



*North Carolina*  
Geographic Information Coordinating Council

Minutes  
February 9, 2011

PRESENT

Chair, Dr. Lee Mandell. Members: Bob Brinson, Jay Bissett, Michael Brown (for David Hoyle), James Caldwell, John Cox (for Moses Carey), John Dorman (for Reuben Young), Dianne Enright (for John Farley), Jeff Essic (for Hugh Devine), Jerry Fralick, John Gillis, Bill Gilmore, Derek Graham, John Hice (for Ryan Draughn), Bliss Kite, Steve Kornegay (for Sandra Williams), Dan Madding, Elaine Marshall, Anne Payne, Drew Pilant (for Linda Rimer), Sarah Porper, Jeremy Poss, Steve Puckett, Allan Sandoval, Colleen Sharpe, Julie Stamper, Melodee Stokes, Richard Taylor, Mary Penny Thompson, Rebecca Troutman and Ron York

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 Dr. Lee Mandell called the meeting to order. Dr. Mandell noted that the meeting will be recorded to facilitate the preparation of the minutes and asked that everyone speak into the microphones.

The minutes of the November 10, 2010 meeting were approved with no changes.

Heb McKim, an appointee to the GICC by the House of Representatives since 2006, was recognized with a certificate of appreciation. Dr. Mandell noted that Mr. McKim did yeoman's service representing the private sector on the Council, providing leadership and technical experience, especially as Chair of the Surveyors' Model Law Working Group, which produced a very successful outcome.

Dr. Mandell introduced Mr. McKim's replacement – Jay Bissett, Principal and Raleigh Branch Manager for Mulkey Engineers and Associates. Dr. Mandell reported that the Speaker of the House of Representatives reappointed Ron York, Duke Power, and Jeremy Poss, Chatham County, to new one-year terms.

## Status and Discussion of Priorities Before the Council

### *Priority #1: NC OneMap Revitalization Project*

Dr. Mandell reminded the members that the NC OneMap revitalization pre-planning project has been underway since the summer through the Enterprise Project Management Office in the Office of the State Chief Information Officer. Linda Lowe, the project manager, did a wonderful job leading this effort. There were two key outputs. One is a list of functional requirements (see NC OneMap Requirements document at GICC website - <http://ncgicc.net/Meetings/tabid/138/Default.aspx>) that defines the NC OneMap of the future. Dr. Mandell noted that the document is not complete and will be updated over the years but it gives a sense of the major areas that require work to improve NC OneMap. He reminded the members that the pre-planning project had no funds and that one goal is to acquire funds to continue the project in a more formal way.

Following the November GICC meeting, Dr. Mandell presented at the Joint Legislative Oversight Committee on Information Technology. The packet includes the report from the Joint Legislative Oversight Committee on Information Technology (see JLOCIT report at GICC website - <http://ncgicc.net/Meetings/tabid/138/Default.aspx>). The report includes several recommendations. The committee drafted a bill that makes some technical changes to the statute that establishes the GICC, including the addition of the Executive Director of the NC 911 Board as a permanent member of the GICC. A second draft bill proposes appropriated funding to revitalize the NC OneMap project. The bill originally proposed about \$959,000 over a two-year period. In light of the worsening state budget situation, the proposed funding was reduced to \$758,000, all in the second year. Representative Tolson, then Co-Chair of the Joint Legislative Oversight Committee on Information Technology, submitted the draft bills to the bill drafting unit of the Legislature. Dr. Mandell is hopeful but not optimistic that the funds will be in the Governor's budget. He is also working to encourage a member of the Senate to introduce a similar bill. The pre-planning project work has established an excellent foundation and prepared the Council and the NC OneMap team to implement the recommendations in the event that the funds are appropriated.

In the event that the funds are not appropriated, the efforts to date have laid the groundwork for future budget requests by educating the Legislature about the needs and the value of NC OneMap and statewide geospatial coordination. Dr. Mandell emphasized that in the event funding is not forthcoming this budget year, the GICC cannot sit still. The requirements document provides a roadmap for proceeding on our own to make enhancements and improvements based on the priorities set forth in the pre-planning report.

Changes are being made right now, with support of the statewide orthoimagery project, and other improvements have already been implemented by CGIA staff.

The third part of Dr. Mandell's presentation to the oversight committee was a plan for generating funds independent of annual appropriations to support CGIA and NC OneMap. Unfortunately, the proposal to increase fees through the Register of Deeds program was not well received. However the point that a steady stream of funding support is necessary was well received. Dr. Mandell encouraged Council members to promote the needs for stable funding base for this resource.

