



NORTH CAROLINA

Department of Transportation



NCDOT – Division of Highways Hurricane Response

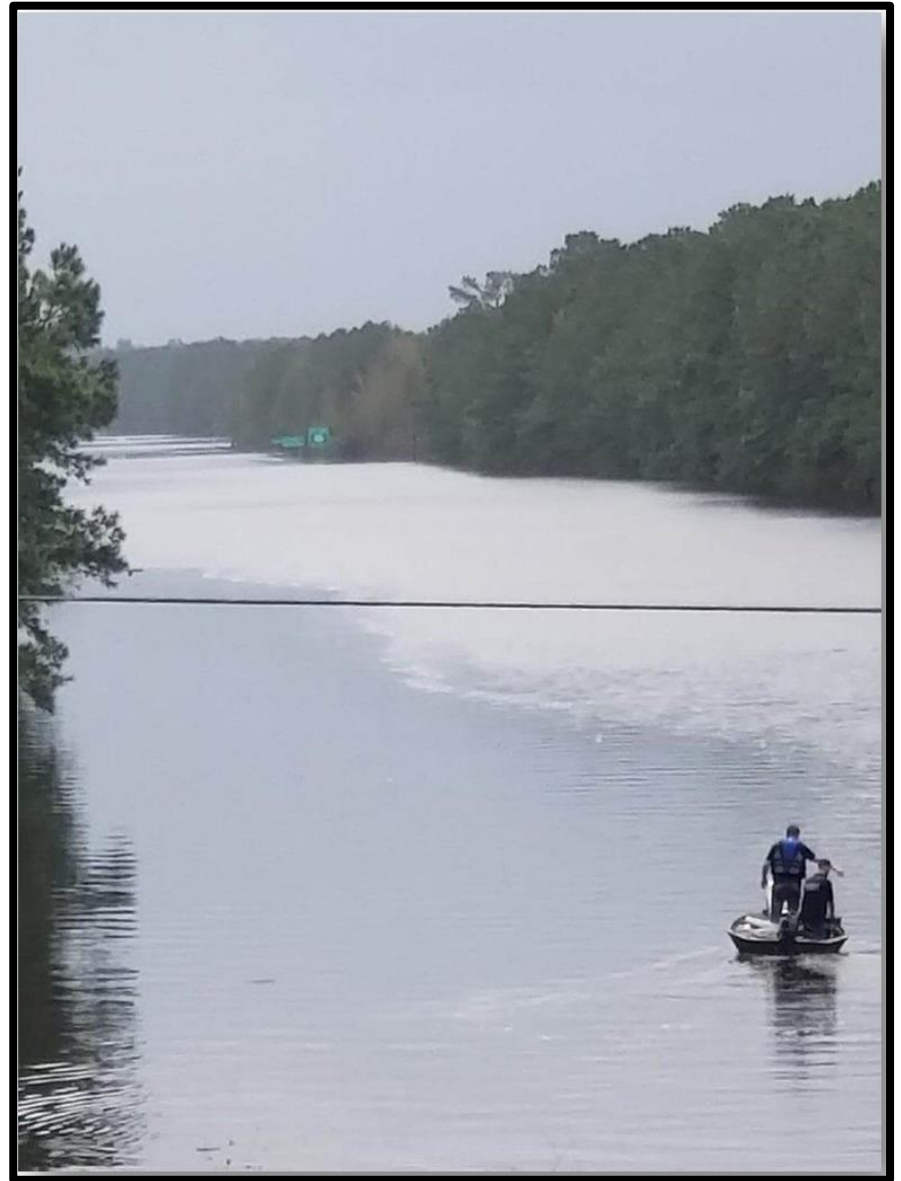
Tim Little, PE, NCDOT Chief Engineer

November 8, 2018

NCDOT's Storm Impacts & Response



I-95 at Exit 17 in Lumberton



