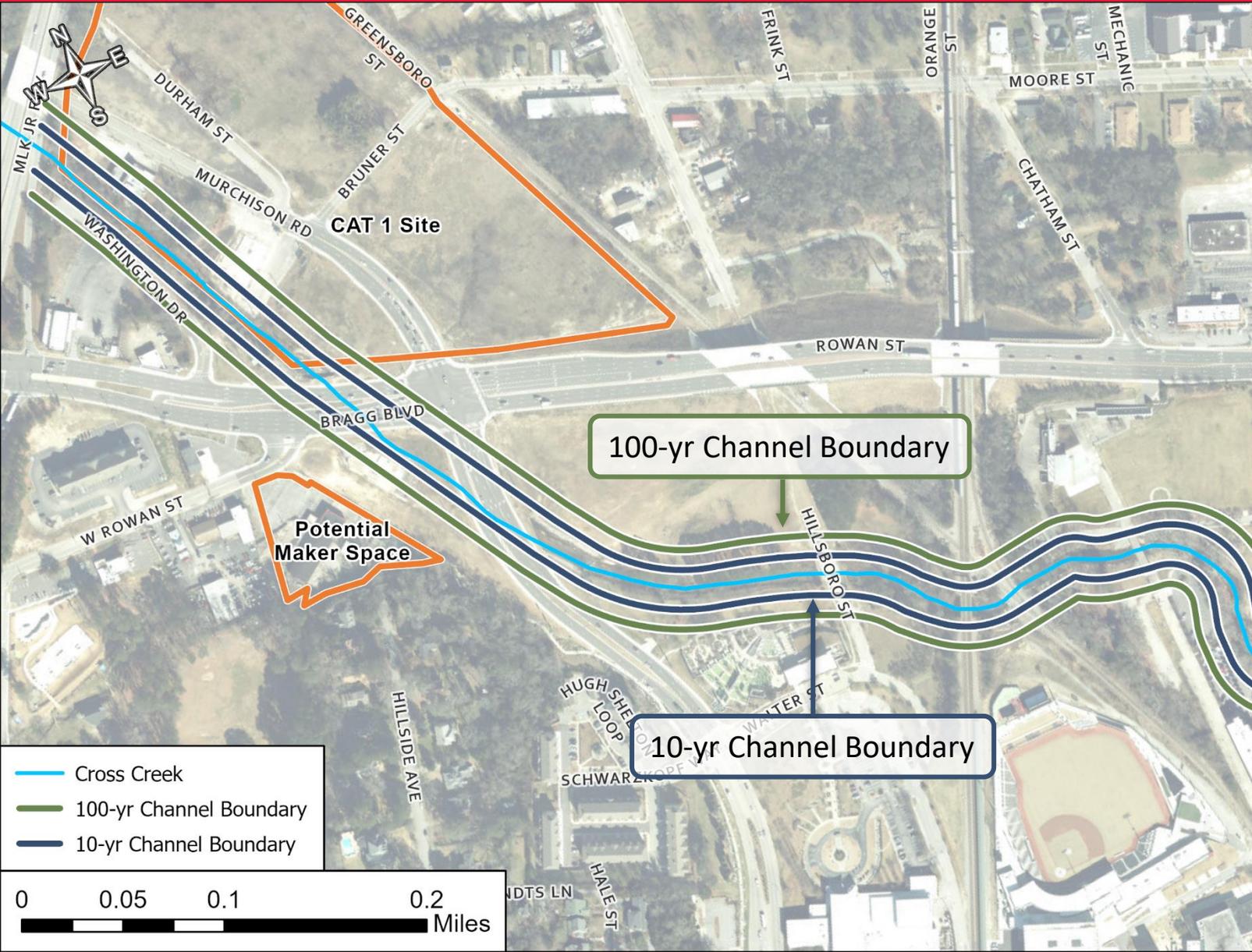


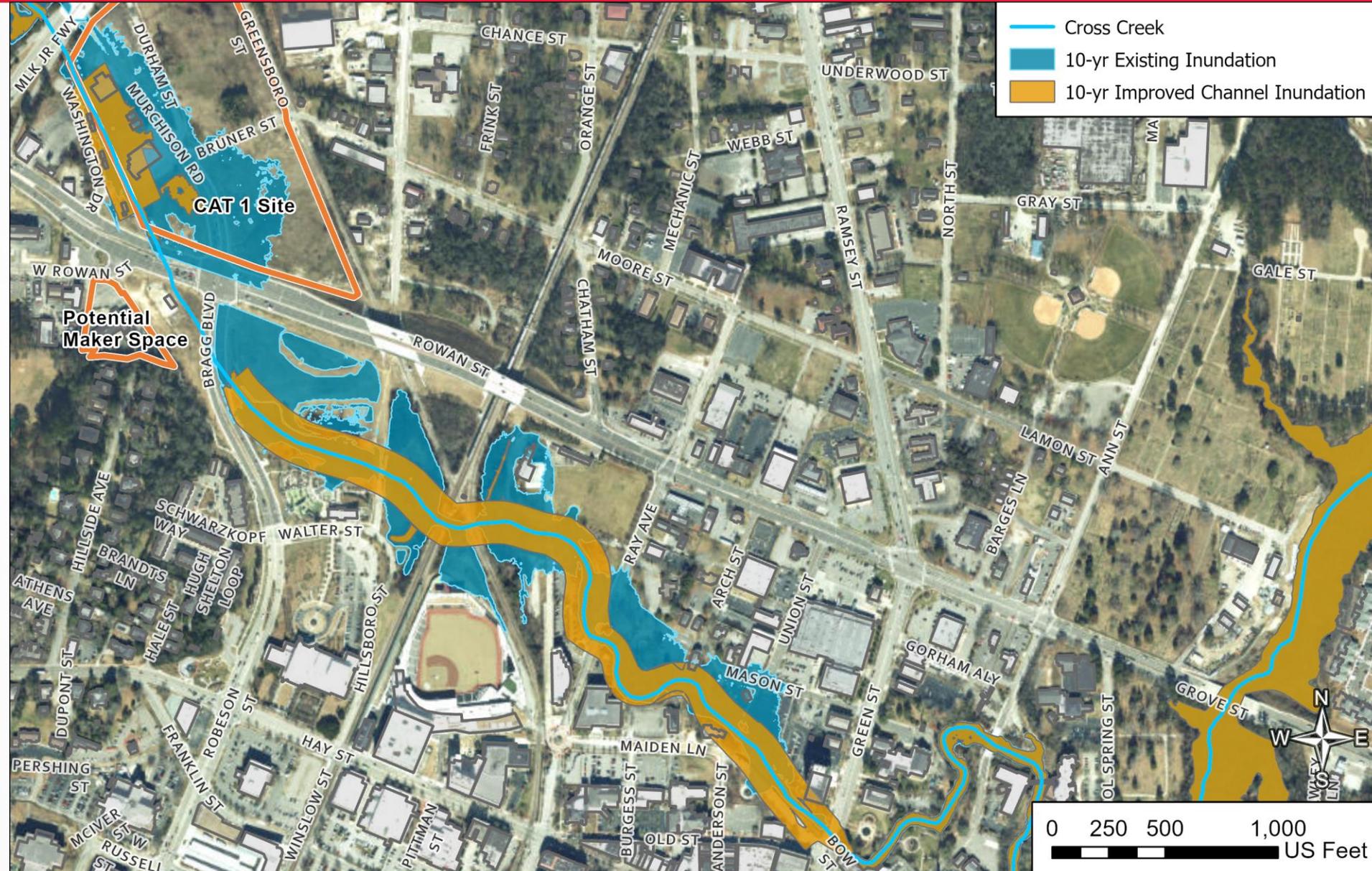
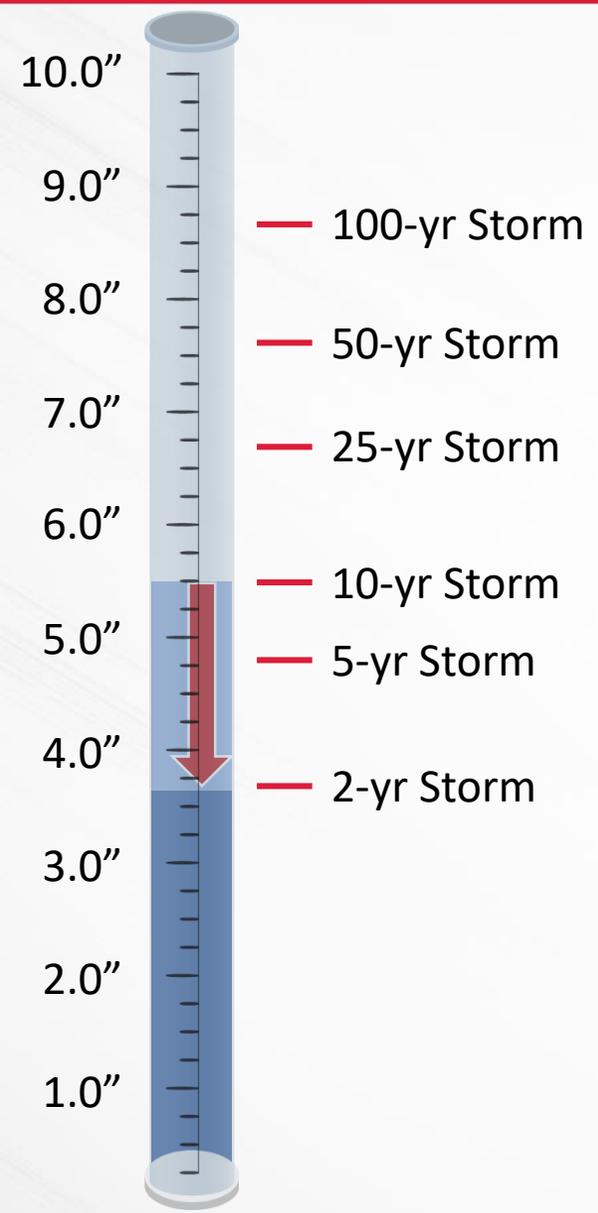


