



Planning and Partnering for Hurricane Response & Recovery

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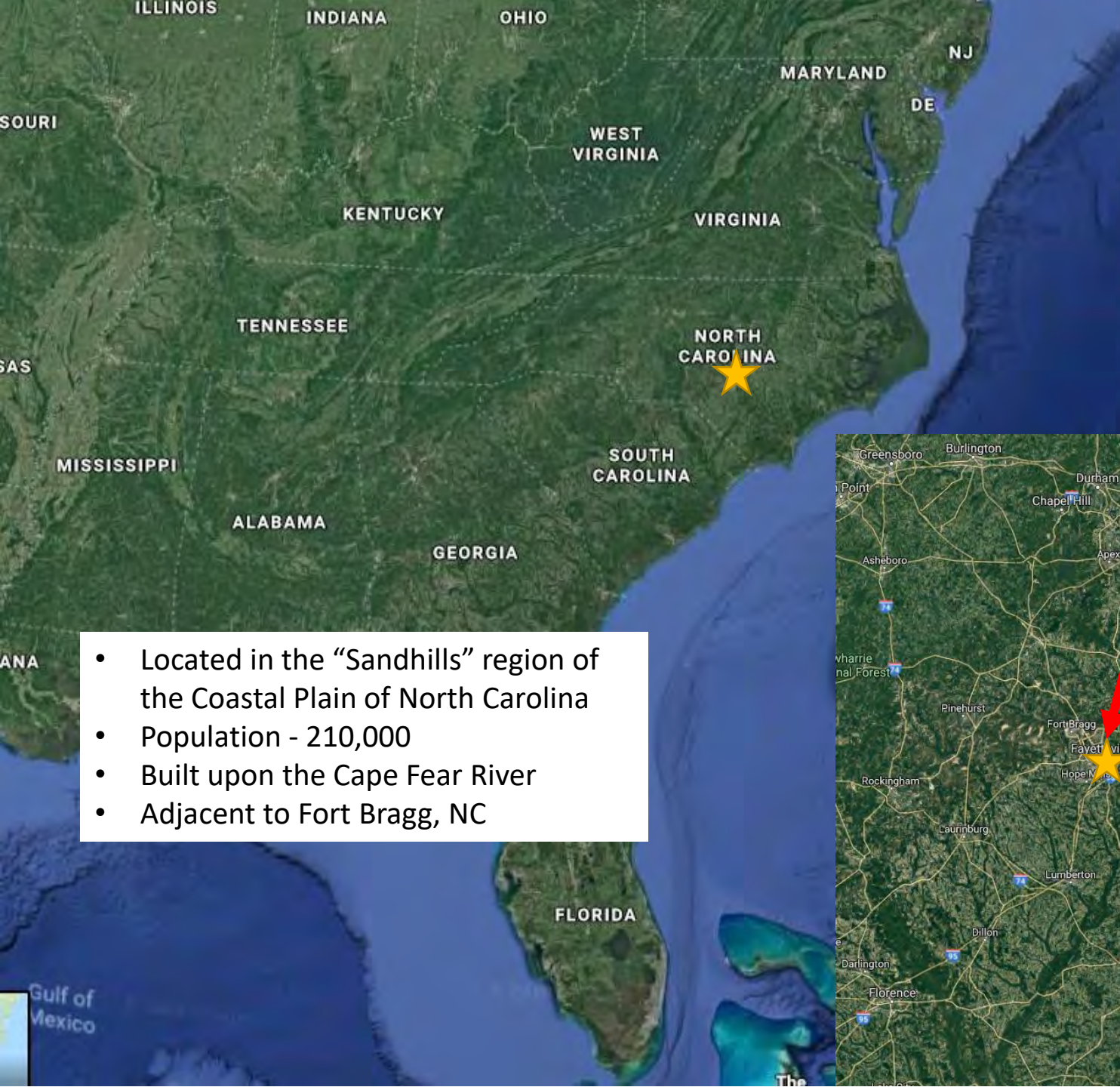
City of
Fayetteville
North Carolina



