Statewide Mapping Advisory Committee Meeting

Minutes

Wednesday, October 18, 2017; 1:30 PM – 3:30 PM
NC Department of Environmental Quality
Archdale Building, Ground Floor Hearing Room, 512 N. Salisbury St., Raleigh, NC 27603

Welcome/Introductions – Joseph Sloop, Chair, called the meeting to order and welcomed Kenneth Taylor, Alice Wilson, John Bridgers, Rich Elkins, Cam McNutt, Sarah Wray, Gary Thompson, Marcus Bryant, Sean McGuire, Darrin Smith, David Giordano, Jeff Brown, and on the phone Camille Tyndall Watson, Pam Carver, Drew Pilant, and Silvia Terziotti. Andy Kiley, NCDEQ, attended as a guest.

The Chair congratulated the City of New Bern, led by Alice Wilson, as recipient of an Urban and Regional Information Systems Association (URISA) Exemplary Systems in Government Award for a distinguished single process system. The application assisted the City in finding new uses for City-owned vacant lots and abandoned properties.

Minutes
The committee approved the July 19, 2017 Minutes as written.

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

- *ORTHOIMAGERY*

Darrin Smith (CGIA) provided a brief status report on the Statewide Orthoimagery Program funded by the NC 911 Board. Mr. Smith presented the status of the 26-county Eastern Piedmont phase (2017). The visual quality control phase is complete and CGIA is receiving delivery of imagery from the contractors. The project team plans to deliver products to Public Safety Answering Points (PSAPs) in four regional meetings during the week of December 11. This will be six weeks earlier than last year. Improvements in technology and compressed schedules for contractors have accelerated the phase to meet the goal of getting imagery to local governments earlier. NC OneMap imagery services will be published in December as well.

In response to a question from Kenneth Taylor, Mr. Smith explained the process of delivering imagery captured over Fort Bragg and Camp Mackall to the installations and the PSAPs where the imagery will be used only for 911 communication purposes under non-disclosure agreements with Fort Bragg.

For the next phase, the Northern Piedmont and Mountains (2018), the project team is nearing completion of the vendor selection and procurement processes. The four contractors selected are Sanborn Map Company, Atlas Geographic Data, Spatial Data Consultants, and Surdex Corporation. The goal is to complete all contracting and issue

purchase orders by December 1. That will give ample time for flight planning and give local governments more time to plan to piggy-back on the imagery acquisition contracts to purchase other imagery-related products as needed.

The 26-county region has seven counties with extreme relief. The sun angle requirement in those counties is 38 degrees. The region also contains two large cities—Greensboro and Winston-Salem. In downtown areas, imagery acquisition will capture "true" orthoimagery, using nadir specifications, involving adjustments in side-lap on flight lines. The result will be less "building lean" in the imagery products and more visibility for streets and facilities adjacent to tall buildings 40 feet or higher. The additional cost is minimal for selected locations in the two cities. He displayed an example in Raleigh to compare typical imagery and true orthoimagery and the visibility of features.

- *CADASTRAL*

John Bridgers (Working Group for Seamless Parcels) reported that all counties have been updated in the NC Parcel Transformer in 2017. The fall update is underway, with 54 counties completed to date. Also, 54 counties are now registered with the Transformer for self-operation. The most challenging part of self-service is to get an NCID and update the password. Running the Transformer takes just a few steps.

The Working Group for Seamless Parcels met in September 2017 to review the NC Parcels Program, prompted by comments about NC Parcels in a recent mapping school session held by the Land Records Management Program. Two key questions were discussed: which standard fields are most valuable to consumers of parcel data? How can we populate those fields fully to increase the value to consumers? Mr. Bridgers, along with Lucy Cardwell and Jeff Brown, posed those questions in a presentation to the NC Property Mappers Association last week.

Among well populated standard fields, the Working Group identified the parcel identification number, total assessed value, owner name, mailing address, and source reference (deed book and page) as the most useful to parcel data consumers. The most useful fields needing improvement – more counties populating the standard field with a match from county parcels – are calculated acres, sale date, site address, parcel use descriptions, improvement value, and Present Use Value – yes or no. The Working Group clarified that the two standard fields for parcel use descriptions should represent (1) primary land use and (2) primary building use, respectively. To date, Present Use Value is populated by 38 counties, gradually increasing.

