

MINUTES

Statewide Mapping Advisory Committee Meeting

Wednesday, October 12, 2022, 1:30 – 3:30 PM
NC Secretary of State's Office - Hybrid Meeting

Welcome/Introductions

In attendance: Paul Badr, Rich Elkins, Nathan Bland, Cam McNutt, Alice Wilson, Richard Greene, Pam Carver, Gary Thompson, Dr. Ken Taylor, John Lay, Steve Averett, Christian Vose, Sean McGuire, Dan Madding, Bob Coats, Eric Wilson, Elizabeth Daniel, Darrin Smith, Brett Spivey, Ben Shelton, Matt McLamb, Colleen Kiley, David Giordano

The July 13th meeting minutes were approved.

Working Groups and Related Geospatial Data

Working Group for Orthoimagery and Elevation

Gary Thompson indicated the working group met yesterday. The BAA for 3DEP was just released. This is a funding source Gary will apply for to hopefully assist paying for phase 3 LiDAR. The 3D Nation requirements and benefits study was released recently. It contains a massive amount of information that can be leveraged in developing the NC LiDAR business plan.

The committee also discussed UAV test sites. NCDOT would like to use an abandoned airport near Sanford to develop a test site. The current site in Butner is still operational but the property was transferred to the city of Butner and will likely develop the property. There is a UAS government users group meeting in December - more info to come.

Orthoimagery

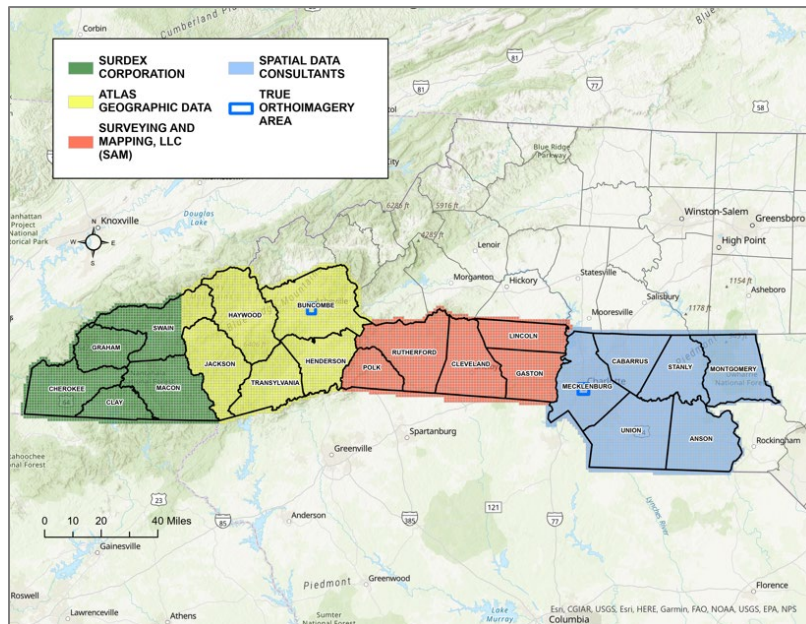


Figure 1 – 2023 ortho project area

Ben Shelton briefed the SMAC on the 2022 ortho project. It is the Northern Piedmont and Mountains project with 26 counties in it. Twenty-five percent of the area is considered "mountain acquisition", meaning there are changes to account for sun angle and flight planning. True orthos will be captured for Greensboro and Winston-Salem. Four-band orthos will be developed for this phase.

All final ortho tiles have been received from the vendors. The data is being evaluated and processed, and derived products being created – MrSID tiles and county mosaics for download and COG (cloud-optimized GeoTIFF) for image services. Ben hopes for delivery of

the 2022 data to PSAPs during the first or second week of November.

Four vendors have been selected for the 2023 Southern Piedmont and Mountains area. See Figure 1. The RFQ was released in July. This project area is 21 counties of which approximately 50% is “mountain acquisition.” True orthos will be flown for Asheville and Charlotte, and 4-band collected for the whole project area. This will complete the 4-year cycle of CIR for the entire State. Deliveries are anticipated in November 2023. Planned acquisition is early February 2023 in the piedmont and early March in the mountains.

Working Group for Building Footprints

Dan Madding indicated that NCEM is nearing the end of their building footprint update started in 2020. A composite data set has been constructed with data from counties, LiDAR-derived structures, Dept. of Agriculture, National Structure Inventory (NSI), and automated, remote-sensed buildings from Microsoft. In addition, a conflation tool is being created to add attributes to the building geometry, some of which come from NC Parcels.