Agenda

- Brief Background on Fayetteville
- Hurricane Matthew
 - Planning and Partnering
- Hurricane Florence
 - Planning and Partnering
- Recommendations for Peer Communities

Background



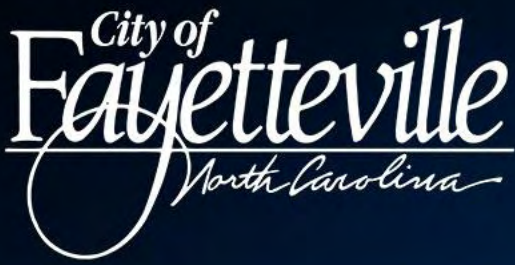
- Located in the "Sandhills" region of the Coastal Plain of North Carolina
- Population - 210,000
- Built upon the Cape Fear River
- Adjacent to Fort Bragg, NC



City Government Organization

- Council / Manager form of Municipal Government
- Fourteen Departments with approximately 1877 employees
- Public Services Department with 178 employees
 - Engineering Division
 - Streets Maintenance Division
 - Traffic Services Division
 - Solid Waste Division
 - Real Estate Division

Hurricane Matthew - 2016



Hurricane Matthew – 2016 Engineering Division Preparation

- Planning Activities
 - Established a communications plan for Engineering Division
 - Cell phone and address list of key individuals with locations during the storm
 - Instructed to call in with status in the event of family/household emergency and/or once the storm had passed
