



Emergency Management
NC DEPARTMENT OF PUBLIC SAFETY

NCEM North Carolina Floodplain Mapping Program (NCFMP)

2D Base Level Engineering, Advisory Flood Data Viewer, and Non-encroachment Areas

**NC Geographic Information Coordination Council Meeting
August 19, 2026**

**Tom Langan, PE, CFM
Engineering Supervisor**





Overview

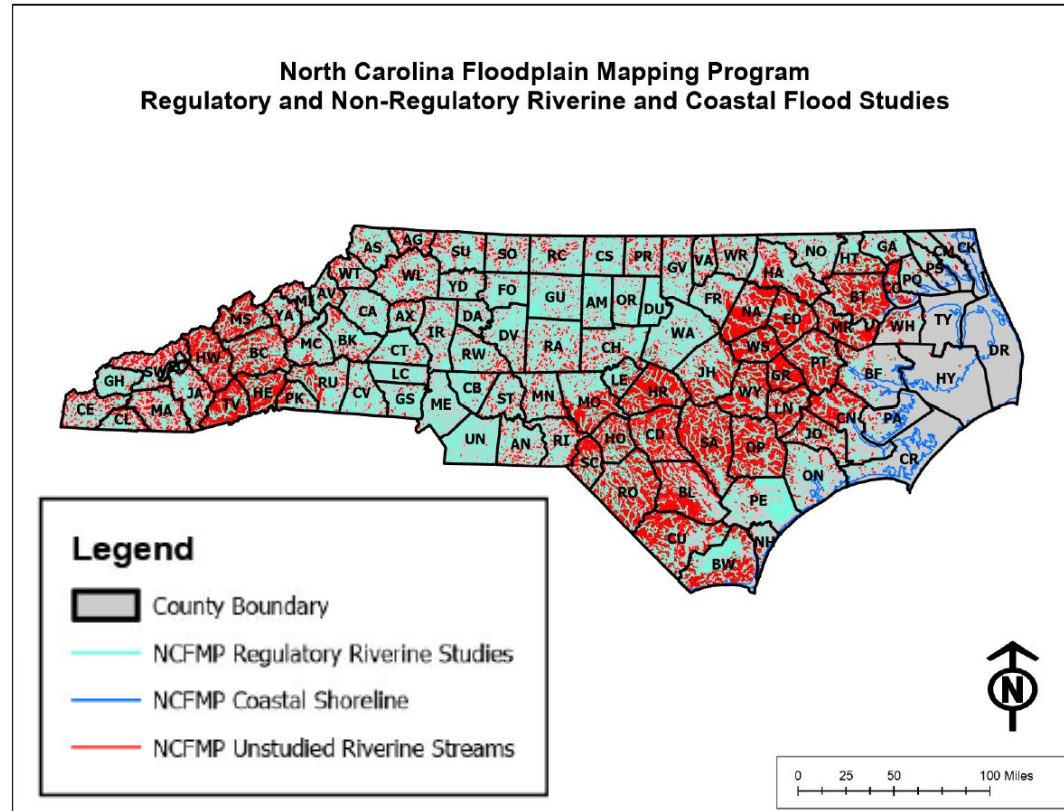
- NCFMP 2-Dimensional Base Level Engineering (2D-BLE) Study Update
- Advisory Flood Data Viewer
- Statewide Non-encroachment Areas (NEAs)



2-Dimensional Base Level Engineering (2D-BLE) Studies

- Non-regulatory flood studies
- Capture flooding outside of regulatory flood zones

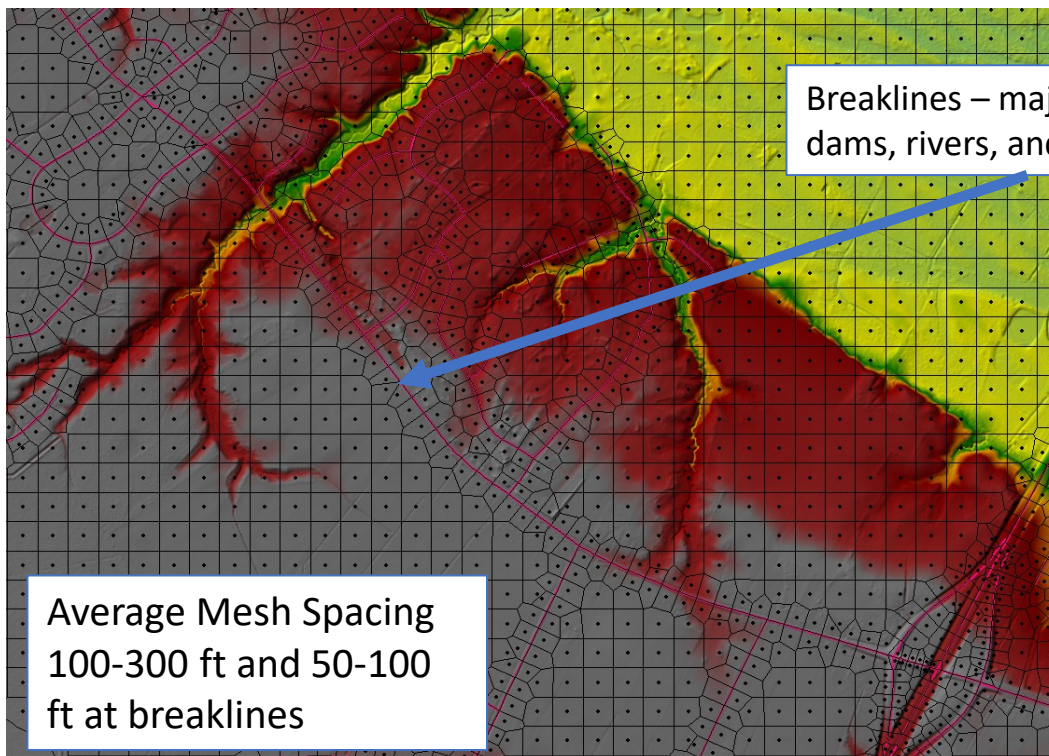
Flood Study Type	Miles
Regulatory Riverine	29,010
Regulatory Coastal	3,234
Non Regulatory	33,568





2-Dimensional Base Level Engineering (BLE) Studies

- HEC-RAS (USACE) 2-dimensional direct rain-on-grid (mesh) models



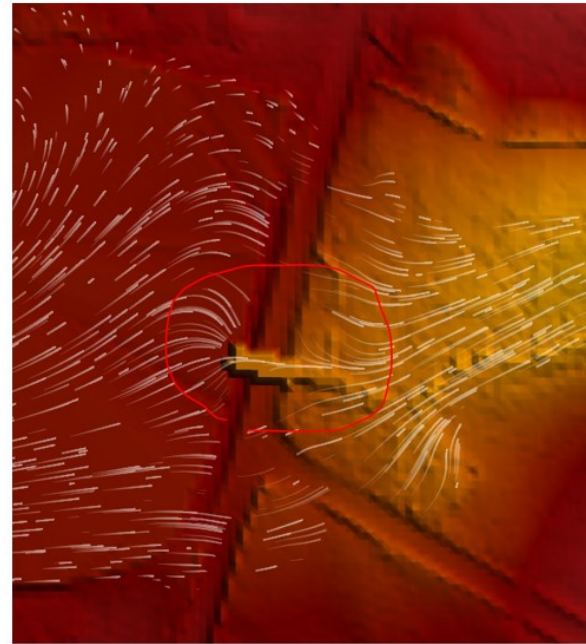
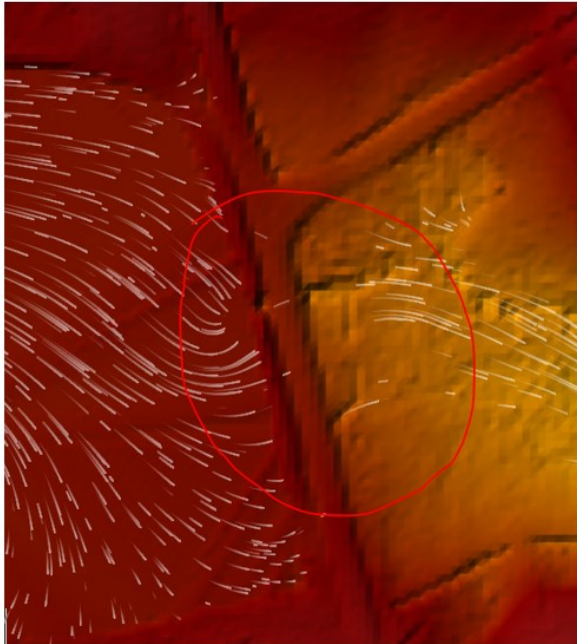
Breaklines – major roads, levees, dams, rivers, and outflow locations

Average Mesh Spacing
100-300 ft and 50-100
ft at breaklines



2-Dimensional Base Level Engineering (BLE) Studies

- Bridges/Culverts modeled indirectly as embankment cuts



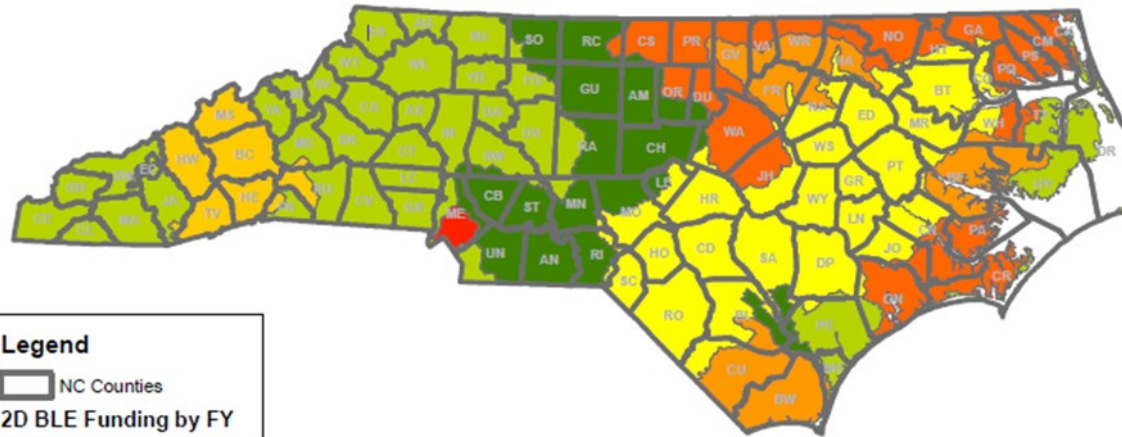


Additional Resources

- FEMA Base Level Engineering Resources: <https://www.fema.gov/flood-maps/tools-resources/risk-map/base-level-engineering>
 - [Expanding Local Flood Risk Awareness and Understanding with Base Level Engineering](#)
 - [Using Base Level Engineering \(BLE\) for a Letter of Map Amendment \(LOMA\) or Letter of Map Revision-Based on Fill \(LOMR-F\) Submittal](#)
 - [Enhancing Emergency Management Services with Base Level Engineering](#)
 - [Using Base Level Engineering in Hazard Mitigation Planning](#)
- Frequently Asked Questions About Base Level Engineering: https://www.fema.gov/sites/default/files/documents/fema_base-level-engineering-faqs_082022.pdf



2-D Base Level Engineering Current Status



Legend

NC Counties

2D BLE Funding by FY

FY19 STATE FUNDED

FY21

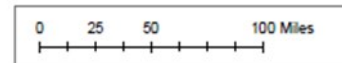
FY22

FY23

FY23 STATE FUNDED

FY24

Mecklenburg

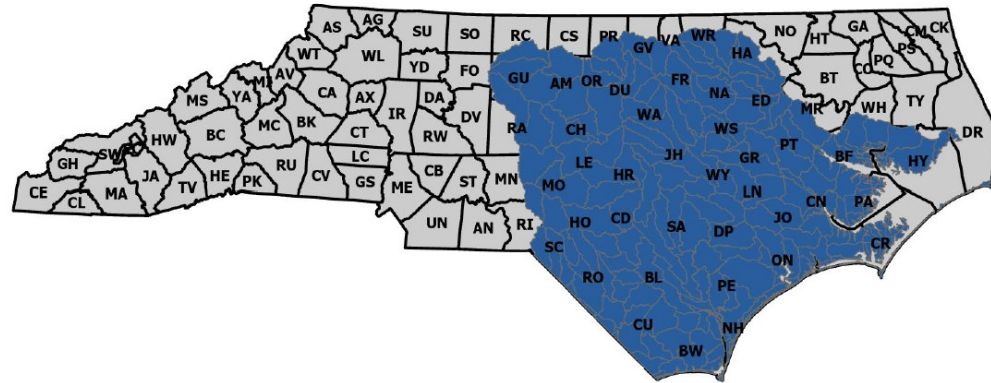




NCDEQ Flood Resiliency Blueprint 2D-BLE Enhancements

- Funded by NCDEQ Flood Resiliency Blueprint through MOA with NCEM
- Mainstem Modeling
- Additional future and build-out conditions runs
- 1% +1, +2, +3 feet flood rasters
- Coastal enhanced products – 5, 200, and 1000-year events.
- Adjusted Sea-Level Rise Surfaces for Coastal Areas
- Data loaded to Advisory Flood Viewer and NCDEQ Blueprint Application

North Carolina Floodplain Mapping Program
NCDEQ Flood Resiliency Blueprint Enhanced 2D-BLE Models



Legend

- County Boundary
- NCDEQ Flood Resiliency Blueprint 2D-BLE Enhancements



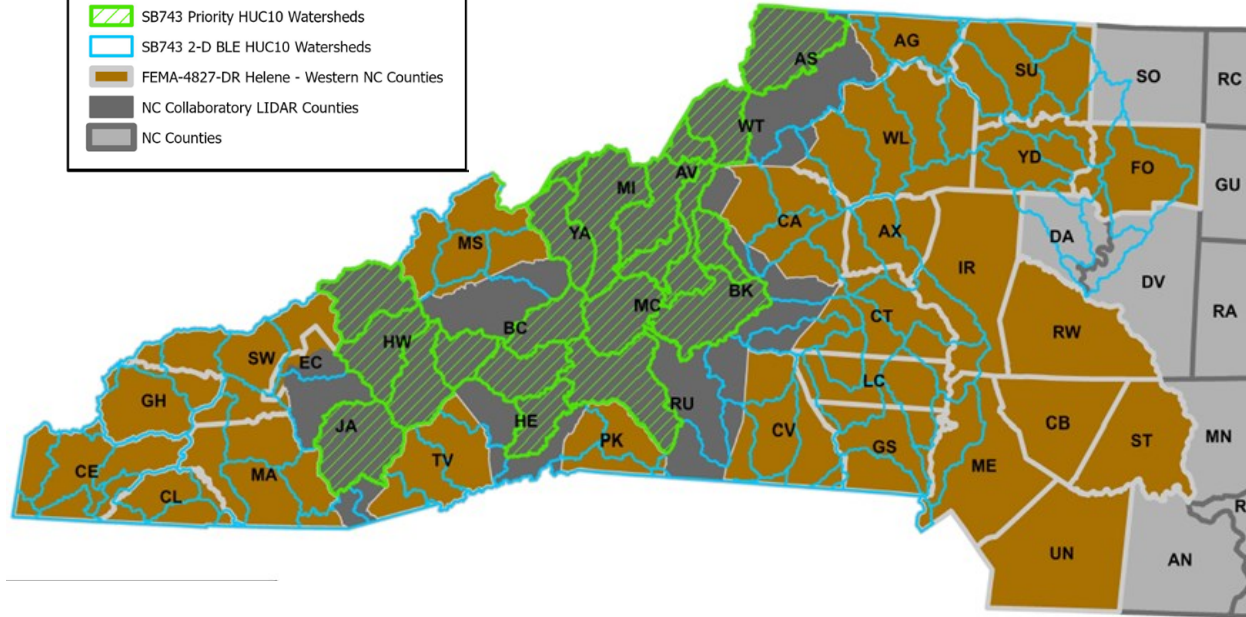
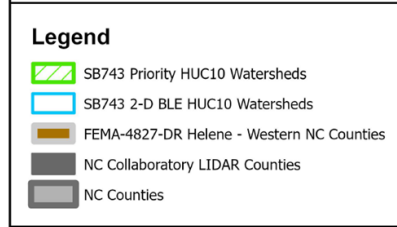
0 25 50 100 Miles





Session Law 2024-53 (Senate Bill 743) Update

- High-priority areas – modeling, mapping, flood risk and mitigation assessments completed 6/30/2026
 - Loading data to viewer (complete by end of August)
- Remaining areas – complete by 9/30/2026
 - Loaded to viewer by end of October
- Once complete will have statewide 2D-BLE model coverage





Scope of Work

- Update current NCEM Floodplain Mapping Program (NCFMP) 2-dimensional base level engineering (2D-BLE) flood study modeling with new post event topographic LIDAR data
- Non-regulatory flood studies will cover current regulatory and non-regulatory flood extents (flood risk areas currently not shown on regulatory flood maps)
- Calibrate and validate 2D BLE post event model using high resolution rainfall, field surveyed highwater marks, and stream gauge flow and water level data from Helene



Scope of Work

- Compare post event 1-percent annual chance flood boundaries and elevations to pre-event 2D BLE model and identify regulatory flood zone areas recommended for future restudy.
 - Restudy areas will be shared and verified with local communities prior to requesting funding for future regulatory flood study updates
 - Regulatory flood studies to be performed after all infrastructure improvements completed in western, NC



Scope of Work

- Non-regulatory flood data can be used to inform restoration efforts in areas of significant change including recommended elevations for building mitigation and infrastructure improvement projects
- Perform post event building level flood risk and mitigation assessments (using NCEM building footprints)
- Provide flood boundary, elevation, and flood risk and mitigation assessment data to federal, state and local communities through the NCEM Advisory Flood data viewer



Advisory Flood Mission

The North Carolina Floodplain Mapping Program (NCFMP) has initiated the "Advisory Flood" studies approach to provide **non-regulatory** flood hazard mapping for previously unmapped portions of the state, and for areas beyond NCFMP's traditional regulatory floodplain mapping extents, to help support more citizens in their decision making processes to mitigate against flood hazards.

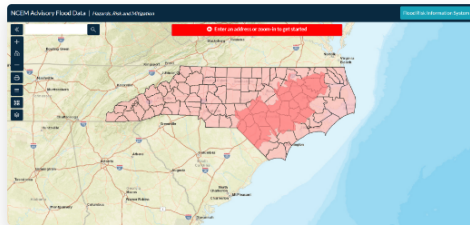
Advisory Flood Goals

- Provide non-regulatory, multi-recurrence, Advisory Floods hazard mapping for previously unmapped areas in the state
- Provide structure-specific flood hazard risk information for buildings impacted by Advisory Floods
- Provide possible mitigation alternatives for buildings impacted by Advisory Floods
- Communicate non-regulatory, Advisory Flood information, in a separate distinct website than that of NCFMP's regulatory flood hazard platforms, [Flood Risk Information System \(FRIS\)](https://flood.nc.gov/floodrisk/), and flood.nc.gov

Advisory Flood

Advisory Flood Mitigation Application

The North Carolina Floodplain Mapping Program (NCFMP), performs flood hazard mapping studies that help inform, protect, and preserve the lives and properties of the citizens in North Carolina. Recent flooding events have shown that substantial flood risk can reside outside of NCFMP's traditional regulatory floodplain boundaries. NCFMP's Advisory Flood Data Website provides flood mapping visualizations and flood risk analyses in non-regulated Advisory Flood areas where these products were previously unavailable. Flood hazard information, risk assessments, and mitigation strategies are offered within this viewer as a tool to help create more resilient communities and reduce future losses due to flooding. The website provides an easy to use interface to enable the user to assess a range of Advisory flooding scenarios, their associated flood risks, potential damages, and possible mitigation alternatives. In addition, areas of mitigation interests data are identified and communicated as a part of a study wide "hot spot" grid to pinpoint areas of concentrated Advisory Flood risk and potential locations for future mitigation actions. Regulatory floodplain information is provided as a static overlay within the Advisory Flood Data Website. Users that click within those regulatory overlay areas will be directed to NCFMP's FRIS website for higher level regulatory flood information.



