Statewide Mapping Advisory Committee Meeting

Minutes

Wednesday, January 14, 2015; 1:30 PM – 3:30 PM
NC League of Municipalities
Executive Board Room, David E. Reynolds Building, 308 W. Jones St., Raleigh, NC
Conference Call Number: 641-715-3840; Access Code: 1061167#
Web Conference: https://meet.lync.com/ncconnect-its/david.giordano/5TSDZ0G4

Welcome/Introductions – Ryan Draughn, Chair, welcomed David Giordano, Tom Morgan, John Bridgers, Gary Thompson, John Farley, Sean McGuire, Hope Morgan, Doug Newcomb (for Silvia Terziotti), Cam McNutt, Jeff Brown, Tim Johnson, and on the phone Steve Averett, Pam Carver, Stephen Dew, Lawrence Griffin (for Kelly Eubank), Tyrel Moore, and Alice Wilson. Visitors: Joe Sewash, Luis Carrasco, Matt Duvall, Elizabeth Morgan, and Rick Wallace.

Minutes
The committee approved the October 29, 2014 Minutes.

Framework+ Datasets
Ryan called on members to report on opportunities, development, maintenance, and issues for Geospatial Framework datasets for North Carolina.

- *ORTHOIMAGERY*

Tim Johnson (CGIA) provided a brief status report on the Orthoimagery Program. The Northern Piedmont and Mountains (2014) phase is nearing completion, with product delivery to Public Safety Answering Points (PSAP) scheduled for January in a series of seven regional meetings. The locations are Winston-Salem (1/21), Greensboro (1/22), Salisbury (1/22), Wilkesboro (1/26), Boone (1/27), Marshall (1/28), and Morganton (1/29), weather permitting. Participants will include PSAP contacts and county GIS coordinators. There will be a 60-day final review period for the PSAPs to assure quality.

Imagery services and downloadable imagery for 2014 is scheduled to be available on NC OneMap February 1.

In the Southern Piedmont and Mountains (2015), image acquisition is scheduled to begin in February. The study areas have been assigned to five contractors. CGIA has a signed agreement with Fort Bragg regarding access to imagery captured over military installations. LiDAR acquisition was included in the same agreement.

CGIA is preparing a proposal to the NC 911 Board for the next four-year cycle of imagery starting in 2016. The Project Team met and members agreed to work together again on another statewide cycle using the same specifications and the same regional configurations for four phases. CGIA will present the proposal to the NC 911 Board meeting on February 27.

- *TRANSPORTATION*

John Farley (NCDOT) reported that the ROME Project resolved issues on a seamless dataset and has a first interim delivery of centerlines for review. An extensive quality control process will occur over the next few months. A complete, published set of seamless statewide centerlines is scheduled for release by the end of the year and will be maintained on a regular basis. State system roads will have about 90 attributes. Locally maintained roads will have about 20 attributes. The data model will support the addition of address information to centerlines. The dataset will not be ready to apply to address matching, but it sets a starting point for future enhancement. Addresses represent "events" on centerlines. NCDOT will host the centerline dataset, publish as a service with quarterly updates, and make the data discoverable via NC OneMap. NCDOT foresees a routable, addressable web service at some point.

- *CADASTRAL*

Jeff Brown (CGIA) reported that the NC Parcels Project is making progress in building a statewide compilation of parcels. Beyond the original 25 counties, 34 counties are in progress and at least 20 will be ready to publish this month after quality assurance. Pam Carver and John Bridgers have been engaging counties and facilitating transformations. Priority areas have been filling out in the Dan River area, the Sandhills, and western North Carolina. An updated user guide will be released this month as well. After the busiest months for local tax assessors and related GIS (January and February), the number of counties engaged will accelerate. The Working Group for Seamless Parcels continues to support this effort.

- *ELEVATION*

Hope Morgan (Department of Public Safety) reported on North Carolina LiDAR. Data has been acquired in Phases 1 and 2 (of 5) and acquisition is planned for early 2015 in Phase 3. Phases 4 and 5 are planned but not fully funded. USGS and DPS have collaborated successfully for the first two phases. A validation range in Wake County was used again this year to test sensors.