*Priority #2: NC OneMap Implementation*

(see NC OneMap implementation file at GICC website - <http://ncgicc.net/Meetings/tabid/138/Default.aspx>)

Tim Johnson introduced David Giordano from CGIA to describe recent enhancements to NC OneMap. Updates were made to the Natural Heritage Element Occurrences and the Significant Natural Heritage areas data sets.

Several new features have been added. These include an NC OneMap blog to which users can subscribe through a RSS feed; some social media aspects; and a map service search. The new search capability was identified as one of the primary shortcomings of NC OneMap in the focus group sessions during the pre-planning project.

Mr. Giordano demonstrated how to link to the NC OneMap blog and how to subscribe to it through a RSS feed. Users are able to share and bookmark blogs through social media sites and to post comments and questions to the NC OneMap blog.

Mr. Giordano demonstrated the old web service search, describing it as from the “Stone Age”. It was a manually updated web page with an alphabetical list of web services and provided no key word search. He reported that it has been enhanced considerably. Users can now click on a ‘Catalog’ link on the home page to open the new map service search page. The tool includes a key word search tool. He demonstrated an example for Buncombe County in the key word search. All Buncombe County layers are displayed. He then clicked on tax parcels and the tool displays the web service information that allows the user to display the data in their desktop GIS. A user can also quickly preview the data to determine if the data set is what the user is looking for. Mr. Giordano reported that the NC OneMap team would continue over the coming spring and summer to implement new features set forth in the requirements document.

*Priority #3: National Geospatial Platform*

(see Geospatial Platform letter at GICC website - <http://ncgicc.net/Meetings/tabid/138/Default.aspx>)

Dr. Mandell reminded the members that the November meeting included a short presentation on the National Geospatial Platform. The GICC was invited to comment on the roadmap for the National Geospatial Platform. He encouraged members to submit comments if they have not done so. Resources at the federal level can be of great support to North Carolina’s efforts, in part because the concept behind the National Geospatial Platform is similar to North Carolina’s initiatives.

The GICC submitted a formal letter of comment to the Department of the Interior. While the national and North Carolina efforts are similar, there were some areas where staff thought that improvements could be made. Dr. Mandell invited Tim Johnson to discuss the comments. Mr. Johnson said that the response tried to elaborate on what NC is doing with NC OneMap and how the Geospatial Platform compliments that or in some cases may not. The Geospatial Platform roadmap says that requirements for federal agencies will be developed. The North Carolina response makes the point that these may not be the set of requirements that the North Carolina GIS users see as important. A second concern is that the Geospatial Platform roadmap describes four possible funding sources, one of which is “income from customer services.” Making data free of charge is something that the GICC and North Carolina feels is very important. North

Carolina would be reluctant to reverse the current policy of free access to data. Mr. Johnson said that North Carolina is doing many things that are consistent with the National Geospatial Platform and the state needs to continue down the current path. Dr. Mandell noted that the roadmap did not promise any funds to the states.

Presentation: "GIS Mapping and Broadband – A Baseline for Progress in Broadband Deployment in NC"

(see pdf file at GICC website - <http://ncgicc.net/Meetings/tabid/138/Default.aspx>)

Dr. Mandell introduced Jane Patterson, Executive Director of the e-NC Authority and former chair of the GICC. Ms. Patterson said that she was involved in the efforts to establish GIS in North Carolina, working with Karen Siderelis, former CGIA Director, in 1977. She referred to three handouts: an overview of the e-NC Authority; a description of the newly-launched broadband map; and a map depicting the NC broadband recovery projects.

The e-NC Authority was established by the NC legislature and was the first one established in the country. The e-NC Authority operates out of the NC Rural Economic Development Center but reports to a Board created by the legislature and not to the Rural Center. Only about a third of their operating budget comes from the legislature; the rest comes from federal and private sources. Ms. Patterson said that she is very proud of the fact that the e-NC Authority laid the groundwork for the national broadband plan for working with the private sector, which adopted the rules that were developed in North Carolina.

She noted several activities of e-NC. A major activity was the creation the first map of broadband availability in 2001. When the national broadband plan was adopted, e-NC began mapping according to its guidelines. In the past e-NC mapped according to the percentages of the counties that were actually covered. The national plan involves mapping in a different fashion using GIS. The e-NC switched to this system, which created a problem in terms of tracking progress. In addition, after the first year using the new system, the National Telecommunications and Information Administration (NTIA) adopted a Geodatabase format and e-NC had to switch again, creating additional challenges in terms of developing the best ways to represent the coverage in North Carolina.