I-40 in Division 3

Road Closures – Florence & Michael

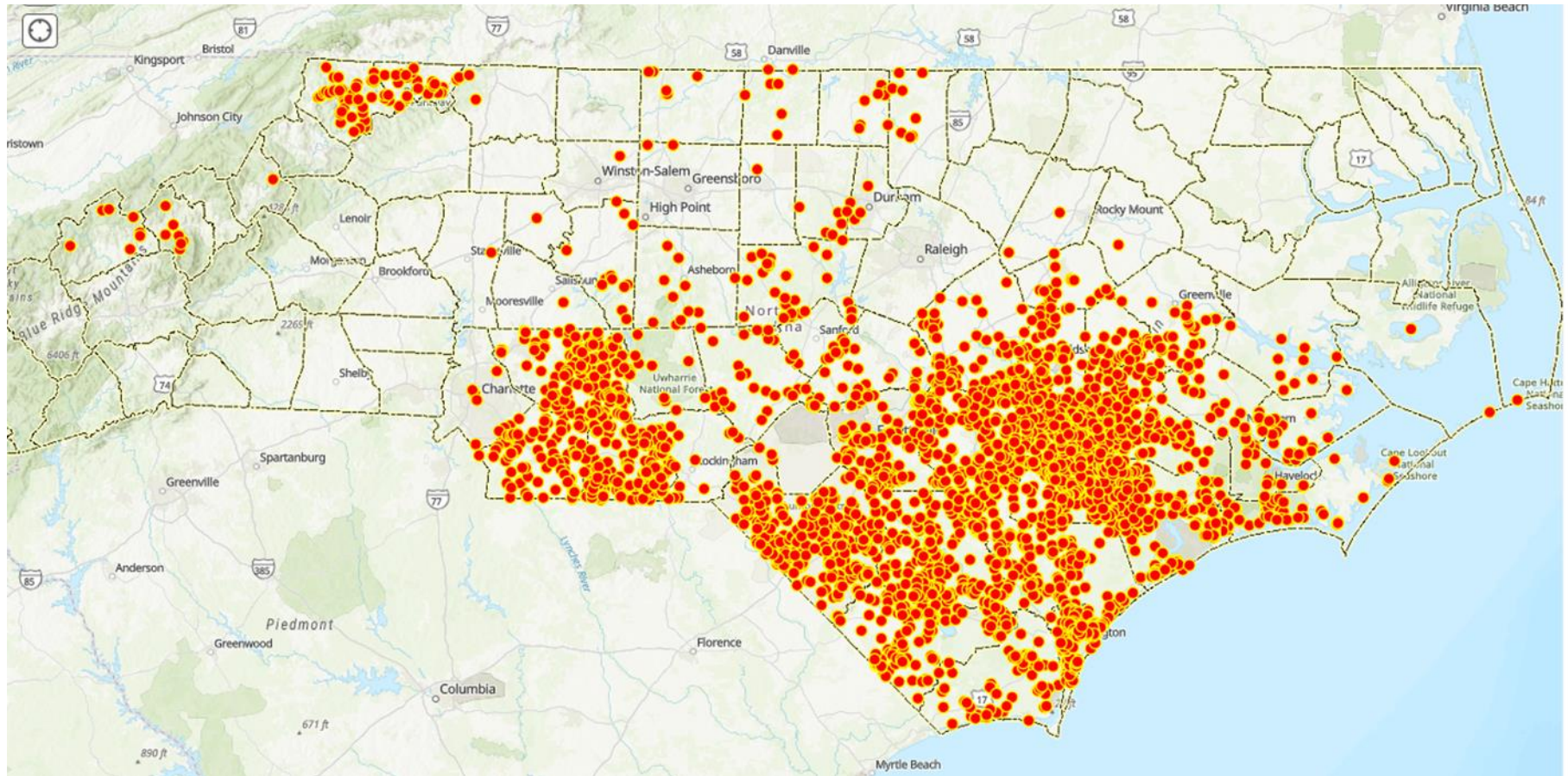
Maximum Number of Road Closures with Each Storm Event:

Storm Event	Maximum No. of Closures (at one time)	Date
Florence	1576	September 17th
Michael	528	October 12th