In response to a question from Alice Wilson, Mr. Bridgers explained that missing data may be caused by counties not populating all items in a tax database and/or not exporting all the desired source fields from the tax database to join to the parcel boundaries as the source dataset for NC Parcels. Marcus Bryant explained there are hundreds of fields in a tax system and Durham County has modified its selection of fields to export for the GIS dataset based on feedback from internal and external users.

What are benefits for county data managers to keep NC Parcels up to date? Imagery and

LiDAR are provided statewide by state agencies for use by counties and their businesses and citizens. Data from neighboring counties is standardized and available for parcels, roads, and address points. The NC Parcels Transformer stores a copy of a county's parcel that could serve as a back-up in an emergency. For example, Currituck County ran a transformation as soon as they received reports of a potential hurricane event.

The Working Group for Seamless Parcels supports data sharing, currency, consistency, and completeness. NC is a leading state in parcel data and looks to continually improve the statewide product.

- *ELEVATION*

Gary Thompson reported for the Department of Public Safety on North Carolina LiDAR. For Phase 4 LiDAR collected with a Geiger Mode sensor, 14 of 17 blocks have been delivered by contractors. After review, data will be shared with US Geological Survey (USGS). Results look very good.

Calibration of LiDAR for Phase 5 is in progress. The goal is to be sure to make the ground points available for processing 2018 imagery in the Northern Piedmont and Mountains phase and for NC DOT projects. Release of downloadable products is likely to be early in 2018 for Phase 4 and early in 2019 for Phase 5.

- *HYDROGRAPHY*

Cam McNutt of the NC Department of Environmental Quality (DEQ) reported progress on a "display" dataset of 1:100,000-Plus Hydrography Classifications and efforts to synchronize items from three internal databases with one set of geometry.

The Headwater Stream Spatial Dataset (HSSD) continues to be under development by DEQ with support from NCDOT. Determining stream origin relies in part on elevation data and models. The current concept is to proceed with headwater stream data development statewide instead of piecemeal for NCDOT planning purposes. Much of the Piedmont is complete. The northern half of the Coastal Plain where the flat terrain makes modeling more difficult has not been started yet. Mr. McNutt displayed a status map by Level 4 Ecoregion.

Mr. Brown asked about the role of headwater streams in an envisioned comprehensive hydrography dataset. As a representation of streams, the lines are based on models using a point of origin for a stream. The models are mapping valleys going downstream from point of origin. The headwater streams are connected to the larger streams. Headwater streams are not like streams in the National Hydrography Dataset. The developers seek accuracy of where the water is likely to go based on elevation. Issues in urban areas involve stormwater infrastructure and its impact on streams.

- *GEODETIC CONTROL*

Gary Thompson reported on NC Geodetic Survey's collaboration with National Geodetic Survey's "GRAV-D" project. The goal of GRAV-D is to create a gravimetric geoid accurate to 1 centimeter where possible using airborne gravity data. The overall target is

2-centimeter accuracy for orthometric heights from Global Navigation Satellite Systems and a geoid model. The project involves an airborne gravity survey of the entire country and its holdings, and long-term monitoring of geoid change. Gravity data are needed for the 2022 Reference Frame. Typically, gravity data are collected by manned aircraft. However, in North Carolina data are being collected using new technology—an optionally piloted aircraft system (Centaur). The aircraft can fly 2,000 miles. A hybrid mode was used in North Carolina—a pilot was on board for safety reasons. Data are being collected with a gravimeter installed on the aircraft.

- *GOVERNMENTAL UNITS*

Regarding county boundaries, Gary Thompson reported that 12 projects are in progress. Chatham-Harnett-Wake is nearing completion. Work begins on the NC-VA boundary soon. He added that the process for county approval of a re-established boundary has changed, modeled after South Carolina, by North Carolina law (§ 153A-18). Once a county requests a final (map) survey plat, it has one year to approve it. If one year passes without approval, NC Geodetic Survey may record the plat to legally establish the boundary. The law is not retroactive.

Regarding municipal boundaries, Sarah Wray reported on behalf of John Farley. NCDOT begins its annual process of editing Powell Bill boundaries this week in preparation for publication in February 2018.

- *TRANSPORTATION*

Sarah Wray reported that reduction of the backlog of projects continues with good progress and completion is expected by February. The next publication date for roads is November 13 including road characteristics and routes and map services. She displayed products on the Go!NC site including "RoadNC" for all public roads that are updated nightly and available as a map service. There is a map viewer and a diagram viewer, as well. The roads are networked but not routable.