[Launch Viewer](#)

Contact

Advisory Flood Program

Mailing Address

4218 Mail Service Center
Raleigh, NC 27699-4218

Phone: 919-715-5711

Fax: 919-715-0408

Email:

engineeringhelp@ncdps.gov

- <https://flood.nc.gov/advisoryflood/>





Advisory Flood Mission

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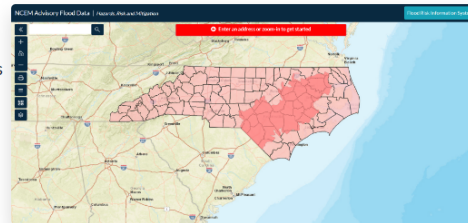
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Launch Viewer

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Mailing Address

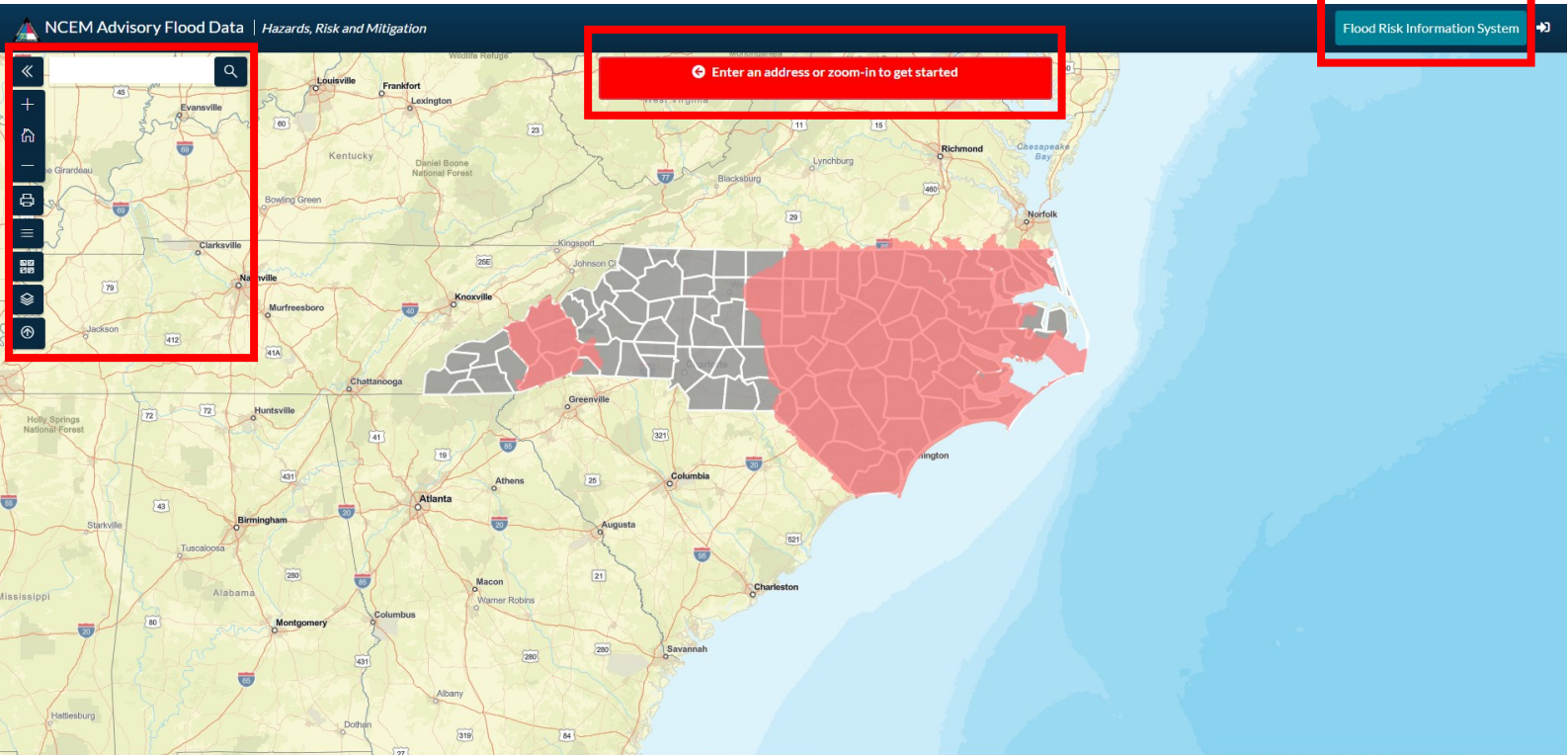
4218 Mail Service Center
Raleigh, NC 27699-4218

Phone: 919-715-5711

Fax: 919-715-0408

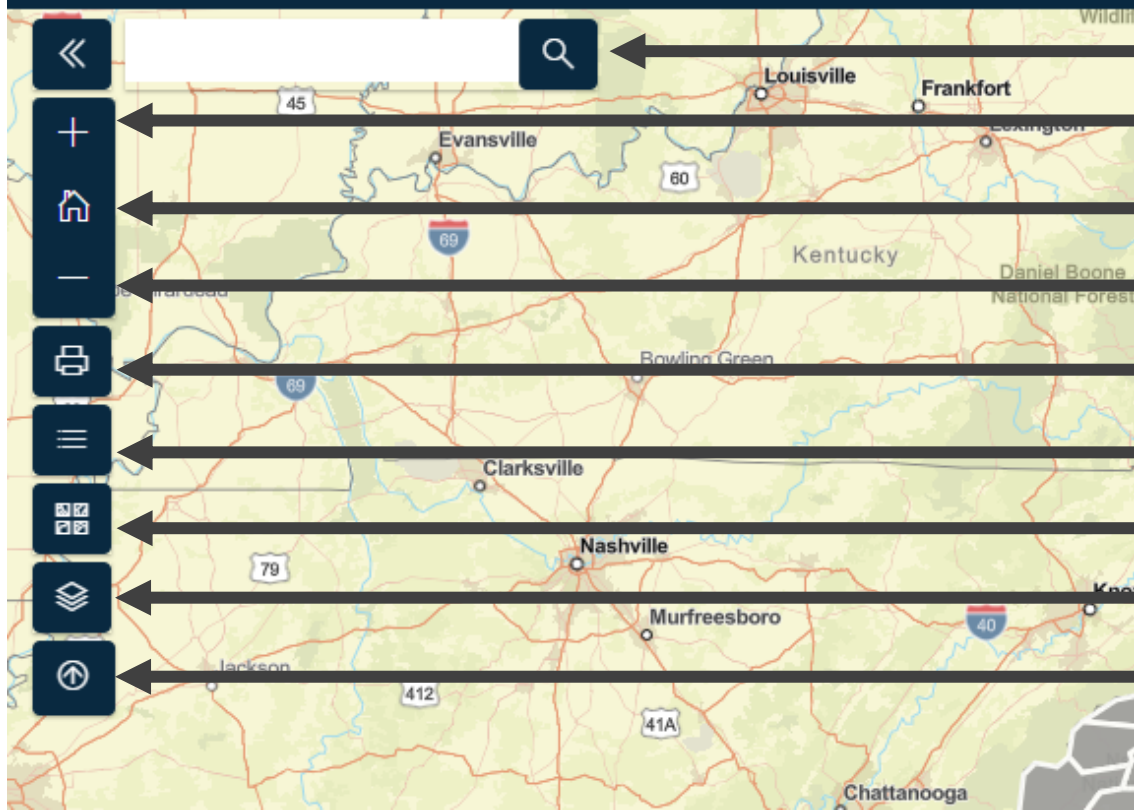
Email:
engineeringhelp@ncdps.gov







NCEM Advisory Flood Data | Hazards, Risk and Mitigation



Search

Zoom In

Initial Extent

Zoom Out

Print

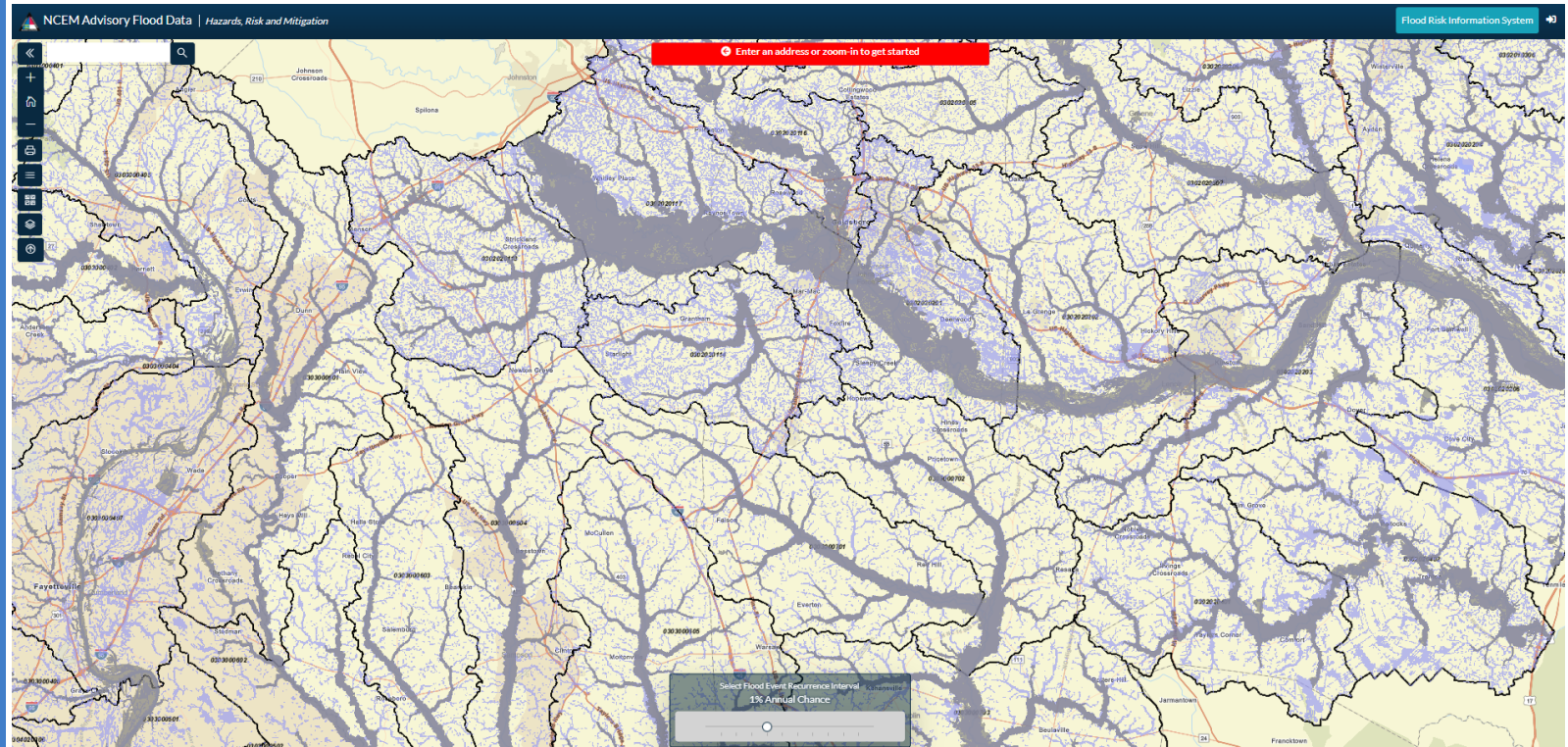
Legend

Basemap Gallery

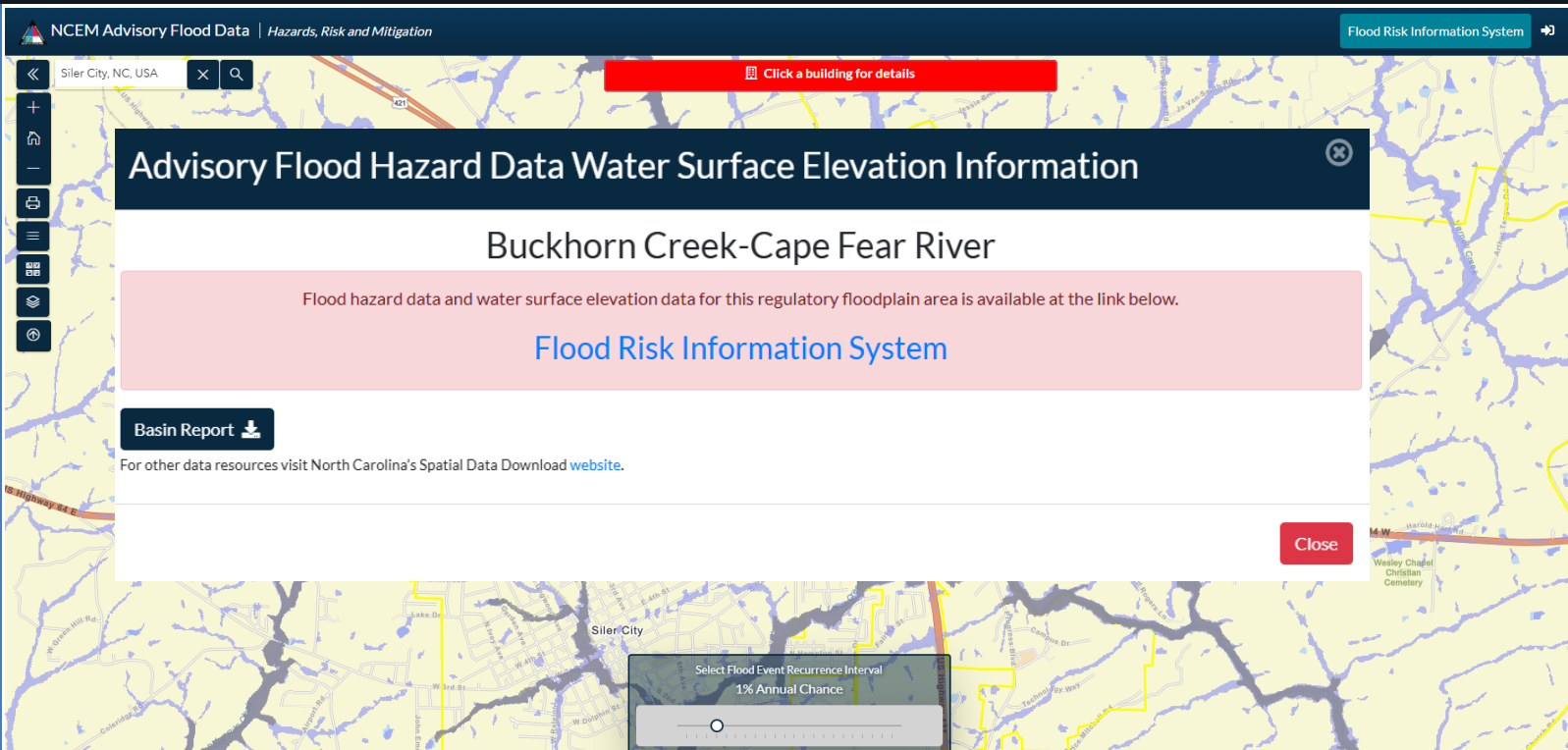
Layers

Collapse/
Expand Tools









NCEM Advisory Flood Data | Hazards, Risk and Mitigation

Flood Risk Information System

Siler City, NC, USA

Click a building for details

Advisory Flood Hazard Data Water Surface Elevation Information

Buckhorn Creek-Cape Fear River

Flood hazard data and water surface elevation data for this regulatory floodplain area is available at the link below.

[Flood Risk Information System](#)

Basin Report 

For other data resources visit North Carolina's Spatial Data Download [website](#).

Close

Select Flood Event Recurrence Interval
1% Annual Chance



NCEM Advisory Flood Data | Hazards, Risk and Mitigation

Flood Risk Information System

Print

Export

Layout Map only

Title

Title of file

Page setup

Letter ANSI A landscape

File format

PDF

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Exported files

Your exported files will appear here.

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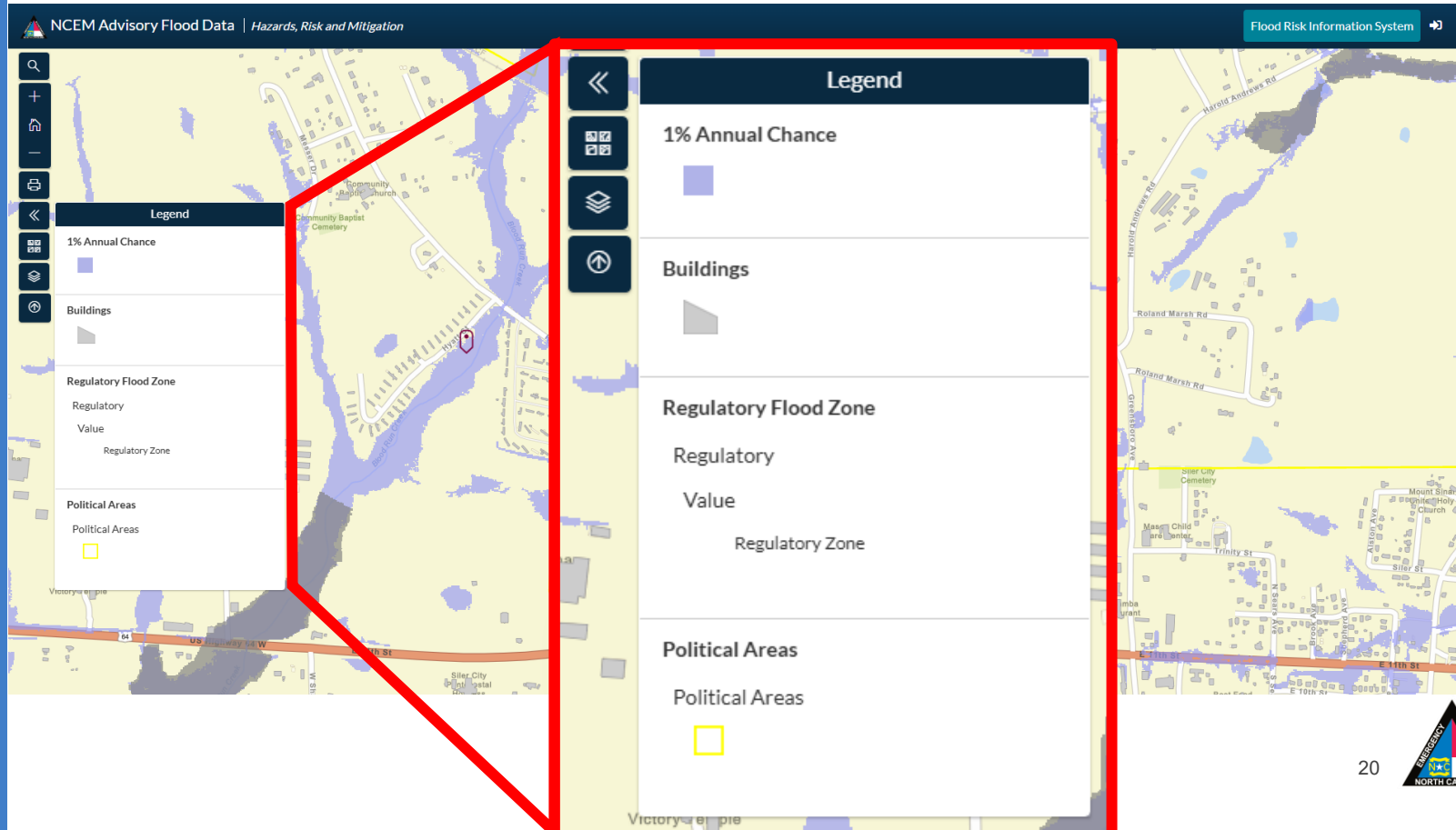
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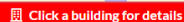
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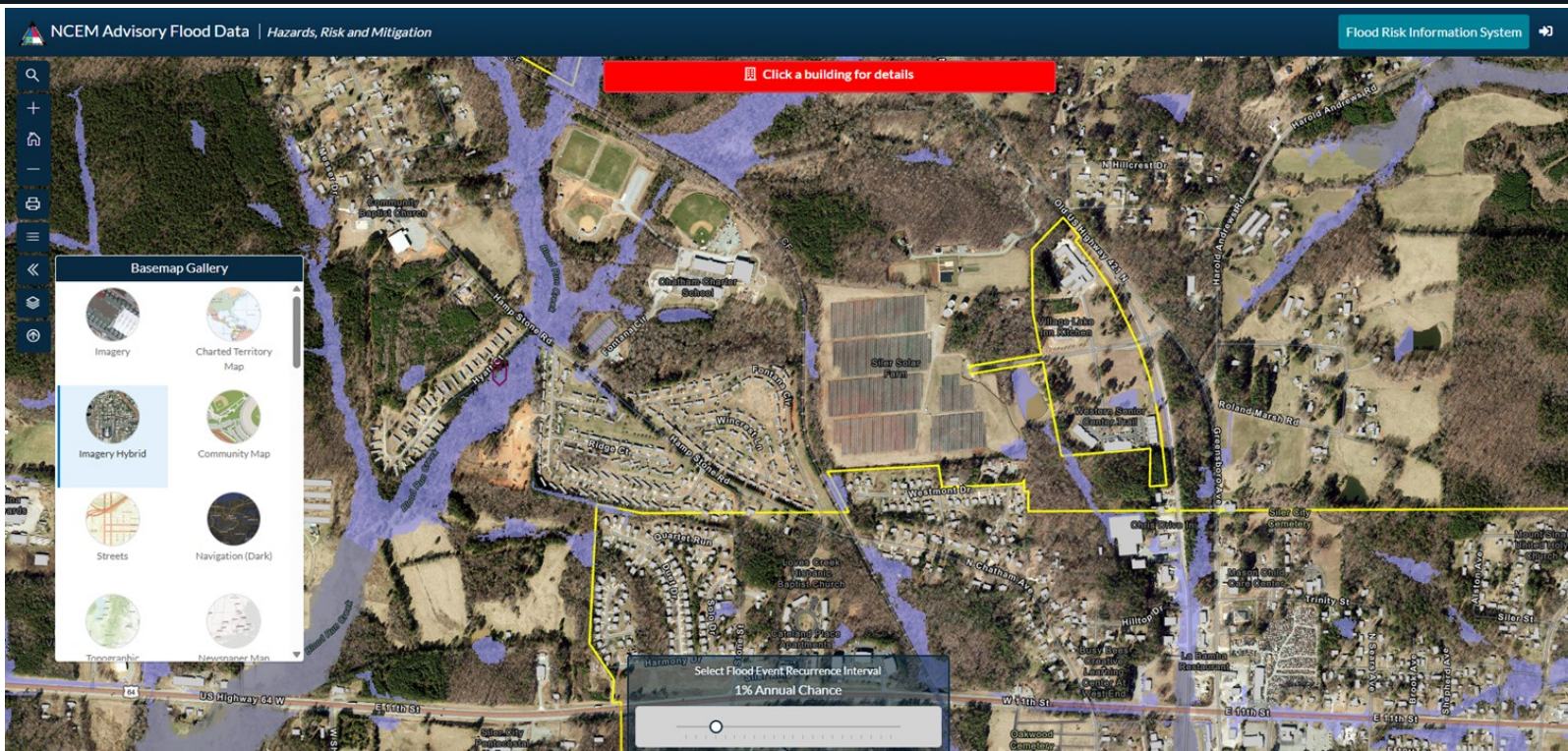
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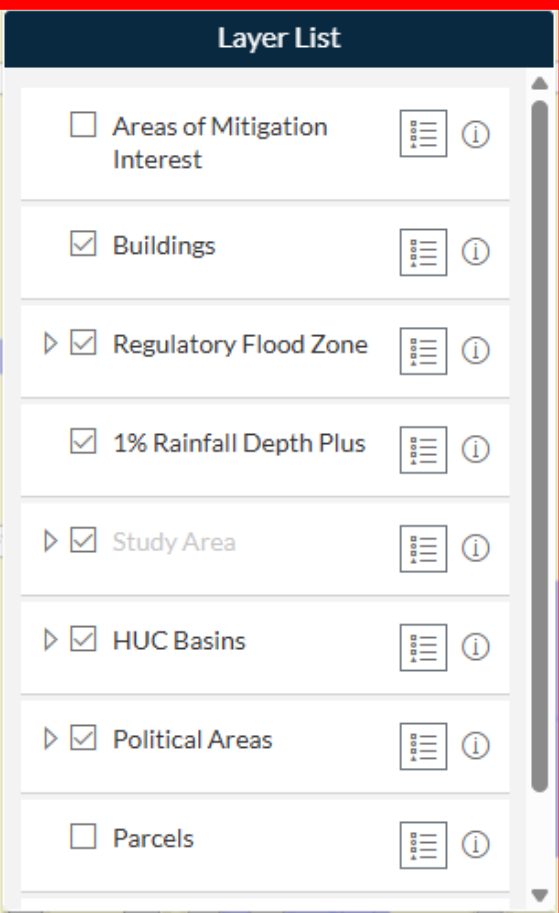
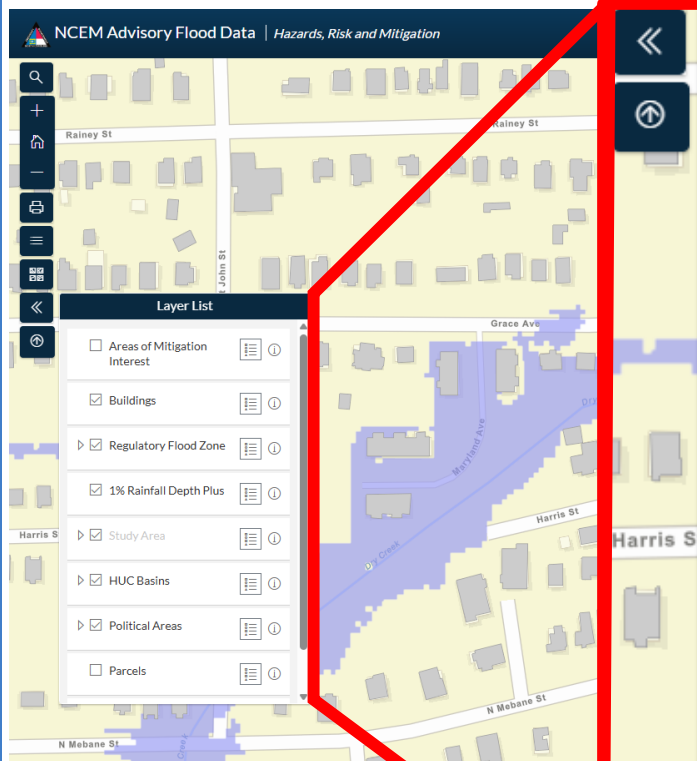
Exported files

