

GIS Datasets and Web Based Applications NC Emergency Management



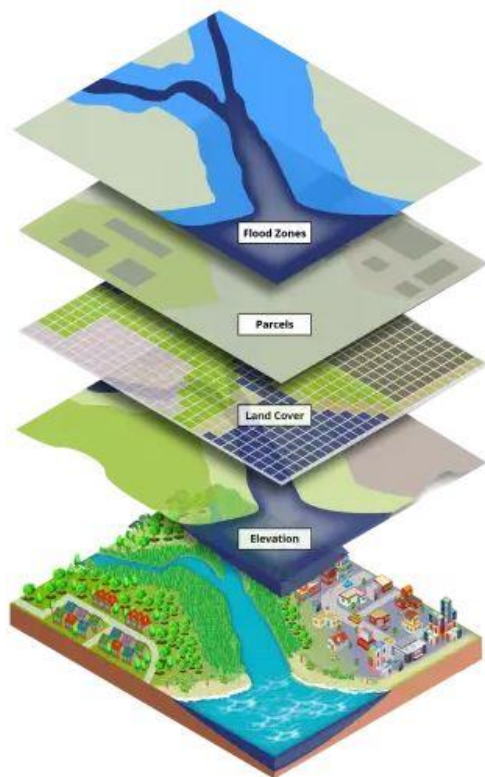
John Lay
GIS Analyst



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IT Manager

GIS Datasets

Created By NC Emergency Management



LiDAR Data

Digital Elevation Model “DEM”

Special Flood Hazard Areas (floodplains)

