# North Carolina
# Geographic Information Coordinating Council

Minutes
May 13, 2015

PRESENT

Chair: Stan Duncan. Members: Bob Brinson (co-chair), David Baker, Jon Beck, Marc Burris, John Cox, Ryan Draughn, Hope Morgan (for John Dorman), Dianne Enright, Kristen Culler (for Chris Estes), John Farley, John Gillis, Ben Matthews (for Derek Graham), Joanne Halls, Matthew Helms, Ronald Brown (for Bliss Kite), Sarah Koonts, Dan Madding, Tom Morgan (for Elaine Marshall), Twyla McDermott, Doug Newcomb, Josh Norwood, Kevin Parrish, Anne Payne, Alex Rankin, Neelima Chitoor (for Hunter Robinson), Allan Sandoval, Joseph Sloop, Allan Axon (for Keith Werner), Ron York
Staff: Tim Johnson, CGIA

ABSENT

Jay Bissett, Chloe Gossage, Sharon Rosado, Richard Taylor, and Rebecca Troutman

PROCEEDINGS

A meeting of the Geographic Information Coordinating Council was held in the Board Room of the Department of Public Instruction in Raleigh, North Carolina. Chair Stan Duncan called the meeting to order.

Chair Announcements

Mr. Duncan introduced visitors Charles Friddle, Wake County GIS, and from the City of Charlotte, Lori Quinn, Keri Shearer, and DeLisa Tolbert who accompanied Twyla McDermott for morning meetings about addressing.

Mr. Duncan recognized the efforts of Ms. Jewel Johnson-Powell from Fort Bragg who was most helpful in acquisition of aerial imagery and LiDAR over the Army installation this winter. He appreciated the success of the coordination and looks forward to continuing the partnership.

At the request of Mr. Duncan, Tim Johnson gave a brief recap of the 2015 NC GIS Conference. Despite the snow storm the night before the conference, attendance on February 26-27 reached just over 800 along with 46 exhibitors. Herb Stout awards for local government GIS went to the Town of Mooresville (in Iredell County), Jackson County, and the Orange Water and Sewer Authority in the regional category. Mr. Johnson is in the process of visiting each award winner to congratulate them in the presence of officials of their respective organizations, and he is finding that State recognition is appreciated. Also, there were 15 student awards, representing 10 campuses across North Carolina. Looking at attendance, 40 percent of participants were from local government, 20 percent from the

private sector, 15 percent from state government, 15 percent were students, and 10 percent were from the university community. The presentations are now on the NC GIS Conference website (http://ncgisconference.com), some with audio. The next conference will be in 2017 at a date and location to be determined. Mr. Duncan observed that the weather made attending difficult, but he congratulated those who persevered and contributed to a successful conference.

Approval of Minutes

The minutes of the February 11, 2015 meeting were approved with no changes.

The Value of GIS to Council Members 1
(See "jon_beck_GICC_5_14_2015" PPT file at GICC website -
http://www.ncgicc.org/GICCMeetings.aspx)

Jon Beck, GIS Planner, Land of Sky Regional Council, explained that the value of GIS in his work is related to web services, online mapping, and council of government services. A web service provides fast and easy access to data sources without having to download, edit, or symbolize GIS data. Consuming a web service, e.g., from NC OneMap, ensures that you have the most up to date data. He showed examples of web services used in his work, including imagery, topography, bike routes, population change, cropland, and environmental incidents, coming from different state and federal servers.

Mr. Beck demonstrated an example of using online mapping (ArcGIS Online) from creation of a map on the desktop, to sharing it online, to creating an online application. This approach saves time compared to production of a series of hard copy maps. Another useful online format is "story maps." For example, a story map for Madison County is an application with multiple tabs. Each tab displays a map and related photos and information, in this case for river access, rafting, Appalachian Trail parking and shelters, US Forest Service trails, and recreation facilities.

In addition, Mr. Beck described the NC Association of Regional Councils of Government. Its mission is to provide "creative regional solutions" to relevant and emerging issues in North Carolina while providing a standard of excellence in the delivery of federal, state and regional services for member communities. North Carolina is served by 16 regional councils in a broad range of services to local governments including but not limited to: community and economic development, workforce development, state and federal program management, planning and GIS mapping services, grant writing, regional collaboration and partnership building.