 - Instructed to be “on-call” and monitor employee hotline for information on reporting back to work
 - Established shift plan for Streets Maintenance Division
- Partnering
 - Engineering Division contacted two on-call consultants to gauge availability for post-storm infrastructure assessments
 - City provided liaison to Cumberland County Emergency Operations Center (EOC)

Hurricane Matthew - 2016

- Category 5 Hurricane – September 28, 2016 to October 9, 2016
- Catastrophic damage and a humanitarian crisis in Haiti
- Widespread devastation in the southeastern US
- Made landfall near Myrtle Beach, SC as a Category 1 hurricane on the morning of October 8, 2016



Hurricane Matthew - 2016

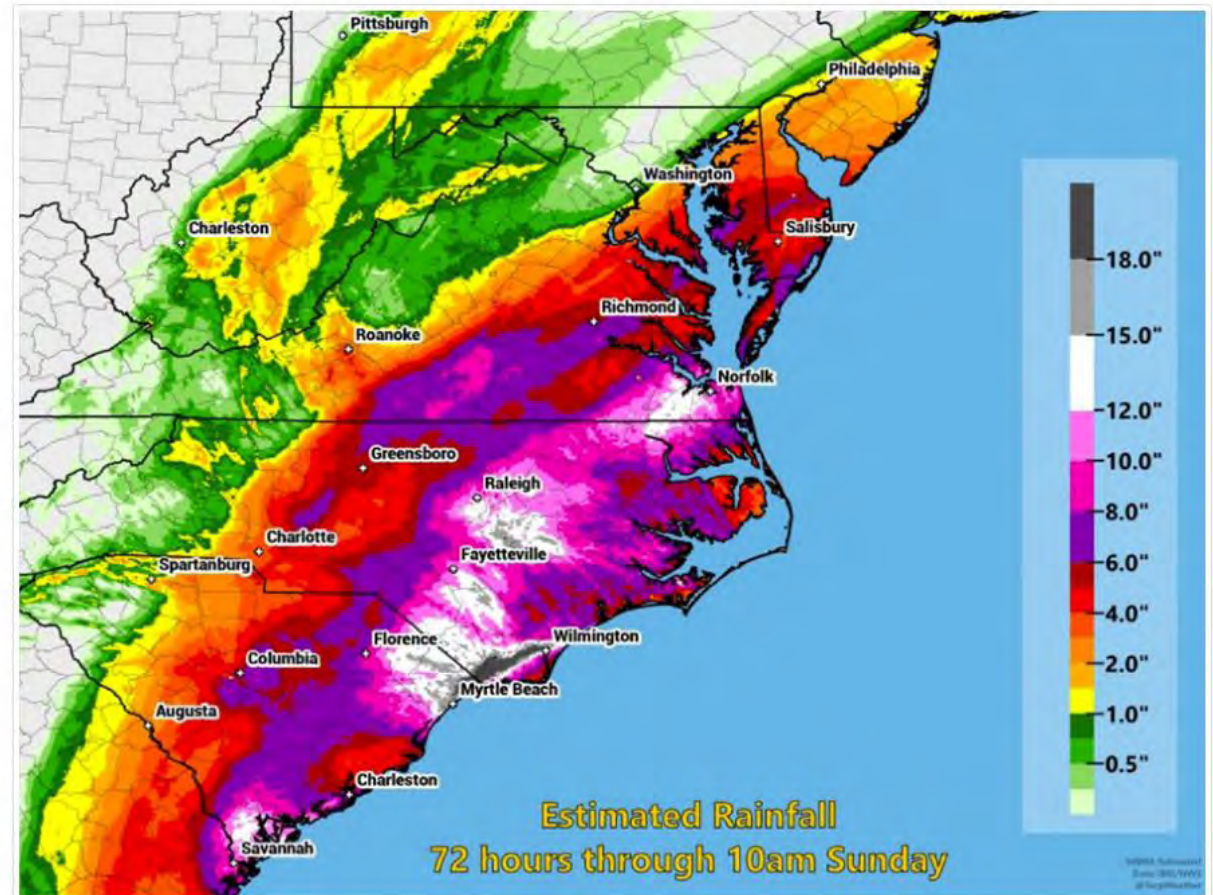
- Impacts Across North Carolina
- Twenty-six people died in storm-related incidents across North Carolina
- Nearly 900 people were rescued by boat crews by the morning of October 9
- Unprecedented flooding across the state with Fayetteville and Lumberton among the hardest hit communities

