

# NC Floodplain Mapping Program

## Coastal Flood Insurance Rate Maps

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North Carolina Emergency Management



# NC Response to Hurricane Flooding

- Hurricane Floyd revealed flood hazard data and map limitations
  - 55% of NC FIRMs – at least 10 yrs old
  - 75% of NC FIRMs – at least 5 yrs old
  - 80% of properties damaged or destroyed during Floyd were not shown in SFHA
- \$56M cost avoidance annually from flooding with new, accurate, maintained maps => B:C Analysis of 7:1 - 3.5:1



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# Legislative Response

- Strategy 1 – Maintain a statewide program to acquire, process and disseminate **current, accurate, and detailed elevation data, flood hazard studies, reports, and maps.**
- Strategy 2 - Establishment of North Carolina as a Cooperating Technical State (CTS) through the FEMA Cooperating Technical Partners Program. Establishes NC as the primary custodian for all FIRMs in NC.



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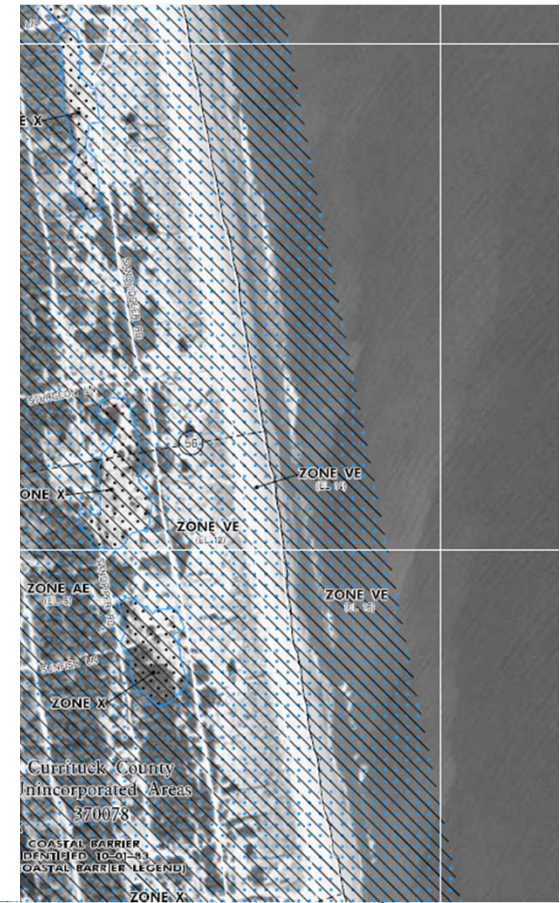
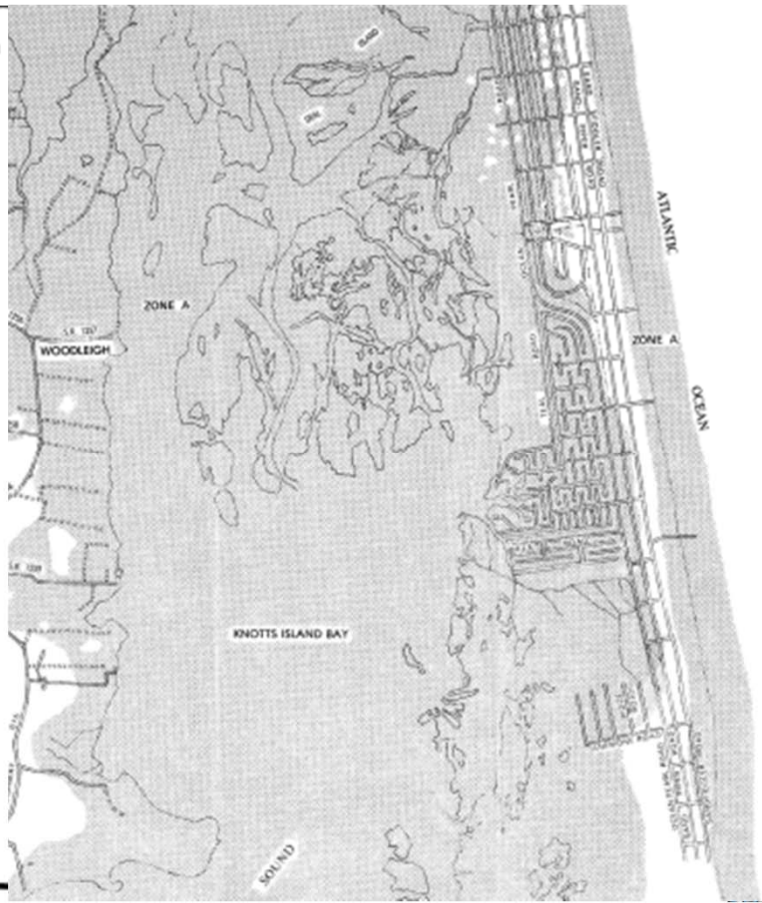
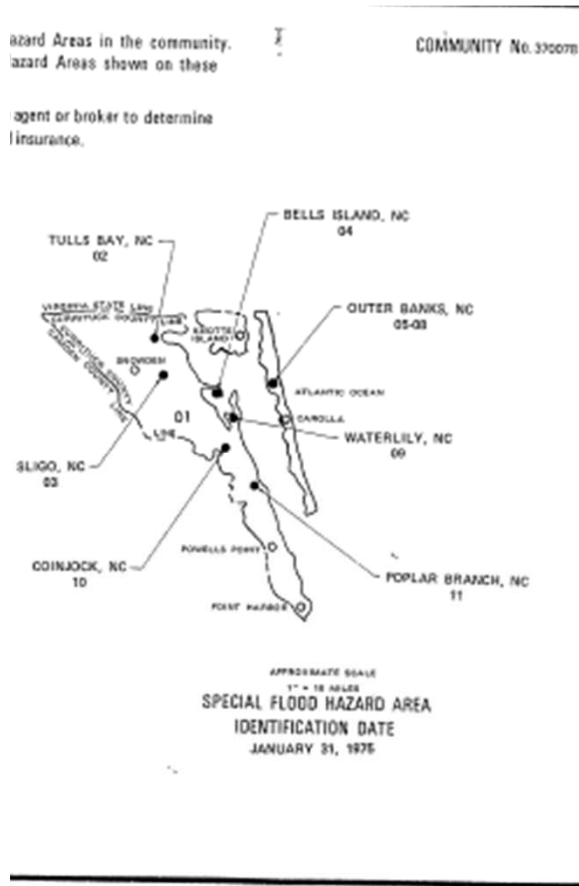