Data is now stored in a secure, off-site Geodatabase. The e-NC worked with five universities to determine the best way to map the state. Data is first pulled from providers. The e-NC then worked with predictive GIS modelers and sociologists to identify the 19 counties that best represent North Carolina. Information from direct phone surveys to citizens and a statewide survey were used to attempt to verify the data provided by the providers. Finally, e-NC worked with UNC Greensboro to conduct a population study of the state. These efforts helped determine the best ways to map the broadband availability in the state. The results are available in case someone at the federal level wants to assess the techniques used by states for mapping broadband availability.

On February 17, the NTIA and the Federal Communications Commission (FCC) will release the new national map. North Carolina turned in its data in October 2010. Ms. Patterson noted that it will be interesting to see if the national map reflects the data North Carolina submitted. Some states will not display their data at the state level and simply rely on the national map. However, North Carolina intends to display its current state map, using the data as of June 2010 that was

submitted for the national map, based on 113 identified providers and 56 participating providers. The next update will be in the spring of 2011 with data current as of December 2010.

Ms. Patterson said that the effort of coordinating nationally has been very challenging, despite North Carolina's head start. North Carolina was one of 10 states that had done any mapping before the national effort got underway. The e-NC has received an additional \$6.6M to continue the program for the next four years, to support not only the mapping but other programs. One is a technical assistance program to work with and help counties with broadband planning. There is also funding to support the federal Lifeline program that help citizens that are eligible for food stamps or subsidized telephone service. Over 700,000 households are in this category. The e-NC will conduct a study over the next year and will work with 270 families in three counties to identify the best and most cost effective ways to morph the federal Lifeline program from phone subsidies to broadband subsidies. This will enable low income families to have access to e-learning portals; health care and job information through the Internet.

Ms. Patterson reported on a major survey involving over 7,500 businesses and households. More than 31% of households are operating a small business out of their home. Another 10-12% plan to start a small business out of their home. Working with a federal program, e-NC will work to help citizens that are operating a small business out of their homes to gain revenue through improved productivity and other benefits using the Internet. Research indicates that small businesses can save an average of \$7,000 by having access to the Internet.

Ms. Patterson introduced Samantha Jackson to describe the map. Ms. Jackson displayed a color shaded map showing the source of broadband connectivity, including cable, wireless and fiber. The primary contractor for the project was Michael Baker Jr., Inc., which was also the federal contractor. Data was provided by participating broadband providers and other sources were used to verify the data. Data collection and mapping was conducted by e-NC under the requirements of the NTIA.

Broadband data will be collected and submitted to NTIA and FCC for incorporation into the National Broadband Map every six months – April 1 and October 1. The project runs from October 2009 through October 2014.

It is important to emphasize that the data reflects information from the providers and covers the users they currently serve and those they could serve within 7-10 business days. The data are submitted by census blocks and, for census blocks greater than two square miles, by address points or street segments. Currently the NC map includes 864,450 records – 65 by wireless availability polygon; 298,162 by address; 181,023 by street segment; and 380,530 by census block.

For data submitted as address points, the map aggregates the address points into street segments. Specific addresses cannot be mapped due to non-disclosure agreements with providers. The map is searchable by address but the accuracy and level of detail depends on whether the underlying data was submitted by census block, street segment or address level.

Ms. Jackson said that the program is off to a great start but noted that it is still in the beta stage and remains a work in progress. The e-NC is continuing to work on procedures to verify the data. The map is available at [www.e-ncbroadband.org](http://www.e-ncbroadband.org). Users can:

- View broadband availability by technology type or any combination thereof;
- Identify un-served areas at a glance;
- Query information on available providers, technology types, and maximum advertized upload and download speeds at any given location;
- Search and zoom to address, for viewing availability at a given home, business, or other location;
- Search and zoom to specific area boundaries;
- View Anchor Institutions by category (Libraries and Schools, with more to be added);
- Search Anchor Institutions (not all are available) by category or area boundary including: county, municipality, or ZIP;
- Print map views to PDF using “PDF Report” buttons;
- Provide feedback to e-NC about the map; and
- Draw “redlining” graphics on the map and save to a file.

Ms. Jackson described the next steps. The e-NC will work to refine the process and develop more streamlined process for updating the data. The e-NC will work with NTIA and other states on methods to quantify the data. Over the next seven weeks, e-NC staff will travel around the state and conduct outreach to citizens and stakeholder groups to offer the map as resource, receive feedback, and apply data to projects supporting broadband access.

The e-NC plans to streamline the interface for optimal usability by users with different Internet browsers. Additional critical anchor institutions (hospitals, government buildings, etc.) will be added. The e-NC is working on an advanced page with more in-depth layers and functions for users that are more comfortable using GIS.