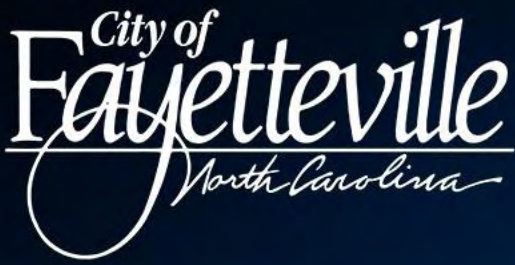


Hurricane Matthew - 2016

- Impacts in Fayetteville
- 50 homes substantially damaged within the floodplain; dozens of others damaged outside the floodplain
- Two neighborhoods isolated from emergency services
- Multiple dam breaches and culvert wash-outs
- Damage to historic bridge

Hurricane Matthew: Rainfall Totals



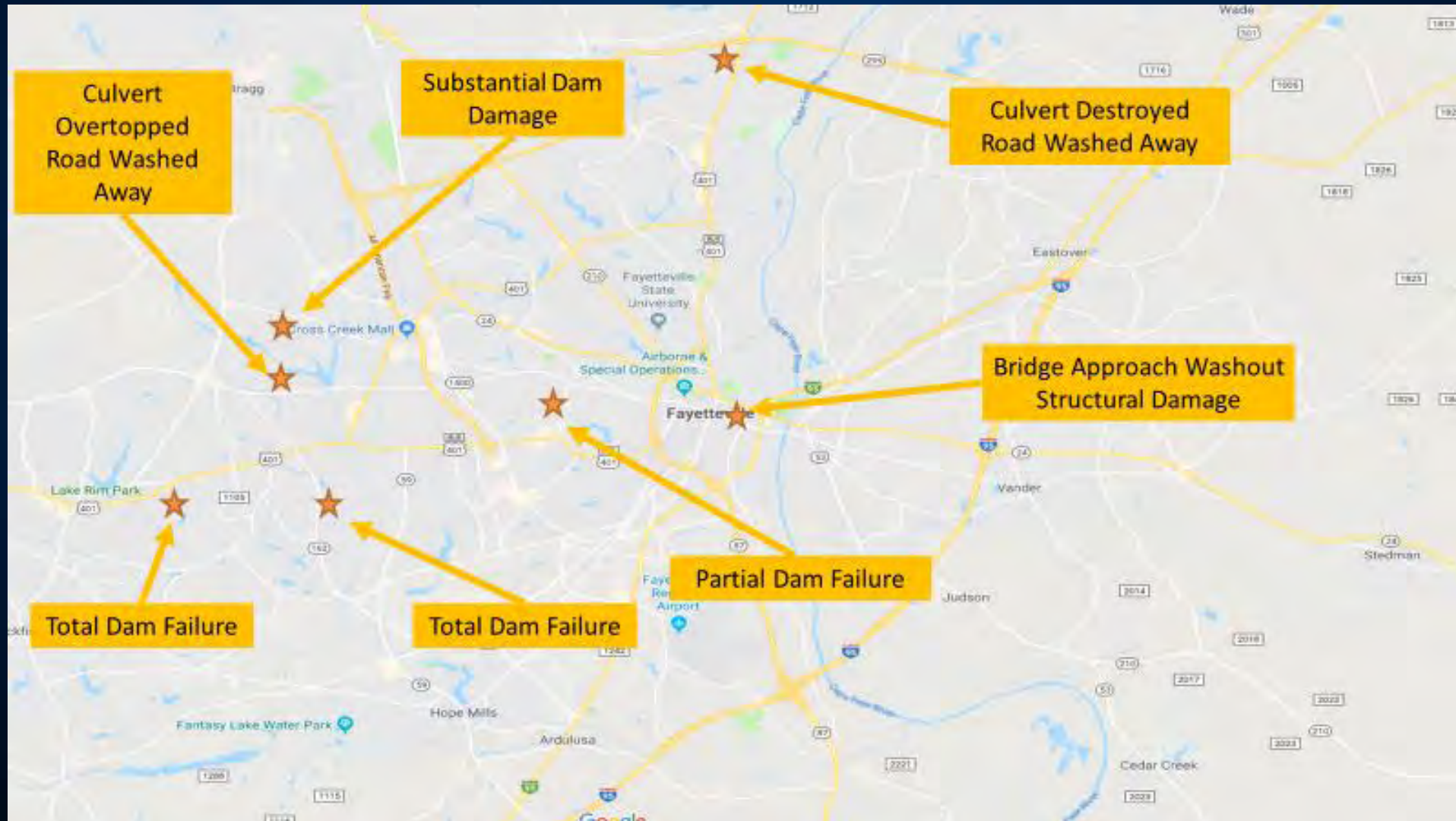


Hurricane Matthew – 2016 Engineering Division Response

- Notified at 8:30 AM on Sunday, October 9, 2016 to report to the Cumberland County Emergency Operations Center at 10 AM
 - Director, City Engineer, & Construction Manager
 - Conducted site visits across the City
 - Allow director to witness scope of destruction
 - Verify the magnitude of damage and validate road closures
 - Confirmation that repairs would exceed City staff capacity
 - Preliminary visual assessment

What we found...

Hurricane Matthew – 2016 Major Infrastructure Damage



Shawcroft Road Culvert



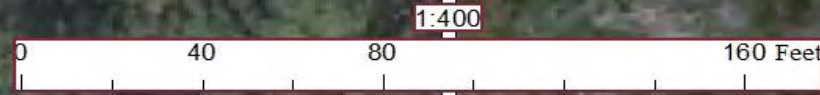
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SHAWCROFT ROAD