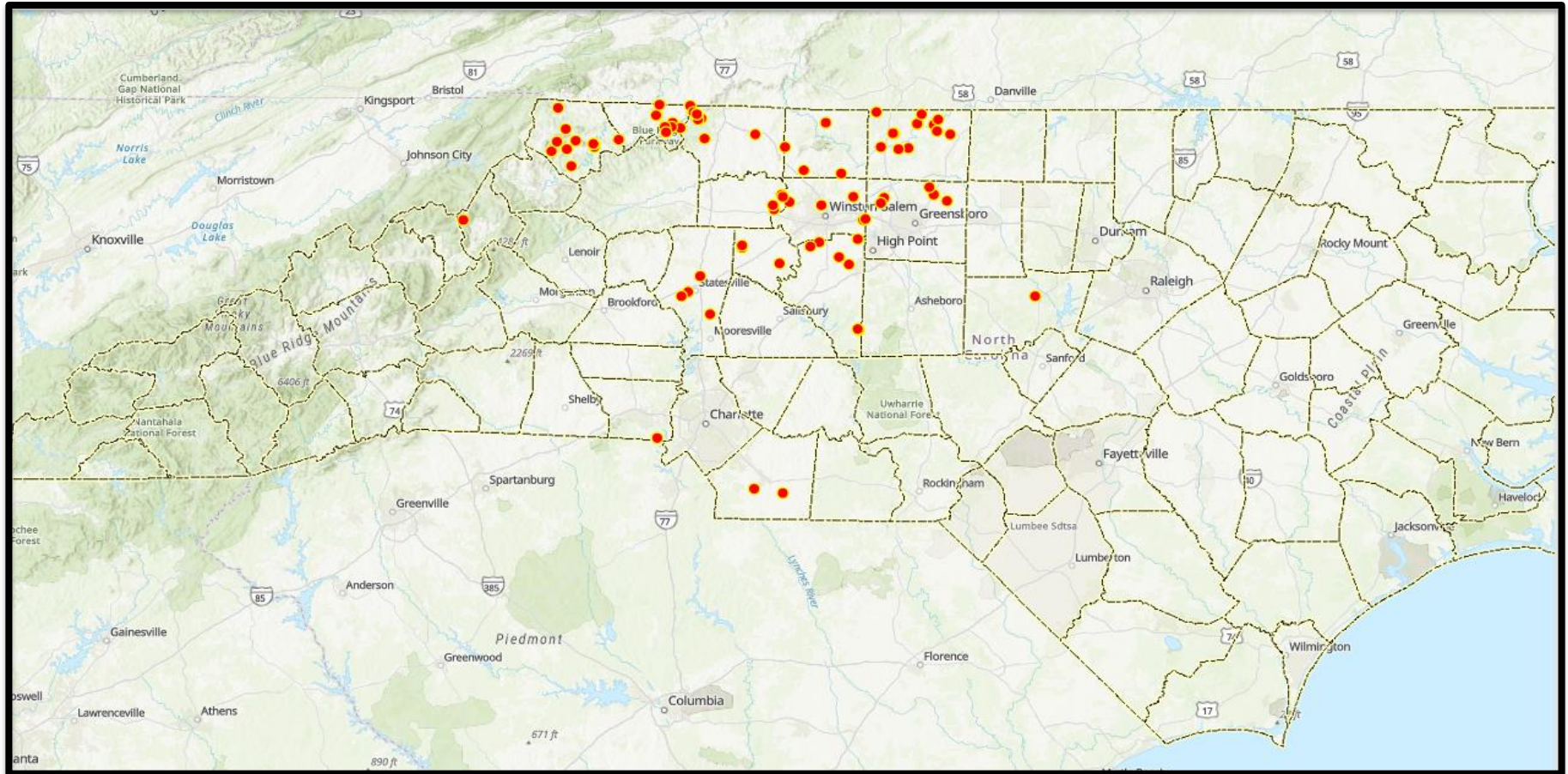
Road Closures as of November 1st:

Storm Event	Road Closures
Florence	39
Michael	10

Response and Recovery Florence Damaged Sites



Response and Recovery Michael Damaged Sites



US 421 New Hanover/Pender



US 421 New Hanover/Pender

September 27, 2018



US 421 New Hanover/Pender

October 1, 2018



US 421 New Hanover/Pender

October 28, 2018



Division 3 – Hoover Road



Hurricane Michael – Storm Impacts



Division 14, Polk County, Holbert Cove Road



	Florence	Michael
No. of Sites	3,500	80
FEMA Sites	2,200	50
FHWA Sites	725	20
Debris Sites	12,233	2,310
Pipe Sites	415	
Peak Road Closures	1,576	358
Types of Damage	Roadway = 75% Pipe = 19% Bridge = 4% Culvert = 1% Building/Structure = 1%	Roadway = 51% Pipe = 43% Bridge = 2.5% Culvert = 2.5% Building/Structure = 1%

Matthew Sites Impacted by Florence



Division 2, Lenoir County, Matthew Site

Division	No. of Matthew Sites Impacted
Division 2	3
Division 3	0
Division 4	4
Division 6	8
Division 8	0
Division 10	0

- 15 out of 415 bridge pipe sites were Hurricane Matthew sites
- Damages at the sites were mostly slope failures due to scour and not pipe failures

Pipe Damage Locations



Hurricane Florence Pipe Recommendation Request DASHBOARD

STATEWIDE

415

Pipe
Recommendation
Requests

Statewide Pipe Recommendation Request Status

■ If Hydro Test Completed
■ If Hydro Test Outstanding



NOTES:

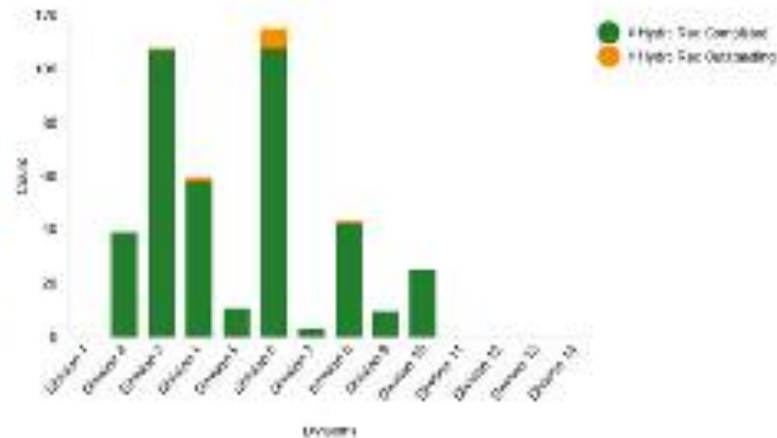
These statistics are dynamic and updated in real time as data is being assimilated. Therefore statistics may vary dramatically from one day, or even one hour to the next.

Some recommendation requests come with basic measurement data and some requests do not.

Data capture is happening in a variety of ways. Preliminary data coming directly from divisions at the time of the incident identification is sent to NCDOT Hydris for a pipe recommendation. In some divisions hydris engineers (consulting teams) are sent to collect basic field data and subsequently make pipe recommendations.

Field measurements will also proactively ensure constructability and avoid in proactively resolving environmental permit issues.