Building Footprints

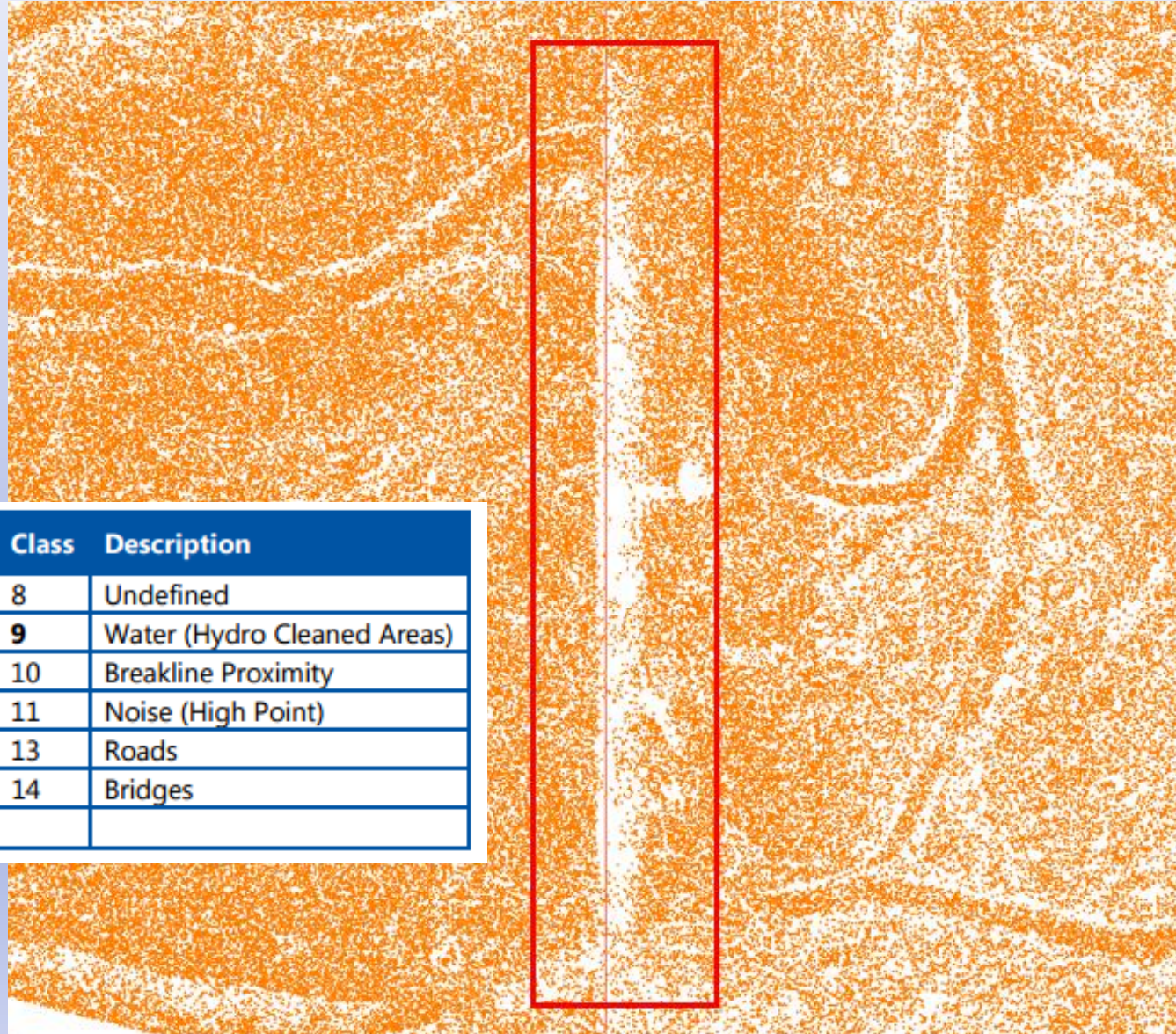
Hazard Mitigation’s Acquisitions sites

LiDAR -- *Light Detection And Ranging*

Is really just “Mass Points” at its core

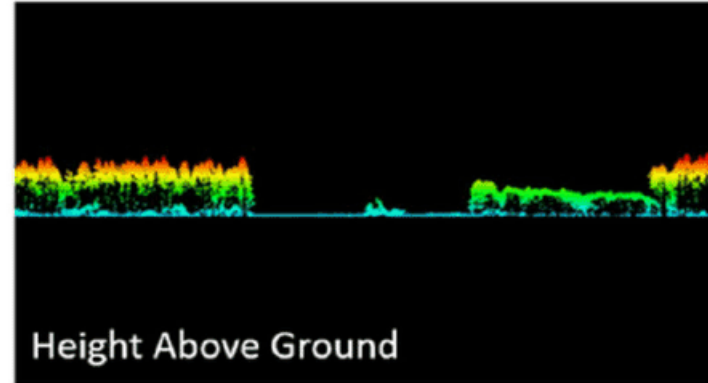