A provider log-in will be added to support exclusive viewing of service areas. Providers will then be able identify errors and submit corrections. Another goal is the development of non-confidential map layers that can be downloaded upon request. Currently, this capability is not available because the data are confidential and would have to be aggregated manually to enable this functionality.

The e-NC is now preparing for spring 2011 data collection and continues to work on improving the data submission protocols to make the process as seamless as possible for participating providers.

Finally, e-NC will partner with CGIA to improve the North Carolina master address file. This will be a one-time statewide update of address data, implementing tools and techniques to make integration of addresses more feasible. While not a recurring process, the project will hopefully develop solutions to make regular updates more practical. Ms. Patterson asked Tim Johnson to elaborate on this plan.

Mr. Johnson said that CGIA collaborated with Ms. Patterson and e-NC on a proposal to update the master address file. He reminded the Council that a master address file was created a couple of years ago using one-time funding from the General Assembly. The new project will start in July and will take place over the next couple of years. Ms. Patterson reported that the grant is in the amount of over \$300,000 and will be a big help in solving this problem.

Ms. Patterson referred the Council members to the map of NC broadband recovery projects, which depicts Broadband Recovery Awards. The e-NC worked with the Governor's Office of Economic Recovery to encourage North Carolina applications for the 7.2 billion dollars that was available from federal funding for broadband access. The funds support rural utility service and the NTIA and include \$350M for the mapping project. Ms. Patterson noted how incredible this amount of money is considering how North Carolina has had to scarp around for money for GIS.

The e-NC worked with telephone and electric co-ops, wireless, cable and fiber companies and other private sector companies to acquire funds to support projects covering 'last-mile,' comprehensive community infrastructure, public computing; and sustainable broadband. The map depicting the different projects represents about \$250M worth of projects across North Carolina to deploy broadband.

Grants in the amount of \$3.5M to \$4M will support public computing projects for Winston Net, Fayetteville State University, Mitchell County historic courthouse and the Olive Hill Community Economic Development Corporation. Sustainable Broadband Adoption projects were funded through One Economy Corporation and the NC Central University School of Law, which is working with various law schools across the state.

MCNC received funds to support deployment of middle-mile infrastructure that goes across 69 counties. The City of Charlotte also received an award of about \$19M to ensure connections in support of public safety and may provide connections to public residents.

The last-mile projects involve the deployment by telephone companies of fiber to homes. The electric co-ops are overbuilding their electric lines with fiber. They are providing broadband over power lines but putting more fiber on the lines to support access. Finally a very small project by Utopia Wireless Corporation in Columbus County on the border with Brunswick and New Hanover counties is deploying access.

Ms. Patterson said that the telephone and electric co-ops traditionally expect a payback from investment in 3-5 years. Without the assistance of the funds from these projects, the payback for deploying fiber to rural homes would not occur until almost 50 years. By helping these co-ops and companies, they were able to get 75% grants and 25% loans, reducing the payback to a 20-year time frame. The citizens in these co-ops recognized how important fiber to the home is to rural North Carolina and were willing to accept an extended payback time. North Carolina, along with California, Texas and Kentucky, were able to get the most funds of any states in the country. The e-NC database was invaluable to show the connection points.

Ms. Patterson acknowledged the assistance and support of Jerry Fralick and the Office of Information Technology Services. She expressed excitement about the development of the broadband map and the 860,000 plus records that it represents. Fifty-six of the 113 providers provided data but the data covers about 98% of the land area of the state. The other providers are very, very small. She reported that e-NC is making a concerted effort to reach out the providers that have not submitted data and noted that there is a requirement by the federal government that they provide the data.

John Hice noted that North Carolina Broadband is the number three site on a Google query and asked if there is a way to leverage that visibility to encourage the providers to provide

information. Ms. Patterson said that she receives many calls citing how close broadband access is to their homes but that the company will not complete that last quarter mile. Ms. Patterson enters into direct negotiations with the companies to identify the barriers to making connections to consumers that are willing to pay the monthly access fees. Many of these are resolved by working with the companies.

She anticipates increased opportunities for access by schools and non-profits and said that e-NC works with organizations to achieve results. She cited the example of a \$12M grant by the FCC for a health network. The e-NC helped the grant recipient create the NC Tele-Health network, which is now operational with links to free clinics and public health sites in the state. This project was accomplished in co-operation with ITS. The 104 non-profit hospitals in North Carolina will soon join that network. The e-NC works as a catalyst to encourage these types of projects but once they are operational, e-NC steps out of the project.

She also cited the NC e-learning network and reported that 75,000 students are now using this resource. The North Carolina virtual high school is second only to Florida and savings are remarkable.

Finally, she noted that e-NC is trying to mesh and incorporate GIS technology to support all of their efforts and emphasizes the value of GIS to support decision making.