# NC Coastal FIRMs

1975

1978

2003

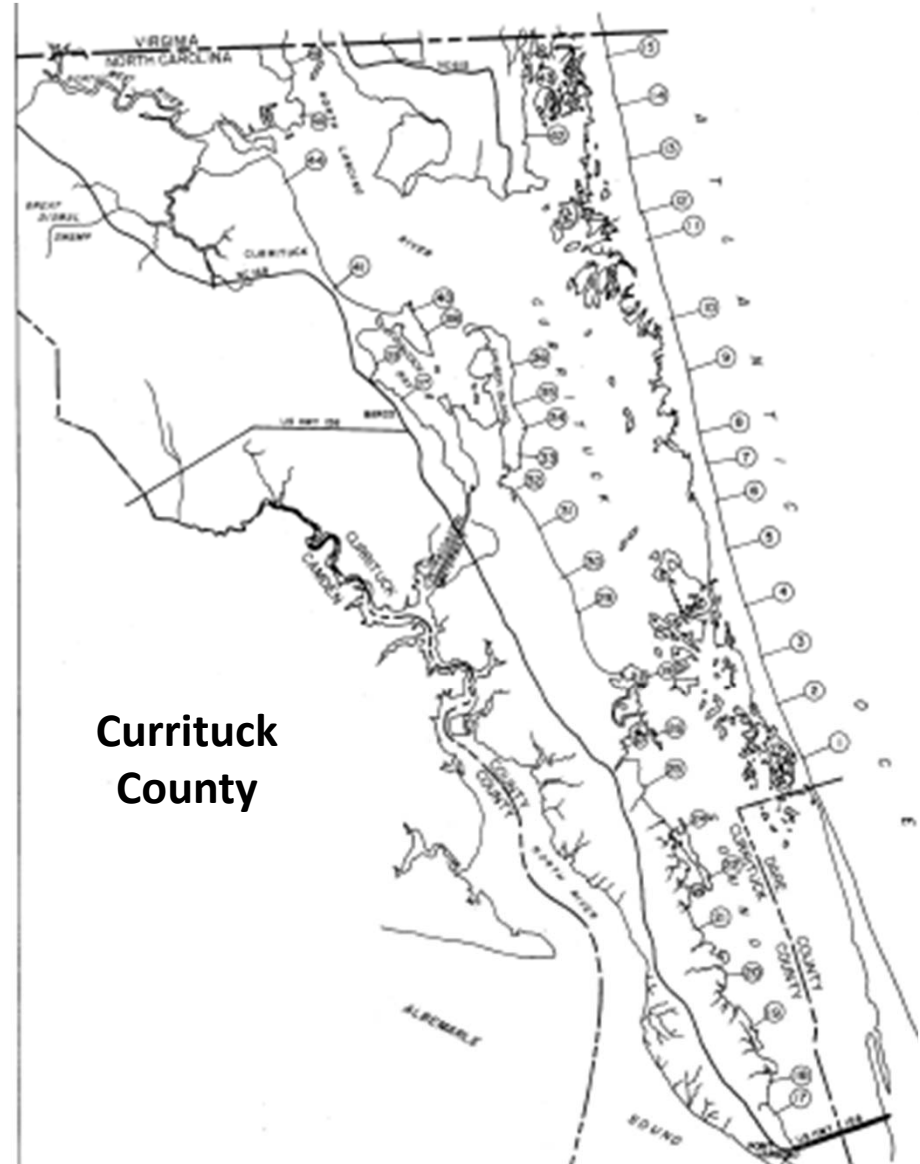


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# FEMA FIRMs (Historic)