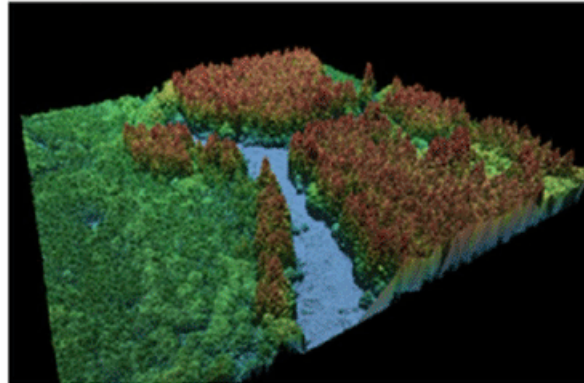
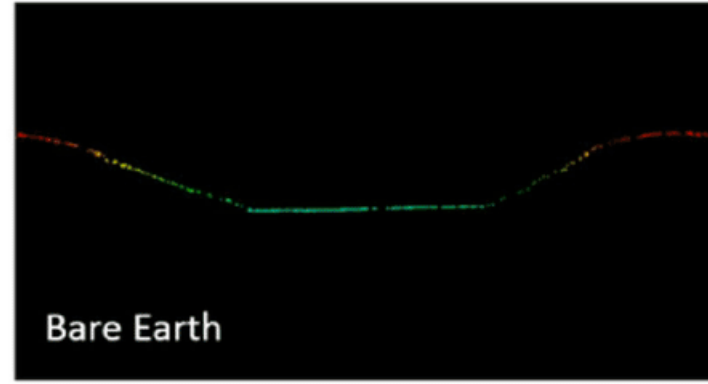
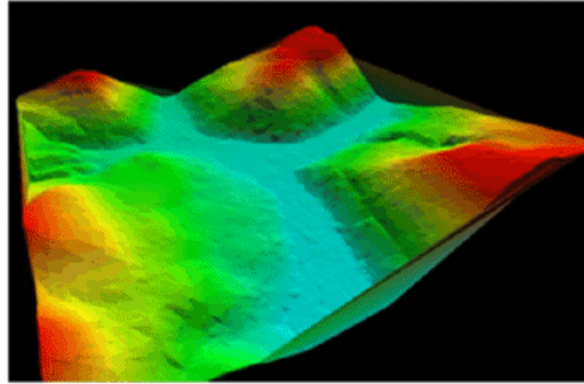
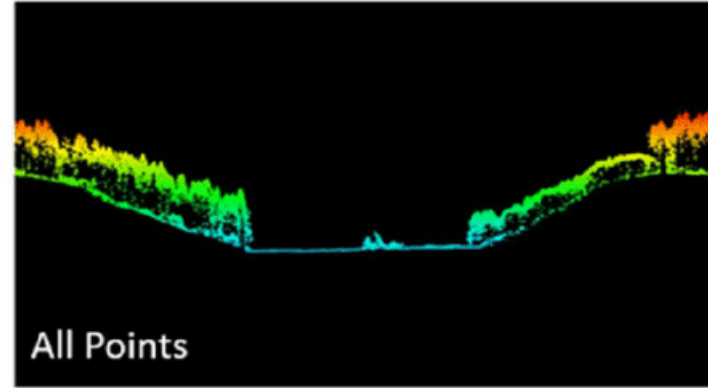
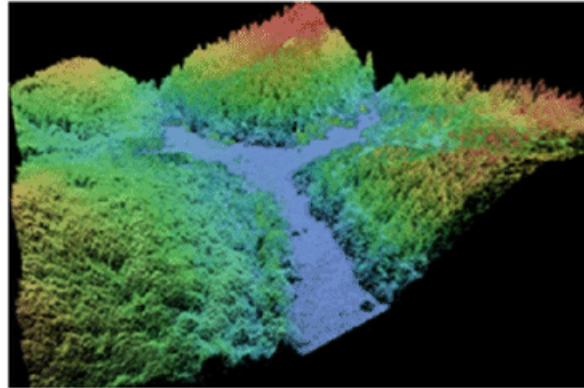
Quality level “QL” 1
-Has 8 points per meter

