



## **NORTH CAROLINA**

Department of Transportation



# **NCDOT Hurricane Florence**

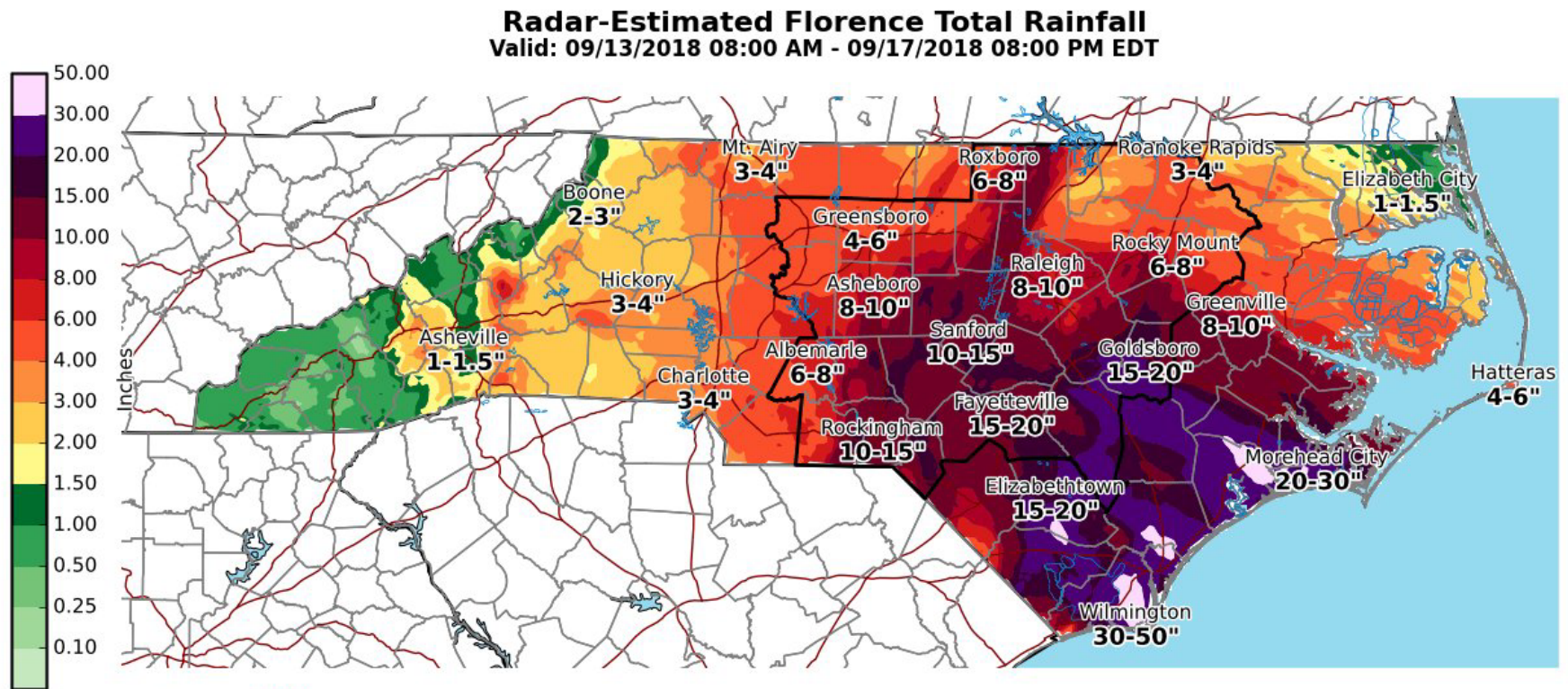
## **House Select Committee**

### **Strategic Transportation Planning and Long Term Funding**

**10/3/2018**

# Hurricane Florence Overview

# Total Estimated Rainfall



National Weather Service  
Raleigh, North Carolina  
09/18/2018 04:10 AM EDT

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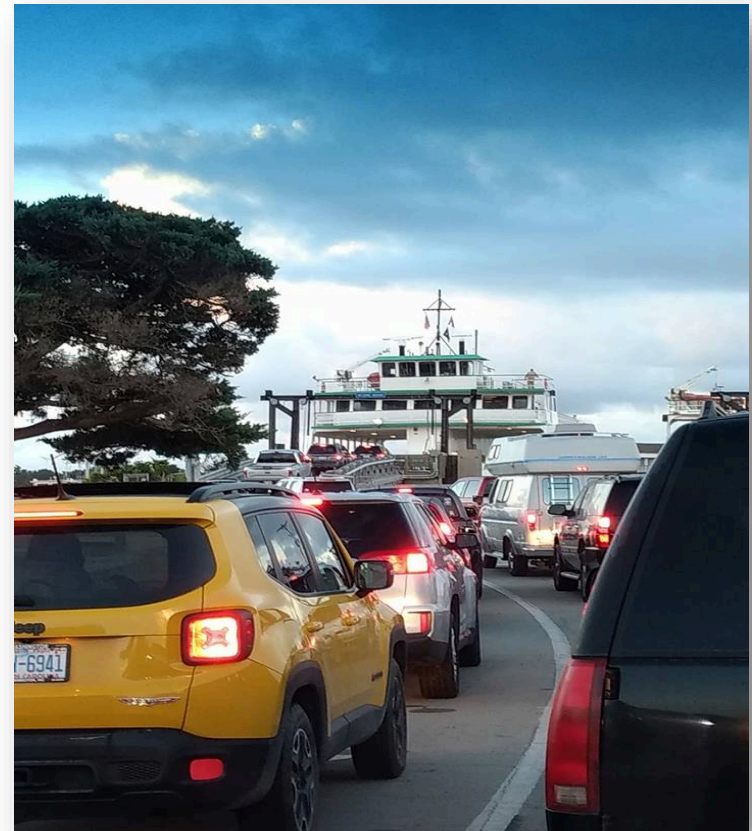
# For Reference

- Estimated 8 trillion gallons of rain = Over 1 trillion cubic feet
- Jordan Lake approx. 2 billion cubic feet in volume
- **Could fill Jordan Lake over 536 times**
- Current N.C. population = 10.27 million
- **Rained almost 779,000 gallons / person**



# Evacuation

- Coordinated with NC SHP and executed immediate tows of disabled vehicles along evacuation routes
- Implementation of signal system timing on major evacuation routes to facilitate better traffic flow from evacuating areas
- Constant contact with other states on traffic management of inter-state evacuation routes