- Storm surge data
  - Late 1970s
  - Estimated Surge  $\sim 1$  mi<sup>2</sup>
  - Open coast surge used everywhere
- Limited Survey Data
  - 15 Beach Transects
  - $\sim 45$  Total
- FEMA Moratorium on New Surge Studies



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# NCFMP 2014 FIRMs

- NCFMP Partners
  - UNC Institute for Marine Science
  - USACE Duck Field Research Facility
  - RENCI
- Unprecedented Data Detail for Storm Surge
  - Modern Technology
  - Multiple Terrain & Bathymetric Data Sources
  - High Density Beach Survey
- Utilizes the Most Current Terrestrial & Bathymetric Data and Historic Storm Data

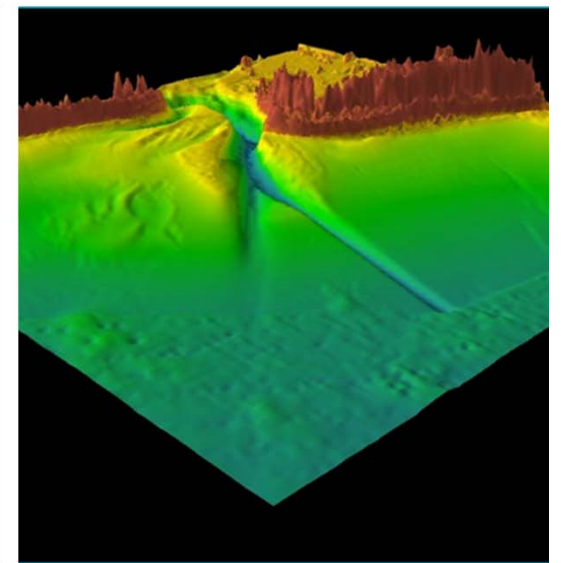
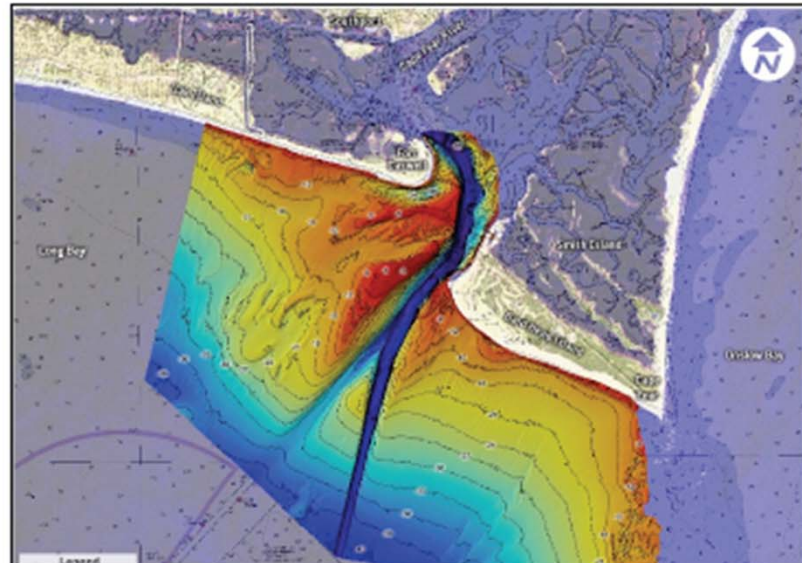
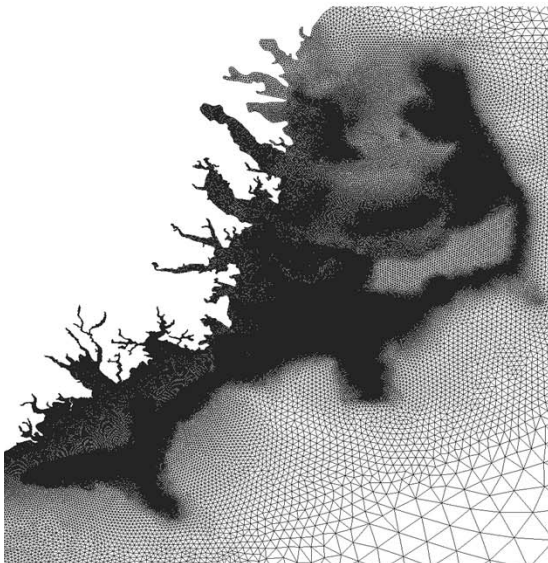
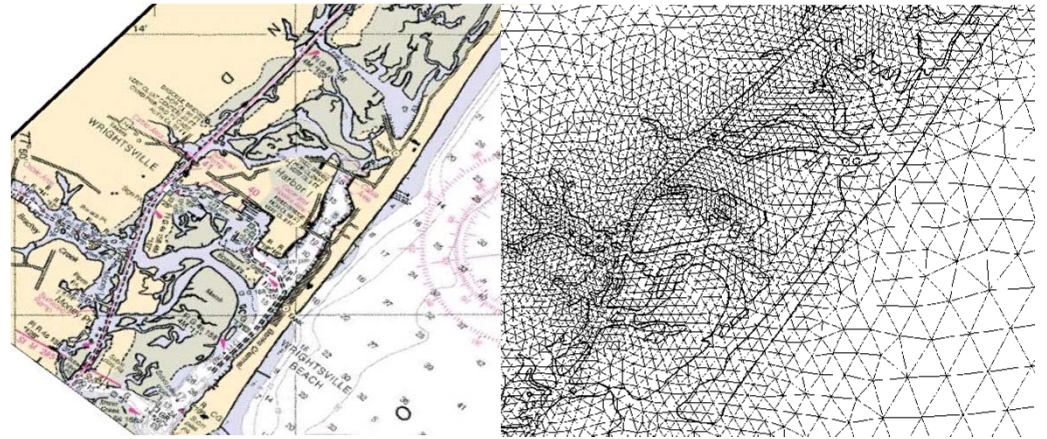