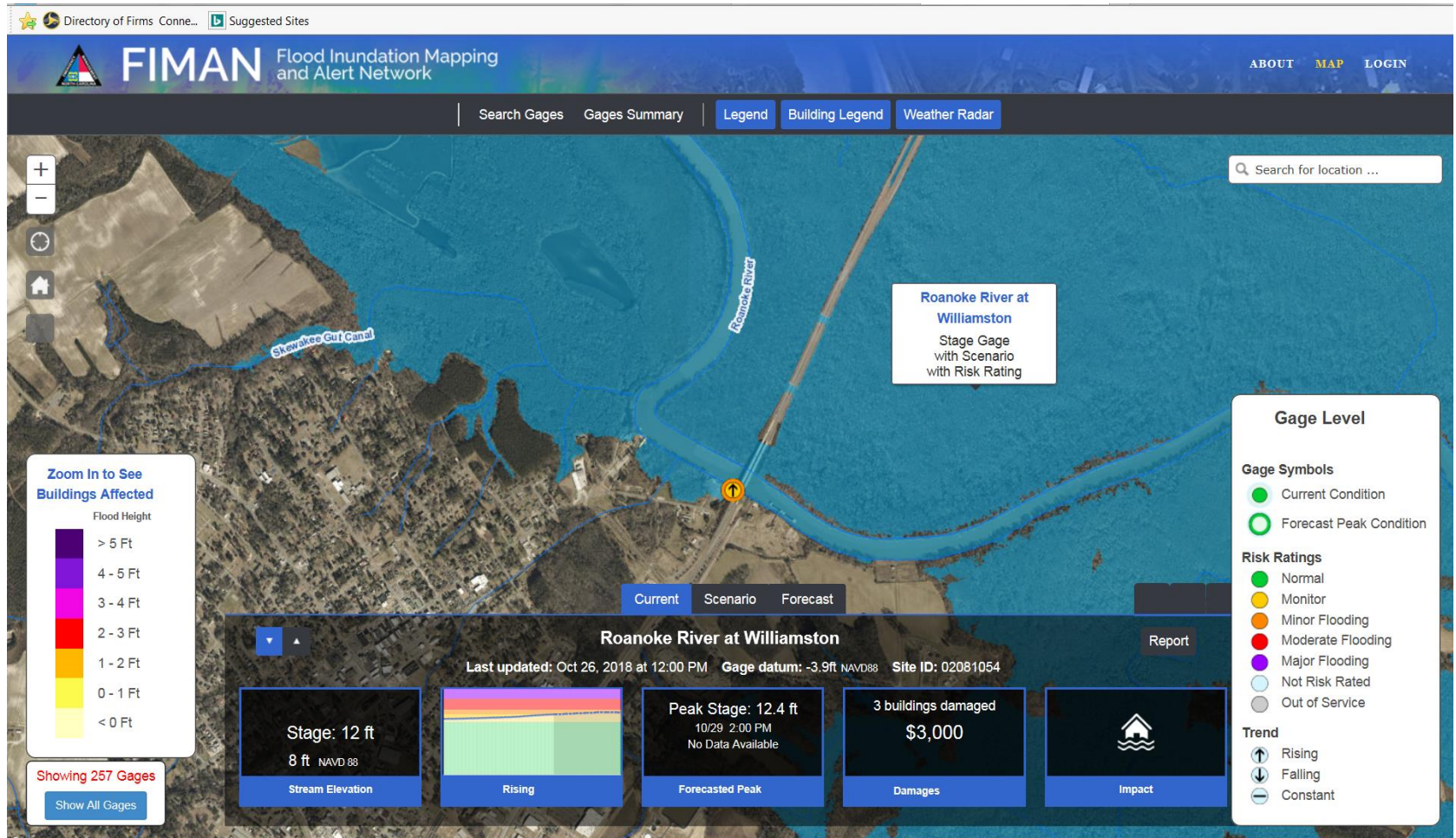
Division Pipe Recommendation Request Status