- IMAP crews on evacuation routes to keep traffic moving
- **Ferry Division evacuated 1,074 vehicles and 2,181 people**



# Evacuation Routes

## Daily Average Speeds (mph)

ROUTE	9/10/18	9/11/18	9/12/18
I-40	71	63	70
I-95	68	66	69
US-17	50	51	51
US-64	61	62	61
US-70	49	46	49
US-74	64	57	65
US-264	55	55	54
US-421	53	53	53
NC-24	48	44	50
NC-210	49	48	50



# Preparations for Florence

- Division of Highways
  - All equipment was inspected and fueled
  - Materials were stockpiled for recovery efforts (signs, pipes, stone, etc.)
  - All ongoing construction was halted
  - Project sites were inspected and secured
  - Employees were identified to be shifted to other areas of the state for recovery

# Division of Highways

<b>Division Personnel</b>	<b>2,384</b>
<b>Chain Saws</b>	<b>1,285</b>
<b>Trucks (Dump Trucks &amp; Flat Beds)</b>	<b>1,480</b>
<b>Heavy Equipment</b>	<b>653</b>
<b>Barricades</b>	<b>3,326</b>
<b>Signs (Road Closed and High Water)</b>	<b>5,120</b>

- 380 contractors were on stand-by to assist the Department
- Deployed 58 satellite phones to maintain communications