ANR 4-23-2018

2013 IMAGERY



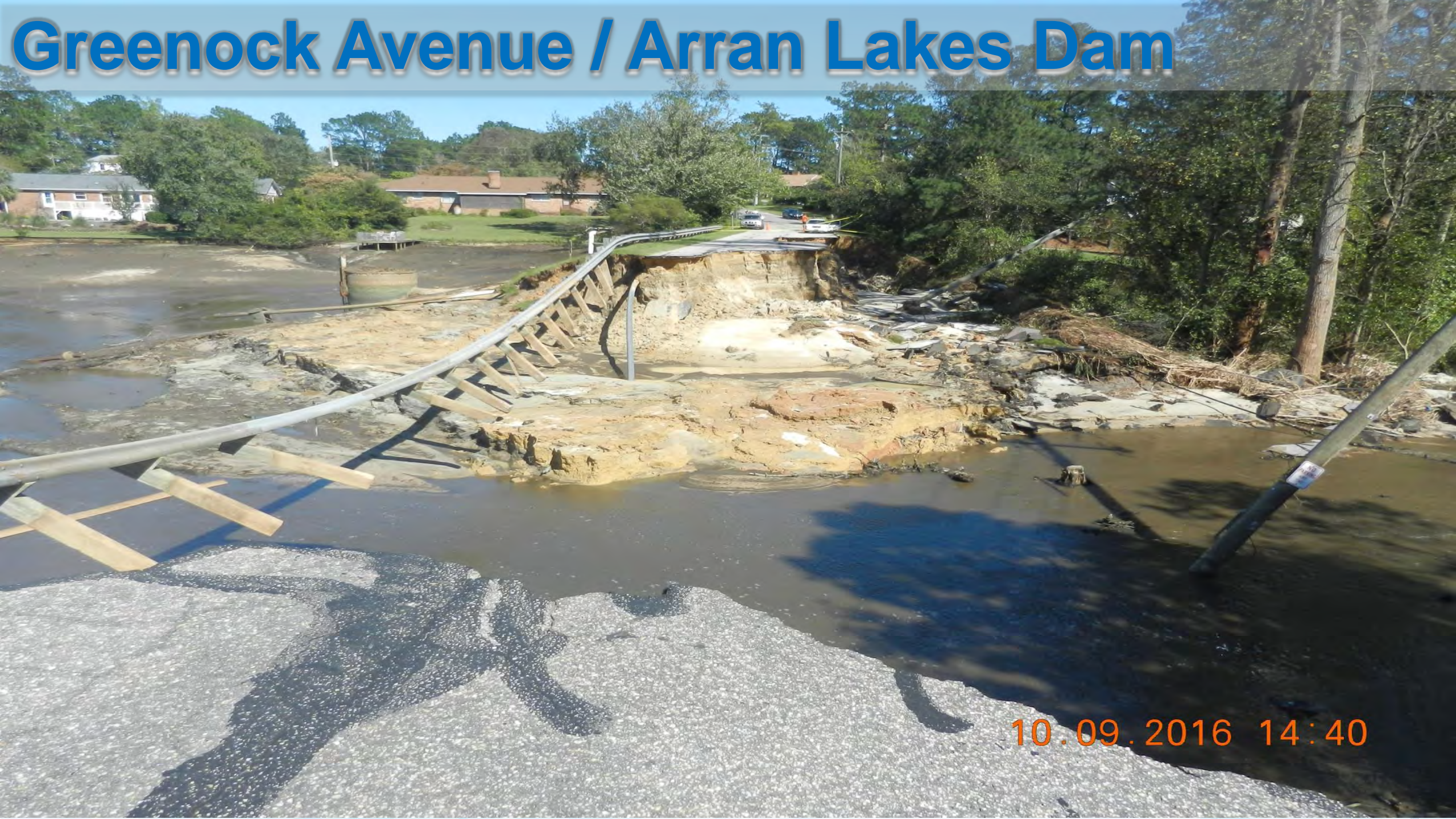
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Siple Avenue / Rayconda Upper Dam

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Greenock Avenue / Arran Lakes Dam



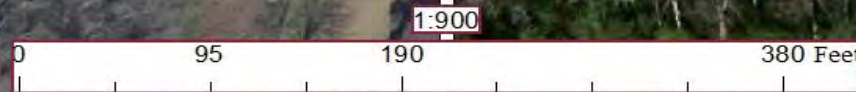
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ARRAN LAKE DAM - GREENOCK AVE.