Hurricane Florence - Statewide Pipe Recommendation

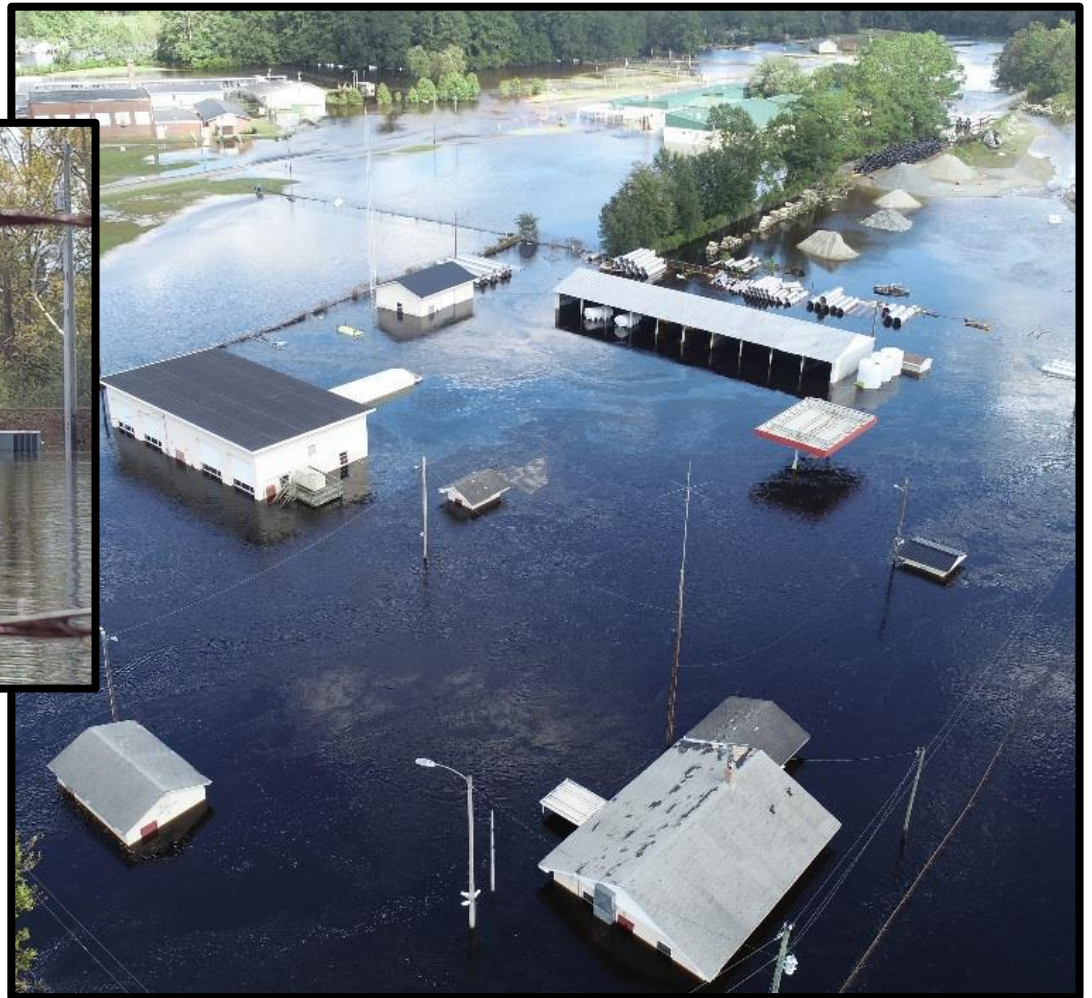
Division	County	Proposed Pipe Size	Alternate Pipe Size 1	Alternate Pipe Size 2	Proposed Structure Length (ft)	Replaced During Shutdown	GIS - Pipe Recommendation
3	Fayette	1 @ 12" x 55" CAPA uHW	1 @ 60" Pipe uHW			No	
3	Carteret	3 @ 60" Pipe uHW	3 @ 12" x 55" CAPA uHW	3 @ 60" Pipe uHW		No	View Project Data on GIS
3	Carteret	3 @ 60" x 60" CAPA	3 @ 12" x 55" CAPA uHW			No	View Project Data on GIS
3	Cowan	1 @ 102" x 11" CAPA uHW	3 @ 60" Pipe uHW			No	

NC Flood Inundation Mapping and Alert Network



NCDOT's Impacts

Trenton Maintenance Yard, Jones County



NCDOT's Impacts

Employees Personally Impacted by Florence

Unit/Division	No. of Employees
Division 2	9
Division 3	42
Division 4	22
Division 6	44
Division 8	5
Materials & Tests	7
Chief Engineer's Office	1

Questions?



Tim Little, P.E.

Chief Engineer

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