LiDAR specifications for collection are 2 points per square meter with nominal post spacing of 0.7 meters. All data will include multi-return and intensity values, and data will support a 9.25 cm (3.36 inches) root mean square error or RMSE(z) and 18.13 cm fundamental vertical accuracy (FVA) based on new guidelines from the National Digital Elevation Program (NDEP). An issue paper is available on the FVA change during the process. The project team is testing the classes to identify practical differences in the measuring processes. Hope will share a draft with Doug Newcomb before he attends an NDEP meeting this month. Hope's understanding is the NC standard specifications for LiDAR reference the USGS NDEP standards so that the NC document need not change.

Classification of LiDAR points will apply 15 classes including ground/bare earth, vegetation, buildings, and roads/impervious surfaces. NC is adding classification levels to the USGS data in Phase 1 to make the data comparable to Phase 2 classes applied by NC. Note: parking lots, commercial roads, and industrial roads will not be delineated as products.

Products from the LiDAR project will be elevation (LAS point files, terrain datasets, and digital elevation models by tile), classified points, and intensity values. The LAS files have gone through quality control. Imagery color can be applied to points to represent surfaces in three dimensions.

Data distribution from DPS will be by "clip and ship" where an application will enable a user to define an area of interest and receive data up to 2 GB of data clipped to that area. The downloadable data will be zipped LAS files. Areas requiring more than 2 GB but up to 10 tiles will be available for download. Larger datasets will require a special request. The clip and ship tool is expected to be ready by the NC GIS Conference. Users will select classes, all return, LAS, or digital elevation model.

Data distribution will be authenticated by NCID for the purpose of keeping track of users and locations where data are requested, indicating terrain changes. This would help identify areas for targeted updates of LiDAR in the future. Also, any data used in floodplain map maintenance will be available through the same online system.

John Farley reiterated the need to refresh the web services for derived elevation products currently served by NC OneMap. Some users and business processes make use of web services without needing to download points and do analysis. The services for contours, slope, aspect, and hillshade, now based on older LiDAR data, should be based on the latest available LiDAR data. The data distribution plan by the Department of Public Safety does not include those derived products. Hope Morgan confirmed that DPS will not produce contours. That being the case, John explained the value of refreshing the existing services and making them available without authentication via NC OneMap. At a minimum, the state should refresh what is there in the same formats. The solution may be developed by SGUC or SMAC or whatever the Council recommends, but a plan is needed.

For project purposes, Hope will make a terrain dataset of the terrain datasets that may be a practical source for others to use for derived products, but the LiDAR data production is the priority now.

John Farley made a motion that the SMAC recommend to the Council development of a plan to refresh the derived elevation products on NC OneMap from new LiDAR data. Sean McGuire seconded the motion.

VOTED: SMAC voted unanimously to make a recommendation to the Council to develop a plan to refresh the derived elevation products on NC OneMap based on the new LiDAR data.

Hope Morgan described Phase 3, 2015 acquisition, funded by the General Assembly and NCDOT. LiDAR collection contractors are Quantum and Woolpert. Data collected that coincides with areas of 2015 orthoimagery flights will be shared with ortho contactors. Validation ranges have been flown successfully. She showed some examples of new

LiDAR data. She noted that the "vegetation" class is based on distance above the ground that can include cars and swimming pools. Representation of transportation features is based in part on NCDOT LRS centerlines for reference.

Representation of buildings in new LiDAR data will be useful in maintaining building footprint data, but more frequent updates of buildings are needed for flood risk analysis.

- *HYDROGRAPHY*

Cam McNutt explained the current situation with stream mapping in North Carolina. He reviewed stream data products for context. The "100k plus" product represented the named streams. The NC naming system is different from that of USGS, and more streams are named than in USGS data. Named streams have classifications related to rules and regulations. NC migrated the names and classifications to 1:24,000 scale geometry. NC put names on maps for years in the permitting process. Confluences have descriptions in NC, unlike USGS data. Rules may apply to the shorter segments in NC data. Water quality assessments and classifications have the 100k density, but DENR uses 24k streams for planning purposes.