- *ADDRESSES*

David Giordano (CGIA) reported the *AddressNC* project is on hold after the departure of project manager Luis Carrasco for a new opportunity in Maryland.

SMAC Work Plan

Mr. Sloop asked for any additional comments on the SMAC Work Plan for 2017-2018. The only change Mr. Sloop proposed is the creation of an ad hoc working group to be chaired by Dr. Taylor. As described in a draft charter, the working group will research the business needs for classified land cover, including minimum requirements for ground resolution and classes by business need. Dr. Taylor explained that more options for source imagery present an opportunity for land cover consideration of products beyond what has been available. Mr. Bryant will select someone from his Durham City/County team to volunteer. Ms. Wray will find someone from NCDOT's Environmental Assessment Unit to assist. Rich Elkins recommended a participant from the NC Department of Revenue considering the role of land cover in calculating present use value by type of use within parcel boundaries. Also, land categories and valuations are based on soil type and land cover. Ms. Wilson pointed out expertise at NOAA for developing and sharing

coastal land cover products. Mr. Brown explained that the Federal Interagency Committee (FIC) has featured technical presentations on land cover by several agencies. Ms. Terziotti recommended Doug Newcomb as a land cover resource for his experience processing LiDAR. She offered USGS as a participant on the working group. Ms. Wilson will look for a volunteer from her planning contacts. In terms of business needs, Dr. Taylor commented on the land cover type that is the most dynamic and resulting in the most land cover change in North Carolina—impervious surfaces resulting from residential and commercial development. An example is development in Fuquay-Varina where stormwater flows are changing. Business needs should drive plans for land cover data and analysis. Mr. Brown will assist with completion of a charter for the working group.

SMAC approved the Work Plan for 2017-2018.

SMAC NextGen911 Position Paper

Mr. Sloop received comments on the draft paper from SMAC, the Local Government Committee, and Carolina URISA's group on addresses. He edited the paper and asked SMAC for additional comments. He emphasized the value of the National Emergency Number Association (NENA) standard GIS model for Next Generation 911, and the need for the State to coordinate with local governments to compile and maintain geospatial datasets. Good communications will be important. He commented that the NC Parcels Program is a good example of reaching out to local governments. He expects the majority of local data managers to be ready and willing to participate. The results of a survey of local governments by the *AddressNC* project provided some useful information about local data management for the paper. Mr. Sloop added that local government technical capabilities and time available for data management vary widely across the state, something to keep in mind in NextGen911 planning.

Dr. Taylor pointed out the value of data consistency, for example, common business rules about placement of an address point—on a visible structure, at the location of a driveway entrance, at a building entrance, or a combination of points—to make the data most useful in 911 communications and response. Mr. Sloop confirmed that address point placement may vary by county and even within a county. Mr. Elkins noted that rural counties may place two address points where a driveway entrance is far from the corresponding house. In some cases, a linear path connects the two points. Mr. Smith observed that cell tower locations are relevant to locating origins of emergency calls with relation to PSAP boundaries. Statewide orthoimagery products take into account a 7-mile distance for cell tower service to provide imagery for calls that may originate beyond PSAP boundaries. Also, subdivision entry points can be important in determining emergency service boundaries for fast response.

Sean McGuire pointed out the absence of natural resource or environmentally relevant boundaries in the paper. For example, geospatial data for boundaries of Department of Environmental Quality regions and contact information may be timely in response to a chemical spill that impacts surface water where regional environmental authorities need to be informed for action. Ms. Wilson observed value in geospatial data for railroad lines and especially rail crossings where response vehicles might be impeded.

Mr. Sloop and Mr. Brown will capture the comments and distribute a final version of the paper

to SMAC for review. Once the paper is finalized, the next step will be to present the paper to the GICC on November 8 as an informational document. In the meantime, Mr. Sloop welcomed thoughts from the committee on what SMAC might ask of the Council on the topic of data standards and data sharing for NextGen911.

Working Groups

WORKING GROUP FOR ROADS AND TRANSPORTATION

Mr. Giordano reported on behalf of the co-chair of the working group, Erin Lesh. The group met twice, with good representation. The group is comparing the Council-adopted road centerline standard (2005) with the NENA standard for centerlines and will prepare a crosswalk. After more review and comment, the working group will propose an update. A charter and work plan for the group were distributed to SMAC by email.