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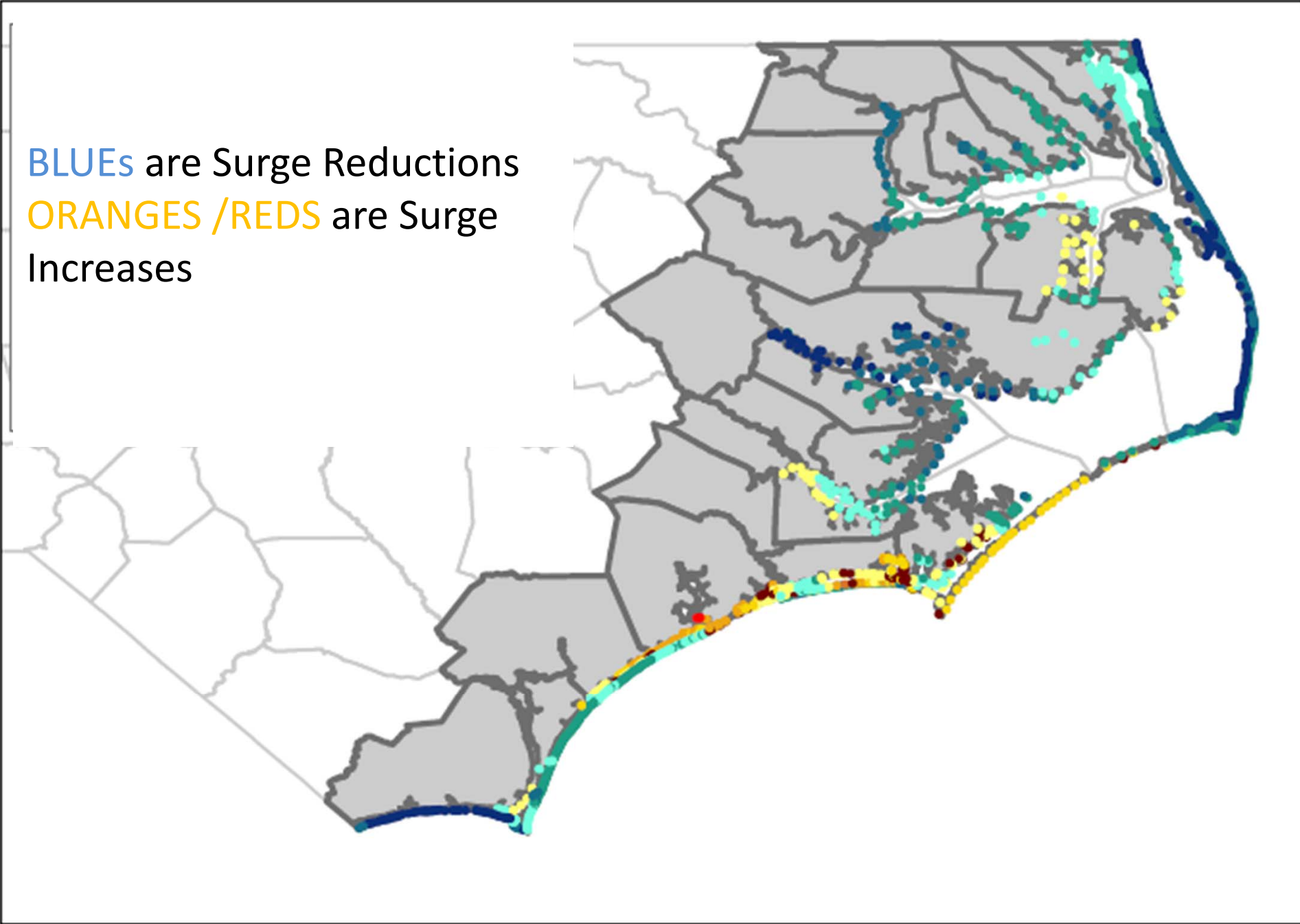
# NCFMP 2014 FIRMs Storm Surge Model