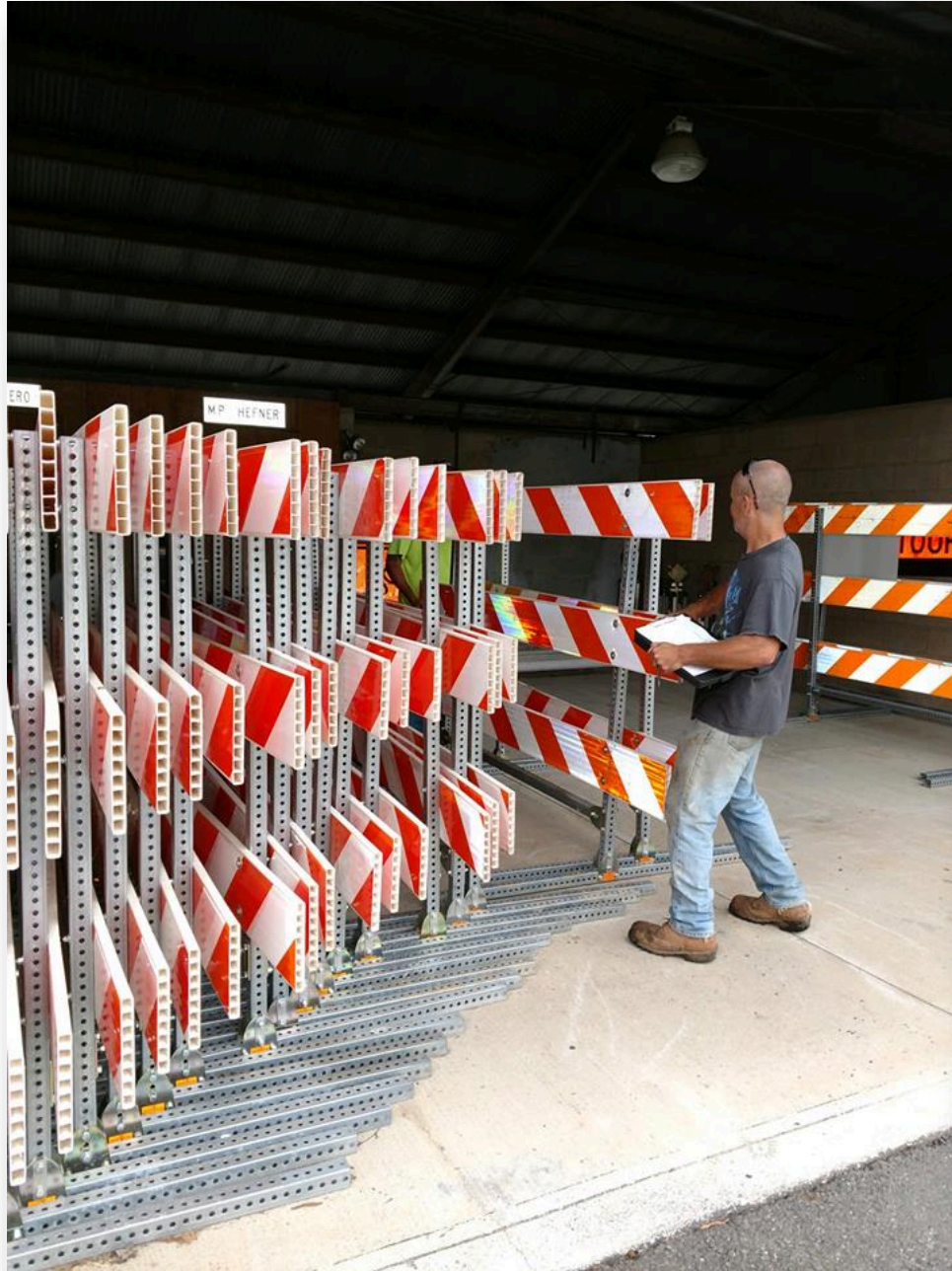


# Pipe Inventory and Preparation

- In advance of the storm NCDOT evaluated the most common size pipes replaced during Hurricane Matthew
- Worked with local suppliers to purchase approximately 8000' of pipe stock and staged at sites easily accessible in Fayetteville, Raleigh, and Salisbury.
- We also shared a statewide inventory of over 75,000 feet of pipe with all Divisions







# Public Transit

- Organized 184 buses for use prior to and during the storm
- Used for evacuation and transport between shelters
- Conducted 3,325 total trips during active period

# Aviation

- The Photogrammetry aircraft (King Air C90) was readied for post-event damage assessment.
- 15 NCDOT drones and multiple pilot teams were staged for post-event damage assessment.
- Unmanned Traffic Management structure was already in place across the state to de-conflict drones and manned aircraft, and manned the NC EOC to support airspace coordination.



# Global TransPark

- Global Transpark in Kinston hosted the Eastern Branch Emergency Management for Hurricane Florence.
- 1,500 federal and state emergency response agencies and military teams from across NC + US
- Crews arrived late Tuesday (9/11/18).
- Fully operational by Wednesday (9/12/18).