An organized GIS user group for Councils of Government meets semi-annually, manages an enterprise license agreement for online mapping and planning tools, and shares knowledge. GIS services apply to a range of Council of Government programs including area agency on aging, transportation planning, economic development, environmental services, and workforce development. GIS and technical services support those programs with GPS data collection, GIS training, Census and demographic analysis, data creation and maintenance, database design and administration, utility mapping, land use and zoning mapping, and environmental applications.

The Value of GIS to Council Members 2

Kevin Parrish, GIS Director, Caldwell County, speaking without visuals, explained that GIS may be about cutting edge technology, slick apps, and cool maps, but it is foremost a tool to provide better services to our citizens. It is not the tool itself, but the needs it can fulfill that matter most.

Mr. Parrish identified himself as a member of a shrinking group of people who were with local government before GIS came along, and wondered what he ever did without it. Now GIS is pervasive with wide application. His primary questions about a technology: does it add value to the organization and does it make the boss look good? GIS does both, providing tools to make better decisions and providing career opportunities as well.

Mr. Parrish once described GIS as "making maps with computers" when GIS and its products were not well-known. Now, people who use online mapping and location-based phone apps don't use the term "GIS," but they know what it is, because they use it every day. GIS technology has advanced to support the expectation that he phrased as "you can't do anything without being somewhere."

Caldwell County is in western North Carolina, south of Blowing Rock and north of Hickory. The county has 80,000 people, 464 square miles, around 53,000 parcels. Caldwell County entered the GIS world through tax parcel mapping, like most local governments. The GIS program began in the early 1990s with digital mapping of parcels, replacing an incomplete set of hand-drawn mylar maps. The E911 addressing program began around the same time, independent of the GIS implementation. Street centerlines were digitized, but addresses were assigned using paper maps, rulers, and calculators. About 10 years ago, Caldwell County migrated addressing to a GIS-based system. Conversion and clean up resulted in more accurate addresses delivered in a much more timely manner, and time savings that enabled elimination of one position through attrition.

The small GIS shop consists of Mr. Parrish and help from talented in-house and contracted IT professionals. Value is realized by applications of GIS including:
- Tax-related applications including parcel mapping; neighborhood delineation by property appraisers; and use of GIS by listing staff to determine situs
- Maintenance of the address database for emergency response, generation of work orders for street sign installation and maintenance
- Support of around 15 GIS users within county government
- Map products to decision makers on a day to day basis
- Online web mapping site, the most-visited webpage
- Answering questions such as how much area inside the county boundaries is not taxed by Caldwell County, and how much area outside the boundaries is taxed by Caldwell

Technical Presentation
(See "OS_Model_Pres_2015_05_13" PPT file at GICC website -
http://www.ncgicc.org/GICCMeetings.aspx)

Chris Snow, Wake County Parks and Open Space Director, presented "Using GIS as a Tool to Support Open Space Acquisition Prioritization in Wake County." He explained that Wake County passed a total of $91 million in open space bonds in pursuit of a goal of open space covering 30 percent of the county's land area including parks as well as stream buffers and private open space. With $10 million remaining, Wake County needs to spend funds wisely in efforts to provide

adequate open space for the preservation of natural resources and habitat, protection of forest and farm land, provision of outdoor recreation, preservation of historical and cultural properties, protection of scenic landscapes, and protection of riparian corridors and water quality.

The problem to solve was the absence of a systematic, repeatable, quantifiable process for prioritization. Land acquisition was done on a reactive case-by-case basis, with acquisitions rated on criteria that were more qualitative than quantitative.

A collaborative project by staff from Wake County Environmental Services, Facilities Design and Construction, GIS, Planning, and Parks, Recreation and Open Space developed a solution with four major elements:
- Identify and define criteria for prioritization
- Create a model that would enable the quantitative evaluation of those criteria
- Use ranking and weighting of criteria to establish scores
- Use GIS to support the identification of parcels with highest scores

The project team determined a catalog of indicators related to the criteria by which to rate parcels, and identified spatial and non-spatial data to characterize the indicators. Categories of criteria were location, parcel size, species and habitat, and water quality. For ranking and relative weighting, the project developed a forced choice matrix. The project used a combination of county, state, federal and derived datasets, and applied ArcGIS tools including Model Builder and Spatial Analyst for raster analysis. Using parcels as the unit of analysis, the team rated each parcel by the criteria and produced scores and a map to guide prioritization. Anne Payne added that existing open space was analyzed the same way and received high scores, adding confidence in the model.