Quality level “QL” 2
-Has 2 points per meter



Class	Description	Class	Description
1	Processed Unclassified	8	Undefined
2	Ground	9	Water (Hydro Cleaned Areas)
3	Low Vegetation (0.5 – 3ft)	10	Breakline Proximity
4	Medium Vegetation (3 – 10ft)	11	Noise (High Point)
5	High Vegetation (10-220 ft)	13	Roads
6	Buildings (Automated)	14	Bridges
7	Noise (Low Point)		

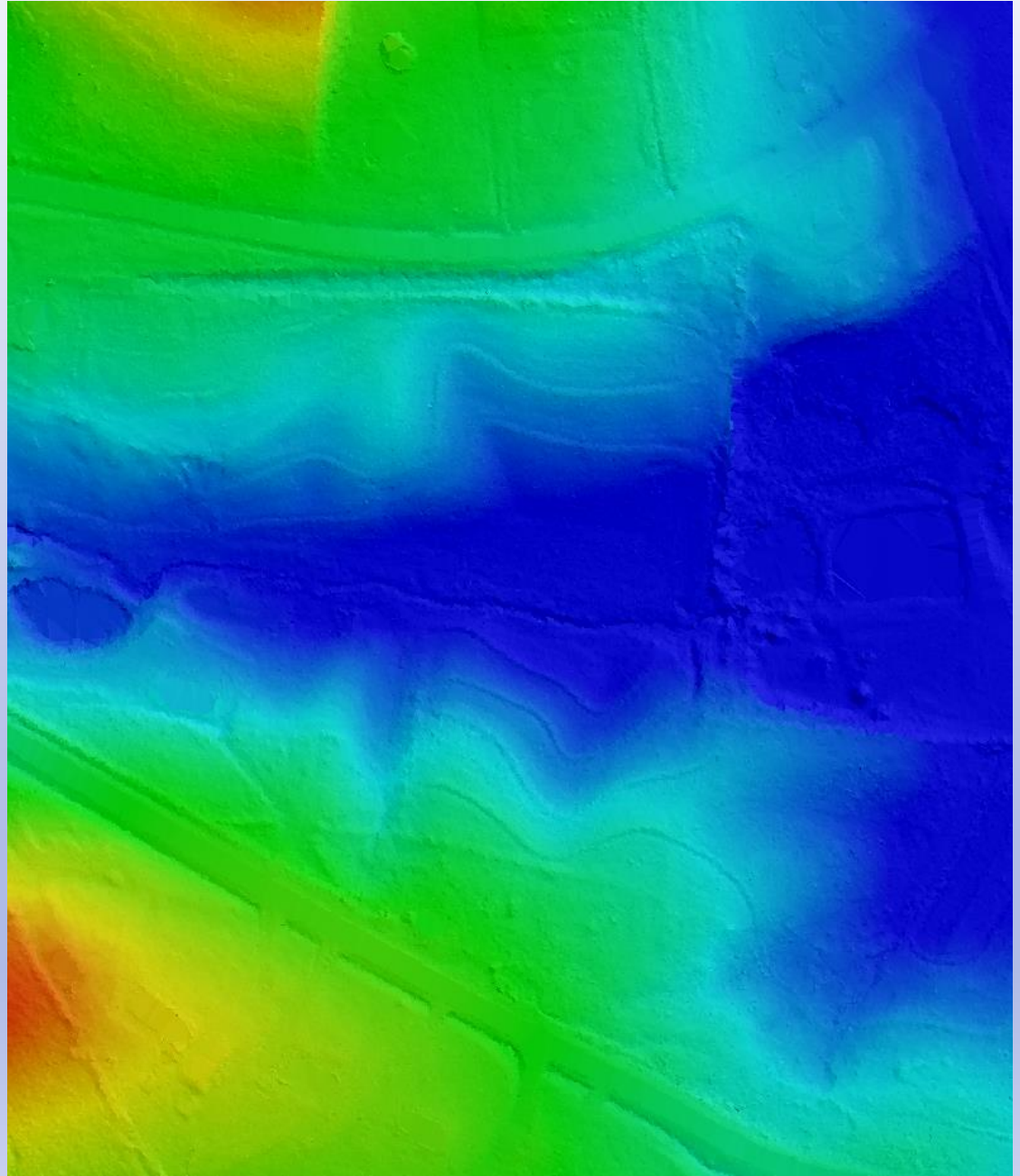
LiDAR - derived datasets



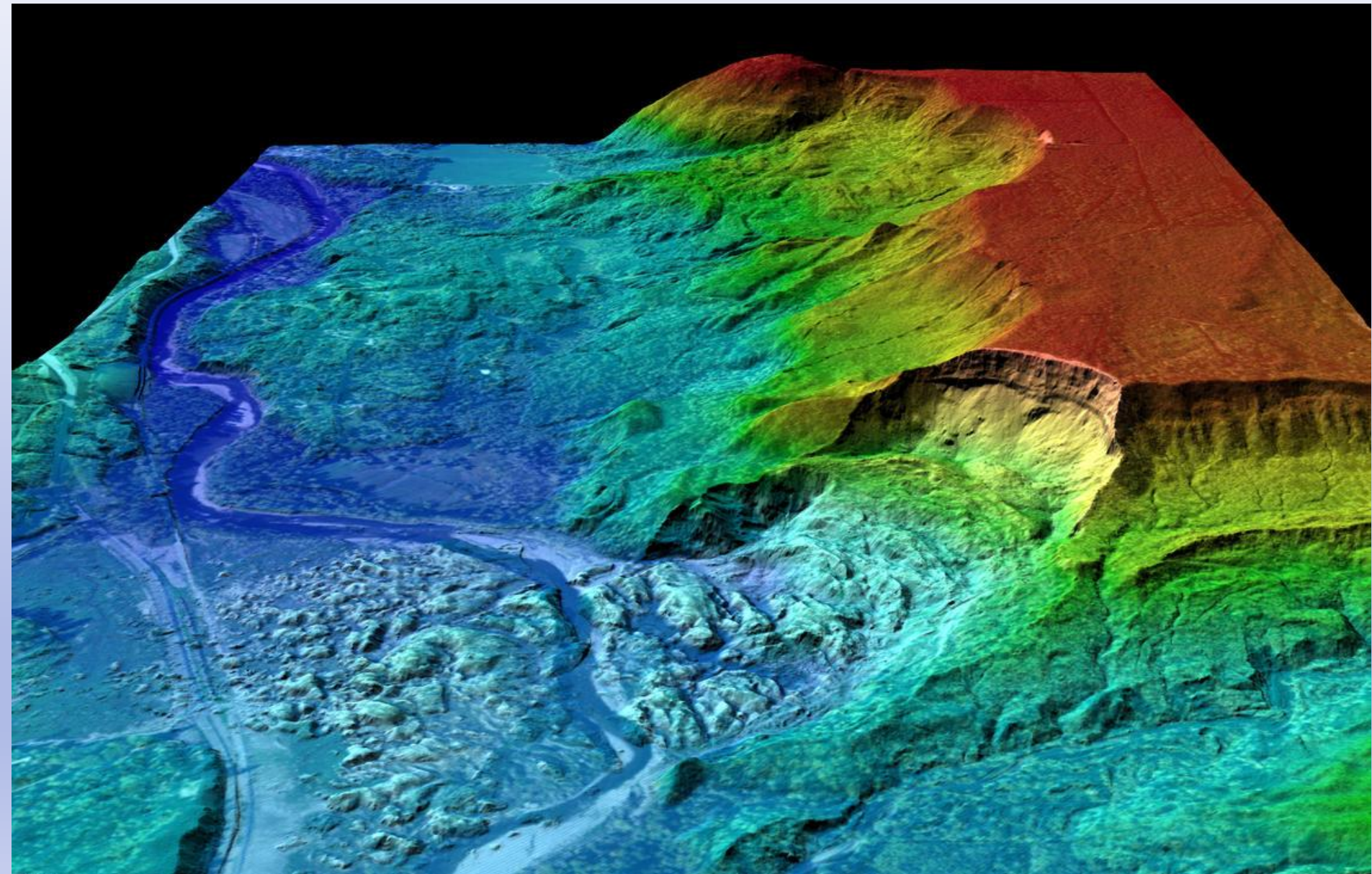
“DEM”--Digital Elevation Model

Is LiDAR derived

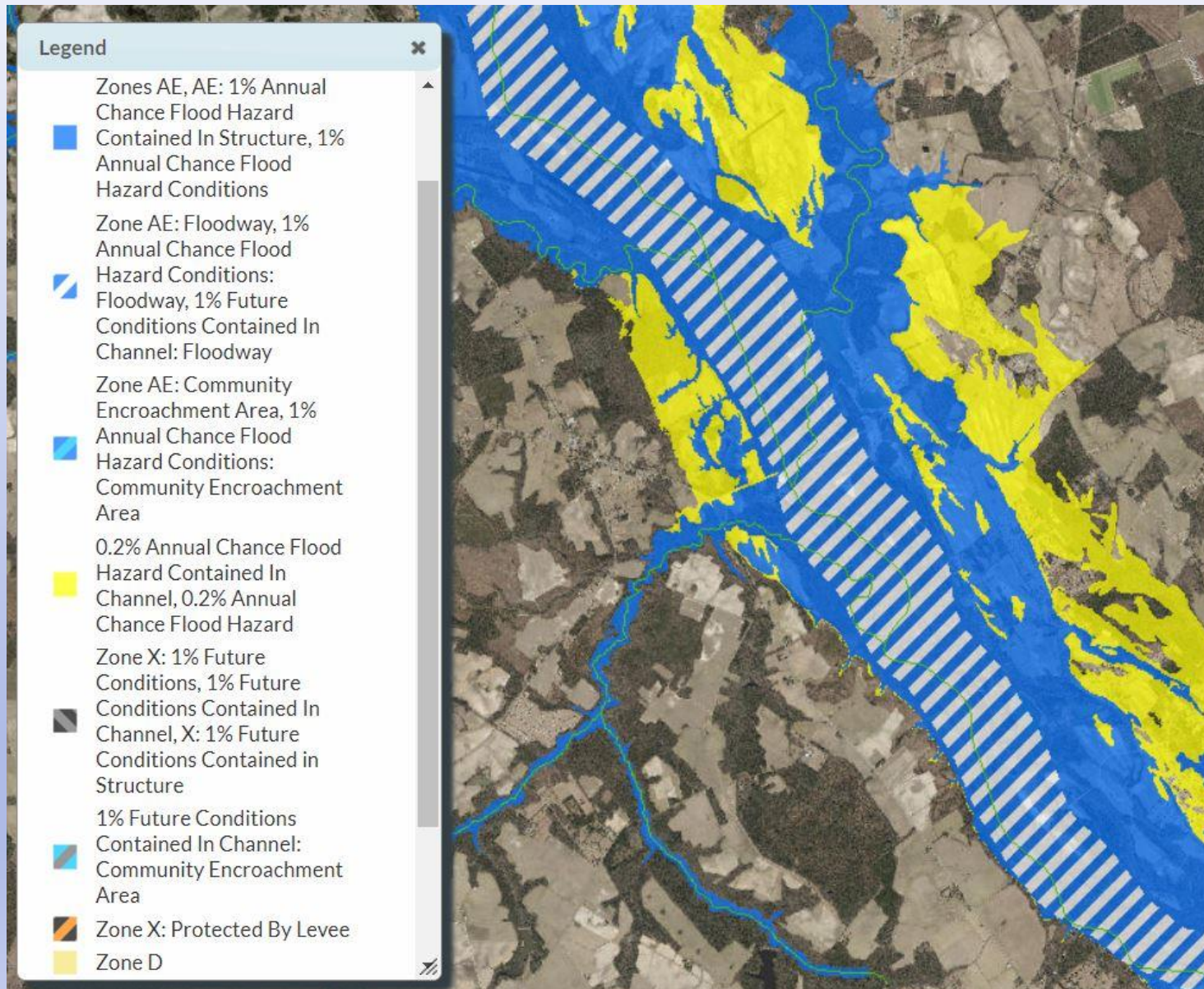
Test Question:
Why would NC
EM/DOT spend
millions on
LiDAR just to
make a DEM?