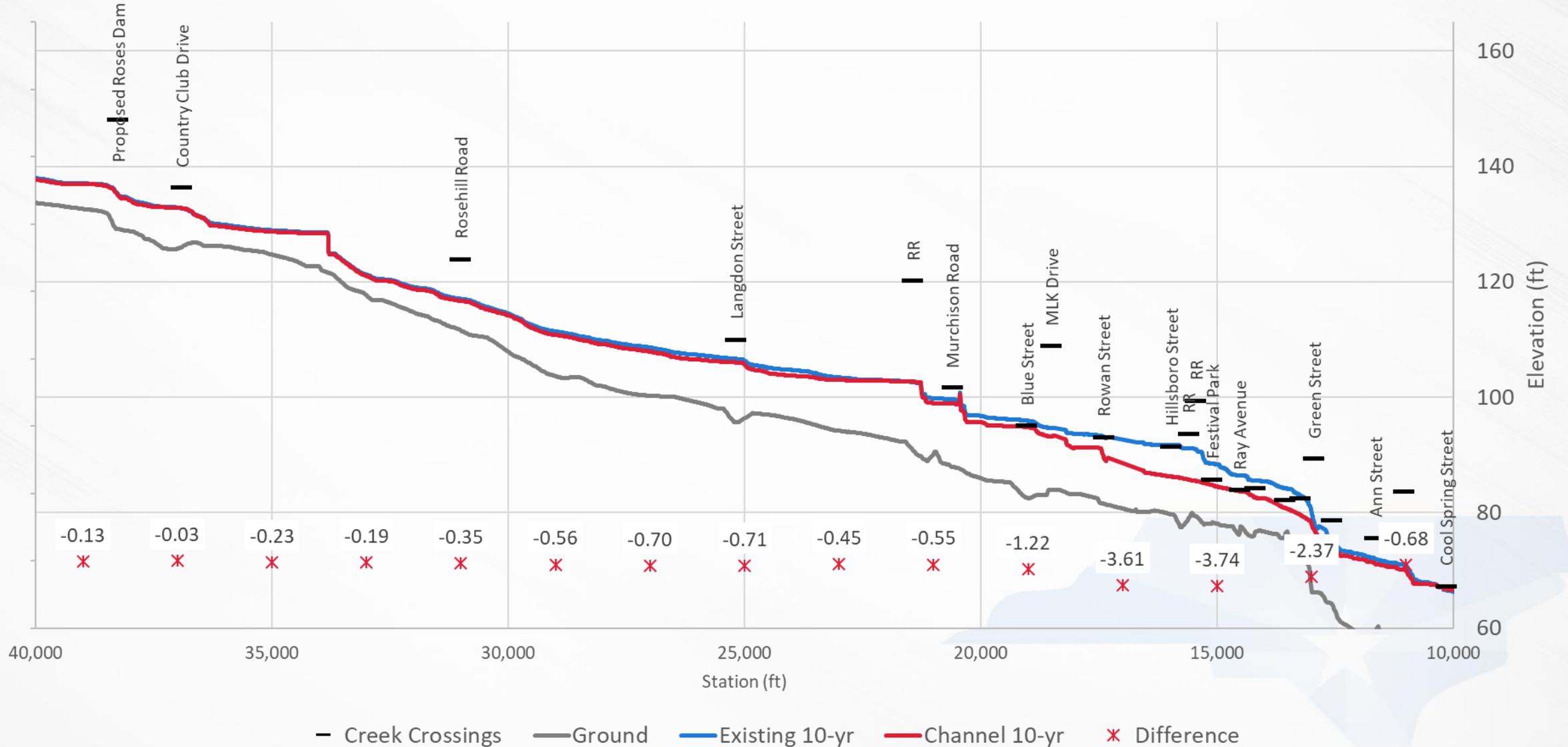


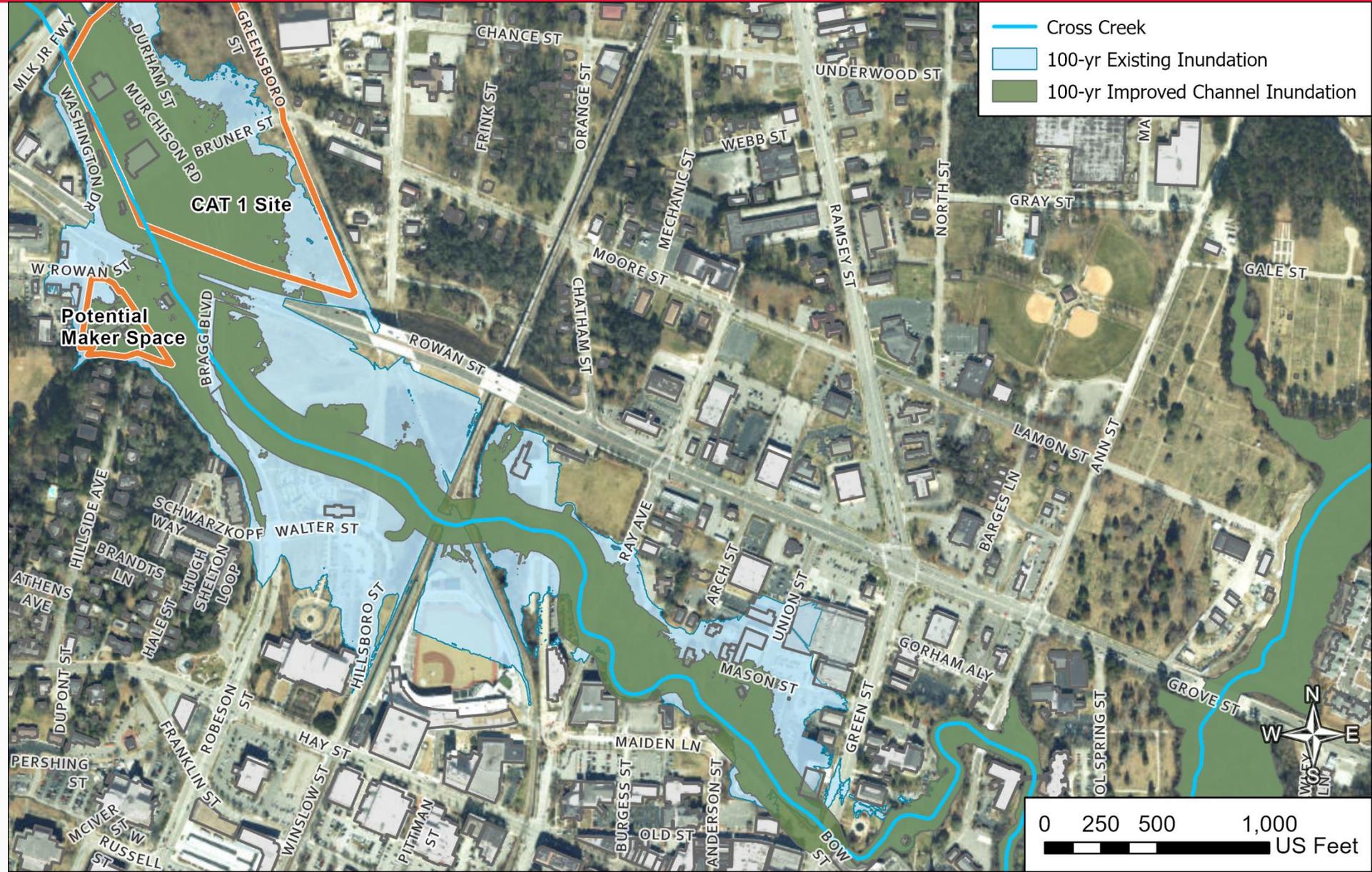
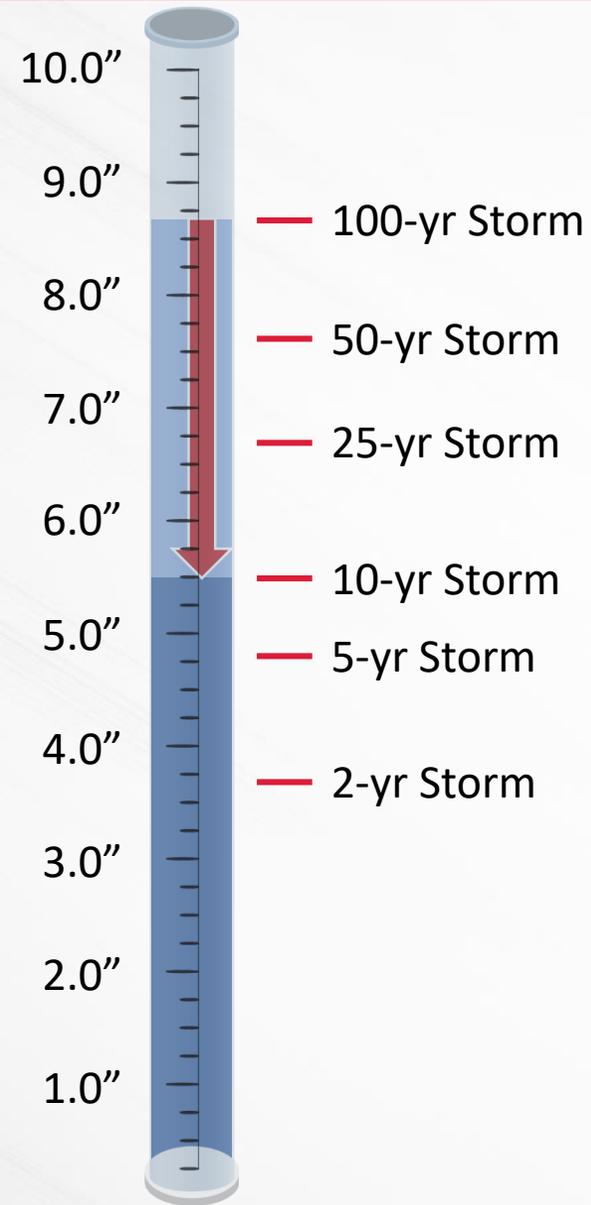