METADATA COMMITTEE

Sarah Wray (NCDOT), reported on metadata training – one session was held yesterday on the NC Central University campus and another will be held October 26 at NC State University. Dr. Mulrooney has updated six training videos on YouTube. See http://www.youtube.com/DEEGSNCCU under the Metadata Training heading.

There have been two Federal Geographic Data Committee ISO metadata conference calls since SMAC last met. Discussion topics included the 19115-3 XML schema standard that will enable validation of ISO 19115-1 metadata and provide guidance for updates to editing tools.

Ms. Wray gave feedback to Esri about metadata tools. She learned that Esri will support metadata for individual layers in an ArcGIS Online map. A federal metadata solution, the Geospatial Platform, adds required metadata elements not part of the ISO standard. NC's challenge is to find editing tools that support the NC State and Local Government Metadata Profile. One of the next tasks is to look for gaps in open source editing solutions. For example, the QGIS editor has shortcomings, but there may be a way to engage technical assistance to improve tools like that. The committee's priority is to schedule more training sessions.

STREAM MAPPING ADVISORY COMMITTEE

Cam McNutt (NCDEQ) reported that the Environmental Management Commission has tabled water quality rules review again. When the rules are reviewed and go out for public comment, he will engage the GICC, especially if previous language about the GICC approving stream mapping carries over.

In the meantime, the Stream Mapping Advisory Committee will discuss new USGS hydrography products and a potential new data model. Next year, he plans to review the various hydrography datasets currently in use, including headwater streams, to assess how datasets are being used and what they have in common. Also, the committee will work with USGS to consider the current mechanism for North Carolina to be engaged in stewardship. It appears the stewardship model has changed in ways that may relieve the committee's discomfort with the program in previous years. The committee needs to

understand how agencies rely on datasets for rules, and how the best available geographic representation of streams would meet needs. If and when rules review occurs, the committee will modify its plans accordingly. Mr. McNutt plans to schedule a meeting of the working group next month.

ORTHOIMAGERY AND ELEVATION

Gary Thompson reported the working group met October 16 and heard updates on the Statewide Orthoimagery Program by Darrin Smith, National Agriculture Imagery Program by Dan Madding, Statewide LiDAR by Hope Morgan, and an oblique imagery project by Mr. Thompson relating to imagery acquisition at two public school sites.

NC BOARD ON GEOGRAPHIC NAMES

David Giordano reported on behalf of Tim Johnson who is chairing the board on an interim basis. The board acted on five items.

1. Buckquarter Creek: water feature in Orange County

The US Board on Geographic Names (USBGN) asked the North Carolina Board on Geographic Names (NCBGN) to revisit this name request from 2007 when Buckwater Creek was established as the primary name. Buckquarter Creek appears to be the more common name used today by the NC Division of Parks and Recreation. Buckquarter is also listed in the NC Department of Environmental Quality database.

> NCBGN Decision: NCBGN voted to change the name to Buckquarter Creek.
> USBGN UPDATE: USBGN APPROVED CHANGE ON 10/12/17.

2. Lake Come Good Home: water feature in Orange County

This request calls for naming an unnamed lake on private property based on a family salutation for the family owning the property. It is not connected to any other hydrographic feature such as a river, stream, or creek. The Board discussed the name and is generally against names that are not connected to the broader community and naming features of such a small size, approximately 3.7 acres in this case. The Orange County Commissioners were supportive of the name.

> NCBGN Decision: NCBGN is neutral on this name request, preferring to see future names connected to a community, not personal. We understand that the USBGN may choose to adopt the name per its process.
> USBGN UPDATE: USBGN DID NOT APPROVE THE NAME ON 10/12/17 BASED ON IT VIOLATING THEIR LONG NAMES POLICY.

3. Gibson Creek: water feature in Buncombe County

This request calls for naming an unnamed creek. Gibson is a common name in western North Carolina based on a review of the North Carolina Gazetteer. Both the City of Asheville and the Buncombe County Commissioners supported the name change. The Eastern Band of Cherokee Indians was given the opportunity to comment on the name through the USBGN process.

NCBGN Decision: NCBGN voted unanimously to support naming the waterbody.
USBGN UPDATE: USBGN APPROVED CHANGE ON 10/12/17.

4. Rutledge Lake: water feature in Henderson County
This is a requested change in name from Frady Lake to Rutledge Lake which is 3.5-acre feature. Frady Lake appears on USGS topographic maps. The change would tie the name to an RV park of the same name near the lake. The Board disagrees with this name change since the feature already had a name and the change links it to a commercial interest/development. The Henderson County Commissioners, Mayor of the Town of Fletcher, and the Eastern Band of Cherokee Indians all supported the name change.