- ADCIRC
  - 2,916,000,000 DEM cells (land and ocean floor)
  - 600,000 ADCIRC calculation points (spaced 150-500 feet)
  - Includes: Major inlets, major rivers, ICW, bays



North Carolina Effective vs. Revised Stillwater Elevation Differences

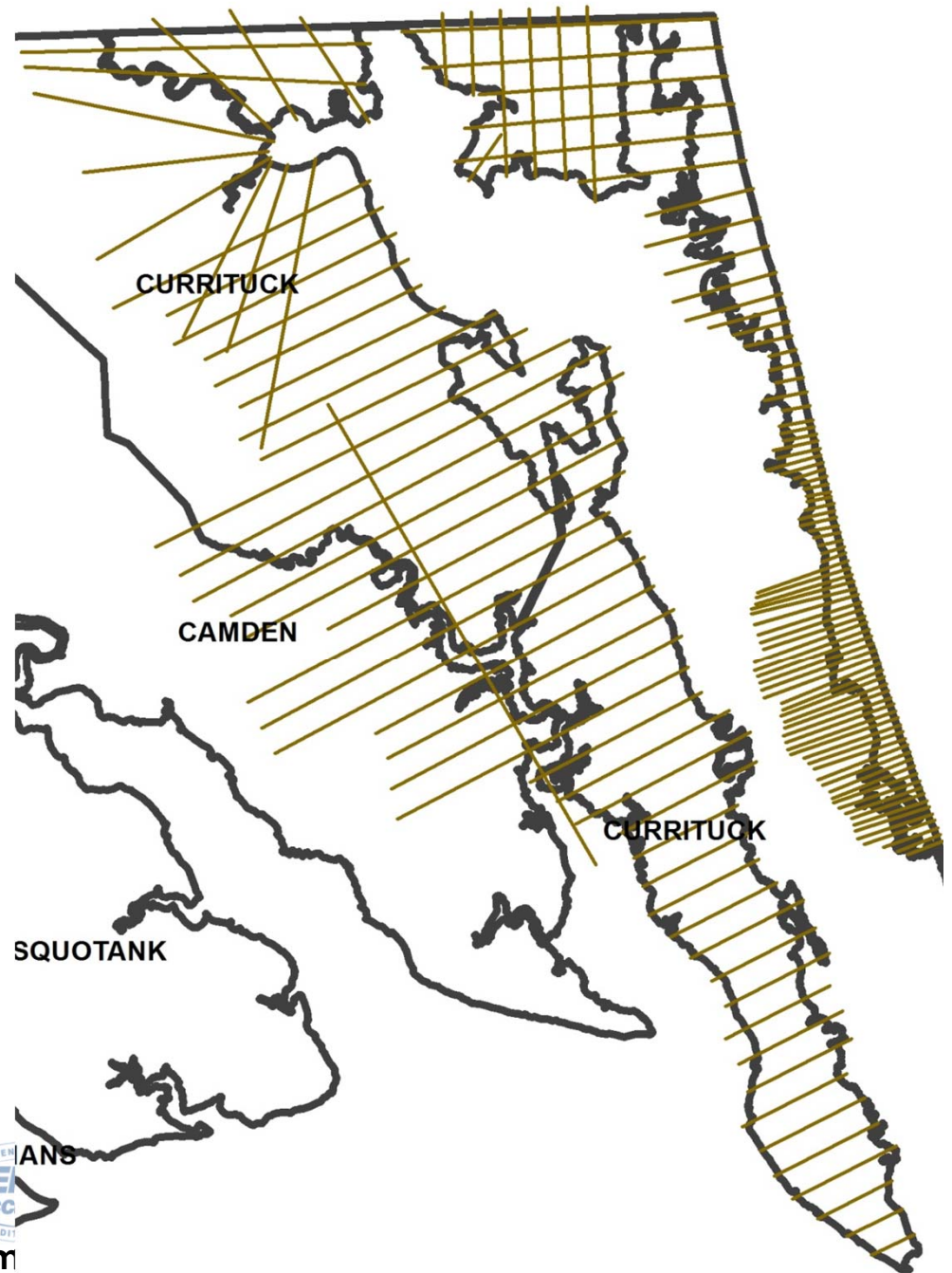
BLUES are Surge Reductions  
ORANGES / REDS are Surge Increases