CROSS CREEK STREAM CORRIDOR CONCEPT CROSS SECTION- 10-YR V. 100-YR COMPARISON

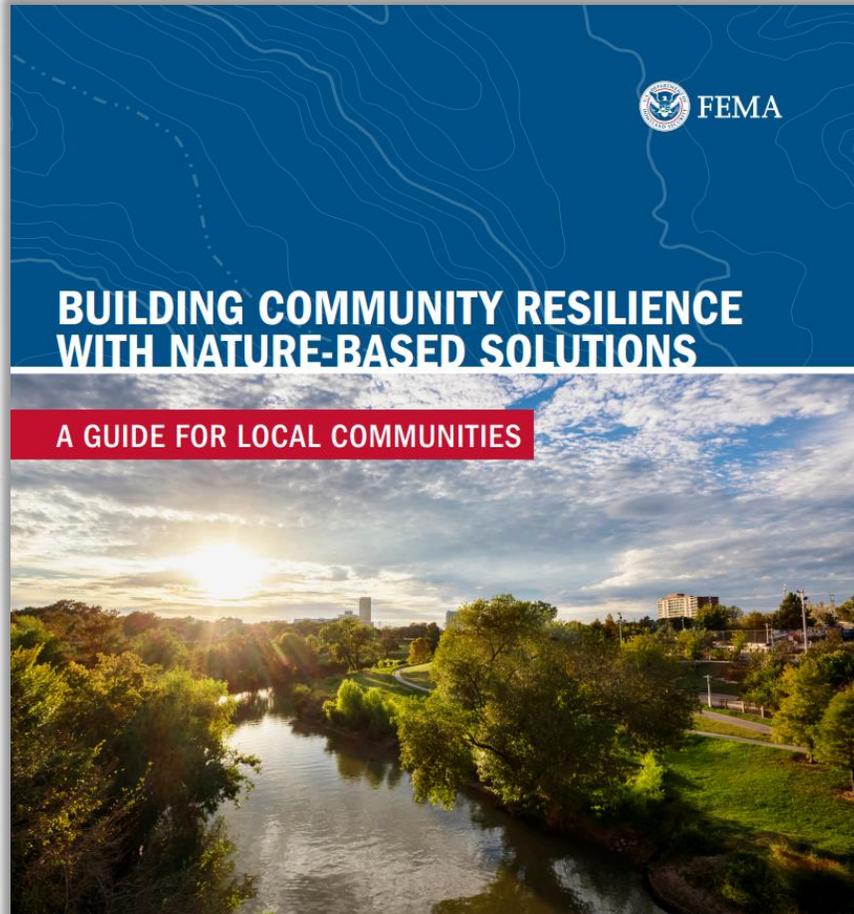