Wake County uses the resulting ratings and maps to be proactive in identifying opportunities for open space. Any property can be scored on request. The tool will continue to be valuable, as it can be easily adjusted if criteria change, the analytical method can be easily repeated to reflect current parcel inventory, and the rating scheme can be applied to both parcels offered by land owners and parcels of interest.

To answer a question from Doug Newcomb, Anne Payne explained that parts of the model can be processed with database queries, but the model relies on geo-processing steps using GIS software.

In response to Mr. Duncan's question about Wake County's open space goal, Mr. Snow explained that a consultant analyzed buffers for water bodies and other factors to arrive at the goal of 30 percent of county land area. The county is about half way to the goal. Mr. Duncan observed that land in forestry stewardship and agricultural management plans would be included. Mr. Snow added that Wake County has shared its approach with land trusts and has partnered with them on land acquisitions. Ms. Payne expressed appreciation for Mr. Snow's ability integrate a complex GIS model in his work and apply the results to open space decisions. Mr. Duncan thanked Mr. Snow for his presentation and his work for the citizens of Wake County.

Committee Reports

***Statewide Mapping Advisory Committee (SMAC).*** Ryan Draughn, SMAC chair, reported that SMAC met on April 15 and approved recommendations by the NC Board on Geographic Names to name

previously unnamed streams "Barker Creek" in Granville and Vance Counties, and Penland Creek in Buncombe County. This action followed a thorough review by the Board. Regarding SMAC work plan items, work proceeds on maintenance of GIS Framework datasets—statewide orthoimagery, transportation, parcels, elevation, geodetic control, county and state boundaries, municipal boundaries and addresses. On the topic of standards and practices, SMAC approved a guidance document for oblique imagery intended to inform local government practice and decisions about product acquisition. Gary Thompson and Stephen Dew led the effort. Mr. Draughn presented the document to the Council and recommended it be posted on the Council website under documents/practices. (See http://www.ncgicc.org/Portals/3/documents/Oblique_Imagery_Guidance_2015_Final.pdf).

SMAC is also working on implementation of the new metadata standard. Sarah Wray, NCDOT, has volunteered to chair a new metadata committee for a training and implementation phase to achieve adoption in local and state government data management. The committee is forming with several volunteers identified. Also, the Stream Mapping Advisory Committee met and discussed the rules assessment process in the Department of Environment and Natural Resources and potential impacts of as many as 40 rules on stream mapping and federal datasets.

Mr. Draughn called on Tom Morgan for an update by the Working Group on Seamless Parcels. Displaying a status map, Mr. Morgan explained that the statewide compilation of standardized parcels has 92 of 100 counties, with the remaining 8 counties scheduled for transformation by the end of May. Datasets are in hand for all but three counties to date. Completed datasets are available on NC OneMap as web map services, web feature services, and downloadable shapefiles. The first 25 counties transformed in 2014 will be updated this spring as well. Future work will include review of the completeness of the standardized data fields by county, refinement of source county datasets, and maintenance of the collection. Mr. Morgan acknowledged the data sharing by the counties and the technical assistance provided by Pam Carver of Henderson County, John Bridgers of the Department of the Secretary of State, and Jeff Brown of CGIA. The Carbon Project, Inc., is hosting the online Transformer and continues to make improvements recommended by the NC project team. Mr. Duncan added that the Association of County Commissioners and David Baker, NC Department of Revenue, have assisted with outreach to county tax administrators and helped determine the best local contacts for participation. Mr. Duncan thanked Mr. Morgan and the project team and also recognized Nancy von Meyer for her key role in the NC Parcels project and her experience in other states. Mr. Morgan added that the Census Bureau is already using NC's standardized parcels in efforts to improve Census boundary data.

Mr. Draughn called on Gary Thompson to report on behalf of the Working Group for Orthophotography Planning. The group accepted an assignment from SMAC to develop a plan for updating data products derived from statewide LiDAR data. Mr. Thompson explained that as new LiDAR data are published by NC Department of Public Safety across the state, the derived elevation products can be refreshed. The group is considering the best options by product.