Looking at DEMS in 3D makes more sense



Special Flood Hazard Area (SFHA)



Risk Building Footprints

Just under 5 million buildings in NC



Field Collection

First Floor Elevation

Foundation Type

Roof Shape

Roof Slope

Number of Stories

Parcel Conflation

Occupancy Type

Building Value

Year Built

Heated Sq Ft

Roof Shape

HAZUS Block Conflation

Roof Cover Type

Roof Cover Quality

Water Resistance

Roof Deck Attachment

Roof Deck Age

Roof Wall Connection

Roof Frame Type

Hurricane Shutters

Roof Tie Downs

Window Area

Masonry Reinforcing

Joist Spacing

Number of Units

Understanding:

FFE = First Floor Elevation

BFE = Base Flood Elevations

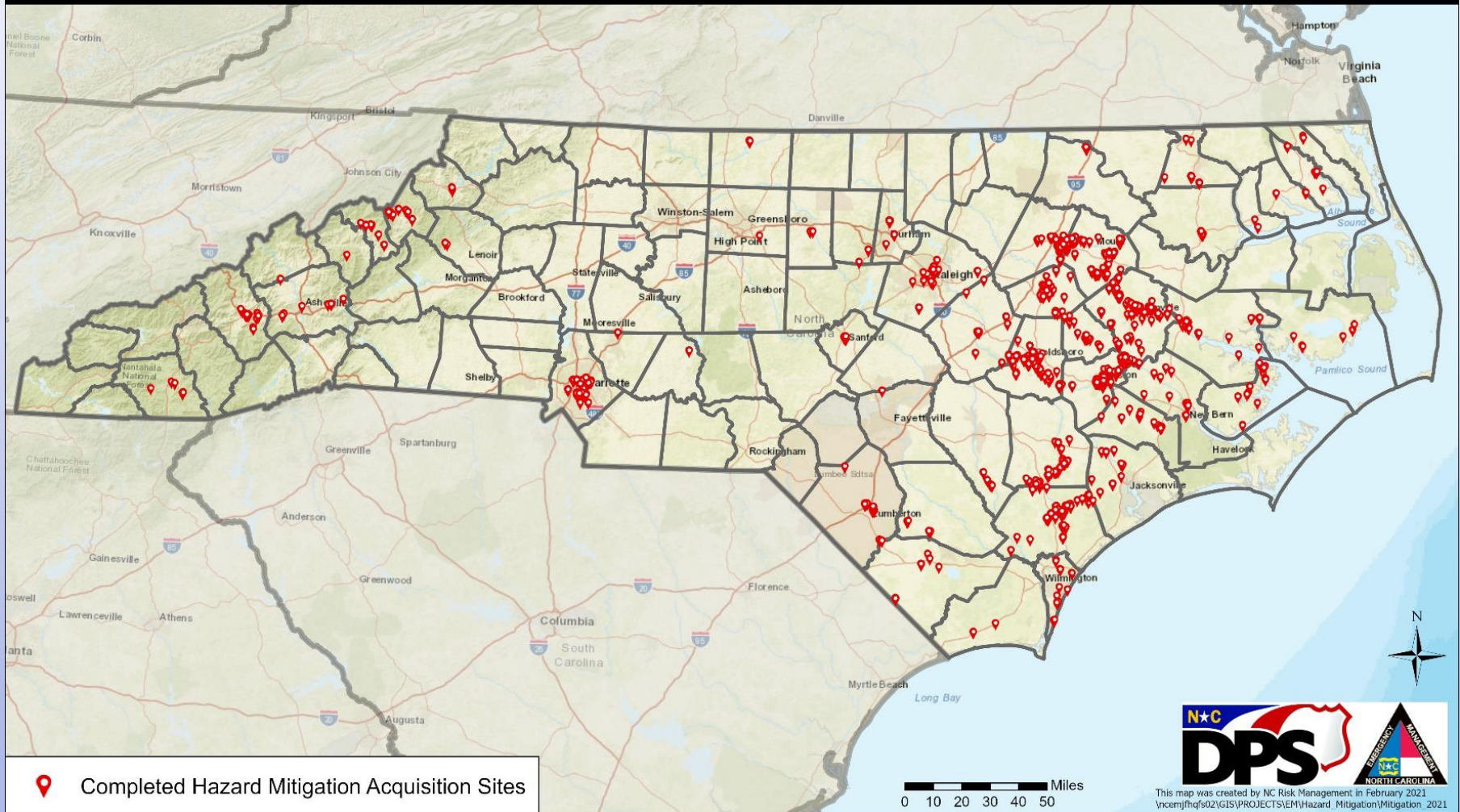


Base Flood Elevation “BFE”

The elevation of surface water resulting from a flood that has a 1% chance of equaling or exceeding that level in any given year.