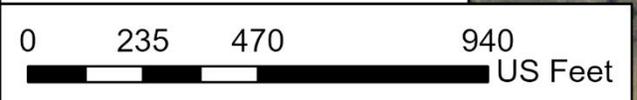




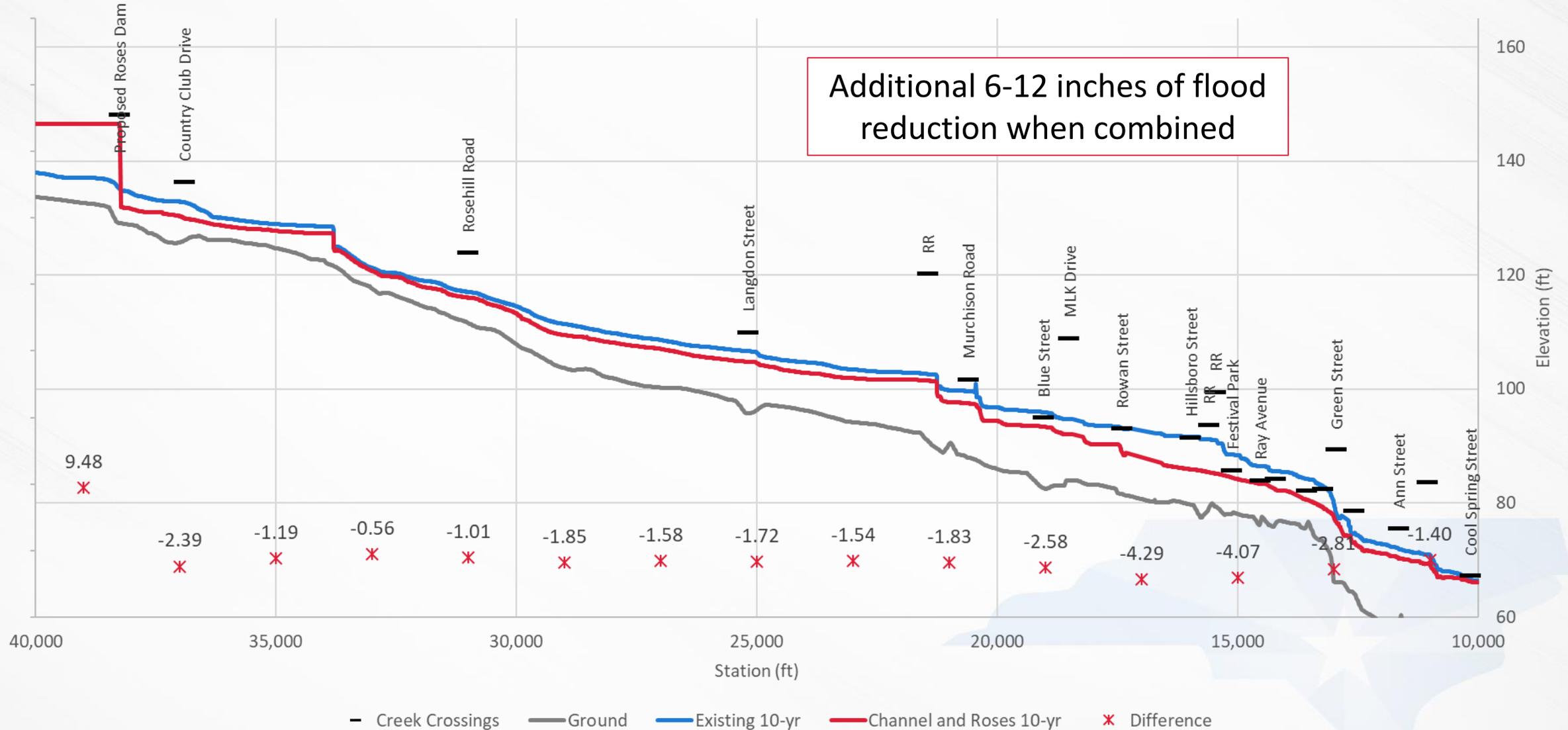


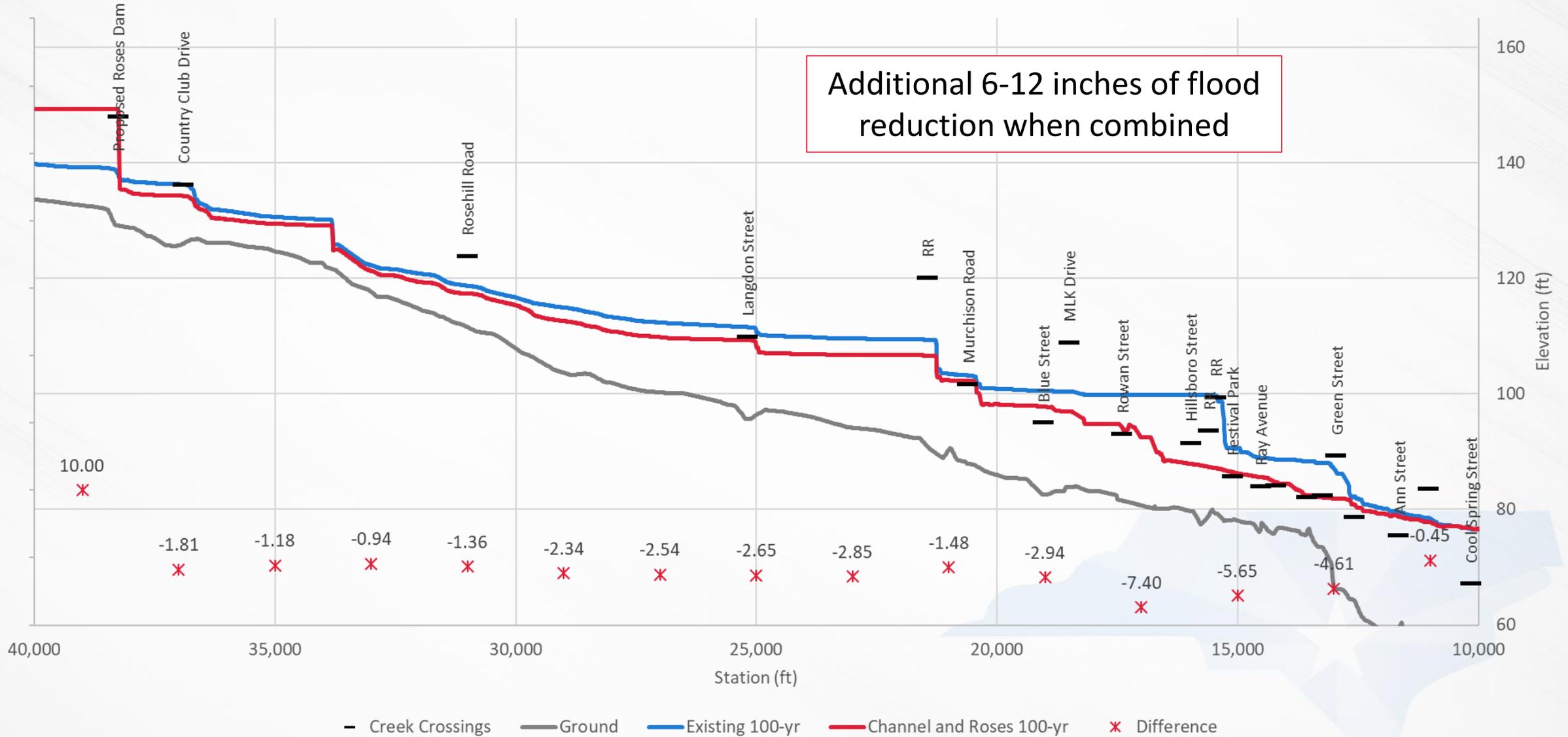