Names in NC are slightly different than USGS hydrography names. The geometry is the same as USGS 24k for the most part. DENR does not publish USGS stream codes (major, minor, etc.). In the GNIS, the Neuse River has one record, but DENR has 43 Neuse River segments classified and named. DENR uses an indexing system for unique identifiers. About 5,000 names are different (not exact match) between NC and USGS, lower than expected but significant. Synchronizing names needs to take into account that stream names in NC are NC law, and that changes in descriptions need to go through rule making. DENR is currently revisiting all of its rules, as directed by the General Assembly, making this an opportune time to review DENR hydrography.

Cam described a longstanding problem. DENR rules related to buffers, setbacks, etc. refer to streams represented on Natural Resources Conservation Service (NRCS) soil surveys and United States Geological Survey (USGS) topographic maps. Prior to the widespread use of GIS, the expectation was that USGS topographic maps would be singular and authoritative. With changes in technology and products, there are at least six versions of USGS 24K topographic maps that may be referenced for a permit or other purpose. For example, streams downloaded from the National Hydrography Dataset (NHD) may not be the same as streams delineated on USGS topographic maps that are printable from online sources. Also, a legal interpretation is that if someone wants to use NRCS data for streams, they must use the printed county soil survey. DENR will share thoughts about these issues and other information with the Stream Mapping Advisory Committee.

Cam identified a problem in a current process and implications for stability of USGS streams as a data source. A DENR customer requested a change in a stream type from intermittent to perennial. In the absence of a custodian agreement with USGS, DENR referred the applicant to USGS. Apparently a phone call was sufficient for the customer to get the change approved, without consultation with NC. This had an impact on Wake

County's unified development ordinance and related buffer requirement for that stream. DENR and NC counties have a stake in a stable stream dataset.

Also, Cam explained that DENR divisions use different datasets, to be identified more fully in the months ahead. Agreement on the data in DENR is important factor in the rules review process.

The Stream Mapping Advisory Committee meets on January 29. Part of the work will include identifying requirements for stream data. In response to a question from Ryan, Cam explained that the committee needs to think about stream name synchronization as a work plan item. Legal issues complicate the issue. Including multiple names for a stream segment may be a solution. Continuing engagement of stakeholders is vital for addressing issues discussed today.

Matt Duval asked what stakeholders can do to be engaged in the NC rule review and opportunities to modify NC rules. For example, NRCS has stated a number of times to the Stream Mapping Advisory Committee that NRCS is concerned about having soils maps continue to be part of the stream rules. NRCS does not have hydrography data on its soils maps, and using soils maps for stream representation is scientifically untenable. NRCS would like to be engaged in the process to be able to state the case for excluding soil surveys from the rules and make sure the case has been heard.

Cam explained that he is on a DENR rules committee that has not started the rules review. How others will be included in the DENR process is not clear.

Ryan advised that the Council be fully apprised of issues and progress on streams given the import of hydrography data.

In response to questions, Cam explained that DENR divisions use different datasets, to be identified more fully. Agreement on the data in DENR is important aside from the rules process.

- *GEODETIC CONTROL*

Gary Thompson reported that National Geodetic Survey has requested for input on the impact of the new horizontal and vertical datum 2022, so he has organized a working group that will meet on February 3 to begin describing impacts and making recommendations.

- *GOVERNMENTAL UNITS*

Gary Thompson reported that the NC Geodetic Survey has seven county boundary projects in progress. Legislation is ready to submit to minimize the impact of the reestablished NC-SC boundary. By the end of the year it should be finalized.

John Farley added that municipal boundary work is pending between NCDOT and the Department of the Secretary of State. Tom Morgan added that the US Census Bureau has a project to overlay municipal boundaries and parcel boundaries and resolve the

municipal boundaries to parcels as a starting point for the Boundary and Annexation Survey process. The NC Parcels Project will supply the parcel boundaries and municipal boundaries will be collected from counties. Annexations and de-annexations should be included in a boundary file. Joe Sewash pointed out this would have more benefit if the Census Bureau shares the modified municipal boundaries with NC municipalities. Tom understands this will occur in the BAS process.