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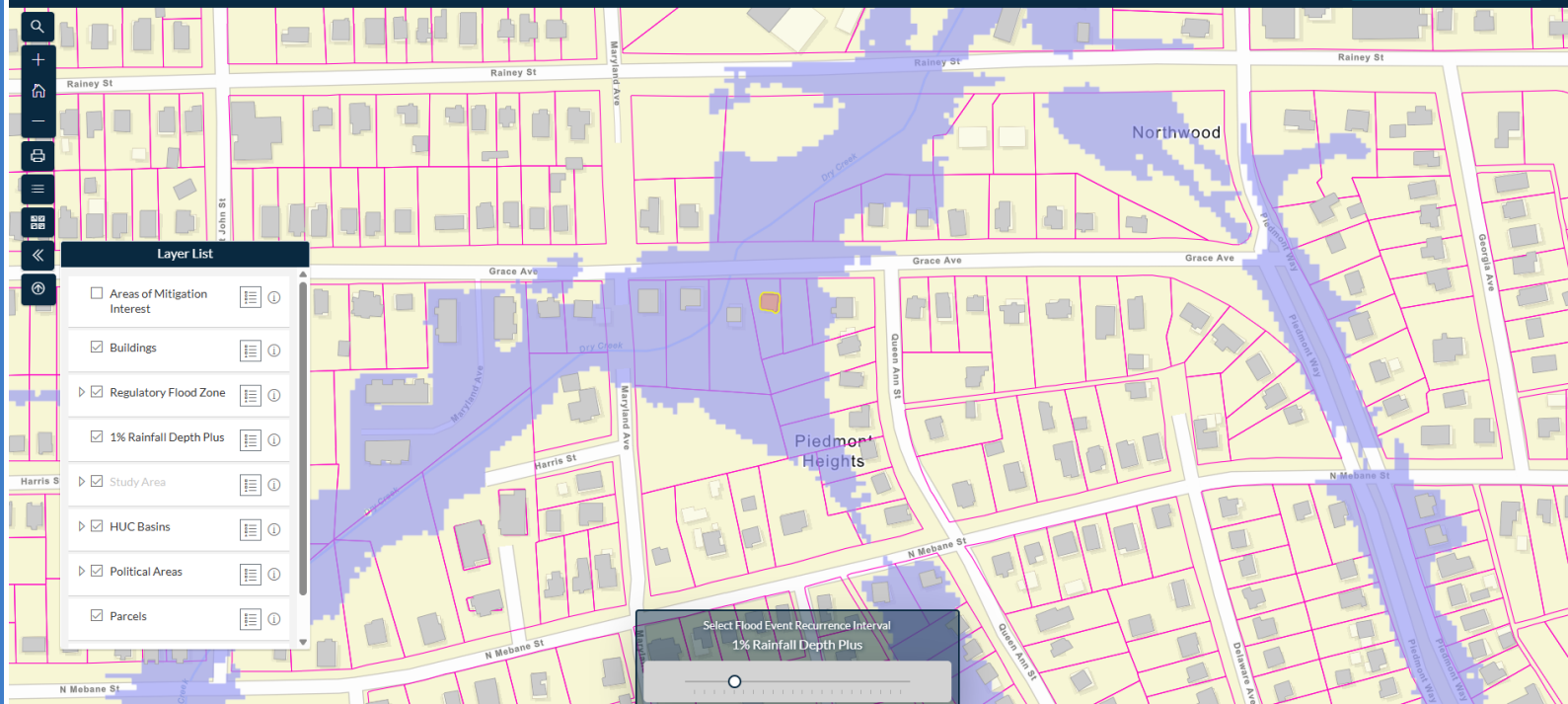


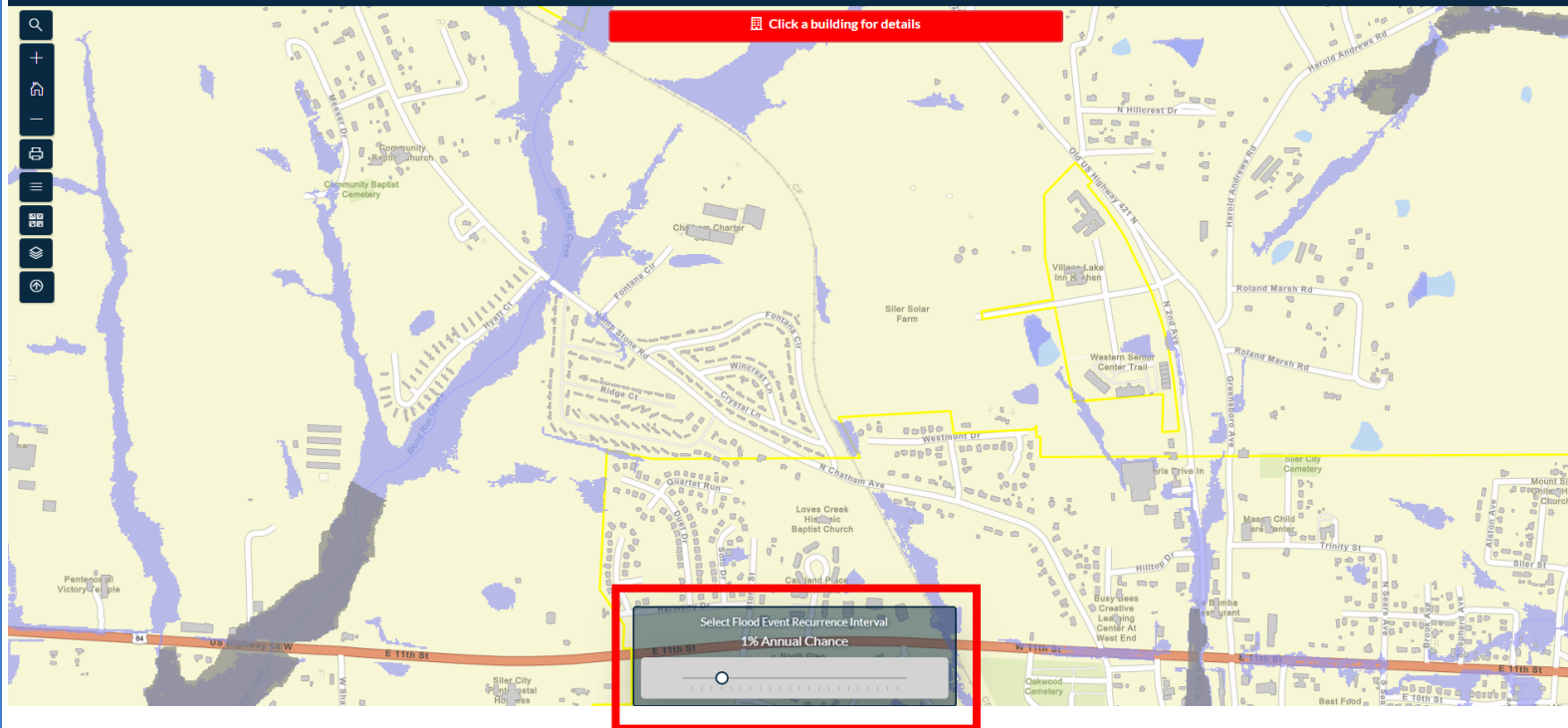




NCCEM Advisory Flood Data | Hazards, Risk and Mitigation

Flood Risk Information System





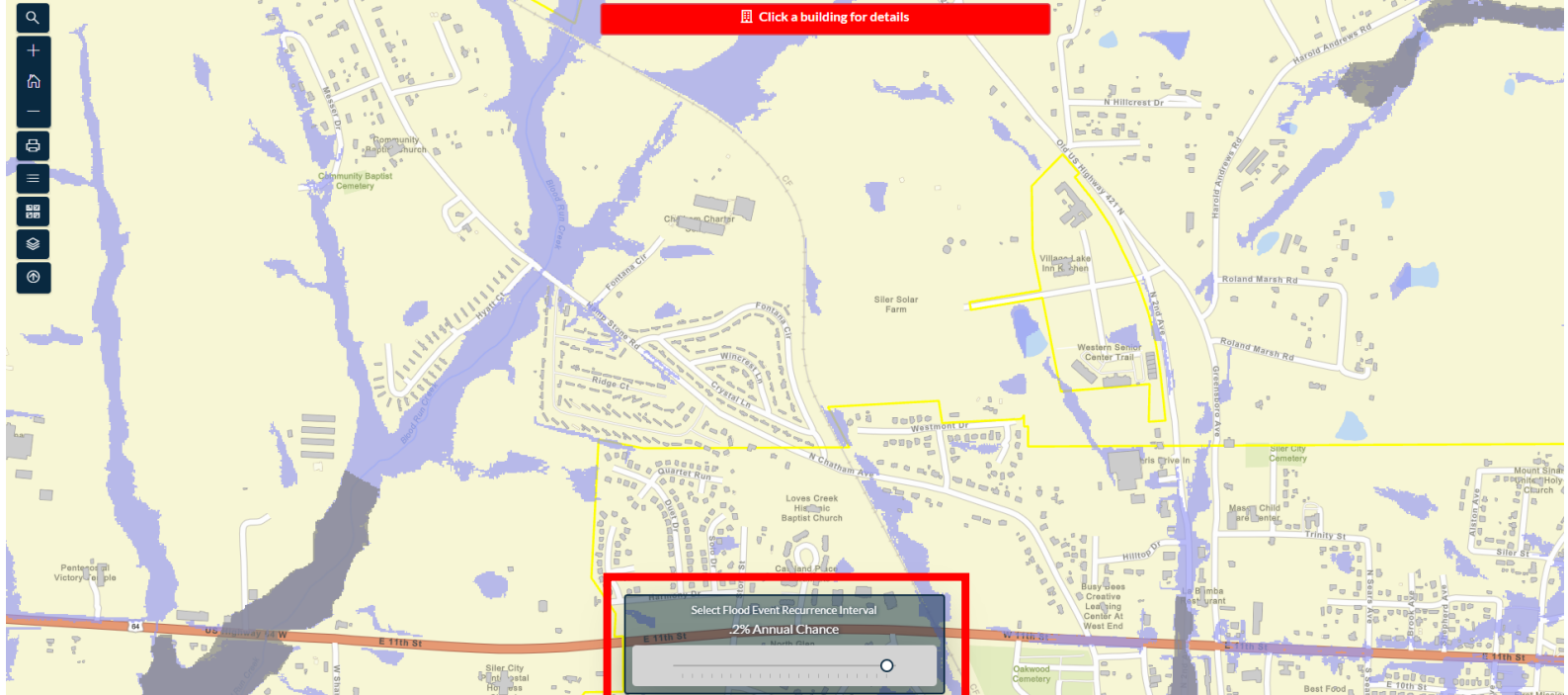


NCEM Advisory Flood Data | Hazards, Risk and Mitigation

Flood Risk Information System



Click a building for details



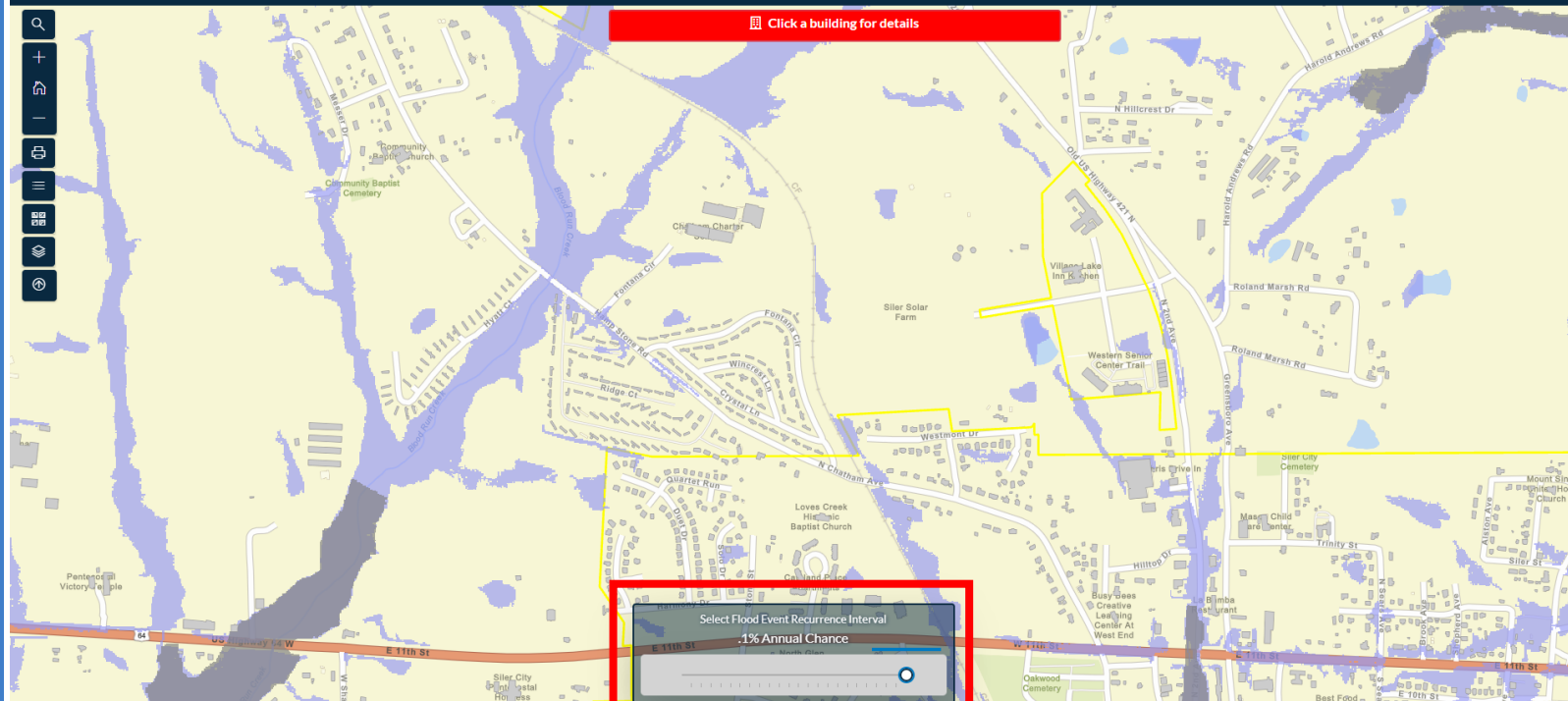


NCEM Advisory Flood Data | Hazards, Risk and Mitigation

Flood Risk Information System



Click a building for details







Advisory Flood Hazard Data Water Surface Elevation Information

Siler City, North Carolina Upper Deep River

Event	Elevation ¹
20% Annual Chance (5-Year Flood)	No Data
10% Annual Chance (10-Year Flood)	600.7
4% Annual Chance (25-Year Flood)	601
2% Annual Chance (50-Year Flood)	601.3
1% Annual Chance (100-Year Flood)	601.6
1% Rainfall Depth Plus (100-Year Flood (Upper Confidence Bound))	601.8



1% Rainfall Year 2050 RCP4.5 50% Annual Chance (1% Rainfall Year 2050 RCP4.5 50% annual chance)	601.6
1% Rainfall Year 2050 RCP4.5 90% Annual Chance (1% Rainfall Year 2050 RCP4.5 90% annual chance)	602.1
1% Rainfall Year 2100 RCP4.5 50% annual chance (1% Rainfall Year 2100 RCP4.5 50% annual chance)	601.7
1% Rainfall Year 2100 RCP8.5 50% Annual Chance (1% Rainfall Year 2100 RCP8.5 50% annual chance)	601.9
1% Rainfall Year 2100 RCP8.5 90% Annual Chance (1% Rainfall Year 2100 RCP8.5 90% annual chance)	602.7
1% Rainfall Buildout 2050 Annual Chance (1% Rainfall Buildout 2050 annual chance)	601.4
1% Rainfall Buildout 2100 Annual Chance (1% Rainfall Buildout 2100 annual chance)	601.4
1% Annual Chance Plus 1 ft Freeboard (1% annual chance with 1 foot added as Freeboard)	No Data
1% Annual Chance Plus 2 ft Freeboard (1% annual chance with 2 feet added as Freeboard)	603.6
1% Annual Chance Plus 3 ft Freeboard (1% annual chance with 3 feet added as Freeboard)	604.6
.5% Annual Chance (200-Year Flood)	601.9
.2% Annual Chance (500-Year Flood)	602.3
.1% Annual Chance (1000-Year Flood)	602.6

¹ Water surface elevations in feet (NAVD88)

Basin Report



For other data resources visit North Carolina's Spatial Data Download [website](#).

Close





NORTH CAROLINA 2D FLOOD MITIGATION STUDY
ENGINEERING REPORT FOR UPPER DEEP RIVER BASIN
HUC 0303000302



- In addition, the 1% annual-chance storm event was modeled with buildout scenarios using the EPA Integrated Climate and Landuse Scenarios (ICLUS) (About GCX Integrated Land Use | US EPA) 2050 and 2100 datasets respectively as shown in Table 1.
- The climate runs with buildout scenarios which includes Mid Century Lower (MCL), Mid Century Higher (MCH), End of Century Lower (ECL), End of Century Higher (ECH) and End of Century Severe (ECS) were modeled based on ICLUS data as shown in Table 2.

Table 1: Buildout Scenario without Climate Conditions

Scenario	HEC Runs		HEC Plan Name
	Existing	Buildout Scenario	
1% with 2050 Buildout	1% Existing Run	ICLUS 2050 RCP4.5	BO2050
1% with 2100 Buildout	1% Existing Run	ICLUS 2100 RCP8.5	BO2100

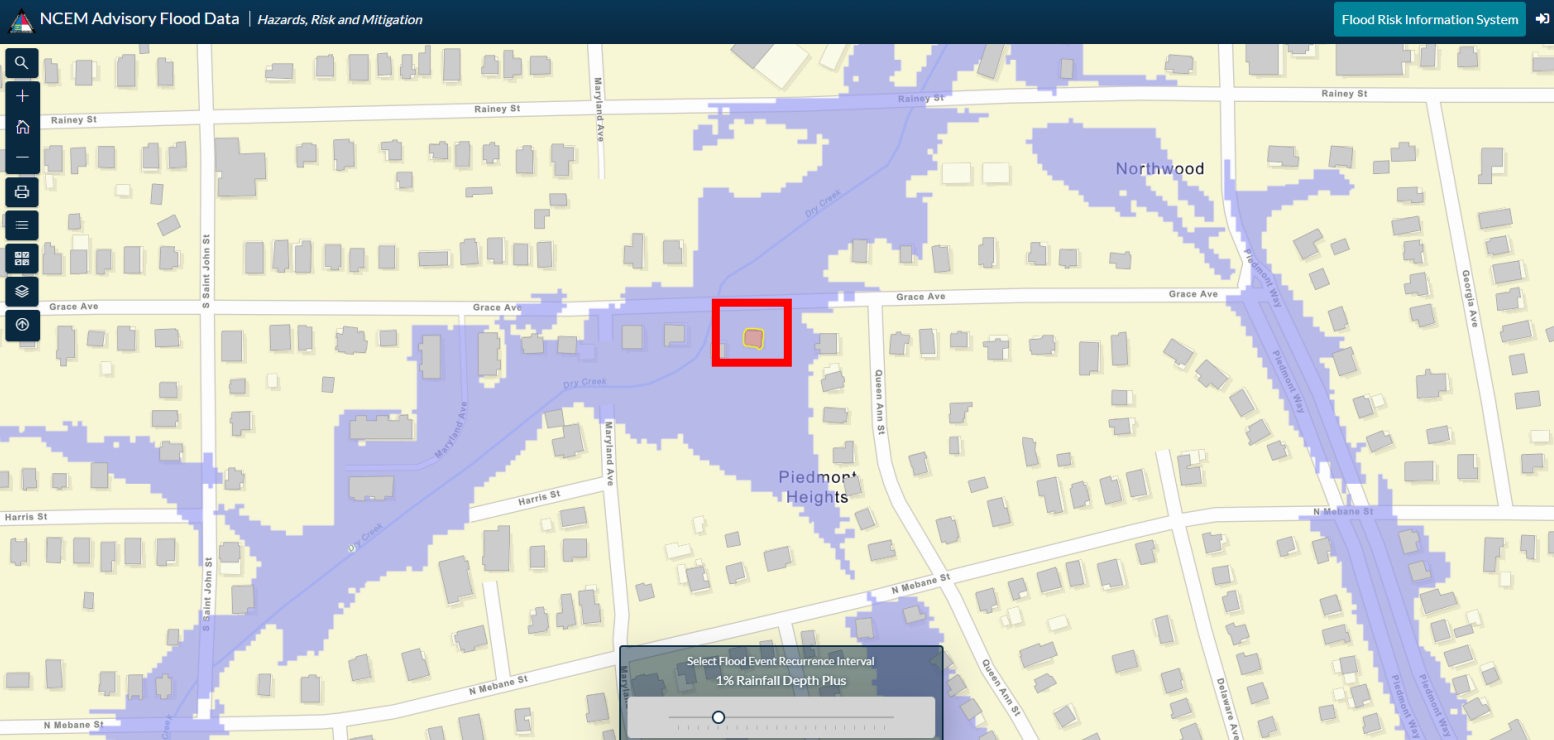
Table 2: Climate Conditions with Buildout Scenarios

Scenario	HEC Runs		HEC Plan Name
	Precip Scenario	Buildout Scenario	
Mid Century Lower	Y2050, RCP4.5 50%	ICLUS 2050 RCP4.5	MCL
Mid Century Higher	Y2050, RCP4.5 90%	ICLUS 2050 RCP4.5	MCH
End of Century Lower	Y2100, RCP4.5 50%	ICLUS 2100 RCP8.5	ECL
End of Century Higher	Y2100, RCP8.5 50%	ICLUS 2100 RCP8.5	ECH
End Of Century Severe	Y2100, RCP8.5 90%	ICLUS 2100 RCP8.5	ECS



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Advisory Flood Risk and Mitigation Information



Siler City, North Carolina

Building Information

Building Value	\$123,544
Occupancy Type	Single Family Dwelling
Heated Square Feet	884
Number of Stories	1
Foundation Type	Slab on grade

Mitigative Measures

This structure has potential damages totaling **\$145,896** for a 30 year time horizon and **\$243,160** for a 50 year time horizon. With the following mitigation measures in place **\$145,896** in flood losses avoided could be achieved over 30 years and **\$243,160** over 50 years.