-  Re-Constructed Embankment
-  Temporary Inundation Area
-  Existing 10-yr Inundation



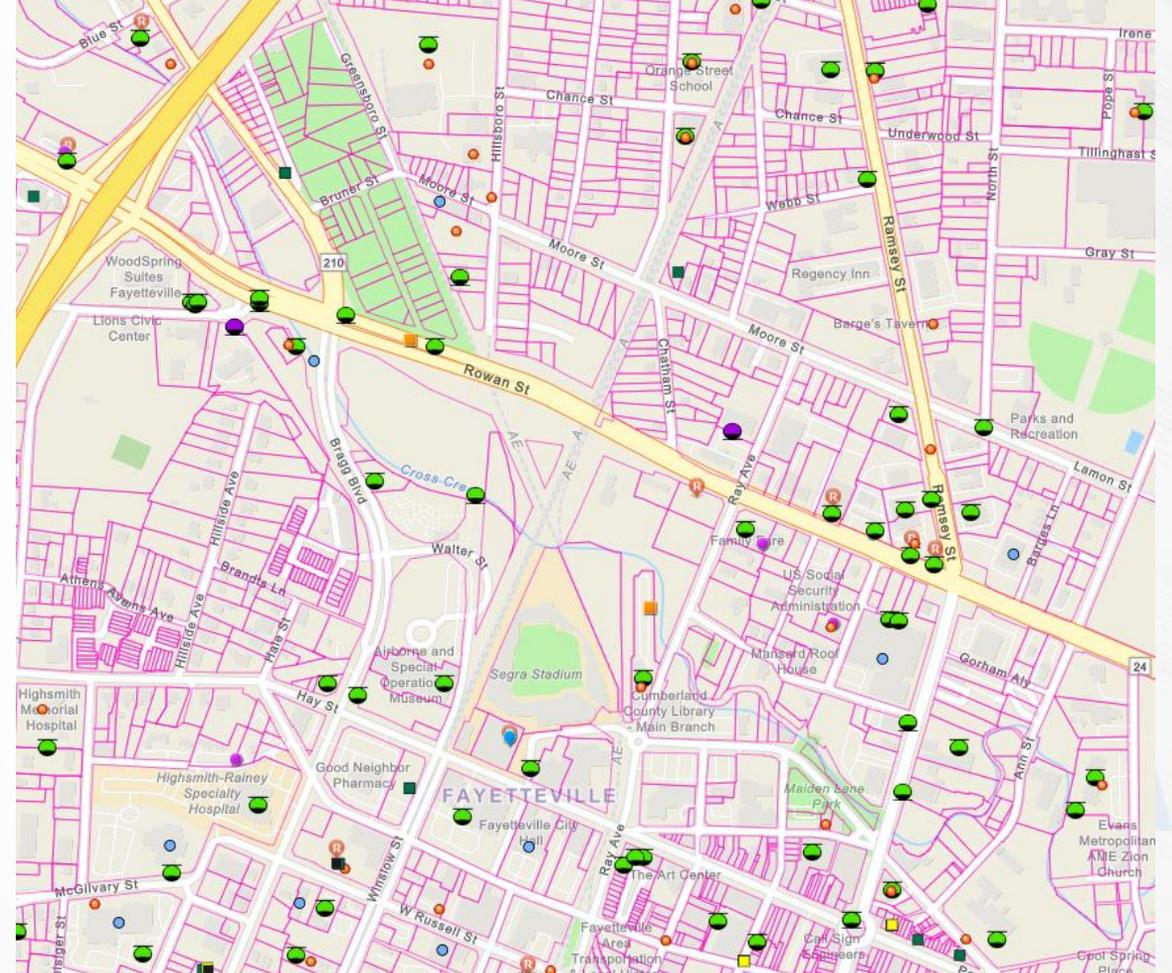