Completed Hazard Mitigation Acquisition Sites

As of December 31, 2020



Have accurately mapped ~4,500 of NCEM HM Acquisition sites

-Have ~50 that need to be researched, mapped and fixed

-Have ~100 that mapped to the wrong parcel and need to be researched and fixed

GIS and Spatial Data Accuracy or “Scale”

Local (City/County) GIS Data will normally be the most accurate and potentially the most detailed

Data created by the State, normally won't be as accurate or as updated

Federal or Nationwide dataset are normally the most coarse and are not normally updated annually.

Rest Services vs. (static) GIS datasets

<https://spartagis.ncem.org/arcgis/rest/services/Public>



ArcGIS REST Services Directory

[Home](#) > [services](#) > [Public](#)

[JSON](#) | [SOAP](#)

Folder: Public

Current Version: 10.81

View Footprints In: [ArcGIS Online Map Viewer](#)

Services:

- [Public/CORS](#) (MapServer)
- [Public/DRRA_Review](#) (MapServer)
- [Public/FRIS_FloodZones_Prelim](#) (MapServer)
- [Public/FRIS_FloodZones](#) (MapServer)
- [Public/FRIS_HydraModel](#) (MapServer)
- [Public/FRIS_Panels](#) (MapServer)
- [Public/HurricaneEvacStudyZones](#) (MapServer)
- [Public/ISAIAS_stormsurge_inundation_estimate_nc](#) (ImageServer)
- [Public/Mitigation_SRL_RL](#) (MapServer)
- [Public/MitigationProperties2015](#) (MapServer)
- [Public/NC_AllBuildings](#) (MapServer)

NC OneMap

< Info I want to... 33,426 records

Create a Map Start a map with this data

Create a Story Open in ArcGIS StoryMaps

View API Resources Try out the API Explorer

GeoService <https://spartagis.ncem.org>

GeoJSON <https://opendata.arcgis.com>

Open in API Explorer Customize the query for your needs

View Data Source Select to open in a new tab

FMP's Web Based Applications

- Spatial Data Download “SDD”
- FRIS Flood Risk Information System
- FIMAN Flood Information Mapping and Alert Network
- Flood.nc

Spatial Data Download “SDD”

<https://sdd.nc.gov/>

SPATIAL
Data Download

WELCOME TO NORTH CAROLINA'S SPATIAL DATA DOWNLOAD

Login below with your NCID

A North Carolina ID (NCID) is required.

Don't have a NCID? [Sign up here.](#)

NCID USER NAME:

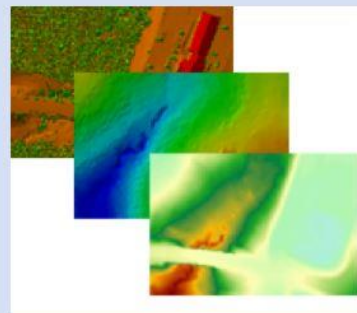
PASSWORD:

LOGIN



Hazards

Information provided with Floodplain Mapping.



Base Data

- Quality Level 2 LiDAR
- Legacy LiDAR
- Digital Elevation Models



Built Environment

Data on structures and other built environments.

Data Available on SDD

Please Select Data Type for Download

Click one of the blue boxes to view and download data. Then draw or select an area of interest on the map.

Hazards

FLOOD ZONES

Download the 100 year flood zones and associated layers such as cross sections, benchmarks, political areas, counties.

Base Data

QL1 / QL2 LIDAR

2 points per meter dataset from 2014 to 2015 covering 59 counties. 8 points per meter dataset from 2016 to 2017 covering 41 western counties.

ELEVATION

Digital Elevation Model (DEM) data for QL1 / QL2 source data.