2010 Statewide Orthophotography Project, NC 911 Board  
(see file at GICC website - <http://ncgicc.net/Meetings/tabid/138/Default.aspx>)

Mr. Johnson reported that 13 months ago the project team convened and was given the challenge of providing orthoimagery for the state through a grant that the City of Durham received from the NC 911 Board. CGIA has been working closely together as a team with John Dorman and the staff at the Geospatial and Technology Management Office (GTM), Gary Thompson at NC Geodetic Survey, Tom Morgan with the Secretary of State's Office, Keith Johnston at DOT, Dan Madding at DAG&CS and others overseeing the effort. The goal was to fly the state and produce the imagery by early 2011 and it is now early 2011.

The team has made great progress since the status report at the November GICC meeting. Ground control, acquisition of exposures, aerial triangulation, image processing, and visual quality control are 100% complete. The team is still working hard on the field quality control. Imagery for 76 counties has been delivered to CGIA and the remaining 24 counties will be delivered by the end of this week. Mr. Johnson remarked that this is an incredible accomplishment in just 13 months.

He displayed the status maps. The ortho processing was completed in early December. The visual quality control, another key milestone, was completed in early January 2011. The aerial imagery field quality control, headed up by Gary Thompson's shop in NC Geodetic Survey in DENR, with the support of private contractors, canvasses the state. Finally, he displayed a map that shows the status of product verification, approval and distribution by county.

Mr. Johnson announced that the Durham County orthoimagery has been reviewed and approved. This is a momentous day as the Durham County will be delivered today, the first delivery. The second delivery will be made to Anson, Montgomery, Stanly and Union counties tomorrow. The



remaining counties will receive their data by the end of April. County 911 and county GIS contacts are invited to attend the scheduled meetings around the state.

Mr. Johnson said that he is very proud to announce that the data for Durham County are ready to be delivered. He introduced Tonya Pearce, Assistant Director, Durham Emergency Communications Center; Duane Therriault, Imagery Specialist and Marcus Bryant, GIS Administrator for Durham County. Hope Morgan, GTM, and Jeff Brown and Darrin Smith, CGIA, hand delivered a gift wrapped hard drive with the Durham County imagery to an enthusiastic round of applause from the Council members. Mr. Johnson invited Ms. Pearce to make some remarks.

Ms. Pearce thanked everyone in attendance and added special thanks to Jeff Brown; Zsolt Nagy, who is no longer with CGIA but played a big part in helping bring the project together; Hope Morgan; Gary Thompson; Tom Morgan and of course Duane Therriault and Marcus Bryant. She said that when she first raised the idea, people questioned if she had lost her mind and when she first spoke to the GICC about the proposal, the response was that it is a wonderful idea but that it would never happen. She noted that it is with great pleasure that she was able to go from 'have you lost your mind' to the project is almost done.

She thanked the NC 911 Board for having the vision to fund the grant when they were probably expecting proposals to represent a single county but not something of this scale. Ms. Pearce acknowledged Tim Johnson's leadership. She also said that two people deserved special recognition. Jeff Brown has done a huge amount of work on the project and has been a pleasure to work with, always pleasant and very professional. She noted that the project has been one of much drama, with contracts signed at the very last hour. The grant proposal was submitted with one minute left on the time stamp. The project came together in a very short time frame for such a huge project. The second person that Ms. Pearce recognized is Hope Morgan, under the leadership of John Dorman. Ms. Morgan had to deal with the contractors waiting for the contract to be signed and at the last minute, when the contract was signed, Ms. Morgan was able to get everyone going and get it done. She said that Mr. Brown and Ms. Morgan deserve a great deal of credit for making this all come together. She noted that John Dorman summed it up best in one of the recent meetings that the project is a great example of "good government", involving collaboration to serve everyone equally. She again thanked the NC 911 Board and everyone involved in the project.

Mr. Johnson continued his report by saying that the data will be delivered to all the counties before it is made available to the rest of the world. As noted earlier, the delivery will be done in regional meetings as there is not enough time to visit every individual county. At these meetings, the team will describe the products and answer any questions that arise. Mr. Johnson displayed maps of the delivery schedule and the distribution clusters. After making two deliveries this week, the team will skip next week because of the 2011 NC GIS Conference. The meetings are scattered around because of the need to complete the review and quality control for the counties in each cluster. The western part of the state will be at the end of the delivery cycle because it was the last area flown. Geographic analysis was used to define the distribution clusters based on available facilities and driving time. Delivery will be complete by the end of April, as scheduled.