- *ADDRESSES*

Luis Carrasco, CGIA, described the AddressNC project that has produced a static statewide set of address points covering residential and commercial addresses, compiled from local government sources. The goal is accurate physical addresses for a wide range of users and applications. The National Telecommunications and Information Agency funded the project through NC Broadband. CGIA collected and integrated the data and delivered products in October 2014. Data are accessible via NC OneMap and ad-hoc derived datasets are available on a cost recovery basis from CGIA.

CGIA is also developing a business case for maintaining a statewide dataset and creating more advanced systems for address data management. CGIA will engage local governments on the business case.

The technical approach emphasized collection of address points from counties between April and September 2014. The processing differed from the approach used for the 2009 Master Address dataset by using Python scripts and SQL Server for a backend data management system. Quality control was designed at the county level and the state level. Parcel data and building data were used as well as geocoding where address points were not available. The project tried to be consistent with FGDC, Census, and NENA address standards, even while the details of the standards were changing during the project.

CGIA assembled a project team including temporary staff to complete the project on time and got assistance from David Giordano for database management.

In the future CGIA would like to implement validation of address text and develop stronger routines for quality control of geocodes as suggested by FGDC. From a programmatic point of view, CGIA is trying to evolve from a one-time consolidation of address data to a sustainable master address database management system.

Working Groups

NC BOARD ON GEOGRAPHIC NAMES – Dr. Moore reported that he received a call this morning to name a stream in Mecklenburg County, in addition to the following items.

The NCBGN has received three requests for petitions to name unnamed streams. The first of these involves naming a stream “Barker Creek” in Vance County as part of the plans for the historic preservation of a farm that has been in the family since the eighteenth century. Discussions with the petitioner began late last summer. The petition for naming has been extended to include the headwaters of the stream located in

Granville County. The USBGN has requested local opinion on the proposal and the file will remain incomplete until the opinion is available for consideration by the NCBGN.

No follow up has been received on the other two proposals; Dr. Moore's replies are noted in the April 16, 2014 NCBGN quarterly report. He will keep the Statewide Mapping Advisory Committee apprised of the status of these proposals.

A fourth proposal for naming an unnamed stream, Penland Creek in Buncombe County, is being processed by the USBGN. The file awaits local opinion from a nearby Homeowner's Association. Dr. Moore also has been contacted by a landowner in Ashe County who wishes to name an unnamed creek there. Processing of the proposal is in its preliminary stages.

Dr. Moore will continue to work toward resolving the issue of objectionable or offensive feature names by engaging local officials and encouraging the replacement of such names.

Dr. Moore added that Jim Young is retiring from Appalachian State University. He is interested in continuing his service on the NC BGN. Ryan will check the bylaws to see if job status makes a difference in serving on the board as a university representative.

STANDARDS
Tom Morgan reported that he is in the process of writing a Cadastral Manual that includes legal terms and decisions related to cadastral mapping. It is not a standard, but will be a reference for recommended practices.

Steve Averett reported that Dan Madding is holding a metadata workshop for employees of the Department of Agriculture & Consumer Services, led by Dr. Tim Mulrooney of NC Central University. Promotion will include a presentation at the NC GIS Conference and the Esri User Conference in July. Dan Madding may have seats available outside of his department. Jeff Brown added that the Local Government Committee expressed interest in training for which a webinar would be more practical than a workshop. Steve will ask Dr. Mulrooney if he would be interested in doing a series of instructional sessions.

ORTHOPHOTOGRAPHY PLANNING – Gary Thompson reported that that the Working Group had its usual updates and discussion on the statewide orthoimagery program and the LiDAR phases. The group went over the first draft of a guide for oblique imagery and will work on details in the coming weeks. The group expects to have a document for SMAC to review by its next meeting. In response to a question from Alice, Hope Morgan confirmed that the oblique guide will include a list of questions to ask of vendors including questions relating to licensing and data sharing with local government jurisdictions within counties.

The group discussed the name of the working group versus the topics it covers, the group expertise, and the way it has evolved. For consistency with the Framework Data approach

of SMAC, the group suggests "Imagery, Elevation, and Geodetic Control Working Group." Whether all three need working group attention is a question to consider. The three Framework themes are interrelated. SMAC will continue to think about an appropriate name.