Census IDs are pulled from US Census Bureau blocks data. First floor elevation is estimated based on the highest adjacent grade (HAG) and lowest adjacent grade (LAG). The projects maintenance plan is shown in Figure 2. The geometry for buildings no longer appearing in imagery is being kept in the data set but attributed as “building removed.” Buildings are also flagged as “building mitigated” which means no damages will be calculated. These may or may not still appear in the imagery.

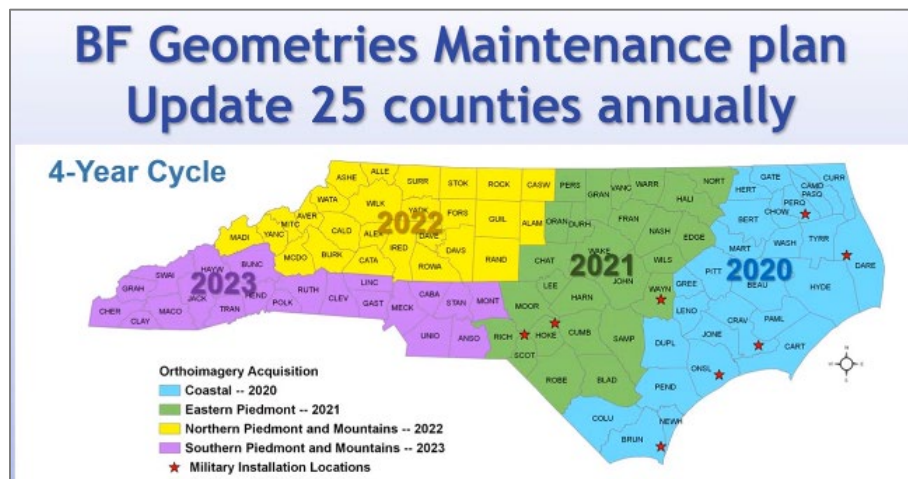


Figure 2 – Building footprint maintenance plan

The remaining five counties should be completed by the end of this year (Pitt, Greene, Lenoir, Duplin, and Columbus). NCEM is willing to share the building footprints with the completed counties in the 2020 project area so they can help with QC.

Paul Badr indicated one of his responsibilities as SMAC chair is to “connect dots” for agencies and not have work duplicated. He said he understands NCEM needs the building footprints for risk management and flood modeling. Part of the discussion at the last M&O meeting was about the automation of footprints being investigated by the building footprints working group. This work is being done in conjunction with the NCEM digitizing of footprint data. Paul mentioned the two efforts will need to work together to achieve the best outcome possible asked Dan what is the level of cooperation between NCEM and the building footprints working group when it comes to developing the building footprint data set?

Dan responded that if there was an entity that wanted to develop imagery-derived footprints in the 2021 area (in green in Figure 2), that would be welcome. Johnston or Wake counties would be a good pilot area. The timetable for the 2021 completion would be in approximately 11 months, so the creation of footprints for the 2021 area within that timeframe would be beneficial to the NCEM project.

Paul said the building footprint working group would need all of their questions answered in order to give NCEM the most accurate footprint data possible. He went on to say he would not like to see two parallel

mapping projects striving to create the same data set. Colleen Kiley interjected and said the idea is that the working group would work in conjunction with NCEM. Gary added that he is seeking NCEM approval to start work on one of the pilot counties mentioned by Dan, and that he is working towards what is in the building footprint business plan.

Dan asked if there was some agency willing to create a building footprint data set derived from aerial imagery. Paul responded that was what the business plan called for and the working group will start extracting footprints from imagery to coincide with NC's imagery project 4-year cycle.

Colleen contributed by saying the ideal situation would be for all in the working group to meet to discuss what has been done so far and what needs to be done. There are some things that NCEM has not completed that the business plan laid out as needed for other group stakeholders. Those gaps should be identified so resources can be given to NCEM to help them along with their process. Until the gaps are identified it is difficult to make a plan to address them. It is important for the working group to get together and figure out how to proceed based on who has the resources to do what.

Paul asked Colleen and Dan to meet to get their questions answered and come up with a way to effectively work together. Colleen said there are plans for the working group to meet later this month. She indicated once questions are identified and answers provided the group can address funding the data creation. Paul said building footprints are an important data set and having a consistent funding source is critical for data creation and maintenance. Gary added he has had discussions with Tim and Colleen about moving forward to work together.

