MINUTES
Statewide Mapping Advisory Committee Meeting

Wednesday, January 10, 2024, 1:30 – 3:30 PM
NCDEQ Green Square Cardinal Conference Room (#4001)

Welcome/Introductions

In attendance: See attendance sheet at end of minutes.

The minutes from the October 11, 2023 meeting were approved.

Working Groups and Related Geospatial Data

Working Group for Orthoimagery and Elevation

Orthoimagery:

Ben reported that the 2023 project was successfully completed and 21 counties in the southwestern part of NC had their data delivered to them in the first week of December. There is a 2023-specific web service of the imagery in this project area available from NC OneMap. The same imagery has been added to the NC OneMap orthoimagery latest service. The orthoimagery latest cached web service is currently being generated. The

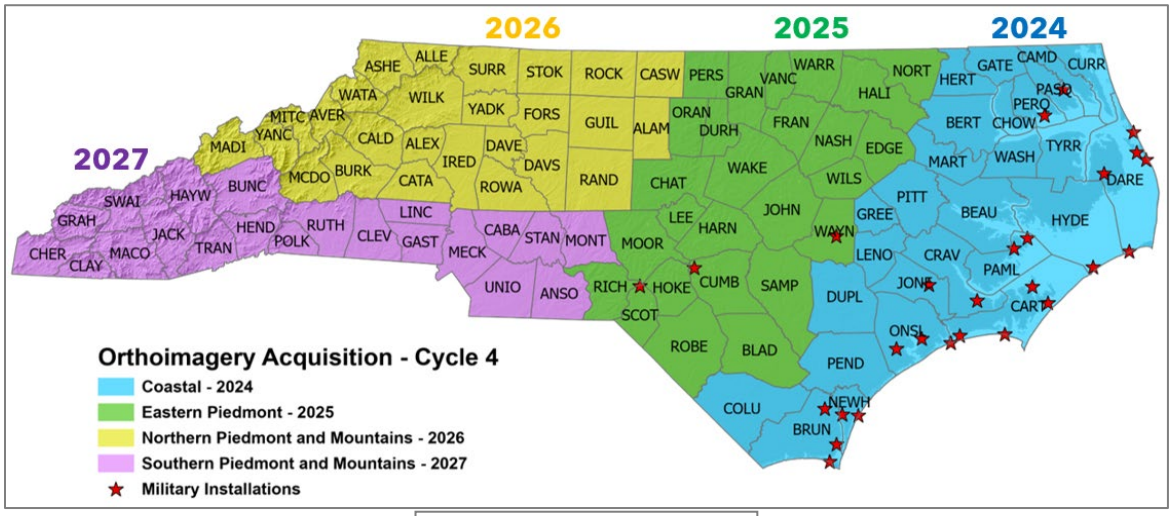

Figure 1 - Project cycle 2024 - 2027

2023 project concludes the 4-year cycle and includes color-infrared (CIR) imagery statewide.

The cycle starts again in 2024 with the coastal area - the same 27 counties as in 2020 (see Figure 1). The coastal project includes significant coordination with US military installations in the area. It is anticipated image capture will begin at the end of January 2024 and conclude by early March.

Geodetic Control and Reference Frame:

Gary informed the SMAC that the CORS stations have been incorporated into EarthScope, a network of stations in North and South America that measure tectonic plate movement.

As a reminder, Gary added that new datums are coming in 2025. He and his team will continue to work with Rich Elkins and Nathan Bland in the Secretary of State's office to spread the word so people are prepared. Gary has already spoken to the GICC Local Government Committee (LGC) about the impending change. There is a recorded presentation detailing this. Gary will disseminate it.

NC LiDAR Business Plan:

Due to adverse weather the previously scheduled meeting has been rescheduled for next Wednesday. The current plan is to have a draft by the end of January. It will be provided to the Working Group for Orthoimagery and Elevation for their review. From there it will be passed to the SMAC for approval.