Relocation

Expected Damages

Annual Chance ↑↓	Depth ¹ ↑↓	Damage ↑↓	Building Losses ² ↑↓
.1%	2.07	32.52%	\$38,868
.2%	1.77	29.89%	\$35,720
.5%	1.37	26.29%	\$31,417
1%	1.07	23.59%	\$28,191
2%	0.67	19.66%	\$23,489
4%	0.47	17.66%	\$21,099
10%	0.17	14.66%	\$17,514
20%	-0.03	12.66%	\$15,124

¹ Depth is calculated as feet above first finished floor.

² Building Losses are calculated using average replacement value per square foot for this building type.





Building-Level Mitigation

Each building impacted by advisory flood hazards was evaluated for six potential mitigation techniques (Acquisition, Elevation, Relocation, Dry Floodproofing, Wet Floodproofing, and Mitigation Reconstruction) using North Carolina Emergency Management's iRISK workflow. The analysis was performed using the advisory flood mapping products, flood risk assessment results, and building information including foundation type, construction type, feet of elevation required, as well as perimeter length and square footage.

The cost to implement and corresponding benefit (flood damage reduction) was calculated for each building to identify mitigation techniques with acceptable benefit/cost ratios (greater than 1) over a 30- and 50-year timeframe. The corresponding losses avoided over 30- and 50-years for selected mitigation techniques were also calculated in 2021 dollars. For each building, the mitigation strategy with the best 50-year benefit/cost greater than 1 was selected.

Table 18: Mitigation Strategies and Losses Avoided

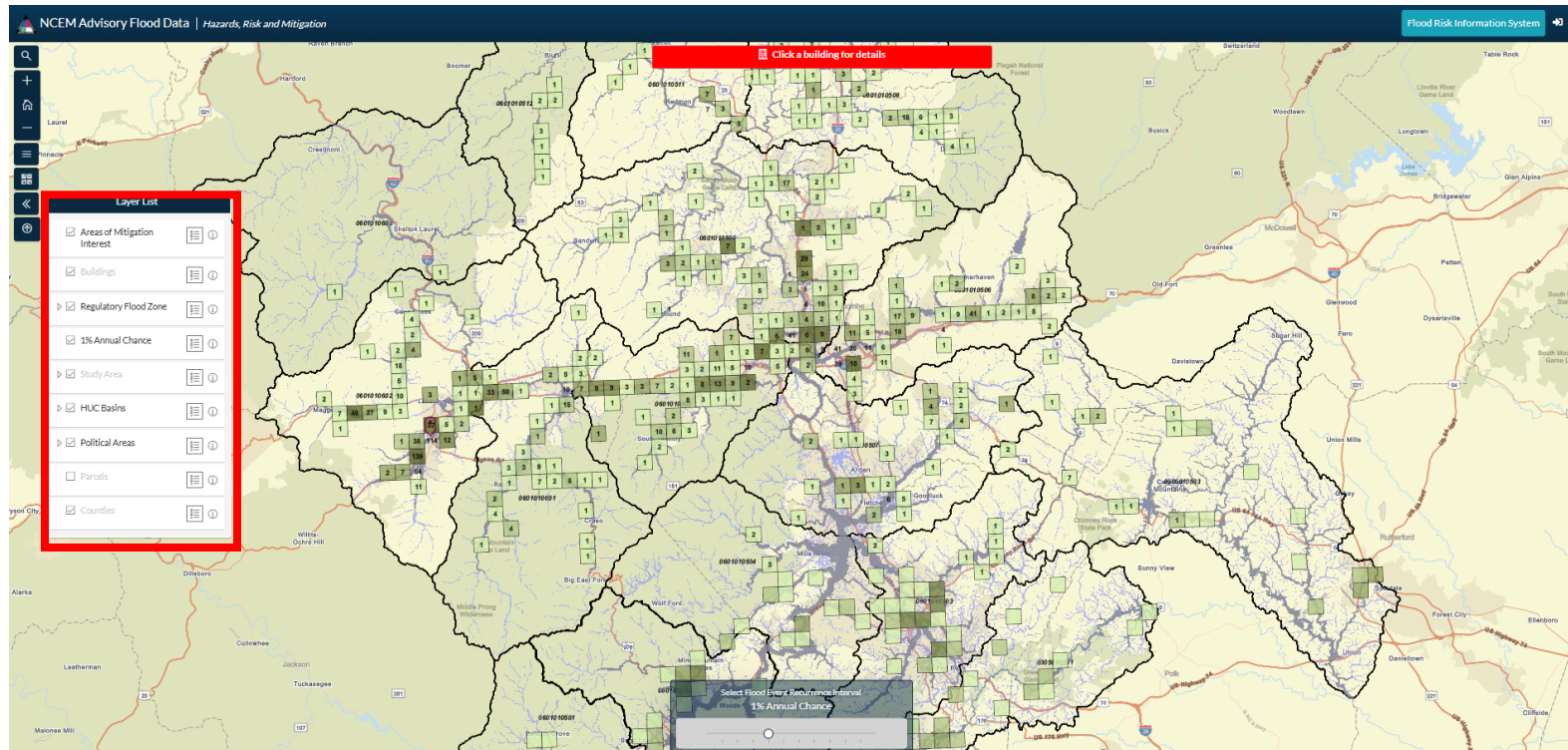
Mitigation Strategy	Building Count	30 Year Losses Avoided	50 Year Losses Avoided
Acquisition	2	\$1,329,637	\$2,216,061
Relocation	20	\$4,225,094	\$7,041,823

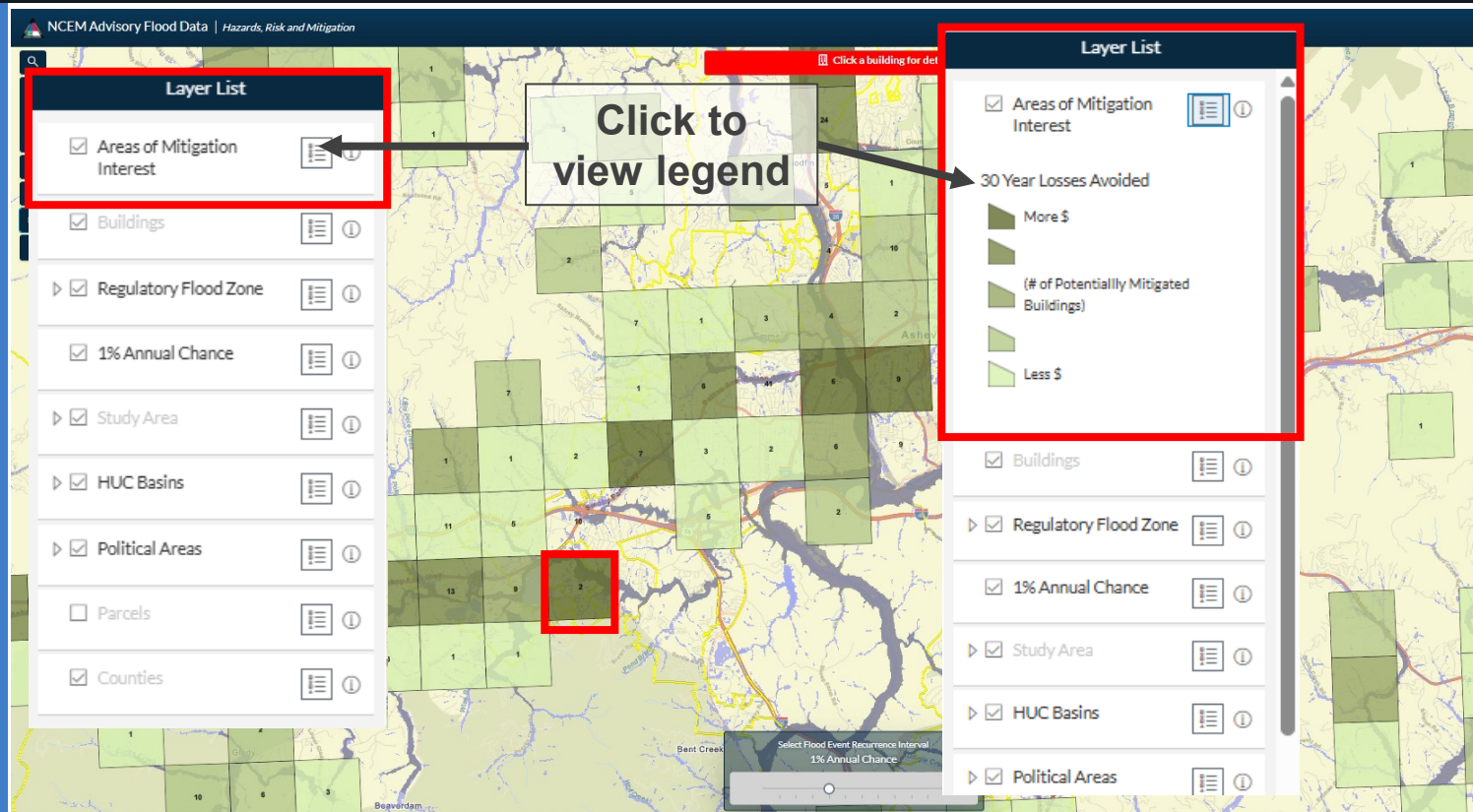




Emergency Management

NC DEPARTMENT OF PUBLIC SAFETY







Advisory Flood Hazard Data Water Surface Elevation Information

1% Rainfall Year 2050 RCP4.5 50% Annual Chance (1% Rainfall Year 2050 RCP4.5 50% annual chance)	No Data
1% Rainfall Year 2050 RCP4.5 90% Annual Chance (1% Rainfall Year 2050 RCP4.5 90% annual chance)	No Data
1% Rainfall Year 2100 RCP4.5 50% annual chance (1% Rainfall Year 2100 RCP4.5 50% annual chance)	No Data
1% Rainfall Year 2100 RCP8.5 50% Annual Chance (1% Rainfall Year 2100 RCP8.5 50% annual chance)	No Data
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1% Rainfall Buildout 2100 Annual Chance (1% Rainfall Buildout 2100 annual chance)	No Data
1% Annual Chance Plus 1 ft Freeboard (1% annual chance with 1 foot added as Freeboard)	No Data
1% Annual Chance Plus 2 ft Freeboard (1% annual chance with 2 feet added as Freeboard)	No Data
1% Annual Chance Plus 3 ft Freeboard (1% annual chance with 3 feet added as Freeboard)	No Data
.5% Annual Chance (200-Year Flood)	No Data
.2% Annual Chance (500-Year Flood)	No Data
.1% Annual Chance (1000-Year Flood)	No Data

¹ Water surface elevations in feet (NAVD88)

Possible Mitigation Techniques:

- Acquisition
- Dry floodproofing
- Relocation

There are 8 structures potentially affected in this area with projected damages totaling \$9,195,488 for a 30 year time horizon and \$15,325,813 for a 50 year time horizon. With mitigation measures in place \$8,872,876 in flood losses avoided could be achieved over 30 years and \$14,788,127 over 50 years.

Basin Report 

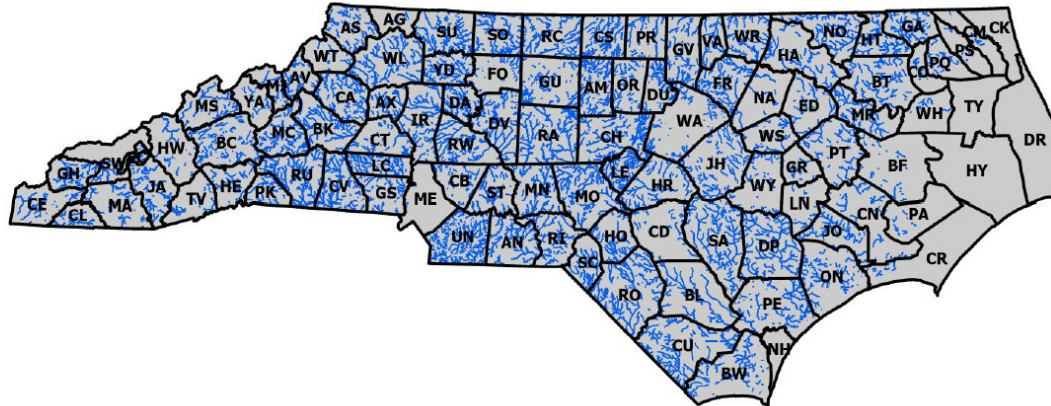
For other data resources visit North Carolina's Spatial Data Download [website](#).

Close





North Carolina Floodplain Mapping Program Regulatory Limited Detailed Studies and Non-encroachment Areas



Legend



County Boundary



NCFMP Regulatory Limited Detail Studies



0 25 50 100 Miles

Flood Study Type	Miles
Detailed	8,659
Limited Detailed	18,382
AO, AH Zones	1,210
Approximate (Zone A)	641
Other X/AE Zone	118
Coastal	3,234
Total	32,243



Non-encroachment Area Mapping (<https://fris.nc.gov/>)

FRIS Flood Risk Information System

Home Map Download Help

Tools Map View: Effective Preliminary

Burke County, North Carolina

Create Map Draw & Export

TOOLS

Overview Layers

☐ Geodetic Monuments

☒ Levee Seclusion Area

☐ Letter of Map Revision (LOMR)

☒ Riverine

☒ Cross sections - DFIRM

☐ Hydraulic Structures

☐ Model Extents

☒ Non-Encroachment Areas

☐ Coastal

Flood Risk Datasets

Base Map Layers

Reset Default Layers





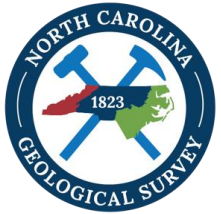
Questions?





LiDAR Change Detection and Landslide Mapping

Nick Bozdog, GISP
GIS Coordinator
DEQ - Geological Survey

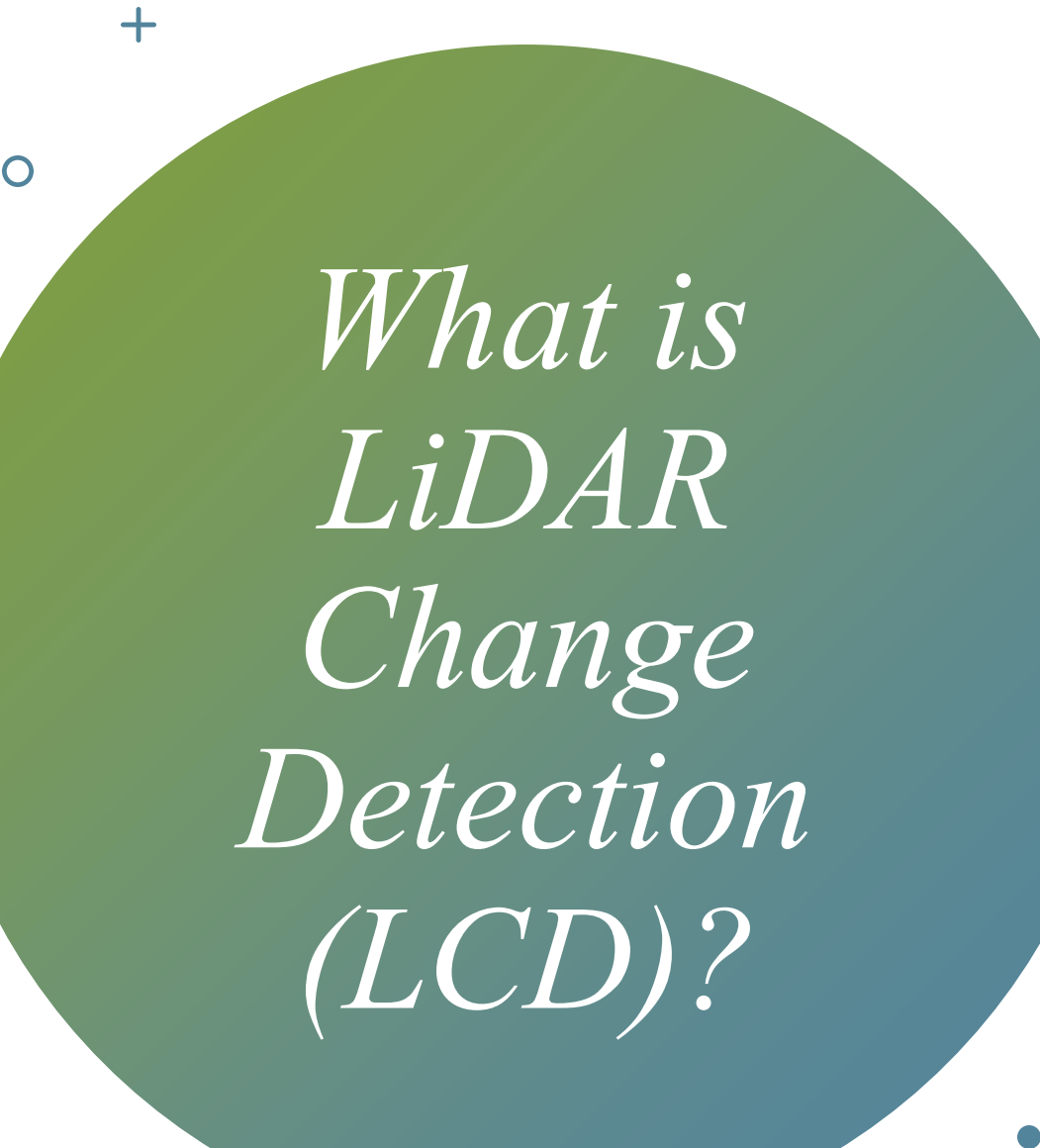


In partnership
with



Corey Scheip, Ph.D, P.G.
Senior Geoscientist
Cambio Earth





What is LiDAR Change Detection (LCD)?

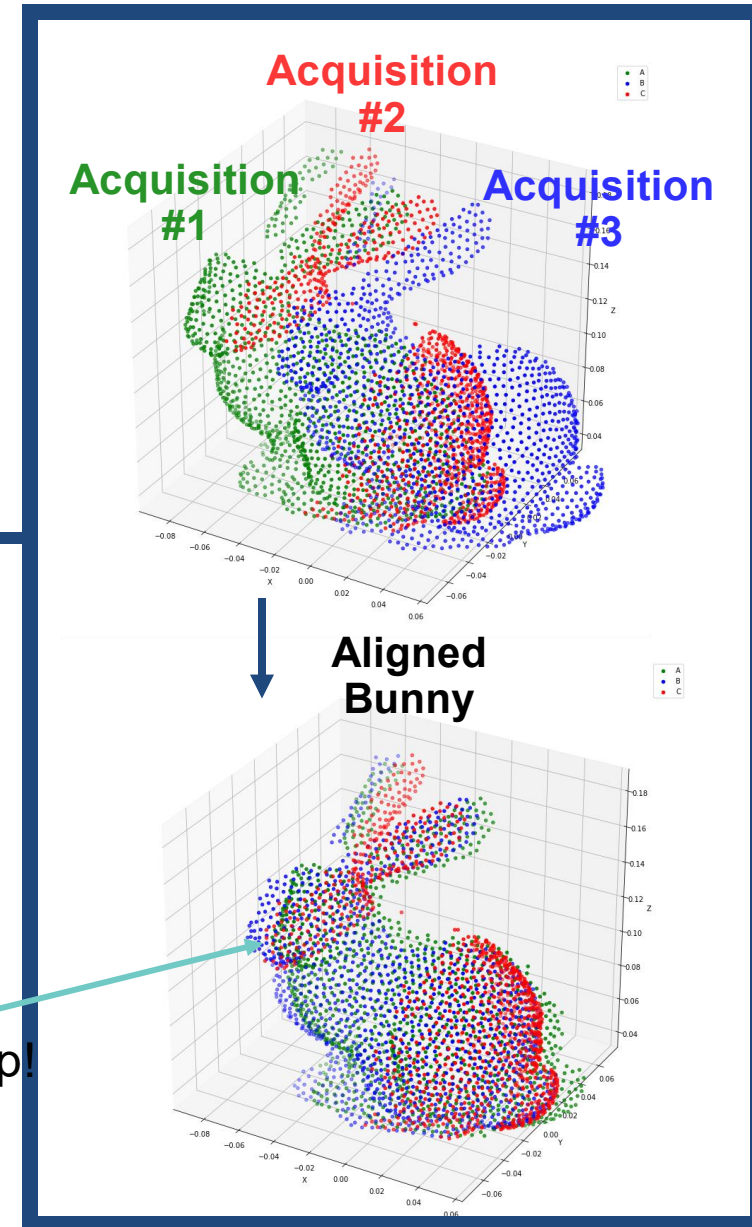
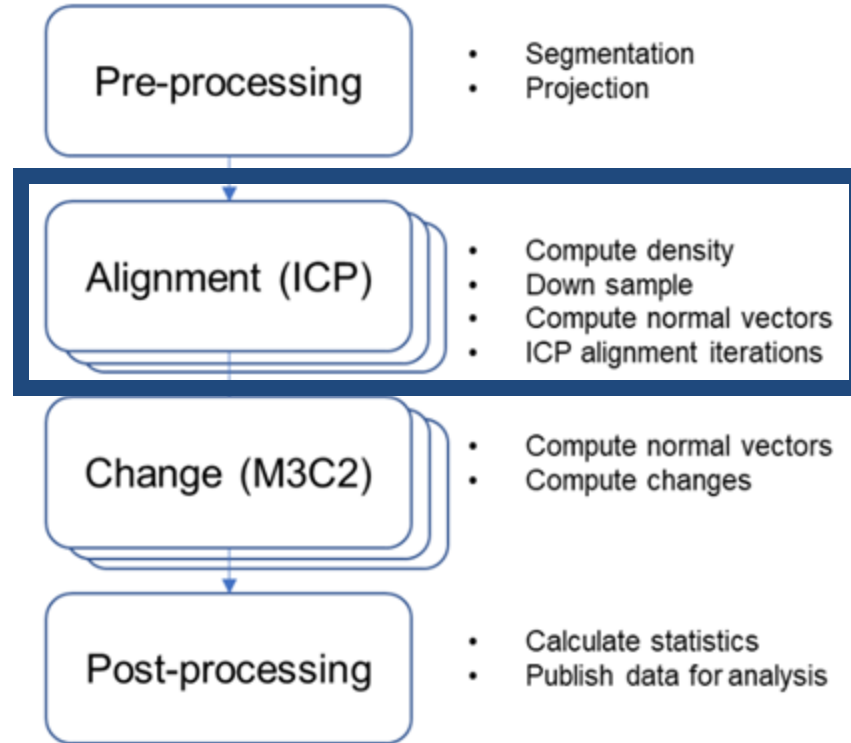
The process of comparing multi-temporal LiDAR datasets, of the same geographic area, to identify and quantify physical changes.