The group is also looking at changes in horizontal and vertical datums in 2022. The National Geodetic Survey now refers to "reference frame" in place of "datum" for the new concepts. Mr. Thompson is also working with NCDOT to contact other departments of transportation across the country for input about the change. He also serves on the National Geospatial Advisory Committee and is chairing a 3-D Elevation Program subcommittee (national elevation data) as the program gains momentum on the federal level. Regarding work on state boundaries, with technical work on the

South Carolina border complete, Mr. Thompson expects that coordination with Georgia may be next, to be determined.

***Local Government Committee (LGC).*** Joseph Sloop (for Kathryn Clifton, LGC chair) reported that LGC made progress on work plan items, including publication of a two-page newsletter on the value of statewide parcels (Vol. 1. No. 2), preparation of regular newsletter items for and communication with LGC organizations (CURISA, NCPMA, NCACC, NCLM), and development of an outline of an e-book to present the value of GIS through examples of state and local applications and projects. LGC members prepared exhibits of GIS applied to business processes for "Showcasing GIS in NC," shared data with the NC Parcel Transformer and encouraged counterparts to participate, and supported funding for cooperative projects, particularly to inform the NC 911 Board of the value of statewide orthoimagery. Also, LGC members participated individually as GIS coordinators in quality review of orthoimagery, supported the GIS TAC on questions of imagery compression and cloud solutions, and participated in committees and working groups: Census Geospatial Data, Orthophotography Planning, Seamless Parcels, metadata standard, and the Board on Geographic Names. In addition, LGC members had opportunities to make presentations to the Council on the value of GIS.

***State Government GIS Users Committee (SGUC).*** John Farley, SGUC Chair, reported on SGUC accomplishments in 2014-2015. SGUC collaborated with OITS to inform department GIS strategies and the GIS portion of the State Strategic Plan for Information Technology; collaborated with OITS and CGIA on legislative reports regarding GIS capabilities and GIS data; and prepared exhibits of GIS applied to business processes for "Showcasing GIS in NC," unfortunately cancelled by adverse weather. SGUC monitored ArcGIS Online for Organizations in terms of functionality and value, and costs and benefits as a means for serving state business processes. Vice-Chair Dianne Enright managed ArcGIS Online for Organizations on behalf of state users. SGUC worked with OITS to negotiate a new Enterprise License Agreement (ELA) with Esri, provided technical presentations to members at quarterly general meetings, shared datasets among State agencies for efficiency, and published data for discovery and access through NC OneMap. The committee contributed to review of proposed standards—metadata and orthoimagery—and contributed to development of a best practice document for oblique imagery. Also, the committee coordinated development of a standard agreement for agencies to order NCDOT Photogrammetry services on short notice related to emergency events or other needs without going through a lengthy process. Also, SGUC collaborated with the GIS Technical Advisory Committee on technical papers on imagery compression, cloud-based solutions, and technical architecture. The ELA has taken a lot of attention this year and is still in progress. Costs have gone up for some state agencies. Costs will be static for the three-year term of the ELA. This will begin the 11th year for an ELA for GIS software.

Mr. Farley explained that SGUC updates its work plan as information technology evolves to keep pace with changes. The next general meeting will feature an in depth presentations on open source software for GIS and managing licenses in state agencies.

***Federal Interagency Committee (FIC).*** Doug Newcomb, acting FIC chair, reported that FIC met last week, hosted by the US Army Corps of Engineers Wilmington District, featuring technical presentations by Hope Morgan, NCDPS, on LiDAR, Eric Hund, NOAA, on the Digital Coast application, and Jeff Brown, CGIA, on NC OneMap, orthoimagery and other statewide GIS Framework Data. A roundtable discussion was informative as well. FIC Accomplishments 2014-2015

centered around FIC member participation on committees and working groups to add the federal perspective on data management and applications. In 2014-2015, FIC members contributed to the work of the Council, including parcels, metadata standard, Census Geospatial Data, Geographic Names, orthoimagery planning, and stream mapping. FIC members also contributed to the work of the Technical Advisory Committee on questions of imagery compression and cloud solutions. FIC works to collaborate at the state level and the national level, playing a role in communication of federal initiatives and issues that affect geospatial data and technology in North Carolina. FIC members also serve on and obtain information to share from other federal committees involved in geospatial data including the 3-D Elevation Program, National Geospatial Advisory Committee, National Digital Orthophotography Program, and Southeast Regional Partnership for Planning and Sustainability. Mr. Newcomb added that the work by Hope Morgan on new LiDAR data is valuable in relation to the national program.

