



# The Collaborative Effort Required to Effectively Manage Disaster Debris



# Topics

- History of Debris Management
- Disaster Debris Management Guidelines
- Hurricane Matthew
- Takeaways



# Types of Disasters

- Hurricanes
- Tornadoes
- Floods
- Ice Storms
- Earthquakes





# Disaster Debris Management in SC

- Hurricane Hugo made landfall on Sept 21, 1989, as a Category 4 storm with sustained winds of 140-mph
  - Majority of the storm debris was burned
  - Charleston County's Bees Ferry Site is still dealing with debris from Hugo
  - Downed 8,800 sq miles (5,632,000 acres) of trees, enough timber to build 660,000 homes (Wikipedia)









# Disaster Debris Management in SC

- DHEC began sending a standard email that detailed requirements for establishing Disaster Debris Management Sites
- Coastal Counties draft Disaster Debris Plans and have DHEC pre-evaluate their sites





# Disaster Debris Management in SC

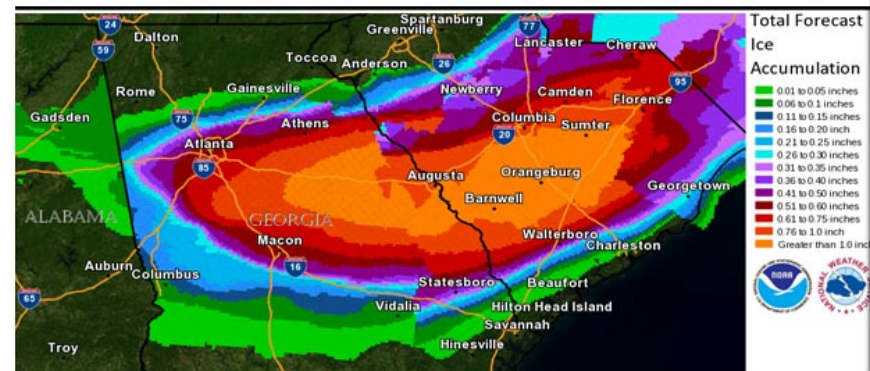
- Email was status quo until Winter Storm Pax (Feb 2014)
  - SCDOT's contractor requested Debris Management Sites
  - FEMA requires approval by the regulator (DHEC) for reimbursement



Total Predicted Snowfall Through Thursday, Feb 13, 2014, 7 pm EST



Total Predicted Freezing Rain Through Thu. Feb 13, 2014, 7 pm EST



# What Does the Guidance Document Cover

- Staging, Grinding, and Burning of Debris
  - Land Clearing Debris
  - Building Debris
- Disposal of Vegetative Debris
  - Wood Chips may be spread at agronomic rates
  - Taken to a permitted facility to finish composting
  - Left on-site with property owner's permission
- Disposal of Ash from Vegetative Debris
  - Spread over field if requested by owner
  - Placed in a pit and covered with 1 foot of clean soil



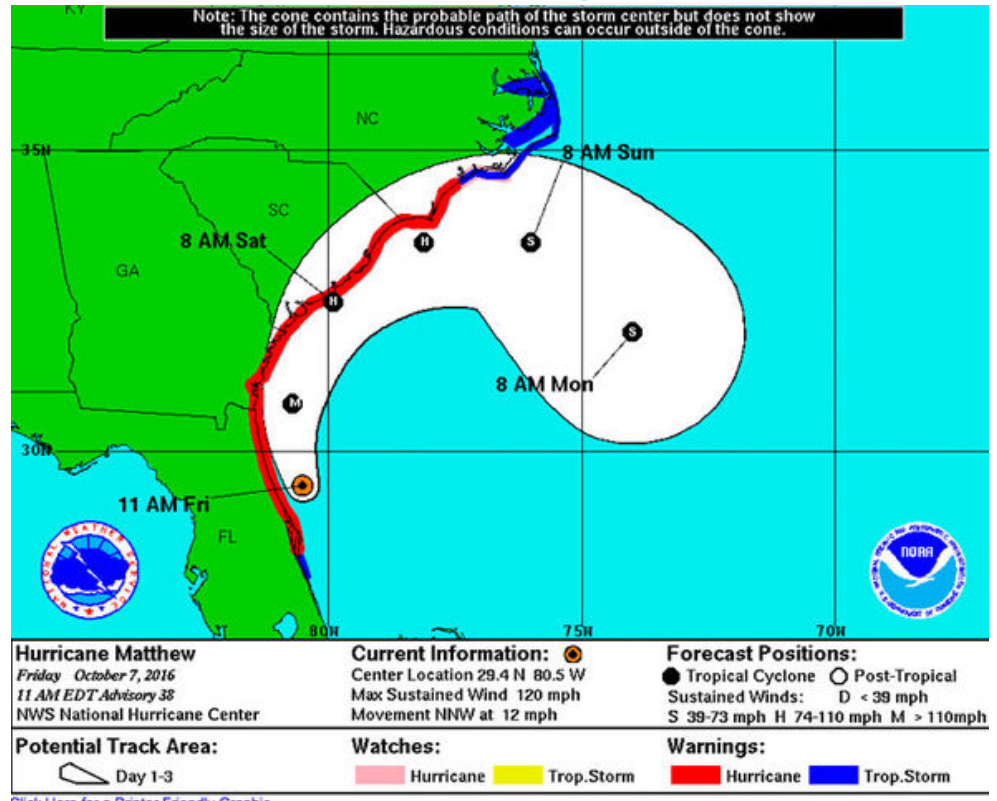
# Other Wastes that Need to be Considered