With this dataset we are specifically looking at bare earth changes between 2017 and 2025
LiDAR

More than just subtracting one DEM from the other.

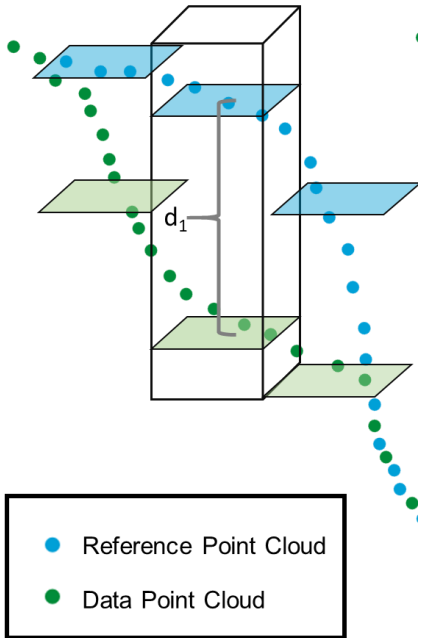
Lidar Change Detection: Alignment

Start with point clouds (las/laz)

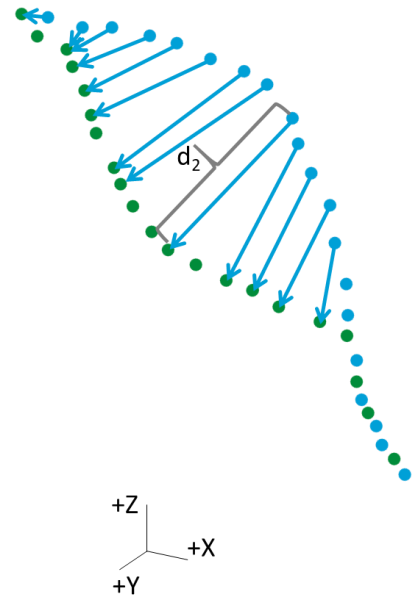


Lidar Change Detection: Compute

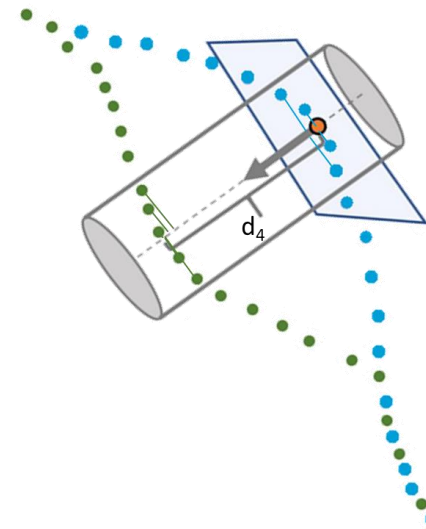
Vertical DEM difference



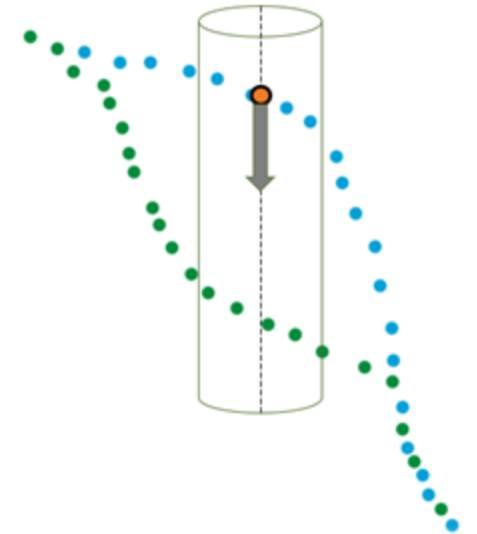
3D Point-to-Point or Point-to-Plane



3D Surface Normal-based Point-to-Point (M3C2) CPU or GPU



or Vertical-only M3C2



More preprocessing,
lower resolution, noisier
on steep slopes

Other methods
operate on full-
resolution point
clouds

Cleanest results, best
visualization, non-
mass preserving

Also suffers from
noise near steep
slopes

+

○

*What can we
use LIDAR
Change
Detection
For?*

Identifying

- Landslides
- Stream Channel Migration
- Mining Activity
- Grading Activity
- Tree blow down
- Canopy Change*
- Development / Demolition*

•

* Not with this bare earth dataset

Identifying landslides

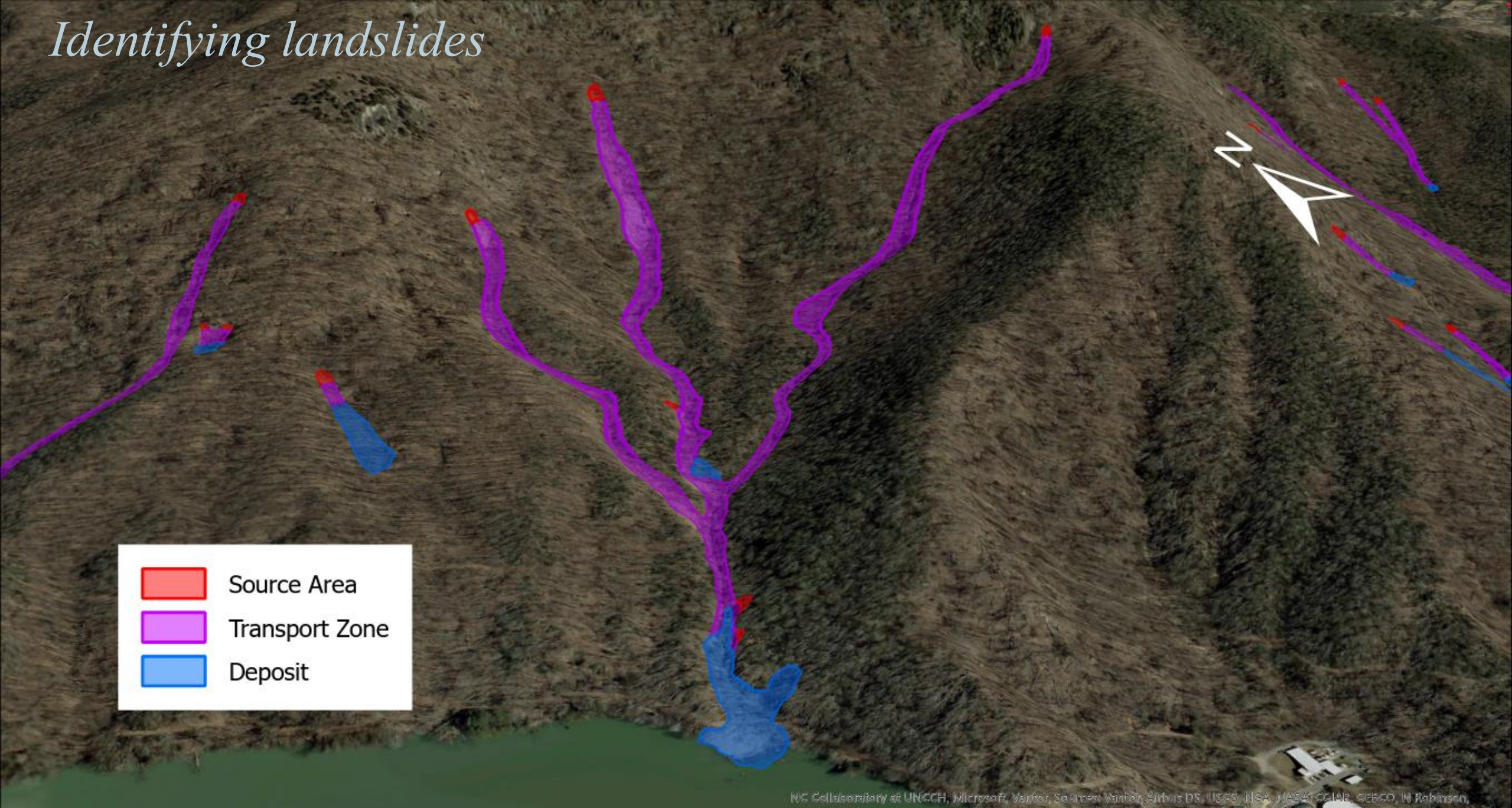


UNC Collaboratory at UNCCH, Microsoft, Varnes. Sources: Varnes, Airbus DS, USGS, INRA, NASA, CGIAR, GEBCO, M. Robinson.

Identifying landslides



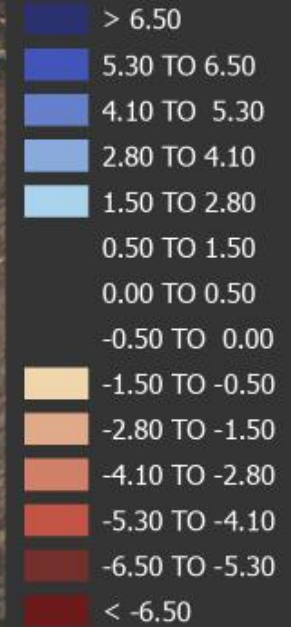
Identifying landslides



Mining and stream channel change



Buncombe County LiDAR
Change Detection
TOPOGRAPHIC CHANGE
BETWEEN 2017 AND 2025 (ft)



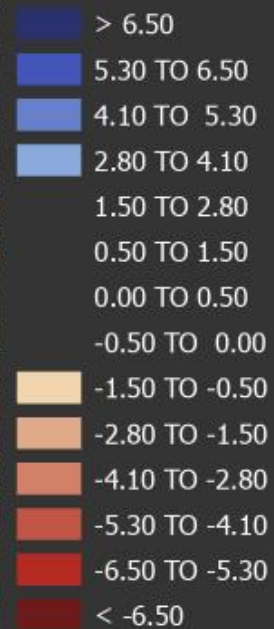
Grading Changes



*What are we
seeing here?*

Buncombe County LiDAR
Change Detection

TOPOGRAPHIC CHANGE
BETWEEN 2017 AND 2025 (ft)



Sources: Esri, TerraMetrics, GeoEye, NOAA, USGS, iCub, OpenStreetMap contributors, and the GIS User Community, NC

*Almost all the
trees are down*



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, LLC

*The pits are from
blown down trees*



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, LLC

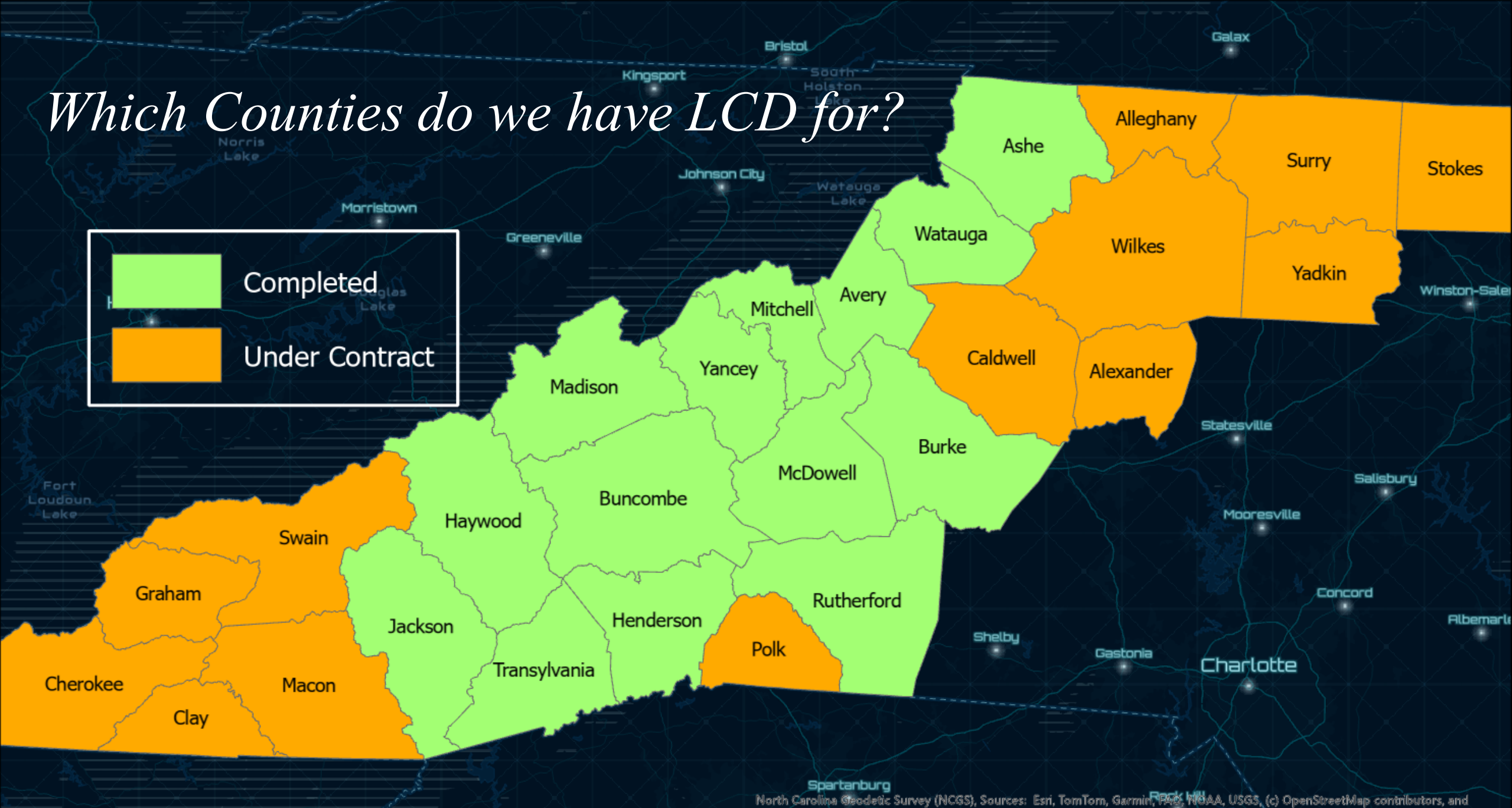


*Back to Beetree
Reservoir to look
at volume*



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, North Carolina Geodetic Survey (NCGS), NC Collaboratory at UNCCH, Microsoft, Vantor

Which Counties do we have LCD for?





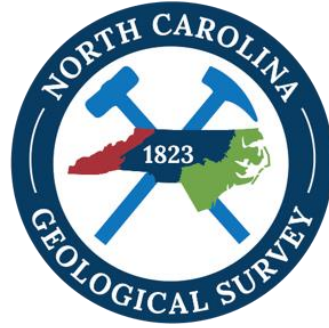
How to access these datasets



- Currently contact me for a ShareFile Link
- In the future possibly shared through SDD
- Working with CGI/A to possibly create a Feature Service

 Buncombe_LCD_2017_vs_2025

 Buncombe_LCD_2017_vs_2025_6543_FT_INT16_COG
 NCGS_LCD_Int16_README
 Buncombe County LiDAR Change Detection



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Senior Geoscientist
Cambio Earth



North Carolina Orthoimagery Needs Assessment

Ben Shelton

NC Center for Geographic Information and Analysis

August 19, 2026

Current Orthoimagery Program Cycle

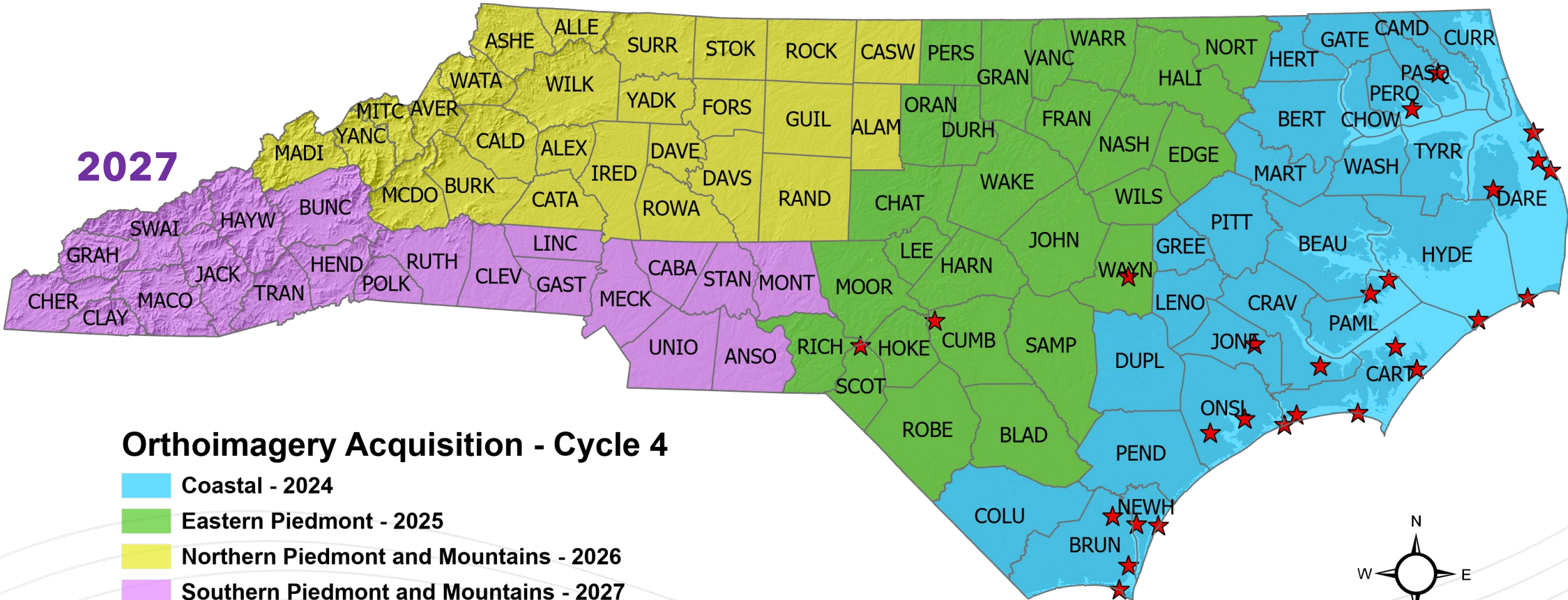
4-Year Cycle

2026

2025

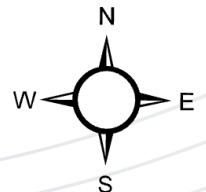
2024

2027



Orthoimagery Acquisition - Cycle 4

- Coastal - 2024
- Eastern Piedmont - 2025
- Northern Piedmont and Mountains - 2026
- Southern Piedmont and Mountains - 2027
- ★ Military Installations



Orthoimagery Needs Assessment Survey

Survey Initially Released on 6/5
Current responses as of 8/18

107

Total Responses

25

Unique Counties
(32 total county responses)

22

NC Municipalities
(27 total municipality responses)

Recommendation: need additional outreach to underrepresented stakeholders before we can use the survey results as the basis for any program adjustments.

- Counties have the strongest representation of any group with 25% responding.
- All other groups could benefit from additional outreach.