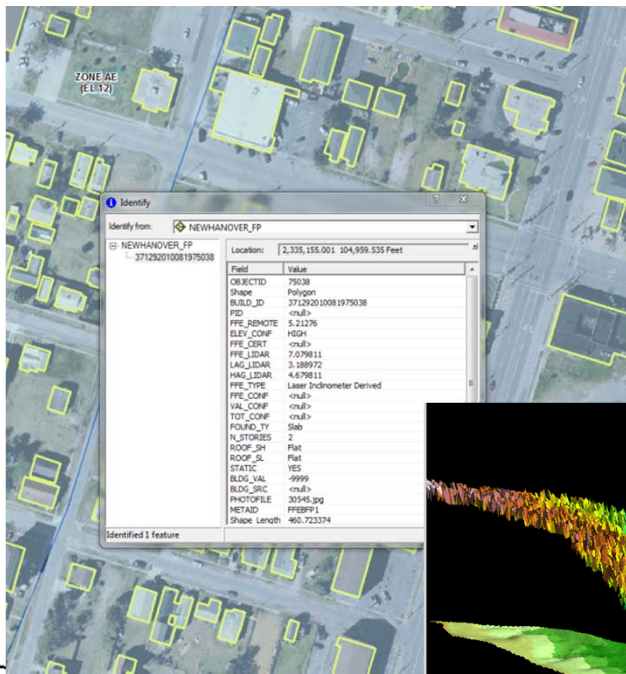
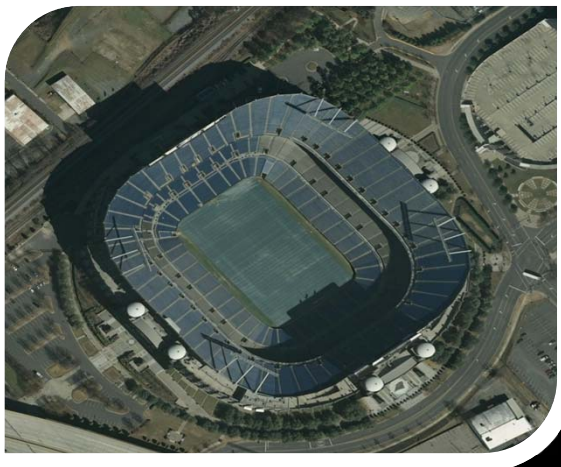


# NCFMP 2014 FIRMs Wave Modeling

- Survey Data
  - 81 Open Coast Transects (15 old)
  - 142 Total Transects (~45 old)
  - 9691 survey points
- Engineering Field Assessments



# NCFMP 2014 FIRMs Mapping



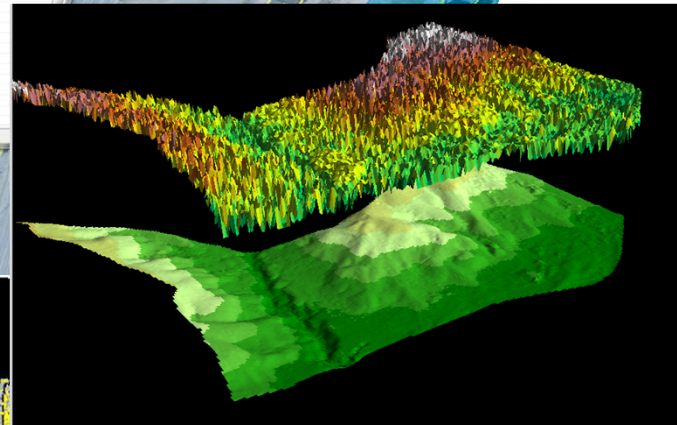
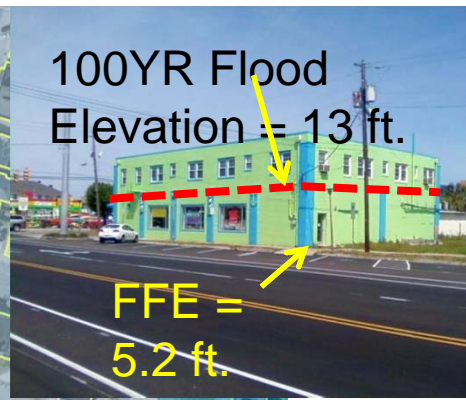
Identify

NEWHANOVER\_FP

NEWHANOVER\_FP 371292010081975038 Location: [2,335,155.001 104,959.535 Feet]

Field	Value
OBJECTID	75038
Shape	Polygon
BUILD_ID	371292010081975038
PD	<nul>
FFE_REMOTE	5.21276
ELEV_CONF	HIGH
FFE_CERT	<nul>
FFE_LEDMR	7.079811
LAG_LEDMR	3.188972
HAG_LEDMR	4.879811
FFE_TYPE	Laser Interometer Derived
FFE_CONF	<nul>
VAL_CONF	<nul>
TOT_CONF	<nul>
FOUND_TY	Stab
N_STORIES	2
ROOF_SH	Flat
ROOF_SL	Flat
STATIC	YES
BLDG_VAL	-9999
BLDG_SRC	<nul>
PHOTOFILE	30245.P0
METAD	FFBFP1
Shape Length	460.72374

Identified 1 feature



BUILDING FOOTPRINTS OF NORTH CAROLINA  
Statewide Building Footprint Development Project  
For Integrated Hazard Risk Management

Insert a short description of project here

- Map Flood Hazard
- Building Footprints
  - 100 Year Flood Zone
  - 500 Year Flood Zone