All sections of the plan have been written. The executive summary is almost completed. The document includes several relevant, informative case studies, as well.

Working Group for Seamless Parcels

The working group has a meeting scheduled for February 28. Katie said the team will discuss options for better communication between the WG and all 100 counties.

Cadastral:

Katie reported to the SMAC that in 2023 99 counties provided updates of their parcel data to NC OneMap. The table summarizes the updates by quarter.

2023 Quarter	Number of Counties Providing Updates
Q1	80
Q2	79
Q3	81
Q4	80

So far in Q1 2024, 8 counties have submitted updates (as of 1/9/24). Figure 2 shows the distribution of updates by quarter. The map is current as of January 8, 2024.

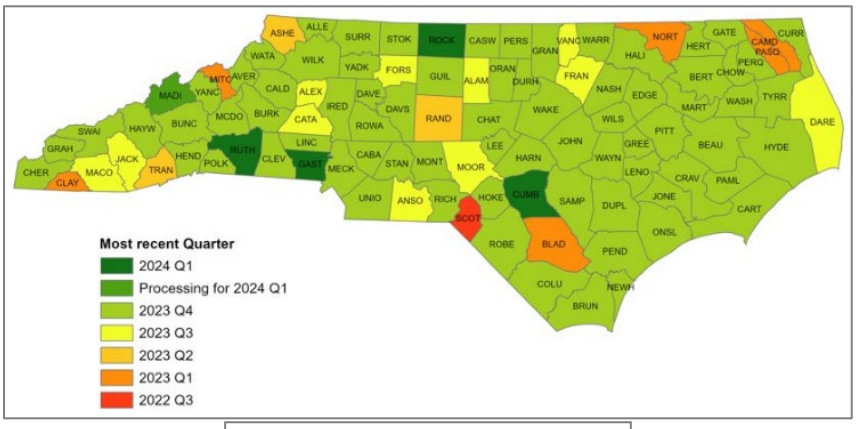

Figure 2 - NC Parcels project update status

Hydrography Working Group

Hydro Gap Analysis presentation:

Scott Davis brought the SMAC up to speed on the gap analysis of the ATLAS hydrography

project. It includes a list of requirements of each item and prioritizes them based on the level-of-effort to accomplish the task.

As a recap, ATLAS hydrography is an elevation-derived data set, coming from 10-foot LiDAR surface models and modeled stream origins. The database contains unique identifiers so business data can be related. It is designed to accommodate an NC DEQ data structure and their changes. The data set incorporates newly mapped stream features and provides a framework for improved planning modeling, as well as transportation planning, disaster management, resilience and flooding, protected species habitats, tidal and riparian areas, and water quality monitoring.

As far as the gap analysis summary, there are a number of geometry and stewardship issues to work through. Stewardship will be ironed out between DOT, DEQ, and CGIA. Geometry issues center around waterbodies, shorelines, feature attributes and connectivity ("hanging" waterbodies not connected to the network), Z-enabled features, the watershed boundary dataset, and stream segmentation and smoothing. There will be a detailed summary forthcoming that will fully address the level of effort needed for the outstanding issues. A summary is below in Figure 3:

UPDATE SUMMARY	Existing Data / Process	Retained in ATLAS	Effort Initial/ Recurring
Waterbody Issues ⟵ *KEYSTONE ISSUE*			
Collect waterbodies that meet ¼-acre size to dataset.	No	Yes	High/Med
Collect stream and river polygons to match current EDH and Western NC Hydro specifications	No	Yes	High/Med
Add stream and river polygons to dataset.	Yes	Yes	Med/Med
Shorelines			
Develop a shoreline feature in the polyline dataset or separate shoreline dataset.	Yes	Yes	None/Low
Add polygon waterbody feature in the polygon dataset.	Requires small waterbody collection	Yes	Med/Low
Maintain topology between the two features.		Yes	Low/Low
Feature Attributes and Connectivity			
Hanging Waterbodies	Requires small waterbody collection	Yes	Med/Low
New Waterbody Additions		Yes	Med/Med
Waterbody Differentiation – split features to represent distinct river/lake features	Yes	Yes	Med/Low
Waterbody Differentiation – split complex lake polygon features	No	Yes	Med/Low
Z-enabled features			
Add Z values according to EDH READ Rules*	No	Yes	Low/Low
Water Boundary Dataset			
Edit network to ensure stream connectivity between 10-digit HUCs.	Yes, complete	Yes	None/Low
Attribute watershed boundaries and coordinate with USGS for attribution.	Yes	Yes	Low/Low
Stream Segmentation	No	n/a	Low/Low
Stream Smoothing	No	No	High/High