NCBGN Decision: NCBGN voted unanimously against this name change for the reasons cited, particularly the linkage of a feature to a commercial interest/development. We understand that the USBGN may choose to adopt the name per its process.
UPDATE: USBGN DID NOT APPROVE THE NAME CHANGE ON 10/12/17 BASED ON THE LACK OF SUPPORT FROM THE NCBGN AND THE RELUCTANCE TO CHANGE A LONGSTANDING NAME.

5. Gryphon Branch: water feature in Catawba County
This is an unnamed stream less than one mile in length in the City of Newton. The stream heads on the property of Discovery High School which has the gryphon as a mascot. The entire stream is owned by the Newton Conover City Schools district. The Board supports the name change, giving a name to an unnamed feature and establishing a community tie to the feature. The City of Newton supports the name change. The Catawba County Commissioners did not respond before the USBGN deadline.

NCBGN Decision: NCBGN voted unanimously to support naming the waterbody.
USBGN UPDATE: USBGN APPROVED CHANGE ON 10/12/17.

Mr. McNutt noted DEQ has a watershed restoration responsibility and in restoration planning the department is encouraging local governments to request names for unnamed streams to generate local support for streams and reduce the unnamed tributary designations. He expects more name requests like the Gibson Creek example above.

2022 REFERENCE FRAME
Gary Thompson is expecting more information from National Geodetic Survey and will call a meeting of the working group in December or January to assess the situation.

Regular Status Updates

NATIONAL GEOSPATIAL PROGRAMS OFFICE
Silvia Terziotti reported the National Hydrography Database (NHD)-Plus high resolution dataset is being developed nationally by river basin. Of the Hydrologic Regions related to North Carolina, 06 (far western) is complete and 03 is in progress. Downloadable data are available for Region 06. The basis is hydrography at 1:24,00-scale or better. USGS is seeking volunteers to do quality assurance for data in Region 03 to get ready for

networking and catchments. Mark-up tools are available for people who are familiar with specific streams to identify quality issues. There is no digitizing or correction of flow for the reviewer. Please contact Ms. Terziotti for more information. The region should be completed in a few months to complete coverage for North Carolina.

USGS completed the Ele-Hydro pilot project in five areas. The concept is to generate hydro line work from the same data used to represent elevation. Contact Ms. Terziotti for more information about an upcoming report on the project. There will be a second pilot to work through a few issues.

The data dictionary for streams integrated with elevation will be an optional part of the new LiDAR specifications to be released any day now. An appendix will focus on capturing streams when flying LiDAR. This may be useful in North Carolina given the statewide LiDAR updates.

Also, the 3-D Nation study is kicking off soon. Like the USGS study a few years ago that found value in specific types of elevation data that justified investment in LiDAR, this study seeks state and local participants to provide information. USGS is looking for a champion at the state level. Gary Thompson was the previous champion. Mr. Thompson and Ms. Terziotti will follow up on this item.

Awards have not yet been announced from the Fiscal Year 2018 Broad Agency Announcement (BAA) from the 3DEP program for LiDAR data. North Carolina received funding in Fiscal Year 2017.

NC ONEMAP

David Giordano reported on data updates in the last quarter. NC Wildlife Resources Commission updated gamelands, public mountain trout waters, and boating access areas. NC Department of Natural and Cultural Resources updated natural areas, natural heritage element occurrences, managed areas, and federal lands.

Ms. Wilson observed that NOAA's Digital Coast has many coastal datasets for download and web services, and she urged NC OneMap to continue to work with NOAA to share resources. Some sharing is ongoing, such as the LiDAR delivered by the Department of Public Safety to NOAA for the Digital Coast. She offered to help assess the current situation and opportunities. For example, is shoreline data from the Division of Coastal Management part of the collection on the NOAA website?

In-Meeting Task Review

Mr. Sloop summarized tasks as (1) editing the NextGen911 paper to reflect the value of other geospatial datasets, finalizing the paper with staff, and distributing for final review, and (2) finalizing the draft charter for the working group for land cover. He thanked the committee for the comments and hard work.

Adjourn --The meeting adjourned at 3:15 PM.

2018 SMAC Meeting Dates

Wednesday, January 24
Wednesday, April 18
Wednesday, July 18
Wednesday, October 17

Locations and times to be determined in consultation with the Chair.