***GIS Technical Advisory Committee (TAC)***. Dan Madding, TAC chair, reported TAC is making progress on three tasks: technical architecture for GIS, with assistance from Joe Sewash of CGIA and OITS staff; cloud solutions—hosting map services online, with assistance from David Giordano of CGIA; and mobile applications, led by Mr. Madding. The imagery compression document was completed this year with the intention of informing the next round of orthoimagery and related products (see
http://www.ncgicc.org/Portals/3/documents/TAC_compression_FINAL.pdf). Mr. Duncan commended Mr. Madding for the achievements and steady progress of the TAC. In response to a question from Mr. Draughn, Mr. Madding explained that he seeks more review of the cloud solutions document by local government GIS users in the weeks ahead. Mr. Draughn offered to help engage local reviewers through NC Local Government Information Systems Association.

***Management and Operations Committee (M&O) and NC OneMap Governance Committee.***
Mr. Duncan reported that the Management & Operations Committee is preparing for this year's annual report and noted that recent comments about the value of NC OneMap will be included. Regarding legislation, there are no current items to report. M&O is discussing address data. Mr. Duncan and Mr. Sewash attended the National Address Database Summit in Maryland sponsored by USDOT. Tim Trainor of the Census Bureau attended as well as the head of the US Postal Service. Every state is engaged in developing a master address repository in some form. New York has invested heavily in a system, for example. The Census Bureau accepts much of what NC submitted prior to Census 2010 and recognizes the NC dataset approach. Mr. Duncan emphasized the value of an accurate count in Census 2020. He pointed out value for many other purposes for both residential and commercial addresses. He recommended a wide scope for an address data repository for NC.

Ms. Payne reminded the Council of the need for an addressing standard for North Carolina based on, for example, the Federal Geographic Data Committee (FGDC) standard. Tim Johnson pointed out current complexity in national addressing standards, with federal efforts to coordinate standards of FGDC and the National Emergency Numbering Association.

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<u>Statewide Orthoimagery Program Update</u>
(see "Statewide GICC Orthoimagery Program" PPT file at GICC website -
http://www.ncgicc.org/GICCMeetings.aspx)

Tim Johnson provided a brief update on the status of the Statewide Orthoimagery Program. The
Northern Piedmont and Mountains phase (2014) passed the 60-day client satisfaction period with
no additional quality issues reported. USGS reviewed the Greensboro-Winston-Salem-High Point
and found no issues with the quality of the imagery. The project team is ready to deliver the final
report on the 2014 phase to the NC 911 Board and closeout the phase in June.

The Southern Piedmont and Mountains phase (2015), the fourth of four phases of orthoimagery
acquisition, is bounded by Cherokee County in the west and Scotland and Moore Counties in the east,
and involves Fort Bragg and Camp Mackall. Five contractors share the 24-county study area: Atlas
Geographic Data from Wilmington, Quantum Spatial from Kentucky, Sanborn Map Company from
Colorado, Surdex Corporation from Missouri, and Spatial Data Consultants from High Point.
Imagery acquisition this year was very challenging considering the unusual number of days with
cloud cover. All imagery was acquired, with the last images captured by April 11 in the west. The
project team met with the contractors in late April to review land cover samples and agree on
adjustments to achieve consistency across study areas at contractor boundaries. Imagery processing is
underway. Meanwhile, the state team is doing outreach to Public Safety Answering Points in the 24-
county area to prepare for the quality control process. The release of data for the 24 counties into the
quality review process occurs progressively over a five-week period. In response to a question from
Mr. Duncan, Mr. Johnson explained that spot checks of imagery have found some blossomed
ornamental trees, but not leaf-on conditions in the mountains, the last areas acquired.