Figure 3 - ATLAS hydro issue summary

The full ATLAS presentation can be found here.

Working Group for Administrative Units

Municipal Boundary and Annexation:

Bob indicated that the US Census Bureau is currently conducting their Boundary Annexation Survey. They are reaching out to all counties and municipalities asking them for updates to their boundaries. If the Census Bureau relied on the data from the NC municipal boundary tool, they would not have to contact all the local governments. This would allow the State to supply one single submittal for all counties and municipalities. Census Bureau participation would also alleviate the need for local governments to supply their data twice - once to the municipal boundary tool, and again to the Census Bureau.

County and State Boundaries:

According to Gary there are 3 more monuments to set up along the McDowell-Mitchell county border. The Jackson-Macon surveying has been a challenge with monuments that need to be put in place in remote areas. There are about 20 more monuments to be put in place with no roads to access the sites. The other boundaries being surveyed are below in Figure 4.

Figure 4 - County boundaries currently being surveyed

With regards to the state boundary, the NCGS is working in Watauga County to confirm the location of the North Carolina - Tennessee border. The agency is also continuing to work the Virginia in hopes of establishing a boundary commission so surveying work can begin on the North Carolina - Virginia border.

Board on Geographic Names:

Cam said the NC BGN met yesterday. There were 3 names to discuss: Grays Creek, Indian Gap, and River Tay.

Grays Creek is a small tidal creek in the Outer Banks. The feature is basically part of the Pamlico Sound but is its own distinct waterbody and is currently unnamed. The NC BGN recommends approval of this name to the SMAC.

The Indian Gap feature is not a naming or renaming issue but rather a repositioning of the place currently labeled as such. Research has shown that the actual Indian Gap is further south than where the name is currently placed. This action is supported by the Tennessee Committee on Geographic Names. The gap is located between Swain County, NC and Sevier County, TN. The NC BGN recommends approval to the SMAC of the repositioning on the condition the "old" feature with the same name be renamed to avoid confusion.

The NC BGN also recommends approval to the SMAC of River Tay, with the condition that the proponent consider a term other than "river", considering the feature is less than 2 miles long. The name is after the

River Tay in Scotland. In DEQ - Water Resources the term “river” is generally reserved for larger waterbodies and is based on the size of the feature’s drainage area.

The SMAC approved these 3 recommendations. They will be passed up to the US BGN.

NC Data Projects

Addresses

Darrin updated the SMAC on AddressNC. The data discoverable in NC OneMap is current for January 2024. This was an update from last September. In that span there has been a decrease in the number of addresses statewide. It is down 3,599 address points, or .06%.

As far as AddressNC interactions with external organizations:

- There’s been a backlog to include AddressNC data into the NAD (National Address Database). The logjam dates back to Spring 2023.
- AddressNC data ingested by Esri at least quarterly. They make the data part of their products. Darrin will talk to Esri to ensure the data they have is current as of January 2024, and have not retrieved the NC address data from the NAD.
- The partnership with Google is still under legal review as DIT examines their terms and conditions.

The program is using Esri’s Experience Builder to develop an application that will function as a landing page (with statistics and references), a status page (time since last update, change assessments) and a reporting page (QC inconsistencies, web maps). Darrin hopes there will be an application to demo by the next SMAC meeting.