ANR 4-23-2018

2013 IMAGERY



2017 IMAGERY

Greenock Avenue / Arran Lakes Dam



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Offing Drive Culvert



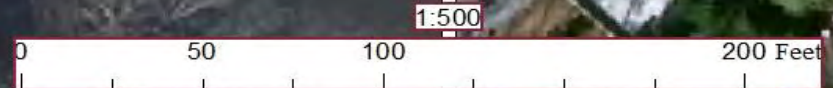
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OFFING DRIVE AT STEWART CREEK



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North Cool Spring Street Bridge



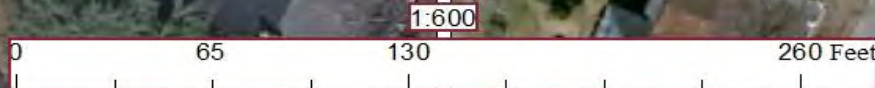
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N. COOL SPRING STREET



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2017 IMAGERY



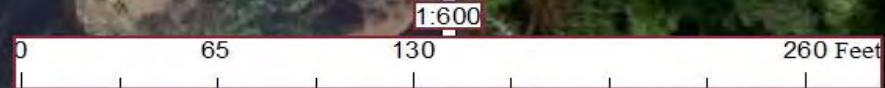
Mirror Lake Drive / Mirror Lake Dam

MIRROR LAKE DAM



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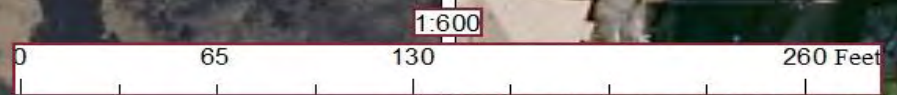
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DEVONWOOD LOWER DAM



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LAMON STREET AT CROSS CREEK



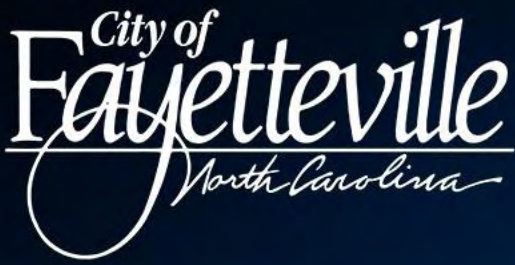
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0 130 260 520 Feet

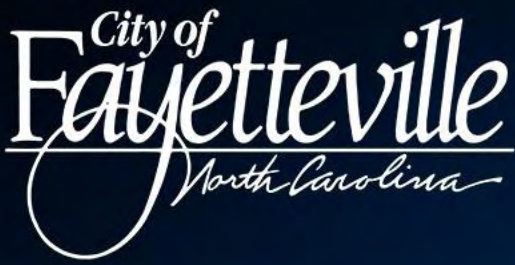
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2017 IMAGERY



Hurricane Matthew – 2016 Engineering Division Response

- Response phase lasted approximately 30 days
- Partnering
 - Contacted on-call engineering consulting firms to perform post-storm engineering evaluations of major infrastructure including bridges, dams, and culverts
 - Contacted local construction firm to perform emergency repair of washed out roads that provided single point of access to neighborhoods
- Planning
 - Attended FEMA kick-off meeting and site visits
 - Identified FEMA procurement requirements
 - Issued Request for Qualifications (RFQ) to select program manager and engineers to begin repair process



Hurricane Matthew – 2016 Engineering Division Recovery

- Recovery phase is on-going
- Planning
 - Obligation of FEMA and State funding
 - City Council appropriation of project funding
- Partnering
 - Residential housing assistance coordinated with Cumberland County officials
 - Selection of Program Manager
 - Freese & Nichols, Inc. – Raleigh, North Carolina
 - Selection of Design Consultants
 - Fleming & Associates – Fayetteville, North Carolina
 - WK Dickson – Raleigh, North Carolina
 - Hazen – Raleigh, North Carolina
 - Schnabel Engineering – Greensboro, North Carolina
 - STV – Charlotte, North Carolina

Hurricane Matthew – 2016 Engineering Division Recovery

- Recovery still on-going
 - Residential buy-out process still underway
 - Some residents have never returned to their homes
 - Only two of six major infrastructure projects complete
 - Bridge approach and culvert
 - Dam and culvert underway
 - Dam and bank repair yet to be started
- Anticipated completion in mid-2020 of all projects
 - Potentially four years to recover from infrastructure losses
 - Residential losses may never be able to be fully recovered

Hurricane Florence - 2018

Hurricane Florence - 2018

- Category 4 Hurricane – August 31, 2018 to September 17, 2018
- Made landfall near Wrightsville Beach, NC as a Category 1 hurricane on the morning of September 14, 2018