- Electronics (Computers, TVs, etc.)
- White Goods (Appliances)
- Household Hazardous Waste



# Hurricane Matthew

- Hurricane Matthew made landfall on October 8, 2016, @ 10:45 am in McClellanville, SC
- Category 1 Hurricane with sustained winds of 75 mph
- Rainfall Totals
  - 14" – Beaufort
  - 11" – Hilton Head Island
  - 10.5" – Charleston
  - 9.8" – Folly Beach
  - 5.7" – N. Myrtle Beach
- Nearly 850,000 people in South Carolina without power







Springmaid Pier in Myrtle Beach



## FLOODING IN MULLINS





# FLOODING IN NICHOLS





CHERRY GROVE



# EDISTO BEACH



## EDISTO BEACH





EDISTO BEACH





EDISTO BEACH

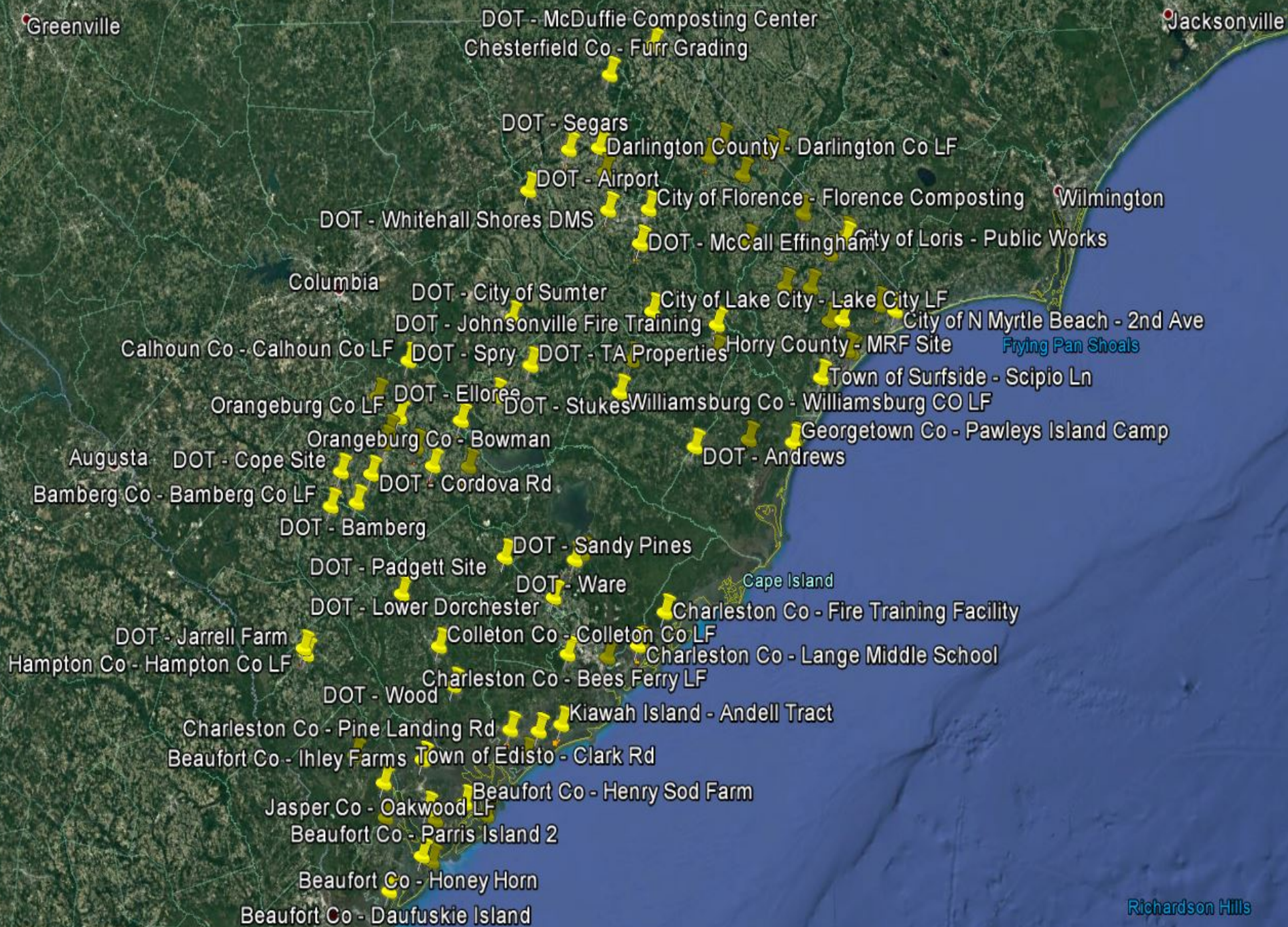




# Hurricane Matthew Recovery

- DHEC received 91 applications for Disaster Debris Sites located within 22 different Counties
  - 48 from SCDOT or its contractors
  - 43 from Counties or local Municipalities
  - 2 Site applications were denied
  - 89 sites have been approved
    - 25 Burn Sites
    - 64 Chipping Sites
  - All requested facilities were for Land Clearing Debris only







State Debris Totals (Estimated) 4/18/2017					
Applicant	Total (CY)	Collected(CY)	Remaining (CY)	Percent Complete	Estimated Cost
Statewide Total	7,200,000	7,102,465.16	97,534.84	98.65%	\$ 156,794,971.96
Top 5 Applicants (By Estimated Volume)					
SCDOT includes 16 counties	Total (CY)	Collected (CY)	Remaining (CY)	Percent Completed	Estimated Cost
Town of Hilton Head Island	2,200,000.00	2,181,284.35	18,715.65	99.15%	\$ 45,000,000.00
Beaufort County	1,650,000.00	1,600,432.75	49,567.25	97.00%	\$ 34,000,000.00
SCDOT	2,000,000.00	2,000,000.00	0.00	100.00%	\$ 38,300,000.00
Charleston County	500,000.00	500,000.00	0.00	100.00%	\$ 11,000,000.00
Horry County	221,000.00	221,000.00	0.00	100.00%	\$ 3,700,000.00
Totals for Top 5:	6,571,000.00	6,502,717.10	68,282.90	98.96%	\$ 132,000,000.00
Overall Debris	Total (CY)	Collected (CY)	Remaining (CY)	Percent Completed	Estimated Cost