# Damage and Recovery



# Post-Storm Resource Movement

- 40 crews = 257 employees
- 238 trucks and supporting equipment



# Road Conditions Changing Quickly





# Road Closures

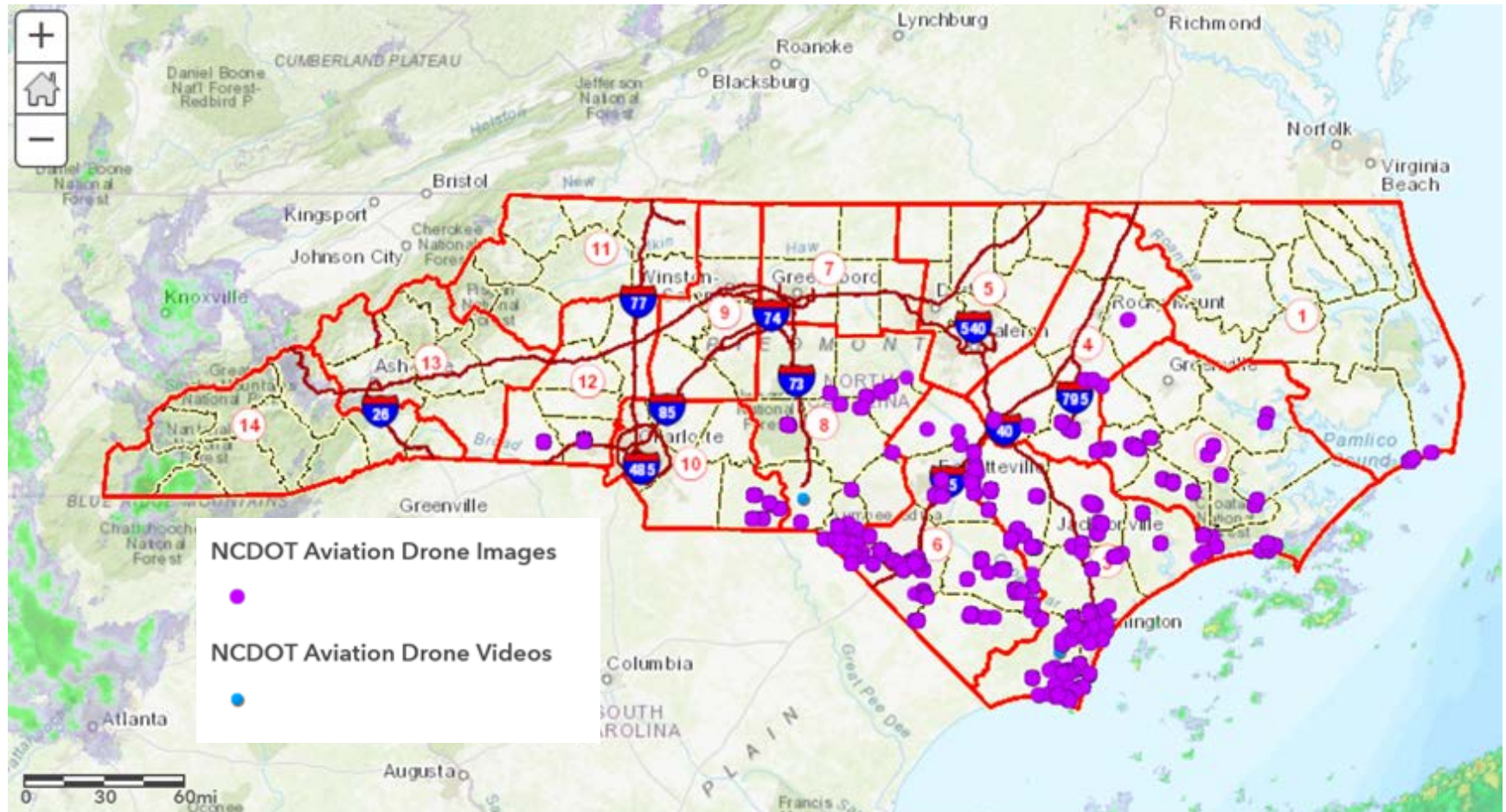
- Over 2,500 road closures
- 131 (8:00 a.m. 10/3/18)
- Major interstates closed due to flooding
  - I-95 closed to all intrastate traffic
    - Reopened 9/23
  - I-40 closed
    - Reopened 9/24

	Interstate	US	NC	Secondary	Total
Statewide Totals	0	3	7	116	126

# Services Returning

- All passenger and most freight rail service has resumed (except CSX to Wilmington, and some Short Line)
- Ports open to commercial traffic (9/20)
- All ferries are operating normally
- All DMV offices are open – Will also support FEMA Disaster Recovery Center

# UAS Deployment





# US – 421 Drone Footage





# Site Damage

Number of Sites

**3,101**

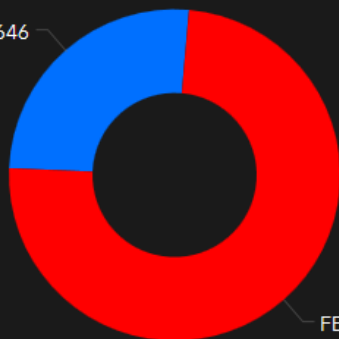
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**Cost TBD**