Lastly, other program pursuits include a training and awareness webinar focused on the similarities and differences between NG911 and AddressNC, AddressNC resources within NC OneMap, the development of the Experience Builder application, and QC data understanding. The webinar will be geared towards county and local government and addressing coordinators, and NG911 providers. Darrin hopes to have the training webinar in-place by Q2 2024.

Building Footprints

Gary reported that good progress is being made in the 2021 project area (Figure 5). DPS has 4 interns scheduled to start in late Spring 2024. Phase 3 (2022 area) will be worked on next. DPS has also started a building footprint pilot program with OpenStreetMap to edit features. The hope is that it could be used in conjunction with DPS staff to produce data updates. If the pilot is successful there’s a possibility that it could be expanded and could use AI to speed up the processing.

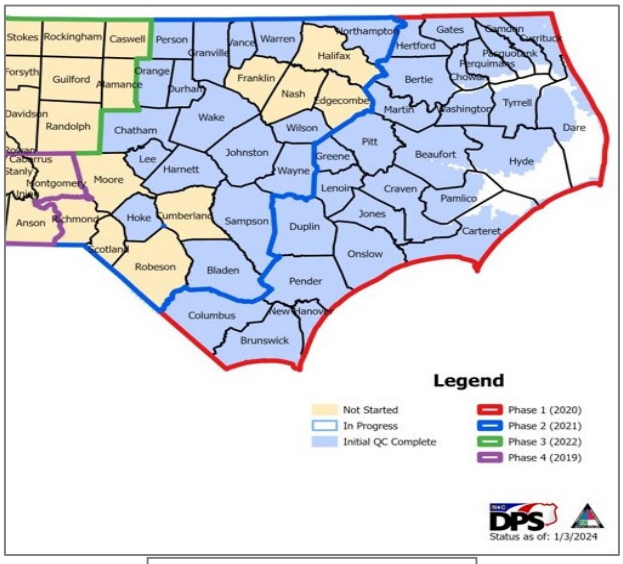

Figure 5 - Building footprint status

Landcover

An update to the statewide landcover data set is needed. The current data is dated from 1996. The Landcover Working Group recently reconvened since it last met in 2019, when members established a set of recommendations. The new working group looked at the previous use cases, priorities, and recommendations to determine if they are still valid. Is there anything new that needs to be included? Are there new methodologies and data sets available that were not before that the group should be considering? The group determined that the landcover use cases from 2019 are still valid and center around water quality and wetland uses. The full list of uses is below:

1. Apply land cover data to land use planning
2. Monitor changes in impervious surface that may affect stormwater flow and/or billing
3. Identify areas where forest cover has changed that may affect water quality
4. Monitor riparian buffers where forest cover is expected to be sustained
5. Identify areas that are clear cut or change from forested or cultivated to developed
6. Analyze water resources for watershed characterization
7. Identify areas where wetland cover has changed to inform floodplain management
8. Identify areas that are floodplains, small and isolated wetlands, longleaf pine forests, and rock outcrops to help identify priority lands for conservation
9. Predict wetland areas or stream locations using models
10. Monitor properties over time that qualify for "present use value" in county tax appraisal
11. Estimate the areas within property boundaries that are forested or cultivated for property tax appraisal purposes
12. Identify and/or analyze vegetation species related to wildlife habitat
13. Monitor terrestrial plant communities
14. Identify and/or analyze tree type for urban forestry planning
15. Assess timber condition and value in areas of interest

As stated, the 2018 group also established priority requirements for the data and recommendations. The requirements were determined to be: ground resolution of 1-meter or better in a raster product; reliable distinction between what is classified as impervious surface, tree cover, farm fields, and wet areas at a minimum; and frequency of at least annual classification to detect land cover change. The previously determined recommendations were:

1. The Working Group for Land Cover recommends that the Statewide Mapping Advisory Committee recognize significant business needs for land cover data and pursue research on sources of imagery to be classified, tools and techniques, and strategies for targeting land cover classification and products to satisfy business needs.
2. North Carolina should not "go it alone" and collaborate with national efforts including GAP Analysis/LandFire, NOAA land cover mapping, and US EPA land cover mapping.
3. The most valuable land cover dataset for the most business needs may be statewide, NLCD level-2 classification, 1-meter ground resolution, annual, produced within 12 months, and easily accessible as a raster dataset.