Regular Debris	5,140,501.80	5,076,638.39	63,863.41	99%	\$ 104,168,971.96
Marine Debris	6,498.20	6,498.20	0.00	100%	\$ 7,000,000.00
Private Property Debris	2,053,000.00	2,022,345.97	30,654.03	98.51%	\$ 45,626,000.00

# Hilton Head Island

- 2 Disaster Debris Management Sites Established
- Processed approximately 2.2 million cu. yd. of debris
  - Honey Horn Site
    - 5 Horizontal Grinders and 2 Tub Grinders at site
    - 30,000 cubic yards of debris per day
  - Chaplin Park Site
    - 2 Horizontal Grinders and 1 Tub Grinder at site
    - 7,500 cubic yards of debris per day



**Honey Horn  
21 ACRES**

Beaufort Co - Honey Horn

Honey-Horn Dr

Samuelson







11/30/2016 13:07





11/30/2016 13:04





11/30/2016 13:41





11/30/2016 13:06





11/30/2016 13:26





11/30/2016 13:27





11/30/2016 13:45





11/30/2016 13:46



# The PROs and CONs of Relying on Landfills for Debris Management

- The PROs

- Permitted facility where waste is already being handled
- Available space

- The CONs

- Landfill may not have a cell ready
- Budget constraints
- How much waste can the facility handle
- Reduces the life of landfills



# Hickory Hill Class 3 Landfill







11/16/2016 15:17





11/16/2016 15:17





11/16/2016 15:24





11/16/2016 15:24





11/16/2016 15:30





11/16/2016 15:30





11/16/2016 15:52





02.21.2017 11:09



# The Collaborative Effort

- Counties, Towns, Cities and their contractors need to communicate with permitted facilities
  - How much debris is it
  - Time lines
- Permitted facilities need to communicate with DHEC
  - Alternative waste handling and storage options
- We all want the debris managed quickly and in a way that is protective of human health and the environment so that the impacted communities can return to a state of normalcy.





## Contact Us

[www.scdhec.gov](http://www.scdhec.gov)  
(803) 898-DHEC (3432)

## Stay Connected