As a point of clarification, Ben added that the business footprint working group was tasked with creating a business plan to meet the needs of all stakeholders and that NCEM took part in the group and contributed to the plan. As one of the primary co-authors of the business plan, he said there are not two distinct, parallel paths to create the same data. He said all involved are on the same path, it is just that implementing the full plan will take some time because the primary need is to get the funding in line.

Dan asked Ben for a clarification: Is there or is there not a building footprint data set using aerial imagery for the 2020 project area? Ben responded no. He had done a sample county using extraction techniques, but that area had already been digitized by NCEM. Ben added he and Dan can collaborate on a 2021 project area, however the computing power needed to process the area efficiently would be expensive in AWS. Dan asked if one county in the 2021 area could be a pilot. Ben responded yes, however, to tackle regions of data multiple servers would need to run concurrently. He added that he has talked to partners at FEMA about the possible use of their supercomputer to extract the footprints using NC imagery as the ortho source. Contracting to private companies to perform the footprint operations is also a possibility. AWS, FEMA, and contracting development of the data are the three paths outlined in the business plan. The determination needs to be made as to which plan makes sense and what group(s) will accept the responsibility.

Working Group for Seamless Parcels

Pam Carver told the SMAC that on average there are 75 county updates each quarter. In the 12 days so far in the 4th quarter there have been 23 counties whose parcels have been uploaded to the transformer.

Also noted is a reorganization of the seamless parcels working group. The main objective of the new membership is to have more data attributes populated by the counties and have them update more often.

Pam also noted that she is working with the NCPMA to name a replacement for her co-chair position on the seamless parcels working group.

Hydrography Working Group

Cam McNutt informed the committee the HWG has met 4 times since the last SMAC meeting. The hydro data set is currently being reviewed by the NCDOT GIS. There will have to be a data delivery agreement between NCDOT and NCDEQ.

The data set is complete and has approximately 26 million features in it that are either intermittent or perennial streams. The total data set contains 287 million features. Most users will interact with the 26 million feature subset.

Related to NC Hydro, the items remaining to accomplish are to assemble specifications (hopefully with the final ATLAS hydrography) and identify gaps. These items will be part of a specifications document to be sent to the HWG and LGC for feedback. The goal from there is to have a draft document to the SMAC by their April 2023 meeting. There will also have to be a large QA/QC effort between NCDOT and NCDEQ to ensure all names and waterbody information is showing in the correct place so all users can get what they need out of the data set.

Paul asked for someone from NCDOT to present on the ATLAS hydrography program. Eric Wilson said he could help with this if needed. Eric added that the NCDOT GIS Unit is handling the evaluation of the ATLAS hydrography data set. They have assessed that a majority of NCDOT will not need the larger data set but rather the smaller 26 million-feature, one. Relevant information concerning the evaluation has been conveyed to the NCDOT project manager so there can be a follow-up between the PM and NCDEQ.

NC Board on Geographic Names

Cam reported there are no names for discussion today, however there is an issue he would like to make people aware of: a consultant Cam has worked with in the past that uses the older online USGS topo maps and the newer US topo product has noticed the names of smaller ponds have been moved westward by one quadrangle. Essentially the names have “jumped” from one quadrangle to an adjacent one to the west. USGS has responded and acknowledged this is an extensive problem and not isolated to NC. They are working towards fixing the problem but it will take a long time.

Working Group for Roads and Transportation

Eric said the topic of Evacuation Routes is one that comes up regularly at NCDOT. Through discussions with traffic safety teams in the department it was determined that ownership for this data is with the local governments. Eric asked the SMAC what the best way to move forward is – how to gather the data and then host it for everyone’s benefit. Colleen’s suggestion is that if the people maintaining the data are involved in transportation, then the WGRT would be the best forum to compile the data. If this data is handled by emergency management personnel, it was suggested to reach out to the LGC to get the correct people involved from the local governments.

In closing, Eric mentioned that the 4th quarter publication of NCDOT GIS data is moving forward as planned with no changes to the schedule.

NC Data Projects

Addresses

Darrin Smith brought the SMAC up to speed on the AddressNC project. The program workflow was reviewed (Figure 3). The authoritative data providers (city and county GIS coordinators) share the data to AddressNC

through NG911. AddressNC will not create or modify the provider’s data, only standardize the attributes and make them consistent statewide.