14

911 / PSAP
(Subset of County and Municipality Responses)

9

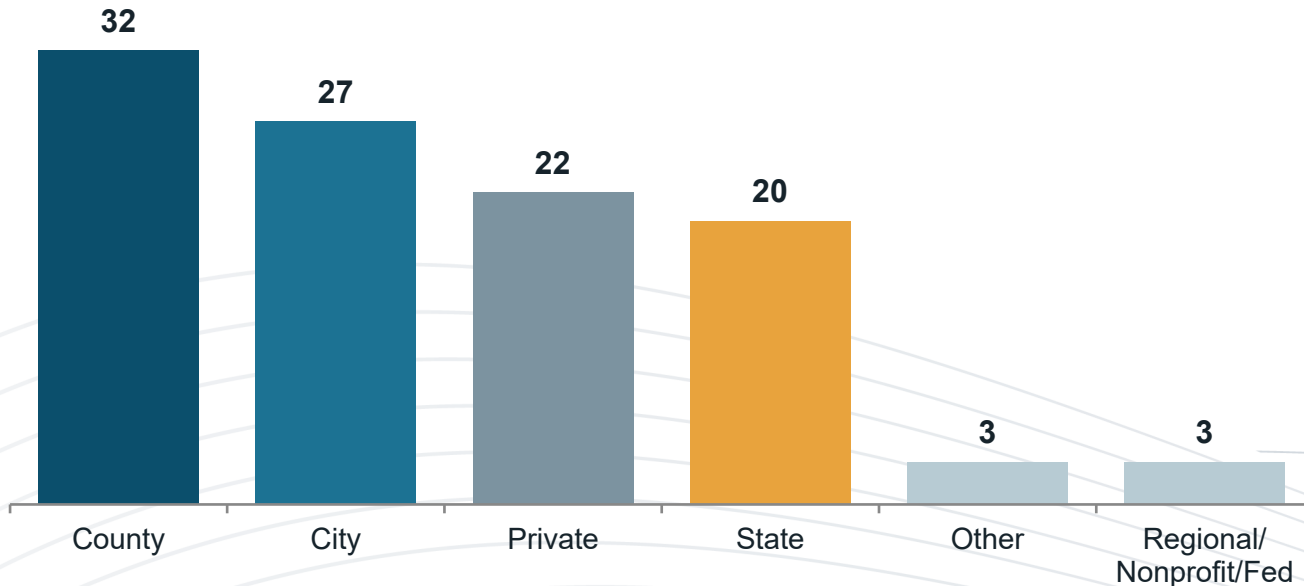
Unique State Agencies
(20 total state responses)

22

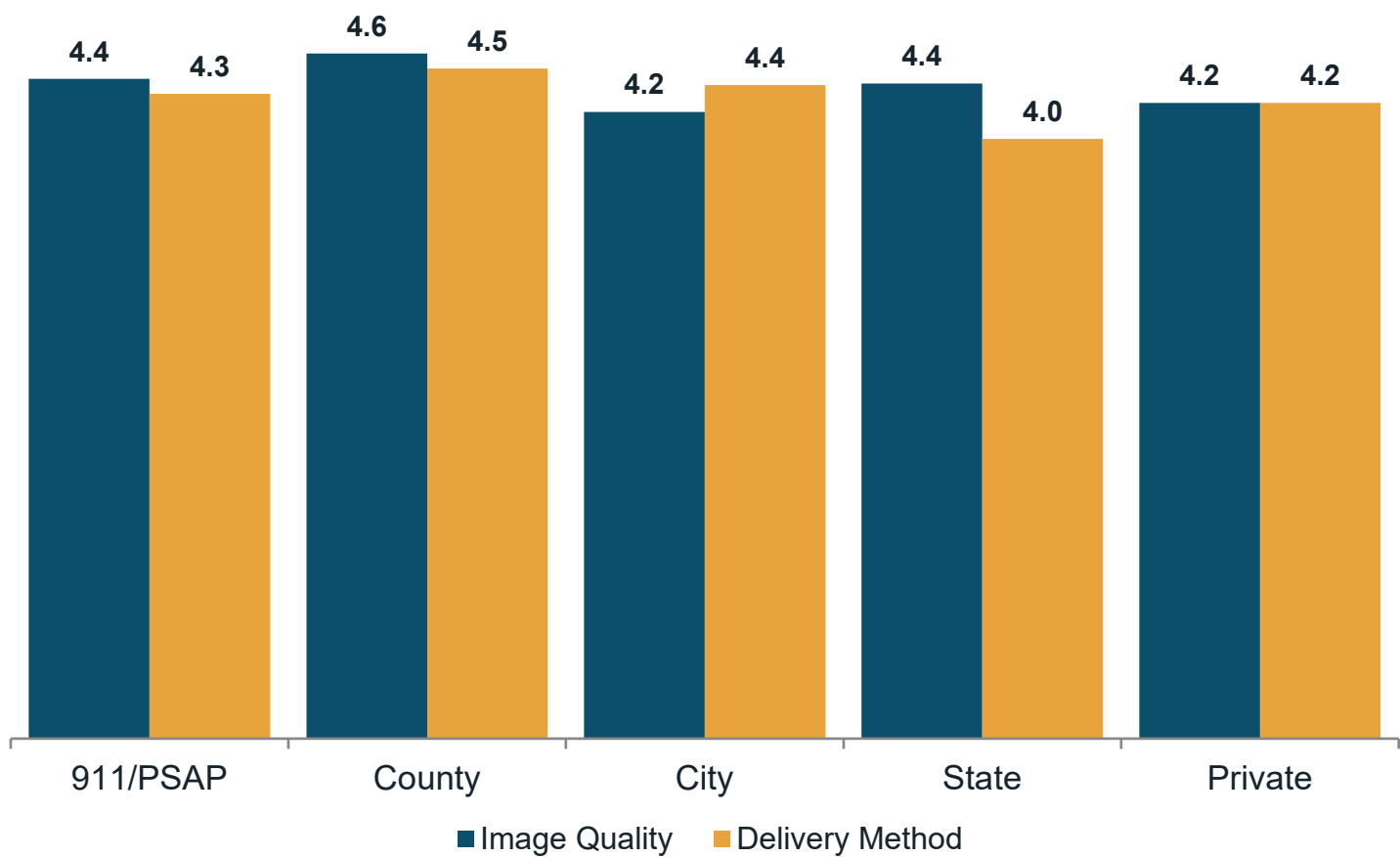
Private
(Engineering, Surveying,
Consulting, etc.)

1

Federal Agency
(US Forest Service)



Satisfaction by Group



Access (OneMap) Satisfaction

911/PSAP	100%	14 / 14
County	100%	32 / 32
City	93%	25 / 27
State	85%	17 / 20
Private	95%	21 / 22

Lower state satisfaction with delivery methods mainly due to the current delivery architecture is optimized for county-scale downloads and not easy to access cloud-optimized GeoTIFF for analytical users.

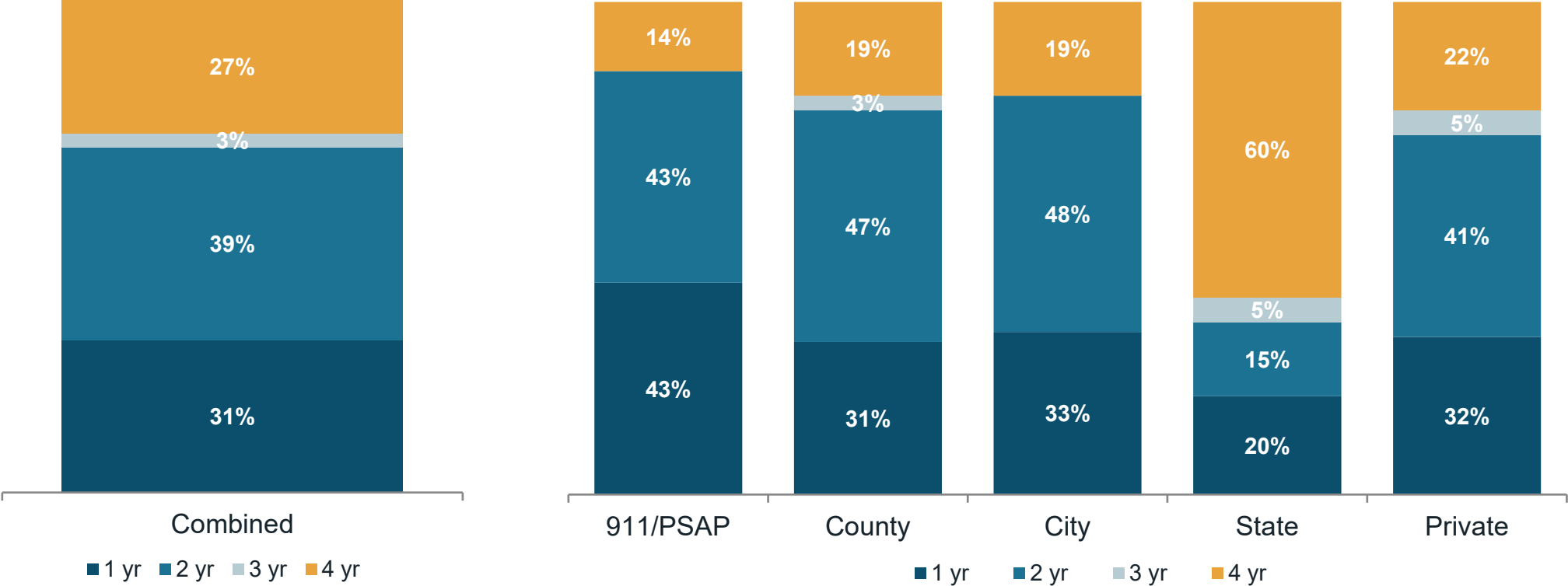
Orthoimagery Uses

Organization-level and personal-use mentions combined, ranked by total frequency

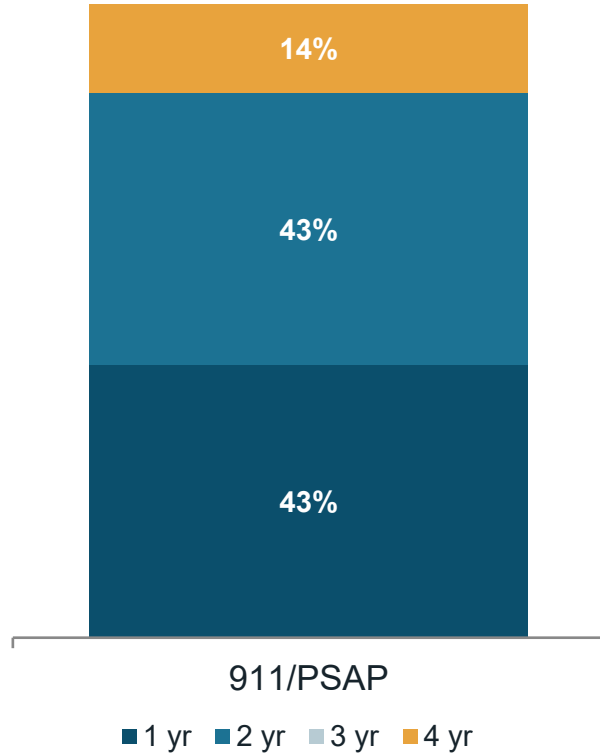
County			City			State			Private		
1	911 / Dispatch	17	1	General Mapping / GIS Work	13	1	Basemap	9	1	General / Base Mapping	10
2	General Mapping	17	2	Planning & Development Review	13	2	Feature Extraction / Digitization (AI/ML)	6	2	Land Surveying / Site Review	7
3	Addressing	15	3	Code Enforcement	11	3	Feature / Location Lookup	4	3	Design / CAD Reference	6
4	Tax Assessment	12	4	Public Display / Communication	10	4	General Mapping / Visualization	3	4	Planning	5
5	Public Display	8	5	Basemap	8	5	Historical Change Comparison	3	5	QA/QC	4
6	Planning	8	6	Impervious Surface Calc.	6	6	Geohazard Mapping	2	6	Forest / Timber Management	2
7	Emergency Response (incl. SAR)	8	7	Change / Time Comparison	4	7	Product Background Reference	1	7	Asset Collection / Inventory	2
8	Change / Time Comparison	6	8	Site Condition Review	3	8	Public Inquiry Support (bdry, ROW)	1	8	Lidar Classification / QC	2
9	Code Enforcement	6	9	Addressing	3	9	Field Ops (forestry/wildlife)	1	9	Change / Time Comparison	2
10	Property / Parcel Mapping	6	10	Engineering	2	10	Public Education	1	10	Environmental Health / Septic	1

Counts combine “how your organization uses imagery” and “how you personally use imagery” mentions, with closely related phrases (e.g., “general mapping” and “multi-purpose GIS work”) merged into a single category.

Update Cycle Needs



Update Cycle Needs by Group

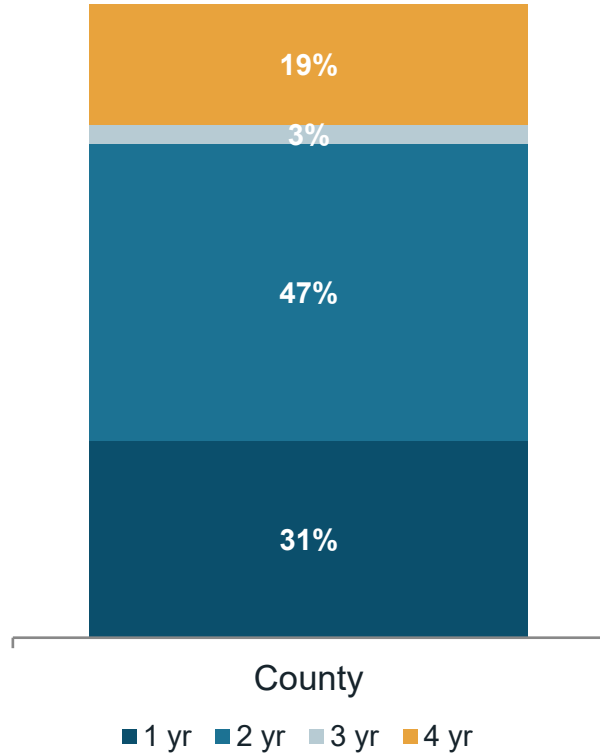


Reasons cited for more frequent collections:

911/PSAP Responses – 12 of 14 listed 1- or 2-year update cycle

- **Growth/Development tracking** – 911 calls plotting to wooded or undeveloped land due to pace of construction
- **911/public safety accuracy** – newer imagery equals more accurate NG911 GIS data and safer/faster call response

Update Cycle Needs by Group

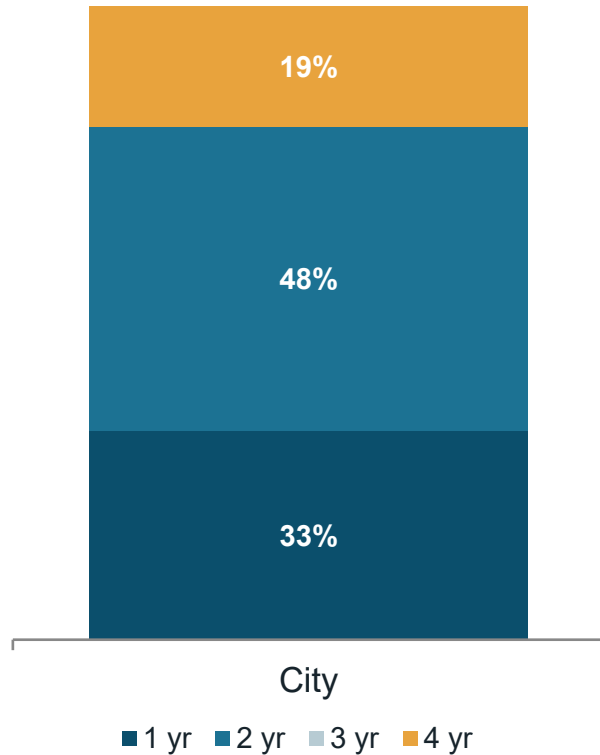


Reasons cited for more frequent collections:

County

- **Growth/Development tracking** – pace of new subdivisions, road construction, and commercial development
- **Tax appraisal accuracy** – imagery needed to validate new construction for billing
- **911/public safety accuracy** – newer imagery equals more accurate NG911 GIS data and safer/faster call response
- **Multi-department efficiency** – one imagery serves permitting, inspections, tax admin, and EMS, so cost of out-of-date imagery compounds

Update Cycle Needs by Group

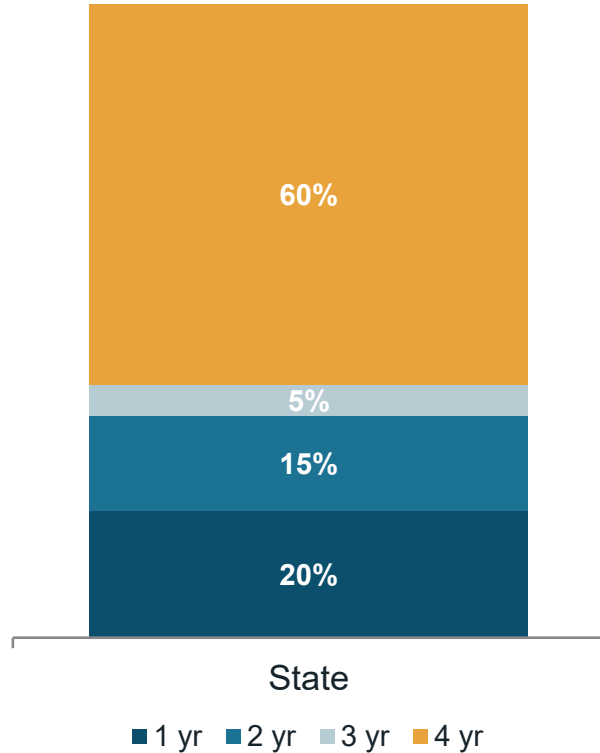


Reasons cited for more frequent collections:

City

- **Growth/Development tracking** – echoes county responses above
- **Stormwater/utility billing** – new impervious surface-based stormwater fee structures that require current imagery to bill accurately.
- **Decision-making/public communication** – council and department-head demand for leadership to make infrastructure decisions

Update Cycle Needs by Group

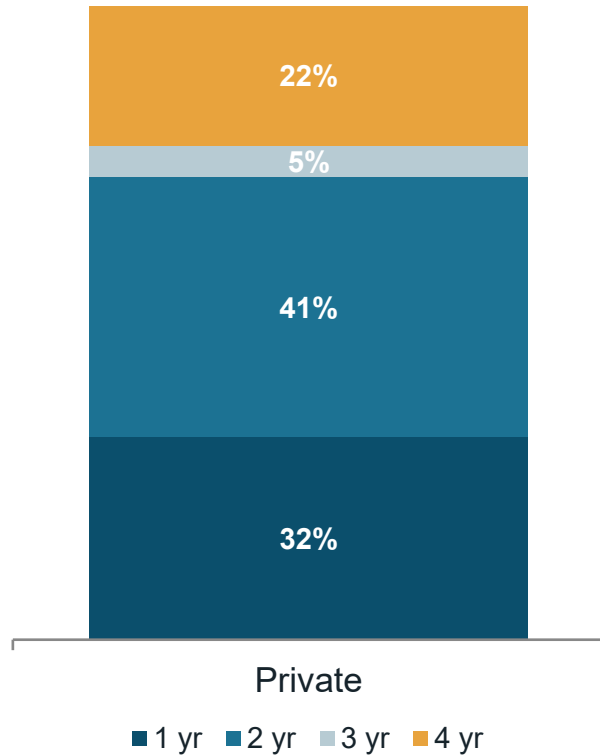


Reasons cited for more frequent collections:

State (lowest percentage of responders needing more than 4-year)

- **Transportation network changes** – road construction modifies network faster than imagery can keep up so supplemental sources required
- **Emergency response and hazard mitigation efforts** – landslide and storm-driven land cover changes

Update Cycle Needs by Group

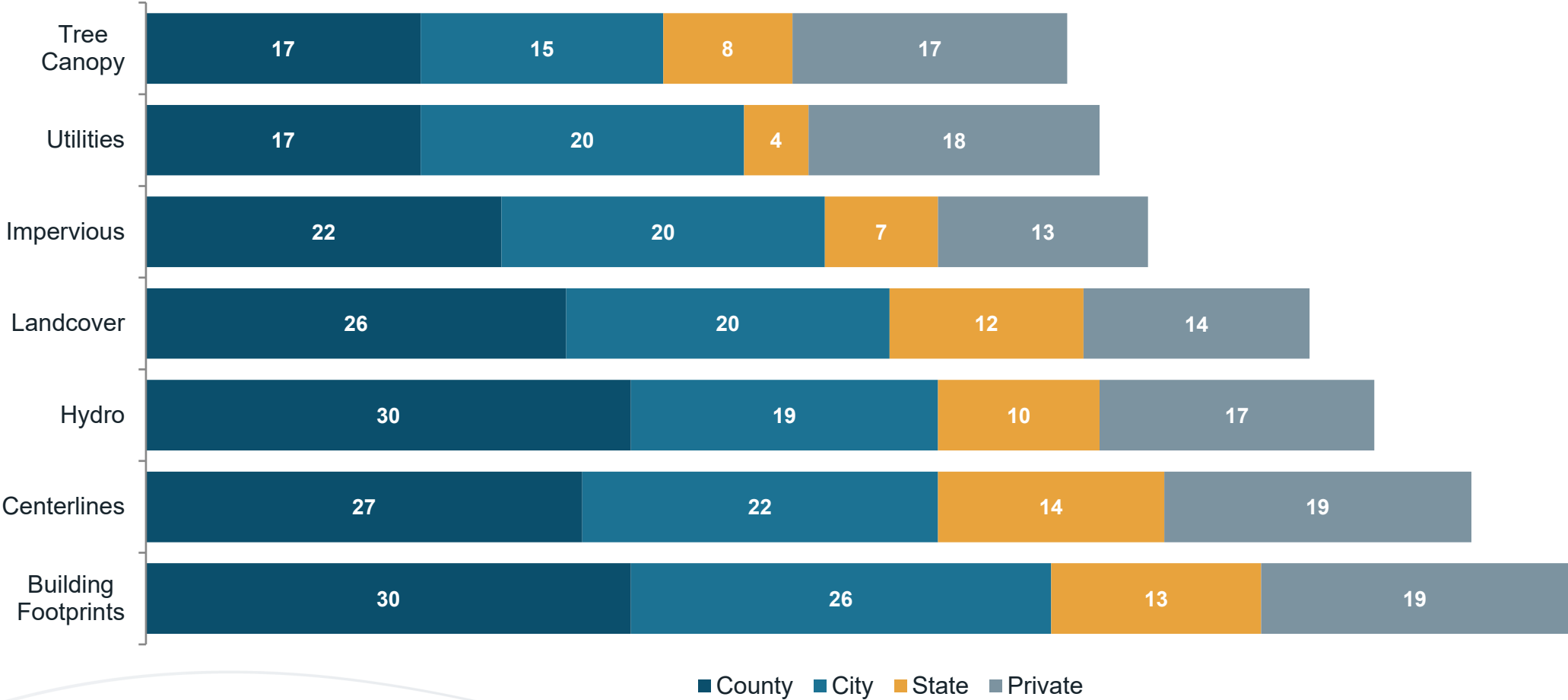


Reasons cited for more frequent collections:

Private

- **Real estate/land development** – needed to make informed site decisions
- **Land surveying/boundary work** – needing more frequent collections to resolve occupation and boundary questions without disputes
- **Disaster recovery** – post storm terrain/drainage/road changes and utility locating