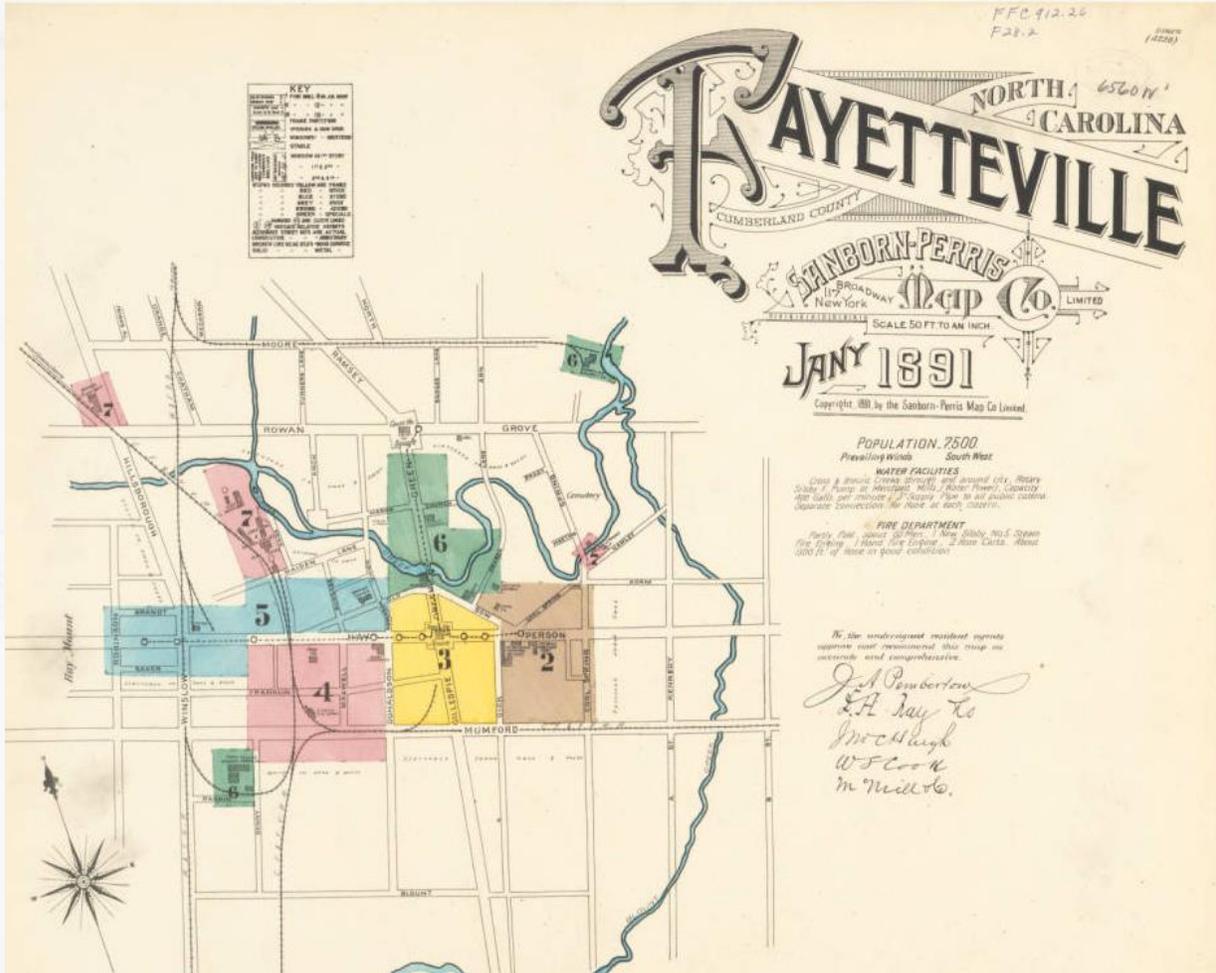
Combined Channel and Rose 10-yr





- 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

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 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 Improvements Preliminary Design Project to advance to a 15% Design





 **FAYETTEVILLE** ^{NC}
AMERICA'S CAN DO CITY

FayettevilleNC.gov