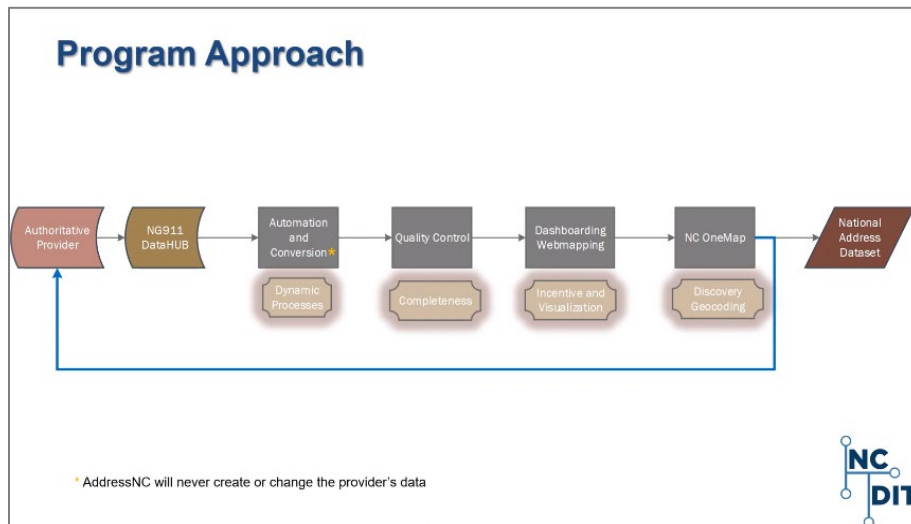


Figure 3 – AddressNC workflow

The project is at the point now where automation and conversion is functional with python scripts. The goal is to update the data monthly. Processes are in place to automate the QC. The QC results will be shared with NC OneMap. Also shared will be summary and frequency reports by counties of findings. The address data itself will be in a point feature class and a series of web services, including a geocoding service. Creating dashboards is also part of

the project. These will be used to document status, growth, and other factors.

Municipal Boundary and Annexation

Colleen indicated the municipal boundary project is now on NC OneMap. The pilot mapping project is ongoing. Boundaries can be approved and corrections uploaded. Annexations can also be submitted. Outreach will continue through collaboration with Rich Elkins, Dr. Mike Cline, and Bob Coats. Colleen will work with Emergency Management to determine how the data submitted through the tool will work its way into the production data set, who will review it, and perform the maintenance.

Regular Status Updates

USGS/National Geospatial Programs Office

Kitty Kolb and Silvia Terziotti were unable to attend. Of note to pass on is that the FY23 BAA (Broad Agency Announcement) proposal submissions will be open very soon for funding of LiDAR acquisitions. Partners are encouraged to submit an application for LiDAR through the BAA. For more information please review the 3DEP BAA [FAQ](#).

NC OneMap

David Giordano reported that the NC OneMap infrastructure, geospatial data, and web services are now in Amazon Web Services (AWS). There is still a task to complete with regards to re-establishing the image services for the pre-2010 imagery. The team is aiming towards improving the response times of the image services originating from the NC OneMap AWS infrastructure and will be working with Esri and Amazon. Map services (parcels, etc.) seem to be performing well.

County and State Boundaries

Gary was unavailable for the latter part of the meeting, however his county and state boundary presentation is [available](#).

Other Business

FY 2021-22 Work Plan Major Task Review

Of particular interest are the items due at the end of 2022:

- *Item 2.2: "Draft and Implement elevation business plan to update and maintain LiDAR data and derived web services (including contours) on NC OneMap, and suggest derivative elevation products to produce."* Gary and John Lay are actively working on this plan.
- *Item 3.3: "Review and update of GPS guidelines given the advances in technology."* This is also in progress. Gary is leading the effort.
- *Item 4.5: "Research and recommend solutions for land cover data in collaboration with NOAA."* Dr. Ken Taylor asked for assistance identifying a specific person at NOAA he can have a conversation with about landcover. Colleen indicated she can connect someone with Dr. Taylor. There will be a NOAA product released in February/March 2023 for the coastal area of NC.

Possible new working group for Administrative Units

It has been suggested that a new working group be established to bring oversight to data involving administrative units. With routine mapping of county and state borders and the emergence the municipal boundary and annexation tool, it seems this is timely. Gary seems to be the logical choice to lead this group with assistance from Rich. Paul asked this be added to the January 2023 SMAC agenda, as Gary left the meeting and could not weigh in.

2023 NC GIS Conference

Matt McLamb announced the conference will be held in-person next March in Winston-Salem. The call for abstracts is open until October 17th. He urged private companies to exhibit at the conference. Registration for attendees and vendors will open soon. The conference web site is <https://www.ncgisconference.com>.

Meeting Action Item Review

None captured.

Adjourn

Note: Verbal reports on Elevation, Geodetic Control, and Reference Frame were not given, however there is a [document](#) that contains presentation slides for the latter two.