Atlantic Ocean



Geospatial & Technology Management Office  
North Carolina Floodplain Mapping Program

# NCFMP 2014 FIRMs Mapping



to disruptions for updates

Effective

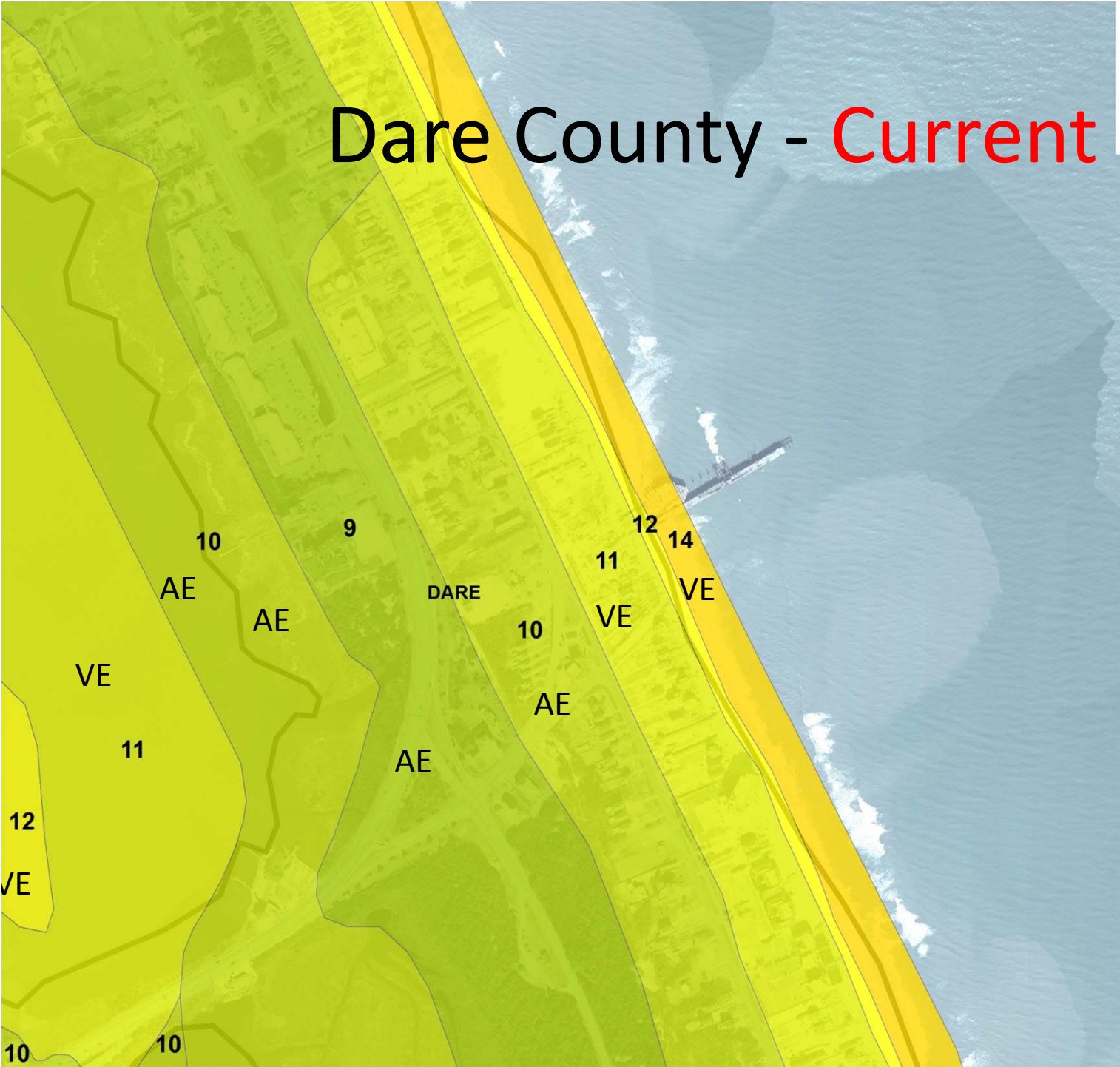
on. ?