After data delivery is complete, the imagery will be available on NC OneMap through map services for desktop and web applications and for download. The download function will permit

download of a dozen or so tiles at one time. Larger downloads will depend on performance measures. Metadata will be fully discoverable and searchable on NC OneMap. CGIA is currently completing the verification process by reviewing a percentage of the tiles as a final quality check before final delivery. The IT solution is currently being implemented. Servers are being delivered to the Office of Information Technology Services Eastern Data Center and are being configured to host the data. Loading the final data to the servers will start in March and run through May due to the volume of the data. After the meetings with counties are complete, the team will follow-up with the counties to respond to questions about the data. The final step will be the creation of a cache for the imagery and that will be available in June as a result of technical collaboration with Esri and will begin after the servers are operational. Mr. Johnson encouraged the Council members to contact Jeff Brown or Darrin Smith at CGIA with any questions about the project or the delivery schedule.

Mr. Johnson again thanked the project team and reiterated that the project has been a great example of how state government can work together to benefit not only the state but all of the private and public sector users of the data.

Dr. Mandell thanked Mr. Johnson and the team. He noted that the GICC will be working with the NC 911 Board and Richard Taylor to try to institutionalize the process on some sort of schedule. The project, even at this stage, has proved to be a tremendous success. It has demonstrated proof of concept that the community through a team effort can complete a statewide project to the extraordinary benefit of the state.

### Committee Reports

All Council committee representatives reported on their group's activities.

***Management and Operations Committee (M&O).*** Dr. Mandell said that the role of the M&O is to do the Council's business between Council meetings. The M&O addressed two items since the November GICC meeting. One is the addressing database update project with e-NC that was announced earlier. He indicated that the issue is important because he feels that the State's investment of \$1,000,000 should be of more value than simply supporting the census every ten years. The M&O reassessed the proposed DMV project that planned to collect address information from counties to support improved collection of vehicle taxes. Dr. Mandell indicated that the DMV project is on 'vacation' right now as the goals are being assessed. Dr. Mandell said that he and Mr. Johnson had the opportunity to talk to the consultants who were targeted to conduct the DMV project about how we can generate synergy between the DMV project and the Master Address Database that was compiled earlier.

One of the items that was not funded during the Master Address Database project was maintenance - how to maintain a steady stream of information to keep the database up-to-date. The DMV project could be the answer because the state and counties will be motivated to maintain the database to collect taxes. In the discussion it was suggested that the system include procedures that would enable the system to feed another database with information from the DMV database. Randy Barnes, CIO at DOT, informed Dr. Mandell this morning that the final set of recommendations from the DMV project consultants is due at the end of February. John Farley was also involved in the discussions and he confirmed that state agencies are spending considerable money on mailings. The return rate from incorrect addresses is very high and it is very expensive to find the correct addresses for the

returned mail. There is the potential for great savings if an up-to-date, statewide, master address database is available for all to use.

John Farley has volunteered to try to generate information from DOT's mailing on the return rates from incorrect addresses and the estimated savings that would accrue from a better database. The DMV project is again a one-time project. Dr. Mandell believes that the GICC is in a position to make a powerful argument, based on cost-benefit analysis, for maintaining a master address database for the state.

Dr. Mandell reported that the second item that arose at the M&O meetings was a formal governance structure for NC OneMap. Now that the pre-planning project has produced a set of requirements for NC OneMap, which Dr. Mandell noted is a key initiative of the GICC, there needs to be a bit more structure about how to make decisions and set priorities. The M&O is now working on a proposed governance structure for NC OneMap, recognizing that the 35-member GICC cannot participate in day-to-day decisions. Dr. Mandell promised to submit a proposal to the Council at the May meeting.

**ACTION #1** The M&O will prepare a proposal to establish a formal governance structure for NC OneMap.

***Local Government Committee (LGC).*** Julie Stamper reported that the LGC met on December 1. The LGC appointed Alice Wilson, GIS Coordinator for the City of New Bern, as one of the LGC representatives to the SMAC.

The Council tasked the LGC with reviewing the WGSP schema. Alex Rickard, LGC member and co-chair of Working Group of Roads and Transportation (WGRT), briefed the LGC on the activities of the WGRT and the Working Group for Seamless Parcels (WGSP) and the proposed schema. The LGC solicited and received numerous comments on the schema from the members and the LGC's A Team. Those comments were submitted to Tom Morgan and Pam Carver, co-chairs of the WGSP.

***Federal Interagency Committee (FIC).*** Drew Pilant represented the FIC in place of Dr. Linda Rimer, who sends her regrets. She was called to an EPA meeting in Atlanta. He reported that the FIC will sponsor a lunch meeting at the NC GIS Conference next week to inform the federal community about the role of the FIC and to bring them up-to-date on the activities of the FIC and the GICC.