WORKING GROUP FOR SEAMLESS PARCELS –Pam Carver added that the project team is continuing to work on getting more counties into the state compilation of parcels.

STREAM MAPPING ADVISORY COMMITTEE –No additional information to report.

Regular Status Updates

NATIONAL GEOSPATIAL PROGRAMS OFFICE – Doug Newcomb reported for Silvia Terziotti. Gary Merrill retired from USGS on January 2. Silvia is now the Geospatial Liaison for NC and SC. She will remain with the water community of use, focusing on hydrography. She intends to work on elevation and hydro development strategies. A pilot project may be possible in the Carolinas integrating LiDAR elevation and stream data. A hydrography requirements and benefits study is underway for which Tim Johnson and Stan Duncan received requests to coordinate NC participation.

NC ONEMAP – David Giordano reported updates and revisions to the content of the Geospatial Portal. The Address 2014 dataset is notable, available as a map service and downloadable data. The 2009 address data are still available as well.

Current NC OneMap activities include the following:

- For the Geoportal, CGIA is exploring technologies for improving the user interface and making the data more accessible
- 2014 imagery will be added in February as image services (2014 alone and integrated in "ortho latest") and as downloadable tiles
- NC OneMap will add parcels as counties are transformed
- Future work will include integration of the GeoPortal and NC OneMap websites

NC Geographic Information Coordinating Council

COUNCIL UPDATE – Tim Johnson gave a brief update on the November 20th Council meeting. The Council heard from Council members Alex Rankin of Concord Engineering and Anne Payne of Wake County about the value of GIS technology and data in their private and public business operations, respectively. Stan Duncan reported on the progress of the GIS consolidation working group on behalf of Kristen Culler. The report has since been issued to the Joint Legislative Oversight Committee on Information Technology (http://www.ncleg.net/DocumentSites/committees/JLOCIT/Reports%20to%20the%20General%20Assembly/GIS%20Legislative%20Report%2012.22.14.pdf). A highlight of the Council meeting was Council adoption of the North Carolina State and Local Government Metadata Profile as presented by Steve Averett. The next Council meeting is February 11.

STATE GOVERNMENT COMMITTEE – Sean McGuire reported that the State Government GIS User Committee, Executive Committee members contributed to the GIS consolidation report. An important recommendation from the working group was that state GIS data should be available online free of charge. John Farley and Dianne Enright, SGUC Chair and Co-Chair, are leading the effort to craft a new Enterprise License Agreement with Esri, with negotiations in progress. SGUC Executives are supporting a GIS Showcase for state and local government, a legislative event on February 25 at the Innovation Center (4:00-6:00) to demonstrate the value of GIS, organized by themes rather than organizations. Stan Duncan and Chris Estes will make opening remarks for the event.

LOCAL GOVERNMENT COMMITTEE – Alice Wilson reported that the Local Government Committee discussed the value in describing recommended practices for how a local government can manage GIS for the enterprise, with attention to tools and management practices that can spread the benefits of GIS to all departments. URISA has a capability maturity model that may be a useful resource in documenting a set of practices to help local governments. Joseph Sloop continues to seek GIS presentations for NC Local Government Information Systems Association (NCLGISA) conferences to heighten awareness among local IT professionals; the next conference will be in May in Wilmington. Ryan encouraged the committee to think about presentations. The next LGC meeting is scheduled for February 18, 2015 at 2:00 PM.

FEDERAL INTERAGENCY COMMITTEE – Doug Newcomb reported that the executive committee is scheduled to meet on January 22 to get up to date and to find ways to increase FIC participation by military branches in the state. The FIC will hold a lunchtime meeting at the NC GIS Conference on February 26.

New Business
The 2015 NC GIS Conference registration is underway with 250 registrants to date and 26 exhibitors. Numbers are expected to pick up as the early registration deadline, February 3, approaches.

Adjourn --The meeting adjourned at 3:45 PM.

2015 SMAC Meeting Dates

Wednesday, April 15
Wednesday, July 15
Wednesday, October 14