Derived Product Needed by Group

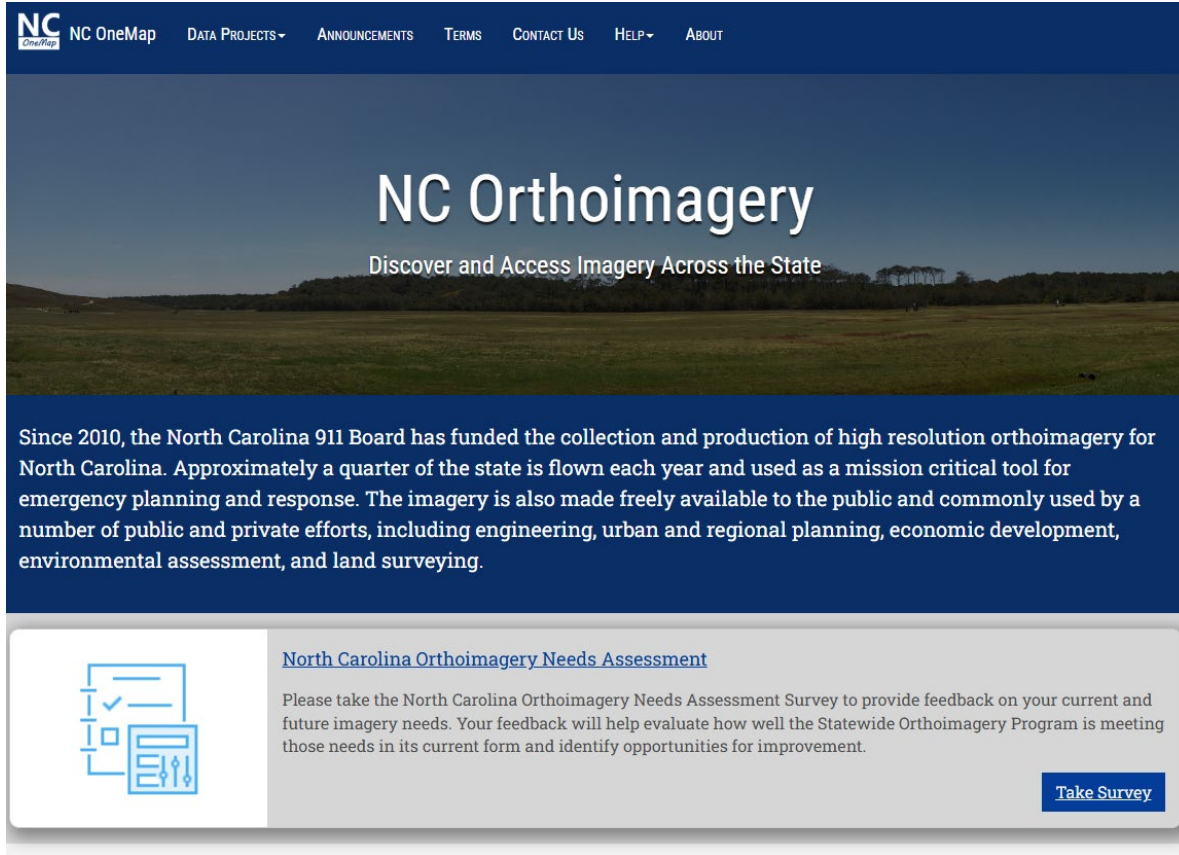


Preliminary Actionable Items by Group

County	City	State	Private
• Shorten the update cycle — the most specific, growth-driven requests of any group • Rural bandwidth limits full-county downloads — keep offline/hard-drive options • Oblique & true ortho valued for 911/EM, tax appraisal & permitting • Half of 911/PSAP responses still want physical hard drive deliveries over online downloads	• Improve outreach — some respondents are unfamiliar with the program overall • A few flagged current resolution as “grainy” for urban-scale work • Above-average demand for utilities & tree canopy layers	• Offer seamless statewide tiles / cloud-optimized GeoTIFFs instead of county mosaics • Improve REST/streaming service documentation & endpoint discoverability • Monitor streaming reliability — past slowdowns noted (improved, not resolved)	• Keep hard-drive delivery available for smaller municipalities without bandwidth • Highest relative demand for the utilities derived layer

***AI Generated Action Items from responses**

Orthoimagery Needs Assessment Survey



The screenshot shows the NC OneMap website. The header includes the NC OneMap logo and navigation links: DATA PROJECTS, ANNOUNCEMENTS, TERMS, CONTACT US, HELP, and ABOUT. The main content area features a large image of a field with the text "NC Orthoimagery" and "Discover and Access Imagery Across the State". Below this, a paragraph explains that since 2010, the North Carolina 911 Board has funded the collection and production of high resolution orthoimagery for North Carolina. It states that approximately a quarter of the state is flown each year and used as a mission critical tool for emergency planning and response. The imagery is also made freely available to the public and commonly used by a number of public and private efforts, including engineering, urban and regional planning, economic development, environmental assessment, and land surveying. At the bottom, there is a section titled "North Carolina Orthoimagery Needs Assessment" with a description: "Please take the North Carolina Orthoimagery Needs Assessment Survey to provide feedback on your current and future imagery needs. Your feedback will help evaluate how well the Statewide Orthoimagery Program is meeting those needs in its current form and identify opportunities for improvement." A "Take Survey" button is located at the bottom right of this section.

NC OneMap DATA PROJECTS ANNOUNCEMENTS TERMS CONTACT US HELP ABOUT

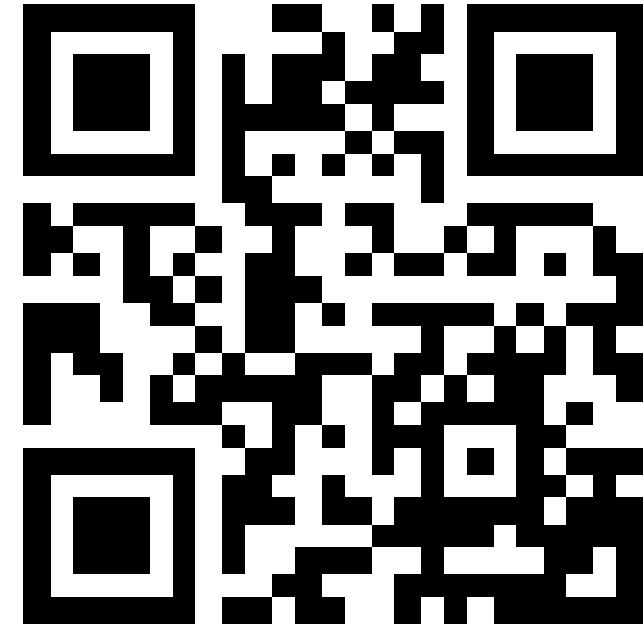
NC Orthoimagery

Discover and Access Imagery Across the State

Since 2010, the North Carolina 911 Board has funded the collection and production of high resolution orthoimagery for North Carolina. Approximately a quarter of the state is flown each year and used as a mission critical tool for emergency planning and response. The imagery is also made freely available to the public and commonly used by a number of public and private efforts, including engineering, urban and regional planning, economic development, environmental assessment, and land surveying.

North Carolina Orthoimagery Needs Assessment

Please take the North Carolina Orthoimagery Needs Assessment Survey to provide feedback on your current and future imagery needs. Your feedback will help evaluate how well the Statewide Orthoimagery Program is meeting those needs in its current form and identify opportunities for improvement.

[Take Survey](#)

Next Steps/Questions:

1. How can we reach a wider audience that is fully representative of the stakeholder community?
2. What direction should we be moving with the program?
3. Are there things the council can do to facilitate the derived products and actionable items being requested?



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Ben.Shelton@nc.gov

<https://www.nconemap.gov/pages/imagery>



NORTH CAROLINA
Department of Transportation

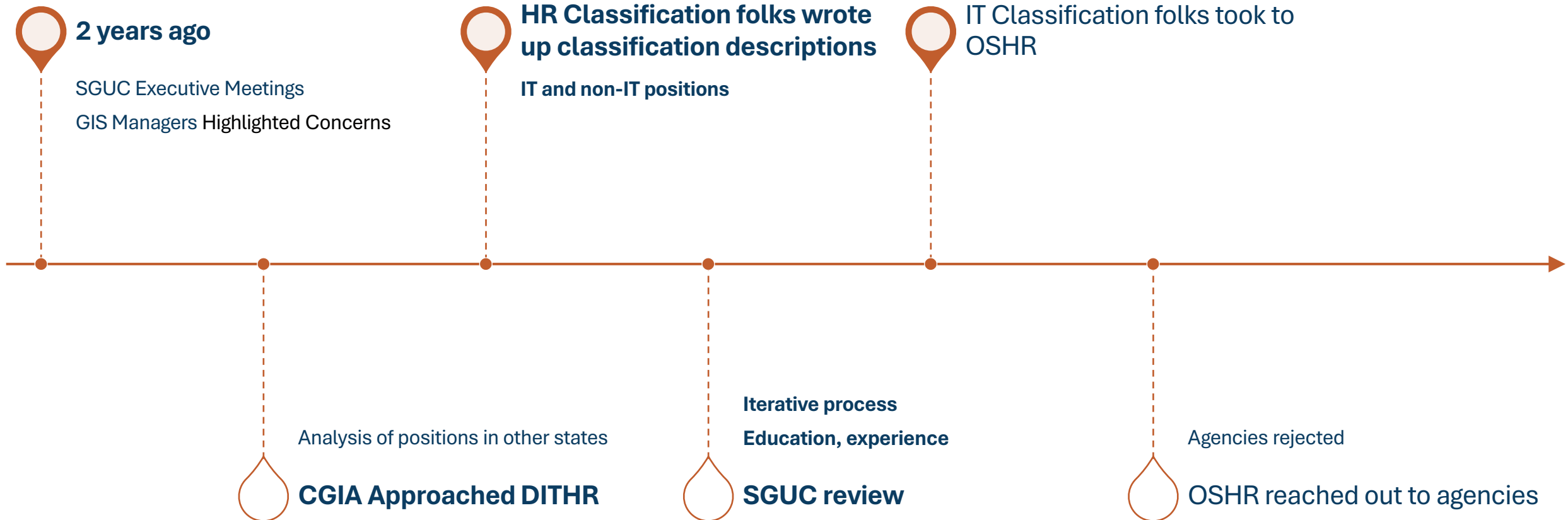
State GIS Classifications Update

Raquel Bensadoun

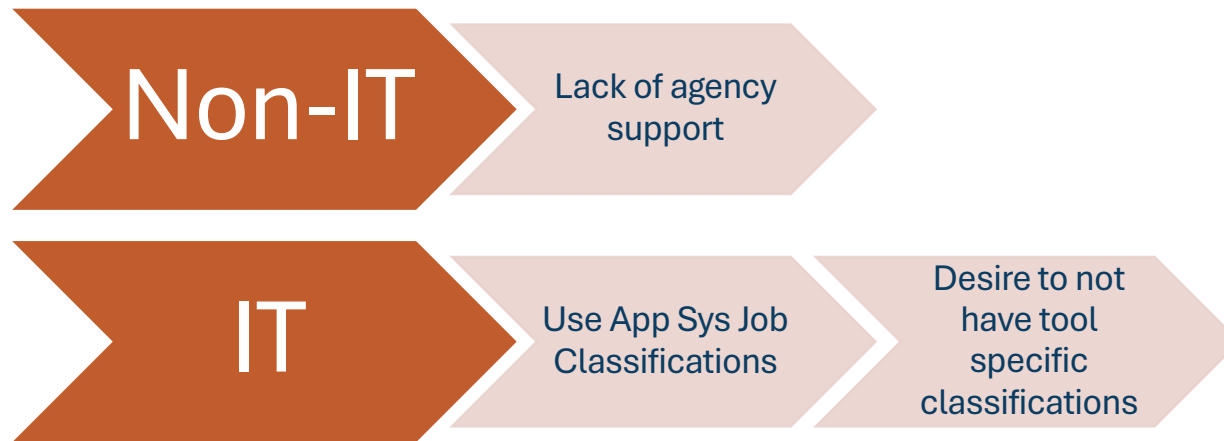
08/19/2026

Connecting people, products and places safely and efficiently with customer focus, accountability
and environmental sensitivity to enhance the economy and vitality of North Carolina

The path so far...



Meeting with HR



The path so far...

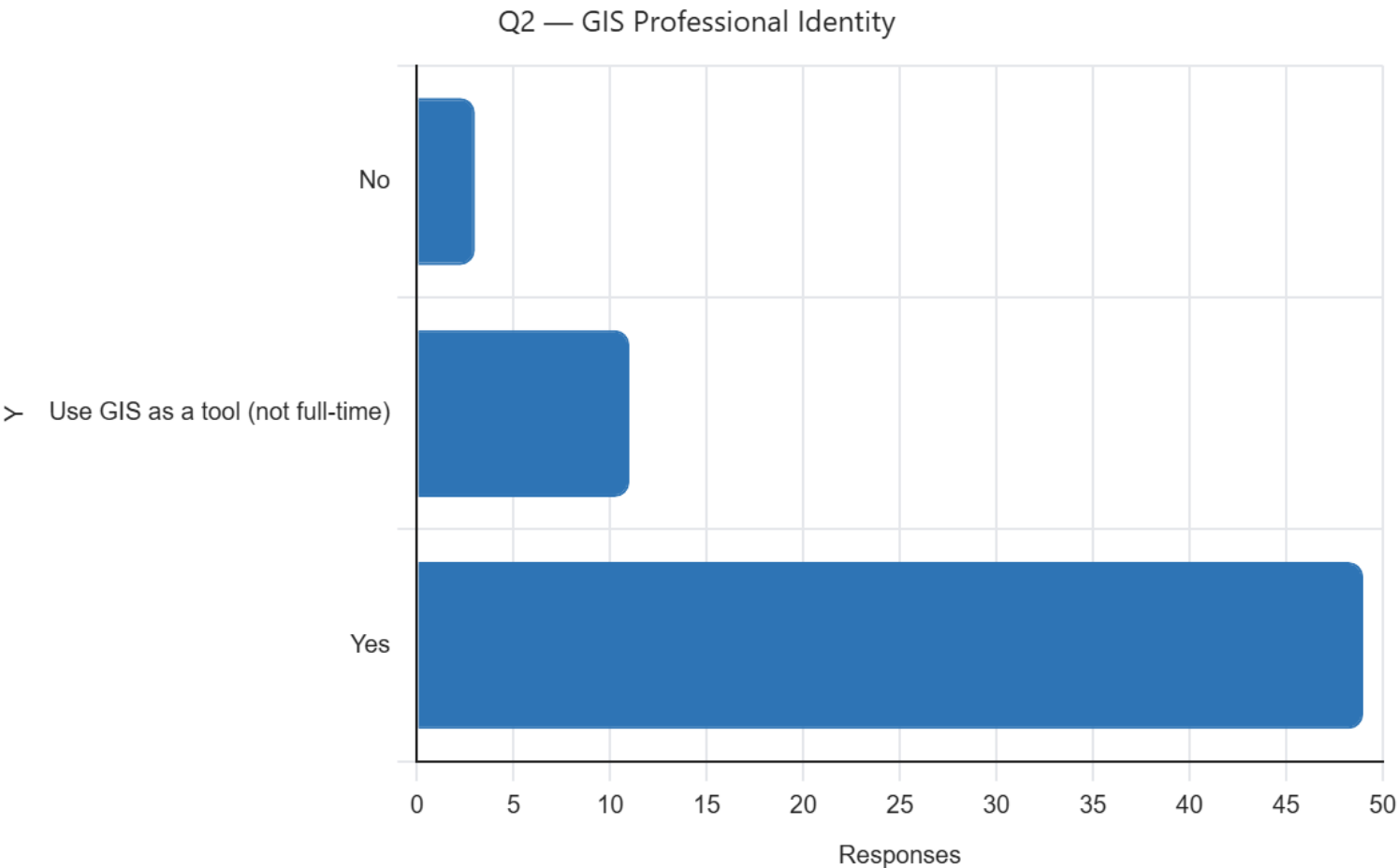
Questions remaining:

Was there communication to agency leadership about the proposed classifications?

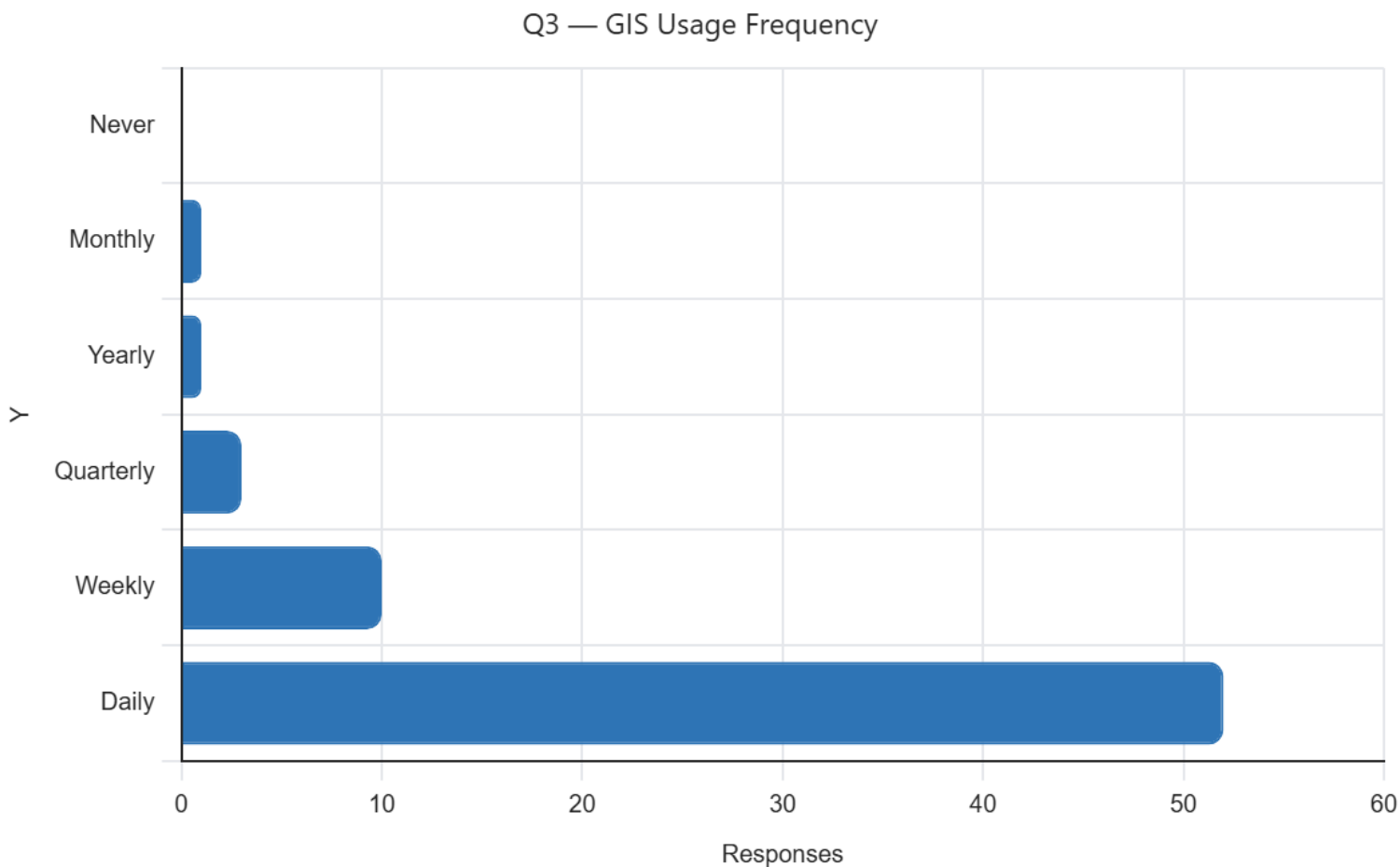
Did they reach out to agency HR or to leadership?

Were people who use/supervise GIS consulted?