Dr. Pilant reported the FIC announced the National Geospatial Platform feedback mechanism over the new FIC list serv. The next FIC meeting will be at the National Climatic Data Center in Asheville on April 28.

Finally, he referred the Council members to the National Enhanced Elevation Assessment flyer, provided by Steve Strader, USGS liaison to North Carolina. USGS is seeking information and input on the plans to build a business case for a national elevation program that might include LiDAR, IFSAR and radar data – high resolution data. He reported that Mr. Strader expects that USGS will release a survey to get comments on the plan, and that members of the GICC and its committees will be asked to complete the survey.

Dr. Mandell asked if John Dorman has thoughts on a National Elevation Dataset. Mr. Dorman said that in 2009 GTM and FEMA contributed to a study that included USGS that was conducted as part of a Department of Homeland Security bill. All of the states felt that doing a base acquisition nationally at a certain elevation and then offering a buy-up to states and other entities for higher resolution elevation is a great idea. Funding is not currently available but Mr. Dorman believes that it is a good program. North Carolina needs elevation data. The question of maintenance and how they roll out the program across the nation will be challenging.

Given the National Geospatial Program and this proposed program, Dr. Mandell asked if a national approach, not just for setting standards, but for building data is a new direction. Dr. Pilant said it would seem so. Mr. Johnson noted that the Imagery for the Nation project is another example and that North Carolina contributed to that effort through the local imagery collected in North Carolina. He also cited a national transportation effort. Doug Newcomb, US Fish & Wildlife Service (in the audience), reported that US FWS completed a preliminary survey for federal users on the elevation plan. Dr. Pilant said that EPA also completed a preliminary survey, which he noted was very thorough. Dan Madding noted that for floodplain mapping and the threat of sea level rise, elevation data is very valuable. Mr. Dorman said that economies of scale at a national level will allow the nation to do more with less.

***Statewide Mapping Advisory Committee (SMAC).*** Anne Payne, chair of the SMAC, reported that the Committee met on January 9. She thanked the LGC for appointing Alice Wilson, City of New Bern, as one of the LGC representatives to the SMAC and opined that Ms. Wilson will be a wonderful addition to the SMAC. The SMAC meeting included GICC and M&O updates from Mr. Johnson and regular reports from the SGUC, LGC and FIC as well as reports on NC OneMap, Floodplain Mapping and the statewide orthoimagery project.

**Working Group for Orthophotography Planning.** Gary Thompson reported on the activities of the Working Group for Orthophotography Planning (WGOP), which is working on three issues. One is the validation range that NC Geodetic Survey established to support the statewide orthoimagery project. USGS would like to establish validation ranges across the country and is very interested in seeing the North Carolina range. A meeting planned in December was postponed due to weather and will be rescheduled in February. USGS will visit the site and, if satisfied, may incorporate it into the national network. It will be one of two on the east coast.

The second item is an issue that was recently brought to the attention of NC Geodetic Survey involving the potential interference with the use of Global Positioning Systems (GPS). A company called LightSquared has requested a waiver from the FCC to take the radio spectrum used for satellite communication and use it from a ground based transmitter to develop a nationwide broadband wireless network. The problem is that GPS broadcasts on this spectrum and is very low powered. The concern is that high powered earth based transmitters may override the GPS signal. The bigger concern is that the company asked FCC to fast track the application, which means that it did not go through the normal review process to assess impacts. The application was just approved in January although the FCC did impose some restrictions. The company was given 90 days to conduct tests to determine if there are interference issues with their transmissions. NC Geodetic Survey will track this issue to determine if this does cause interference with GPS on the ground, which would be a major problem.

The final WGOP issue is the effort to prepare a color infrared issue paper. Keith Johnston, DOT, Hope Morgan, GTM and Tom Morgan, Secretary of State's Office are working on the paper and are in attendance today. Mr. Thompson invited them to provide an overview of color infrared imagery. (see CIR overview pdf file at GICC website - <http://ncgicc.net/Meetings/tabid/138/Default.aspx>)

Mr. Johnston said that CIR is the acronym for color infrared. The land cover absorbs part of the electromagnetic spectrum and part is reflected. That part of the wave length energy in the magnetic spectrum that is reflected can be recorded by a sensor, digital camera or multispectral scanner. The analysis of that wave length energy collected by the sensor can be used to classify land cover. The initial expectation was that this would be a panacea for classifying land cover and that it could be accomplished almost automatically. This has turned out not to be true. It remains a complicated problem.