LEGACY LIDAR

This data from 2001-2005 is available on the ERIC

Built Environment

SCHOOLS

Build points for Schools
Campus points for school polygon for campus

BUILDINGS INFORMATION

Building footprints Building points

FRIS Flood Risk Information System

<https://fris.nc.gov/fris>

- from_FRIS
 - NCFlood_Effective_Wake_GDB
 - NCFlood_Effective_Wake_GDB.gdb
 - L_COMM_INFO
 - L_COMM_MDL_GROUPS
 - L_COMMUNITIES_STUDIED
 - L_MEETINGS
 - L_MT2_LOMR
 - L_MTG_POC
 - L_SOURCE_CIT
 - S_BASE_INDEX
 - S_BENCHMARK
 - S_CBRS
 - S_CSTMODEL
 - S_FIRMPAN
 - S_FLD_HAZ_AR
 - S_FLD_HAZ_LN
 - S_GAGE
 - S_HWM
 - S_HYDRACROSSSECTION
 - S_HYDRAMODEL
 - S_HYDRONODE
 - S_LIMWA
 - S_PFD_LN
 - S_POL_AR
 - S_STN_START
 - S_STRUC
 - S_SUBBASINS
 - S_SUBMITTAL_INFO
 - S_TRANSPORT_LN
 - S_WTR_LN



Data Search

County: Wake

DFIRM: [dropdown]

Stream: [dropdown]

Select a DFIRM Panel

Select a stream to

Wake

Shapefiles

Preliminary Index Map

LIDAR DEM 50

LIDAR DEM 20

LIDAR Bare Earth

FIS Report

File Geodatabase ←

Effective Index Map

DFIRM

FRIS

Change Map

Who Am I: General Public

Effective

Flood Information

Click the map to view information.

Map Location

Flood Zone: 0.2% Annual Chance Flood Hazard

Flood Source: East Tarboro Canal

Base Flood Elevation: Not available for this area.

Vertical Datum: NAVD88

County: Edgecombe

Political Area: Town of Tarboro

Jurisdiction: Town of Tarboro

CID: 370094

Panel: 4738

Map Number: 3720473800J

Effective Date: 11/03/04

Latitude: 35.90226

Longitude: -77.52971

Risk Information

Financial Vulnerability

Map Export

Data Export

Legend

Flood Zones

- Flood Hazard Area
- FLOODWAY
- ZONE AE
- ZONE VE
- ZONE AO
- ZONE A
- 0.2 PCT ANNUAL CHANCE FLOOD HAZARD

FIMAN

<https://fiman.nc.gov/>



FIMAN Flood Inundation Mapping and Alert Network

AB

Search Gages

Gages Summary

Legend

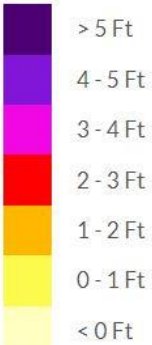
Building Legend

Weather Radar



Zoom In to See Buildings Affected

Flood Height



Showing 390 Gages

Show All Gages

Rivermont Tributary

Current Scenario Forecast

Drag to simulate flood severity



Neuse River at Kinston

Last updated: Dec 14, 2021 at 10:15 AM Gage datum: 9.8ft NAVD88 Site ID: 02089500

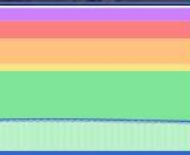
Owner: USGS

Stage: 4.7 ft
14.4 ft NAVD 88

Stream Elevation

976 cfs

Flow



Constant

No data available

Forecasted Peak

864 buildings damaged
\$27,482,000

Damages

flood.NC.gov

NC's Flood Information Center

flood.NC.gov

Home Property Risk Mapping Program Find a Document Events Floodplain Management LOMC Mitigation Flood Warning

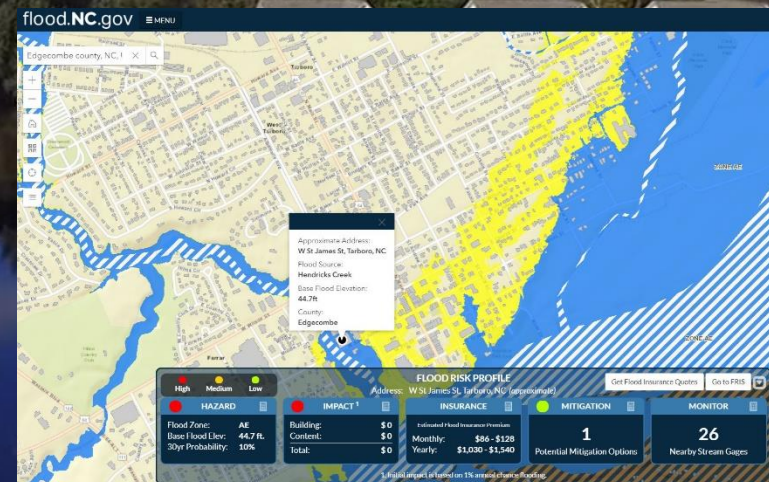
Do You Know Your Flood Risk?

Search an address

Property Risk

Learn about flood risk at a specific address, to include flood hazard, structural and content impacts, potential insurance rates, mitigation opportunities and the location of flood warning sites near you.

[Learn More](#)



Questions?



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