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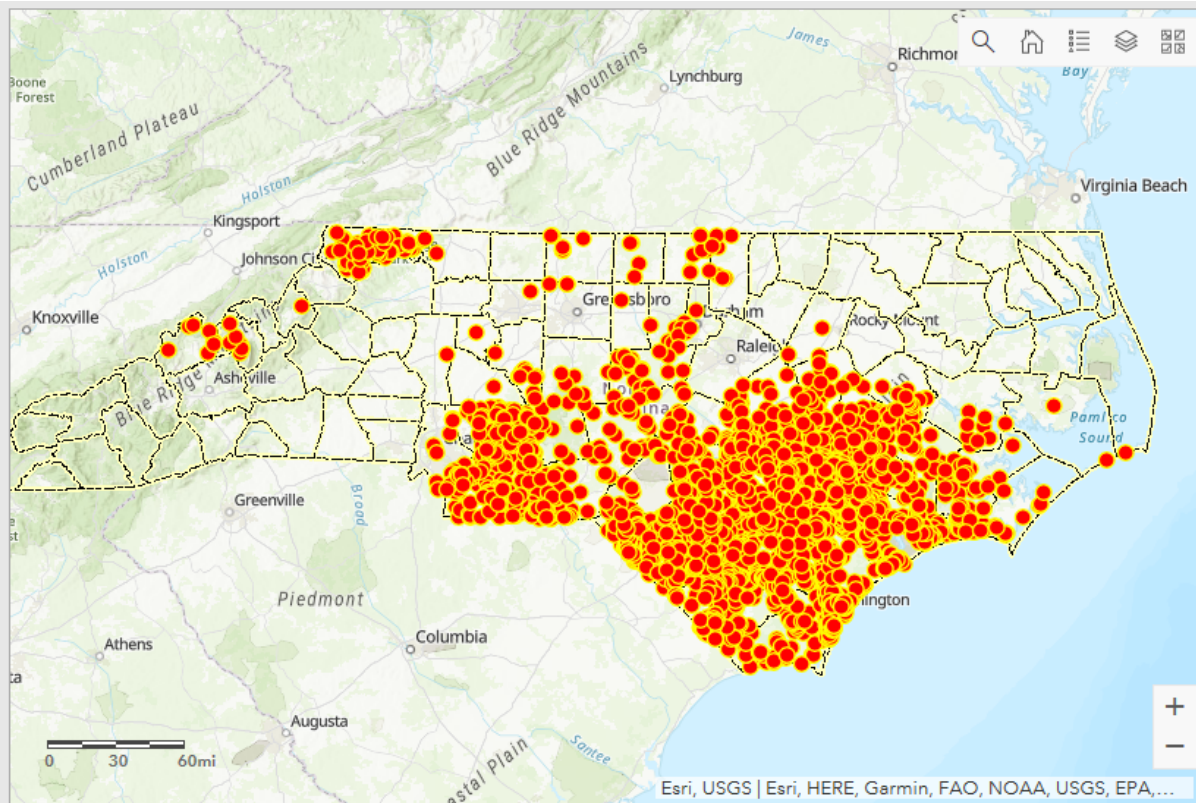
Federal Agency

FHWA 646



FEMA 1.9k

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# Federal Reimbursements

- FEMA
  - Typically State Maintained Secondary Routes
    - Category A: Debris Removal
    - Category B: Emergency Protective Measures: 75%
    - Category C: Roads and Bridges: 75%
    - Category D: Buildings and Equipment: 75%
- FHWA
  - Typically US, NC and Interstate Routes
    - Limited Debris Removal
    - Emergency Repair: 100% ( $\leq$  180 Days)
    - Permanent Repair: 90% Interstates, 80% all other federal



I-40



## I-95 at exit 17 in Lumberton





## US 421 New Hanover/Pender







# I-40 Repairs



# Hoover Road





# Brunswick County

# Focus Going Forward

- Debris Clean-up
- Repairs
- Other (school support, etc.)



# Hurricane Florence State Match Estimate

	Estimated Cost	% Reimbursement	Federal Reimbursement	State Match Request
FHWA	\$65,000,000	90%	\$58,500,000	\$6,500,000
FEMA	\$201,000,000	70%	\$140,700,000	\$60,300,000
Total	\$266,000,000		\$199,200,000	\$66,800,000

# Questions?