This Ain’t Our First Rodeo
Progress and Innovation in Emergency Response Mapping

Elizabeth Thebo & Emily Watts
In the Beginning – Flood 2015

- 1000 year flood
- All hands on deck
Map of closures SCDOT was releasing to the public

- 258 Road Closures
- 83 Bridge Closures

Road and Bridge Closures as of 1400 October 4, 2015
Then came the era of the interactive map...

- SCDOT decided to utilize its ArcGIS online page to create an interactive map

Sounds simple right?
Initial Hurdles

- No laptops
- Lack of training
- Limited Staffing
- No water
- Sinkholes
## Input Data

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To Process Data
(and it was a process)

Edit excel Spreadsheet

Dynamic Segmentation
Route Event Layer

Export to KML

Export to Shapefile

AGOL
Added as a new layer; re-symbolize pop up

Took about 40 minutes and were required to do it every 2 hours. Required using the majority of our staff.
• The application was well received, but we needed to increase visibility of it

• We also needed to shorten the time it took to generate the map, to free up staff time to assist with other request
Meanwhile...

- In addition to updating road closures, GIS was also mass printing maps for inspections, strategic corridor maps, and maps to show federal aid status
MAJOR ROUTES OPEN TO TRAFFIC
OCTOBER 11, 2015

MAJOR ROUTES OPEN TO TRAFFIC
INTERSTATE ROUTES
US ROUTES
SC ROUTES

SCDOT
CLARENDON COUNTY
INTERSTATE RAMP 8733

Berkeley
S-368
From: Rail Road Crossing (2.51)
To: Dead End (2.51)
Not eligible for ER funds based on functional class.
And routing football traffic...
Here We Go Again – Matthew 2016

- We worked closely with our communications office to share the application via social media.
- We worked with our IT to add a link to the storm resources page.
Road Conditions

HURRICANE RESOURCES

Travelers Information

Go to SC 511

Enhanced 511 Traveler Information provides traffic camera images, travel time estimates and other technological tools.

Road Conditions

Interactive Road Conditions Map

Road Conditions List

The list shows all current conditions.

Google Earth KML file with Road Conditions
Ease of Updating

Phase 1:
- Edit excel Spreadsheet
- Dynamic Segmentation
  - Route Event Layer
- Export to KML
- Export to Shapefile
- AGOL
  - Added as a new layer; re-symbolize popup

Phase 2:
- KML
- Shapefile
- AGOL
  - Replace existing file

Phase 3:
- KML
  - As a web service
- AGOL
  - Automatic refresh every 10 minutes
Road Conditions

These are the current active road conditions on the SCDOT maintained roads. Click on the purple lines to see details about conditions.

***THESE ARE CONDITIONS ON SCDOT MAINTAINED ROADS ONLY. FOR NON-STATE MAINTAINED ROAD CONDITIONS PLEASE CONTACT YOUR LOCAL AGENCY.***

**For information on closures in North Carolina click here or call 1-877-511-4662**

To search for a specific location, click the magnifying glass to the right and type in the full address including city and state.

If you are using a GPS enabled device, click on the locate me button. The locate me button is directly above the magnifying glass.

For more information please call 1-855-GO-SCDOT (1-855-467-2368)
Evacuation Routes

1. All SCDOT Evacuation Routes and Map Information
   Welcome to SCDOT's interactive Evacuation map. LANE REVERSALS have been discontinued. I-26 and US 501 have returned to normal operation with traffic moving in both directions.

2. North Myrtle Beach

3. Myrtle Beach, Surfside, Garden City

4. Mt Pleasant, Isle of Palms, Sullivans Island

5. Charleston, North Charleston

6. James Island, Seabrook Island

7. Beaufort

8. Hilton Head
Evacuation Routes

10th Ave. North and Northward to Briarcliff Acres

10th Avenue North and northward to Briarcliff Acres use SC 22 (Conway Bypass) to US 501. Motorists using SC 31 (Carolina Bays Parkway) or the Grissom Parkway will be directed to north SC 22.
Lane Reversals

Traffic Control Plans for Coastal Evacuation Routes

- I-26 Lane Reversal
- Beaufort & Hilton Head Lane Reversals
- Myrtle Beach Lane Reversals
- All Traffic Control Points

***Lane Reversal has been discontinued. I-26 is now operating as normal with traffic moving in both directions.***

This site provides SCDOT and SCGPS personnel access to traffic control plans used during evacuation lane reversals.

Click any point feature to bring up intersection information and a link to the pdf diagram of the traffic control point.

For additional assistance, check the SCDOT Storm Resources page or call 1-855-GO-SCDOT (855-467-2366).

Download a shapefile of all traffic control points [here](#).
Lane Reversals

This site provides SCDOT and SCOPS personnel access to traffic control plans used during evacuation lane reversals. Click any point feature to bring up intersection information and a link to the PDF diagram of the traffic control point. For additional assistance, check the SCDOT Storm Resources page or call 1-855-GO-SCDOT (855-467-2368).

Download a shapefile of all traffic control points here.

Traffic Control Plan:
- Exit 172
- Exit Route: US 15
- Status: Exits allowed for normal I-26 WB lanes, the reversed lanes will not be allowed to exit.

Click here to view the PDF.
Lane Reversals
Lane Reversals

Traffic Control Plans for Coastal Evacuation Routes

- I-26 Lane Reversal
- Beaufort & Hilton Head Lane Reversals
- Myrtle Beach Lane Reversals
- All Traffic Control Points

***This map is for reference only and does not indicate current conditions.***

Click on any point feature to bring up intersection information and a link to the PDF diagram of the traffic control point.

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Download a shapefile of all traffic control points here.
Lane Reversals
Lane Reversals

I-26 Reversal Operations
I-26 at S-31

EXIT 125

Highways and Ramps
Open for Evacuation Traffic

Highways and Ramps
Closed for Evacuation Traffic

REVISED: MARCH 2019
CALHOUN COUNTY

SCDOT
Project Lifeline
Project Lifeline
Process Improvements

- Communication
- Coordination
  - Google, Waze
  - Additional Web Maps
- KML Web Service
- Working the Call Center
  - Training, etc.
Still more problems to solve!
Collector App

- Shortly before Hurricane Florence, we received a call from a district engineer frustrated with the size of our PDF maps.
Field inspections

Mark on paper map

Conditions are exported for display for public

Emergency Road Conditions workflow

Office staff enter conditions

Return the paper map to office
Collector App

- I told him I though we could do one better than a smaller PDF size, and thus our collector app was born.

- Workers can edit key fields, which immediately updates a dashboard in the office.
Collector App
Collector App

- Allows for SCDOT staff across the state to have a more real time picture of problems as well as percent of system assessed.
- Working on enhancement for ease of entry in to HMMS.
Phase 1: Emergency Road Conditions workflow

Field inspections

Conditions are exported for display for public

Mark on paper map

Office staff enter conditions

Return the paper map to office
Phase 2:

Emergency Road Conditions workflow

Field inspections

Conditions are exported for display for public

Mark on paper map

Office staff enter conditions

Return the paper map to office
Phase 3: Emergency Road Conditions workflow

Field inspections

Conditions are exported for display for public

Mark on paper map

Office staff enter conditions

Return the paper map to office
Keep moving forward
~ Walt Disney
No new tropical cyclones are expected during the next five days.
Future Plans

- More involvement
- All major route apps
- Continued innovation
- Additional, more accurate data for risk analysis

Need GIS???
Questions?

For Additional Information:

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