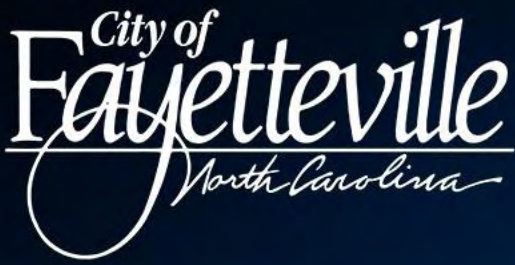
Hurricane Florence - 2018 Engineering Division Preparation

- Planning Activities
 - Updated communications plan for Engineering Division and expanded to the entire Public Services Department
 - Established a City Coordination Center with key Department representatives independent of County EOC
 - Prepared RFQ for program manager and submitted for advertising
- Partnering
 - Called multiple on-call consultants to gauge availability for post-storm infrastructure assessments
 - City provided liaison to Cumberland County Emergency Operations Center (EOC)

Hurricane Florence - 2018

- Impacts in Fayetteville
 - Dozens of homes flooded
 - Minor infrastructure damage
 - Separated pipe sections at culvert outfall
 - Debris accumulation at bridges
 - Additional bank failure at a Hurricane Matthew project
- Relatively mild compared to Hurricane Matthew but still millions of dollars in damages





Hurricane Florence - 2018 Engineering Division Response

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- Partnering
 - Contacted on-call engineering consulting firms to perform post-storm engineering evaluations of major infrastructure including bridges, dams, and culverts
- Planning
 - Attended FEMA kick-off meeting and site visits
 - Identified FEMA procurement requirements
 - Issued Request for Qualifications (RFQ) to select program manager and designer to begin repair process



Hurricane Florence - 2018 Engineering Division Recovery

- Recovery phase is on-going
- Planning
 - Obligation of FEMA and State funding not yet complete
 - Additional documentation needed
 - City Council appropriation of project funding not yet complete
 - Finance office will not recommend appropriations without federal and state commitments
- Partnering
 - Selection of Program Manager and Design Consultant
 - Freese & Nichols, Inc. – Raleigh, North Carolina

Hurricane Michael - 2018

Hurricane Michael - 2018

- Devastated the Florida panhandle
- Fayetteville, North Carolina
 - Less than 2" of rain
 - Still recovering from Florence
 - Instituted the same plan
- Burke County, North Carolina
 - 9 inches of rain
 - 285 miles from the ocean
 - 455 miles from point of landfall
- Middlesex County, Virginia
 - 9.3 inches of rain
 - 740 miles from point of landfall



Peer Community Recommendations

Recommendations for Peer Communities

- Planning
 - Hurricanes aren't just a coastal problem
 - Lighting can strike twice
 - Matthew and Florence made landfall within 60 miles of each other
 - 350-400 mile wide storms
 - Florence and Michael struck North Carolina within 28 days of each other
 - Have a tentative plan going into the storm
 - Who will report, where, and when
 - Who is the alternate if the primary can't report
 - How people will be transported to and from a place to rest or home
 - Consider dedicating some assets to this
 - Identify funding to bring on help quickly
 - Have preliminary estimates prepared before FEMA arrives
 - Large projects \$125,500
 - Get to know the folks at your State Emergency Management Office
 - FEMA employees – transient, temporary, inconsistent, gone

Recommendations for Peer Communities

- Partnership
 - Outsource everything you can
 - FEMA will pay
 - Conserve staff resources
 - Survey, real estate appraisals, bid document preparation, construction inspection, design review
 - Remember your employees are victims too
 - Reporting during and after the storm
 - Check on families and homes
 - Shift work – who does it and who does not
 - Have RFQ's prepared in advance
 - Find out from State if you can get federal provisions in advance
 - Advertise before the storm
 - “President Donald Trump approved Gov. Roy Cooper's request for Federal Disaster Declaration in advance of Hurricane Florence, according to a tweet from Cooper Monday night.” – September 10, 2018 – CBS 17

Questions



City of Fayetteville North Carolina

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