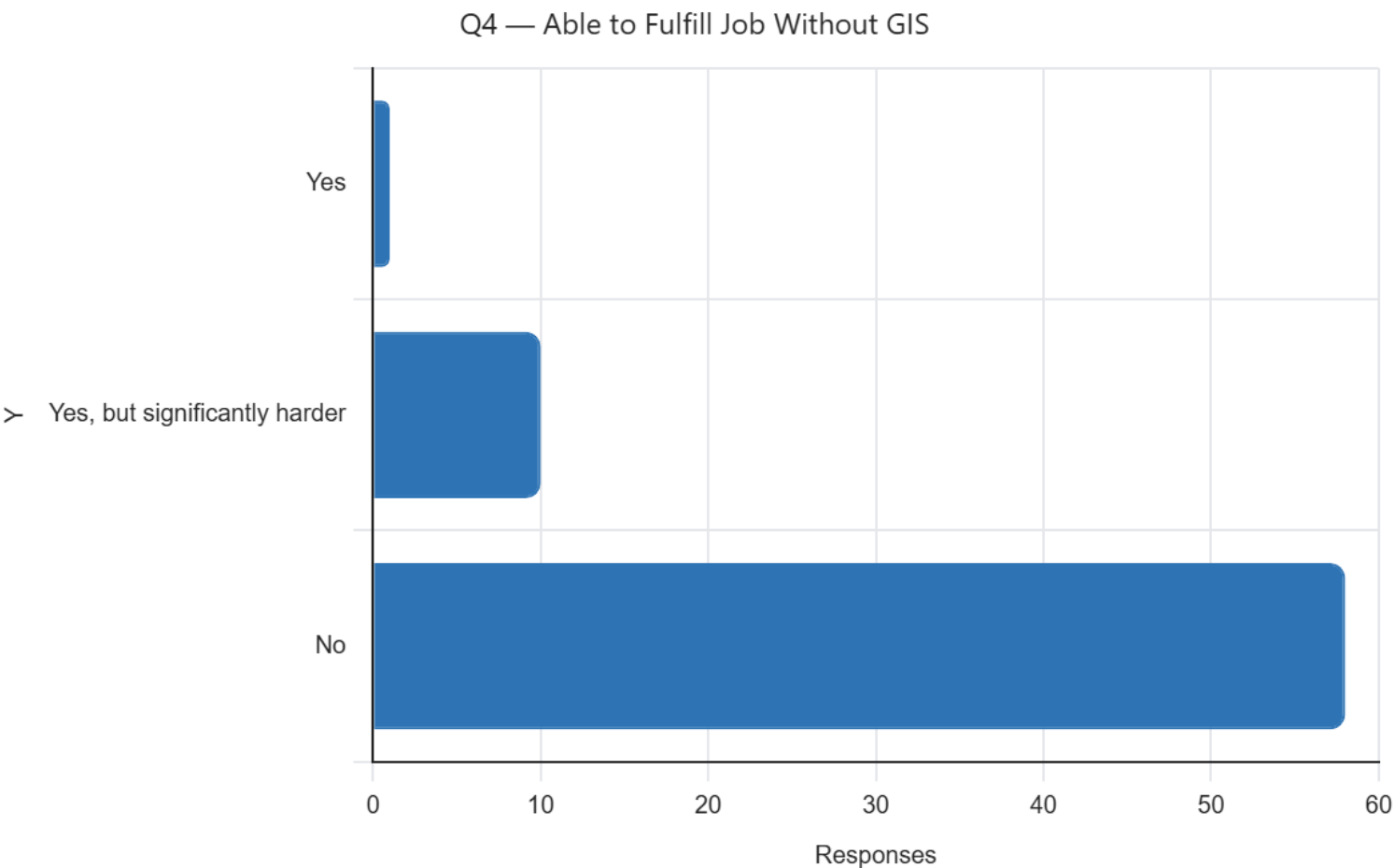
SGUC June General Meeting Menti Poll



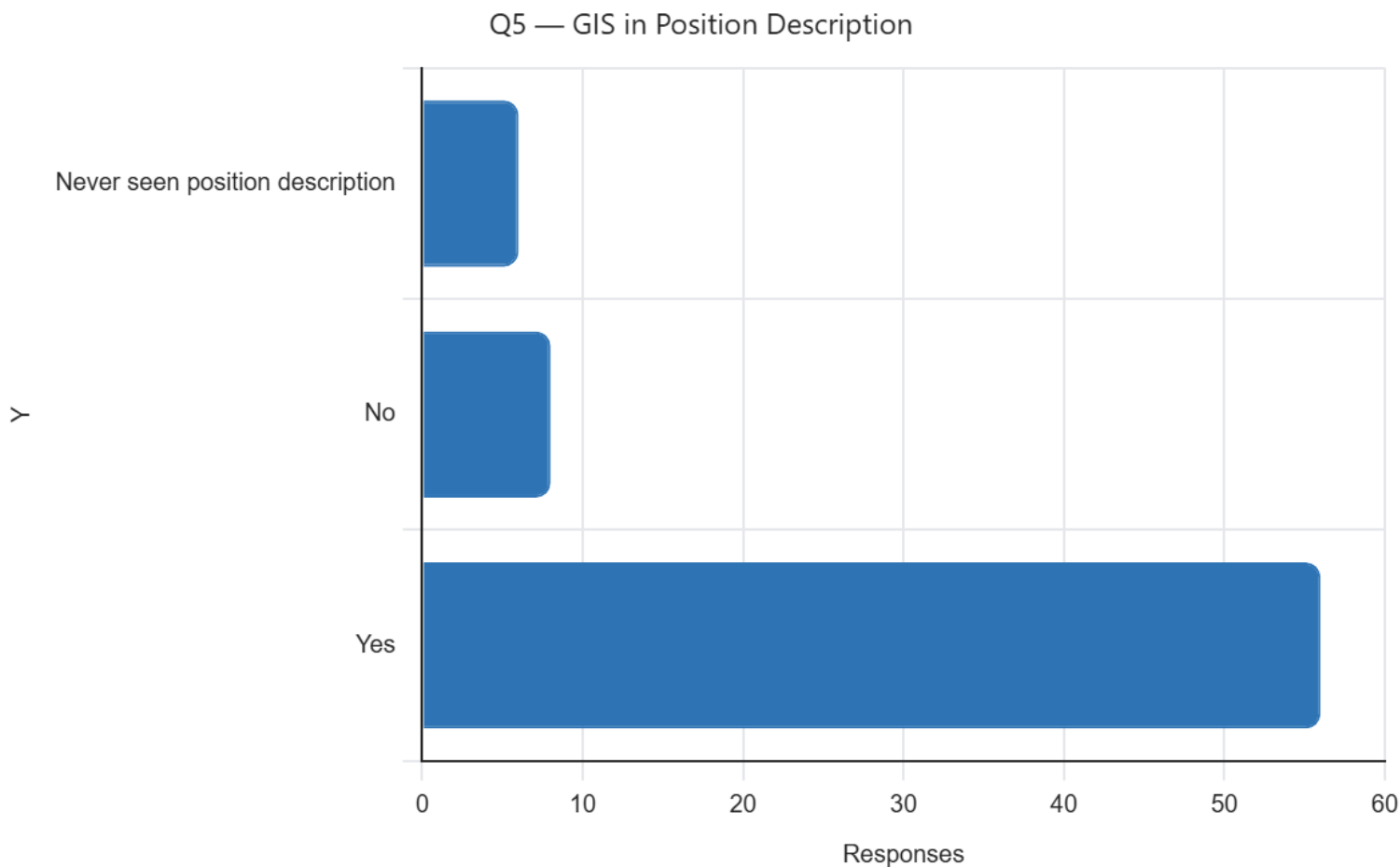
SGUC June General Meeting Menti Poll



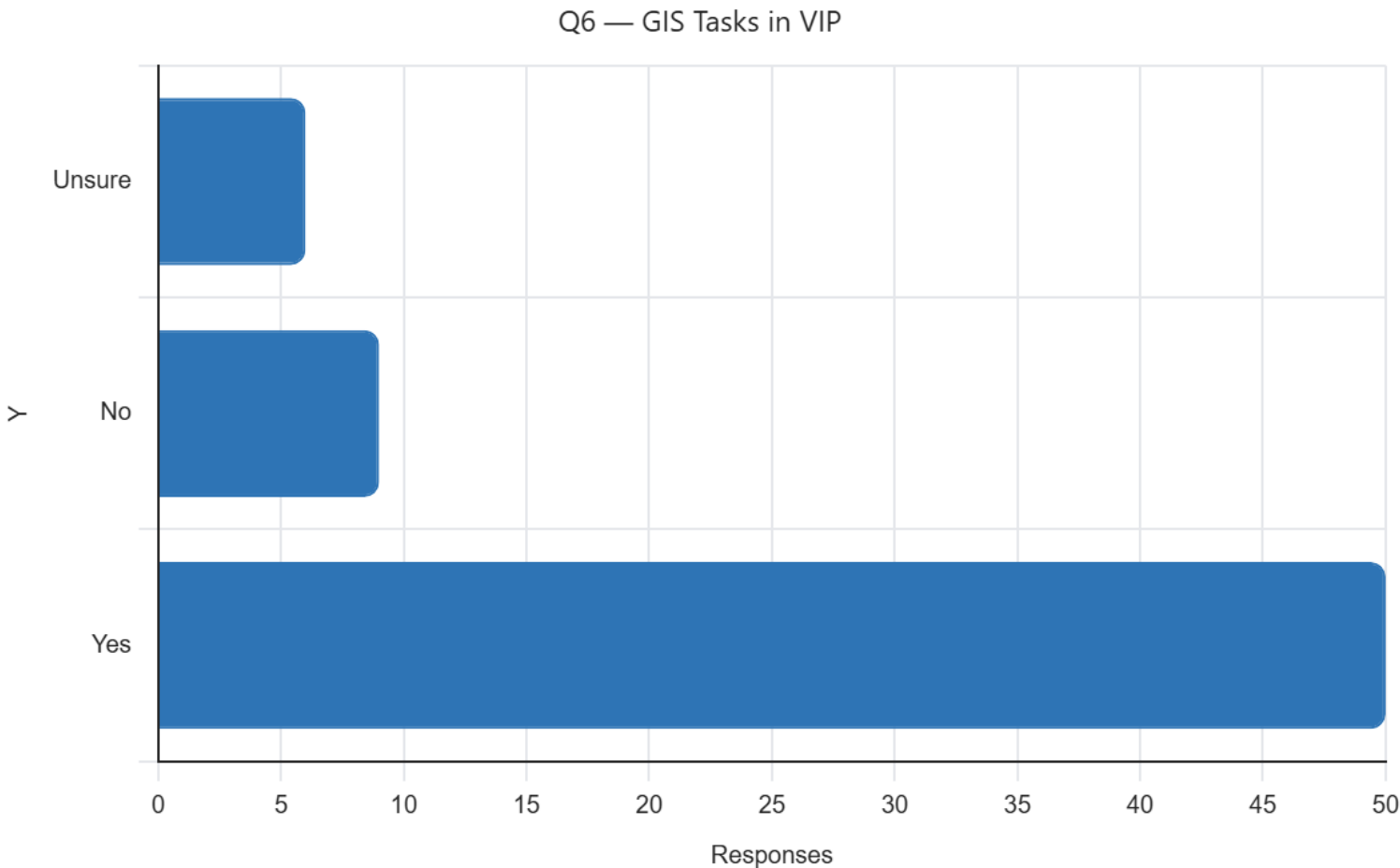
SGUC June General Meeting Menti Poll



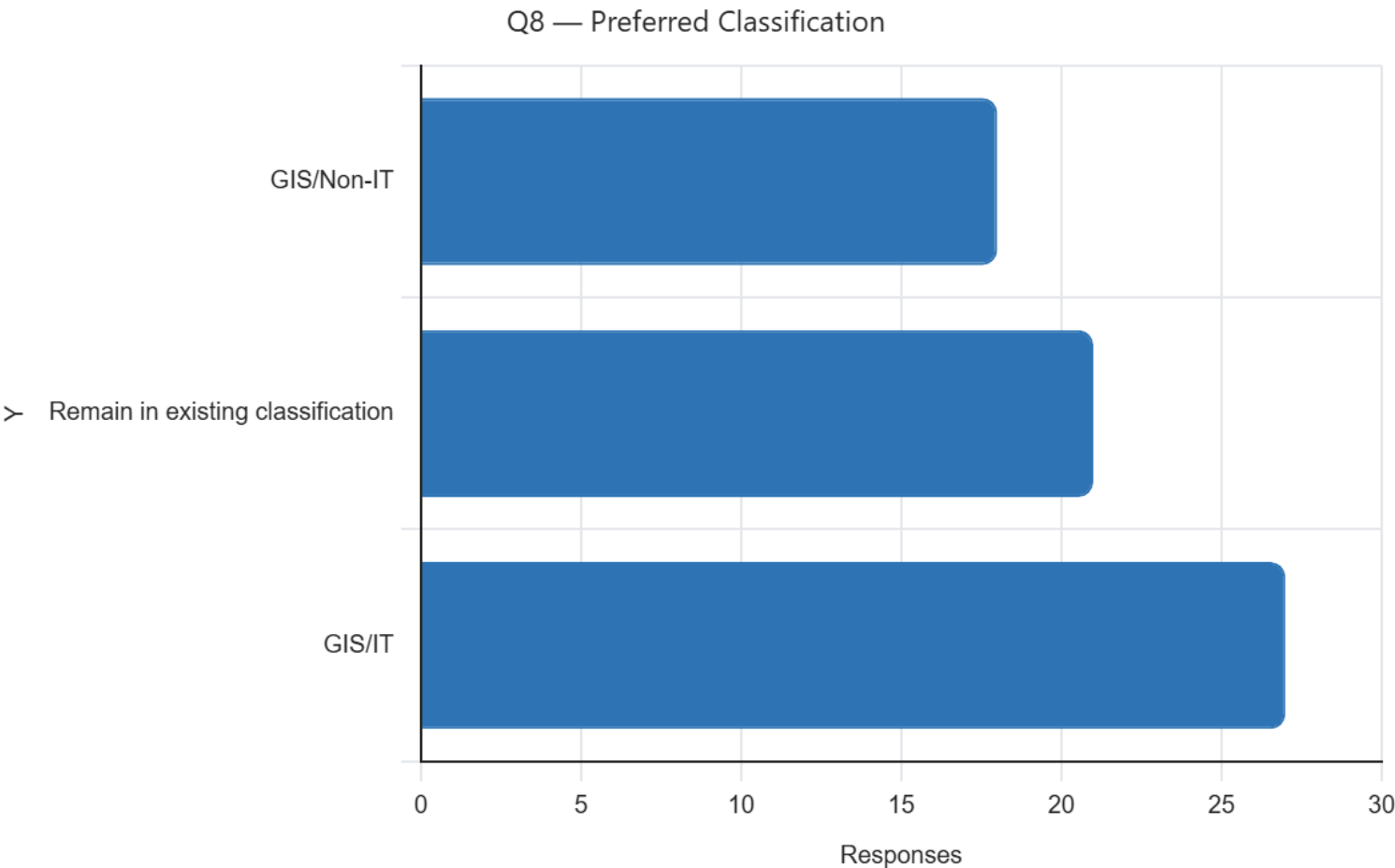
SGUC June General Meeting Menti Poll



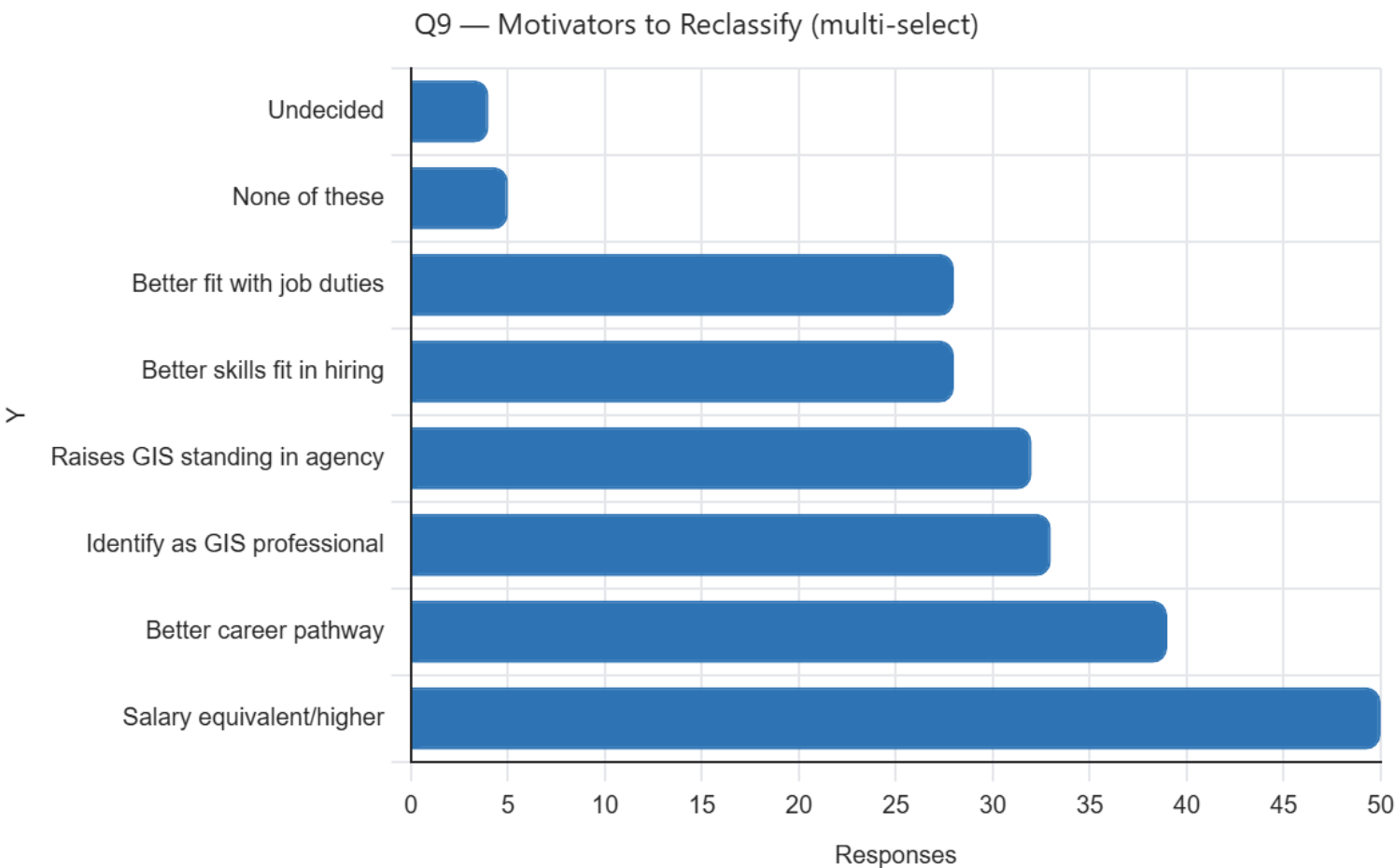
SGUC June General Meeting Menti Poll



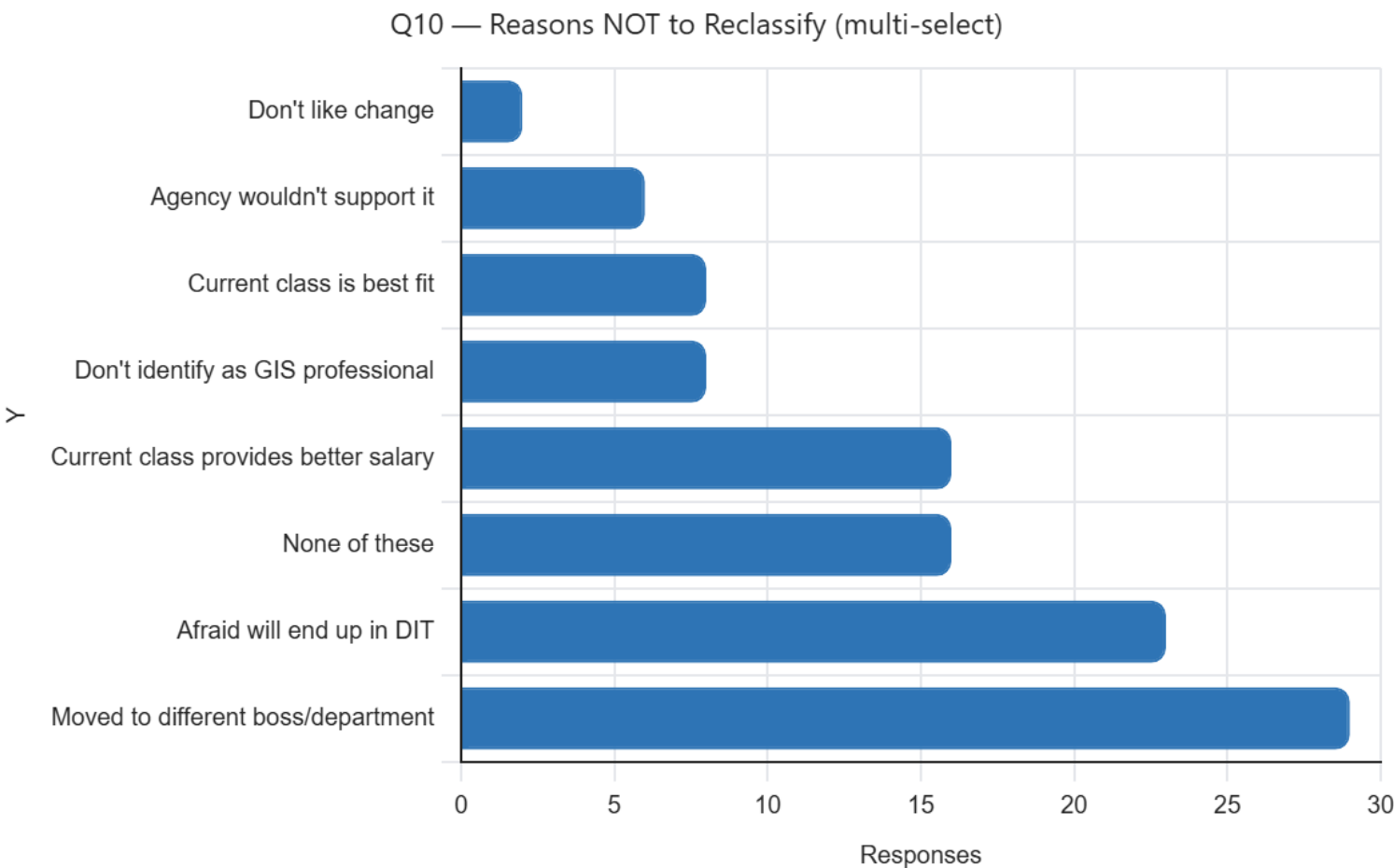
SGUC June General Meeting Menti Poll



SGUC June General Meeting Menti Poll

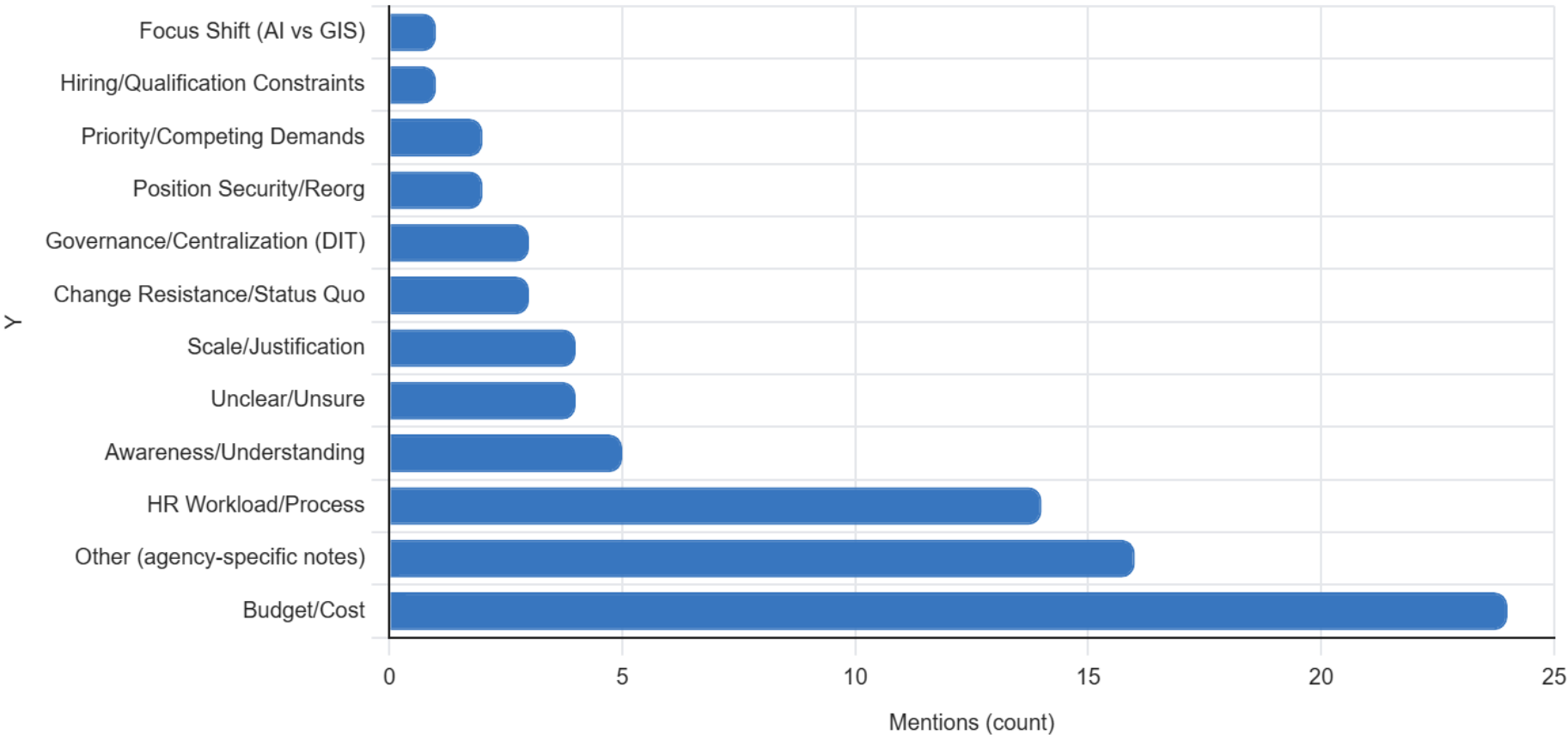


SGUC June General Meeting Menti Poll



SGUC June General Meeting Menti Poll

Agency Reasons for Not Supporting GIS Classifications — Summary of Open Responses



Next Steps



Find people to champion effort within agencies



Meet with HR representatives at standing Class/Comp Networking Meetings



Dissect breakdowns in communication between staff, HR, and Leadership



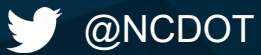
ROI Project

What is the value of GIS?

Contact Us

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@NCDOT



NCDOT



NCDO Tcommunications



@NCDOT



ncdotcom



ncdot_com m

Thank you!