The new WG determined that, although advantageous, the 1-year update cycle is probably not feasible, and that the most cost-effective solution is to partner with the NOAA C-CAP. The data from the program is a 1-meter product, has multiple wetland categories in it, and appears to be the best fit with what the previous

working group came up with. There is an option to buy-up map additional wetlands categories. The program maps landcover every 4-6 years. The new WG determined that a 5-year cycle would be optimal and would meet the most basic needs of users.

There is a group in NC (Wetlands Mapping Interagency Working Group) interested in mapping wetlands and has been discussing this with NOAA. The group consists of several partners (NC Coastal Reserve, NC Division

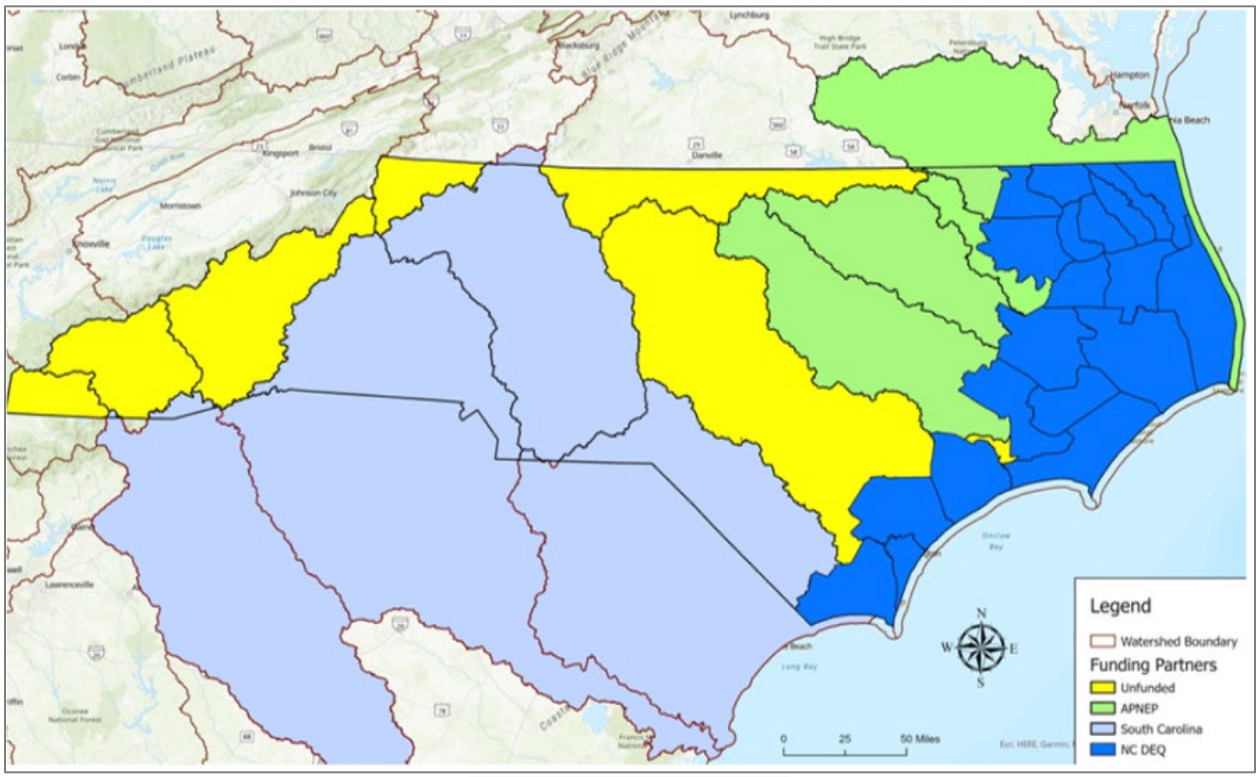

Figure 6 - Wetland funding status

of Marine Fisheries, Albemarle Pamlico National Estuary Partnership, NC Division of Coastal Management, NC Division of Water Resources, NC Natural Heritage Program, NC Coastal Federation, NC DOT-Ecosystem Planning and Restoration, NOAA, Duke University, Wake Forest University, Audubon, Pew, UNC Wilmington, and East Carolina University) and has teamed up with the SMAC Landcover WG. The Wetlands Interagency Group has identified funding for all areas in Figure 6 except those colored yellow.

Funding has been earmarked for a majority of North Carolina. The chart below (Figure 7) outlines the funding partners for the different areas of the state.

Area	Estimate	Funding Partner	Funding Secured	Funding Needed	Map Color (Figure 6)
CAMA Counties	$400,000	NC DMF	Yes		Blue
APNEP watersheds (Outside CAMA)	$400,000-$425,000	APNEP	Yes		Green
Upper Roanoke*	$225,000-$275,000	Virginia DEQ	Partial	$82,500*	
Cape Fear (Outside CAMA)	$225,000-$275,000			$275,000	
Western NC	$175,000-$200,000		No	$200,000	
Watersheds draining to SC		SC Office of Resilience	Yes		Light Blue
Enhanced Wetland Mapping	$100,000	NC DCM	Yes		

Figure 7 - Wetland funding partners

The Landcover WG has 3 main recommendations:

1. Support development of statewide landcover dataset in partnership with NOAA C-CAP.
2. The SMAC and GICC should provide assistance as needed to support partners as they pursue grants and funding to complete statewide mapping.
3. Future work is needed to identify maintenance funding and frequency.

Related to recommendation #2, DEQ is currently working on a grant to fund the yellow area in western NC as shown in Figure 6 above. It would assist them to have a letter from the SMAC in support of that grant to provide along with their grant application.

Regular Status Updates

USGS/National Geospatial Programs Office

Chris reported that the last work units of LiDAR and topobathy work by NOAA and USGS following Hurricane Florence has been provisionally accepted. Once all work units have been published USGS will produce a 1-meter topo bathymetric DEM.

USGS has made a selection for the new National Map liaison who will cover North Carolina. It is anticipated the person will be on board by early February at the earliest.

NC OneMap

David said the update was covered in Ben's orthoimagery update, regarding the upcoming addition of the 2023 imagery to the NCOneMap.gov website.

Adjourn

In-Person Attendance:

Name	Association
Paul Badr, Chair	GPI Geospatial Inc.
Tim Johnson	CGIA Director, NC GIO
Rich Elkins	NC Sec. of State Land Records Manager
Christian Vose	NC Dept. of Agriculture and Consumer Services
Dr. Ken Taylor	NC Geological Survey
Eric Wilson	NC DOT
Bob Coats	OSBM, Demographic and Economic Analysis
Cam McNutt	NC DEQ, Water Quality
Alice Wilson	City of New Bern
Sean McGuire	NC DEQ, Water Resources
Ben Shelton	CGIA
Darrin Smith	CGIA
Colleen Kiley	CGIA
David Giordano	CGIA

Remote Attendance:

Name	Association
Joe Battinelli	Cabarrus County
Gary Thompson	NC Emergency Management
Elizabeth Robinson	City of New Bern
Scott Davis	Axiom Environmental
Chris Cretini	US Geological Survey
Nathan Bland	NC Sec. of State
Kitty Kolb	US Geological Survey
Katie Doherty	Rutherford County
Steve Averett	City of Greensboro
Ryan Hanko	NC DEQ, Water Resources
John Derry	CGIA