Mr. Johnson continued with an update on plans after 2015. The NC 911 Board unanimously approved
a new four-year cycle at its February 27th monthly board meeting. In an effort to achieve more
efficiency, the project team followed an idea from John Bridgers to adjust the regions slightly. In the
next four-year cycle, Phase 1 (2016) will include 27 counties with the addition of Duplin and
Columbus.  This enables the addition of three counties (Moore, Richmond and Scotland) to the
Eastern Piedmont (Phase 2, 2017) to gain efficiency by capturing imagery over Fort Bragg and Camp
Mackall in a single phase. The Northern Piedmont and Mountains (Phase 3, 2018) will have the same
counties. The fourth phase (2019) will be smaller by three counties as a result of shifting three
counties to Phase 2. Product delivery in Phase 4 will be January 2020. The cycle will begin this year
with a Qualifications-Based Selection process for acquisition in early 2016 in the coastal plain. The
project team is in the process of outreach to military bases in the east to coordinate acquisition and
production of imagery over military installations. Mr. Duncan pointed out that success with Fort
Bragg will be valuable in outreach to Camp Lejeune and other installations. Mr. Johnson added that
the Governor's Military Advisor is assisting as well.

<u>NC OneMap Update</u>
(see NCOM update PPT file at GICC website - http://www.ncgicc.org/GICCMeetings.aspx)

David Giordano, NC OneMap Database Administrator, reported on new and updated resources in
the NC OneMap Geospatial Portal. Routine updates occurred for Federal Lands, Managed Areas,
Natural Heritage Element Occurrences, Natural Heritage Program Natural Areas, and Shellfish
Growing Areas Classifications. Also, the portal now has NC 2014 Orthoimagery Seam Lines with
Photo Exposure Dates to enable users to determine dates of imagery of interest. The portal has

more parcels in the statewide dataset, now numbering 81 counties with more in process. For upcoming tasks, the NC OneMap team continues work to redesign and integrate NC OneMap and GeoPortal websites.

Mr. Giordano advised Council members to update desktop GIS or web app connections to use "services.nconemap.gov" as the .com extension will not work now. For programmatic information, alternative extensions are redirected but he advised updating other links and bookmarks to "data.nconemap.gov" and "www.nconemap.gov."

GICC Member Announcements
Mr. Duncan acknowledged Ron York's interest in statewide parcels. Mr. York explained that, from the perspective of a large utility company, parcels are valuable in GIS operations. For example, land ownership information is essential in creation and maintenance of utility rights-of-way. Property lines are a valuable reference for engineers when building power lines. In the case of Duke Energy, operations cover six states, making compilation, standardization and storage of parcels impractical. Having standardized "parcels available from NC OneMap as a web service is priceless" in his work. Otherwise, Mr. York's staff still have to visit individual county websites and even courthouses in some cases. Parcel data acquisition can be very time consuming just for the process of putting out new power lines. He expressed the wish that the other five states in Duke Energy's service area "were anywhere near what North Carolina is doing."

Mr. Duncan called on Hope Morgan to share an update on state LiDAR. She reported that the USGS collection in coastal counties now has upgraded classification of LiDAR points to be consistent with the 20-county North Carolina phase. NCDOT participated in quality control. Point data are available for the NC phase for download or for copies by request, with data from the USGS coastal counties to be available soon. In addition to LAS point format, digital elevation models are available at 5-, 10-, 20-, and 50-foot intervals. NCDPS is deploying three 7-terabyte servers for the data. Data are available via a clip and ship routine or by request, with NCID authentication of data consumers (see http://rmp.nc.gov/sdd/). This is a beta version that Ms. Morgan invited members to try and offer comments. Acquisition in Phase 3 (2015) is complete, with products expected by November 2015.

Ms. Morgan confirmed that LiDAR data is available to the Statewide Orthoimagery Program to apply to imagery processing.

ADJOURNMENT

There being no other business, the meeting was adjourned at 2:45 PM. The next meeting will be Thursday, August 13, 2015 from 1:00-3:00 pm at the Department of Public Instruction Board Room, Room 755, 301 N. Wilmington Street, Raleigh.

Presentations and reports are on the Council Website: http://www.ncgicc.org/GICCMeetings.aspx. Click on "GICC Meetings" and navigate to May 13, 2015 and the column on the right for presentations and documents presented during the meeting in a downloadable zip file.