2259 Sandfiddler Rd, Corolla, NC  
Google Street View

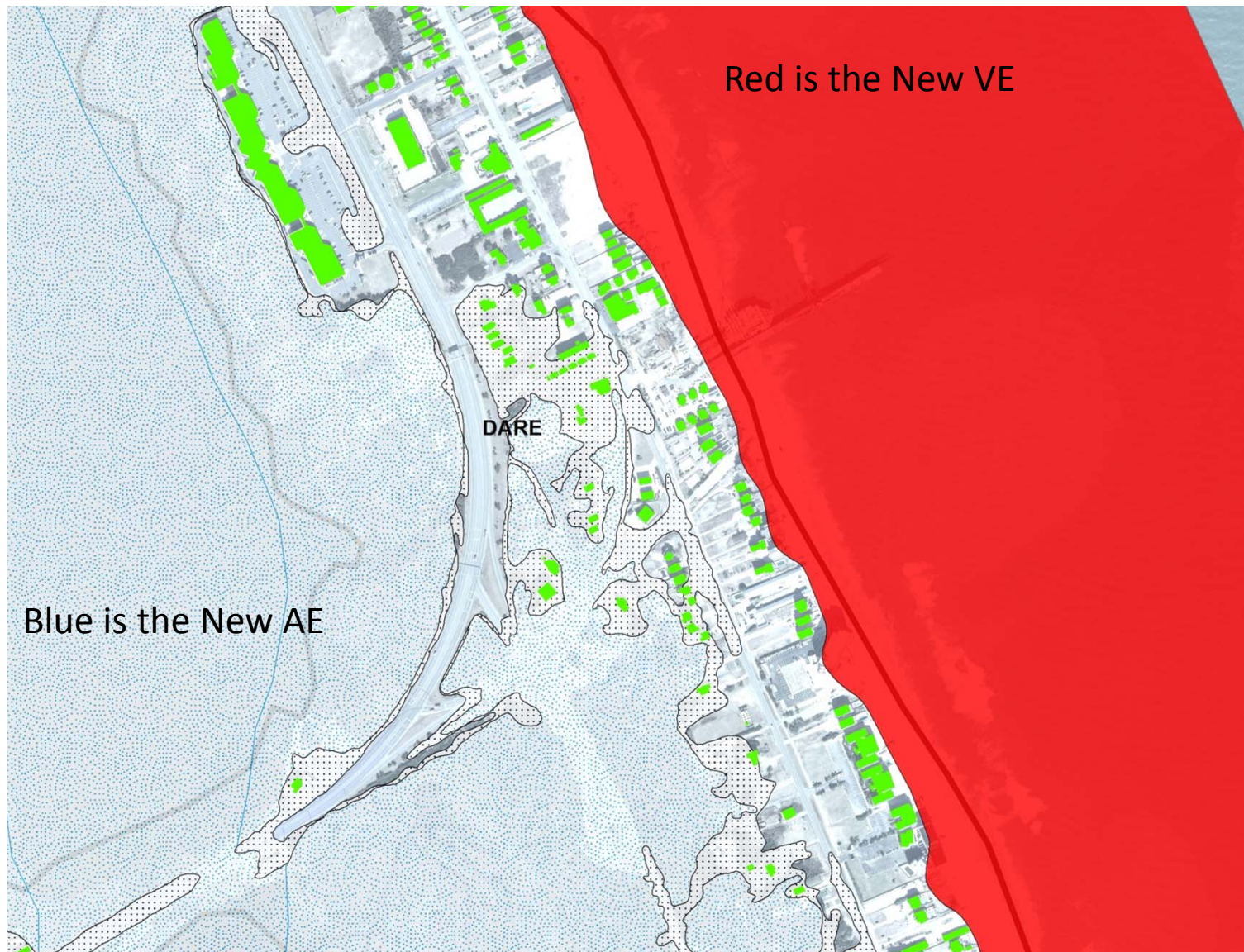
Map Location	
Flood Zone:	VE <a href="#">i</a>
Flood Source:	Flood model not available for this area.
Base Flood Elevation:	12 ft <a href="#">i</a>
County:	Currituck
Political Area:	Currituck County
CID:	370078
Panel:	9022
Map Number:	3721902200J
Panel Effective Date:	12/16/05
Latitude:	36.52952
Longitude:	-75.86479

# Dare County - Current

All Buildings are  
in the 100-year  
floodplain



# Dare County - Draft



Green Buildings  
will be removed  
from the 100-  
year floodplain



County	Buildings In County	Buildings in VE Now	Buildings in VE NEW	Buildings in AE Now	Buildings in AE NEW
Bertie	27,455	0	0	85	62
Brunswick	70,252	6,232	1,510	7,551	10,064
Camden	6,334	0	0	1,649	626
Chowan	9,771	0	3	745	398
Craven	47,567	0	78	6,113	6,718
Currituck	20,774	1,075	127	7,928	2,657
Dare	40,217	4,872	862	28,252	9,773
Hyde	7,178	0	26	6,460	5,266
New Hanover	90,710	2,854	1,425	6,428	8,134
Onslow	108,603	3,409	2,038	2,614	5,609
Pamlico	12,454	16	23	4,691	3,516
Pasquotank	20,466	0	14	5,260	2,262
Pender	37,104	1,773	1,684	3,018	3,549
Perquimans	8,246	0	0	1,044	451
Tyrrell	3,629	0	0	2,722	2,253
Washington	10,035	0	1	1,050	395

# Schedule

- Brunswick, New Hanover, Pender – July
- Camden, Chowan, Currituck, Pasquotank, Perquimans – September
- Carteret, Craven, Onslow, Pamlico – November
- Beaufort, Dare, Hyde, Tyrrell – End of Year
- Bertie, Washington – March 2015
- **ALL DATES FEMA APPROVAL DEPENDENT**



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