Mr. Johnston displayed a graph showing the electromagnetic spectrum. Blue/green/red spectral wavelengths are visible light that the human eye can detect. The wave lengths for these channels range from .4 to .7 micrometers. A micrometer is a millionth of a meter. The Near Infrared (NIR) is just beyond the red visible wavelength, but remote sensors record that energy. The NIR and the blue/green/red wave lengths make up the color infrared. Digital sensors on the airplane now permit the collection of all four of these bands. The CIR is used for many natural resource applications because the vegetation/chlorophyll has high reflectivity in the NIR wavelength.

Mr. Johnston explained that the data is collected concurrently with color imagery using digital sensors on either aircraft or satellite platforms. Using digital sensors rather than film, the CIR can be collected at the same time as the color imagery. Using film, collection of the NIR requires a separate flight. He noted that CIR was developed during WWII as a way to distinguish camouflaged tanks from normal vegetation.

Hope Morgan continued the presentation and showed color and CIR images side by side, noting that the images came from various sources, credited in the slide show. Ms. Morgan discussed the benefits of CIR imagery. First and foremost CIR is used for analysis of vegetation for various purposes including classification of the area, type and health of vegetation and wetlands mapping. In addition it supports damage assessment and classification of non-vegetated surfaces and impervious surfaces. Classification of impervious surfaces is important for determining the amount of water runoff. She displayed a series of slide showing how CIR is used to classify forested areas, vegetation types and vegetation health. The different reflectance values or signatures indicate different types of vegetation or land cover. Typically when doing land cover classifications, the analyst uses the CIR imagery in conjunction with other data. Intensity of chlorophyll is a health indicator. CIR is used to map wetlands, including vegetation in the water. Aquaculture uses CIR imagery to assess the health of vegetation in the water.

Ms. Morgan displayed an image showing the damage from a fire. Another example of damage assessment could be the effect of insect infestation on trees or crops. A final slide demonstrated the use of CIR imagery to distinguish built features such as roads, rooftops, and parking lots. Determining the percentage of area that is not vegetated is one of the most common uses of CIR imagery. This information supports the analysis of water runoff for stormwater management and floodplain mapping, including the number of structures that can be built in a floodplain.

Tom Morgan continued the presentation and credited Anne Payne for providing information on how local governments use CIR. Wake County participated in the buy-up of CIR imagery from the imagery collected during the statewide orthoimagery project. They are the only county to date that has acquired the CIR. Wake County will use the data for impervious surface extraction; tree canopy mapping; and land cover classification of tree cover (coniferous/deciduous), impervious surfaces, grass, bare ground and water. There are other uses but these are the most prevalent.

Dr. Pilant asked where the imagery is coming from. Mr. Morgan replied that the imagery is from the statewide orthoimagery project. Wake County initiated a buy-up at the beginning of the project to acquire the CIR imagery.

Mr. Madding noted that in 2009 the National Agriculture Imagery Program, with funding support from the Department of Environment and Natural Resources, collected leaf-on CIR statewide at one-meter resolution. The data is available through a web map service from NC OneMap and can be streamed into ArcMap or other tools. Mr. Morgan noted that the imagery from the statewide program is leaf-off.

Dr. Mandell asked for an authoritative answer regarding CIR on what is still available and the disposition of the raw data and how long it will be kept. Ms. Payne noted that the WGOP has prepared an issue paper on this but that it has not been finalized and distributed as yet. Mr. Dorman reported that the raw CIR data that was processed to exploitation files, not to final CIR imagery, is still available from the contractors. The contractors collected the fourth band even though it was not a deliverable from the statewide orthoimagery project. As with the example of Wake County, other counties or organizations can still acquire the data through June 2011. After that there are no promises because the CIR imagery was not a deliverable. Mr. Dorman expects that the contractors will retain the raw data in anticipation of future business opportunities but the data would have to be processed to recreate the exploitation file needed to create the CIR imagery.

Dr. Mandell said that his understanding is that the contractors may retain the raw data for five years. Therefore there is a long window of opportunity for creating CIR imagery from the raw data but a short window of opportunity for creating the CIR imagery from the exploitation files, which would be somewhat less expensive. Dr. Mandell said that staff need to distribute this information. Mr. Johnson reported that a fact sheet on the access to the CIR imagery is almost finalized and will be distributed in the near future, through list serv announcements and on the orthoimagery project web page.

Ms. Stamper suggested that the orthoimagery project team include that paper and information when they deliver the data to the counties at the meetings scheduled around the state. All agreed that this is a great idea.

**ACTION #2** Staff will distribute information on the availability of the CIR data through list serv announcements, the orthoimagery project web site and at the meetings at which the orthoimagery will be delivered.

Ms. Morgan reported that there are five technical issue papers that GTM and the orthoimagery project team have prepared to document and describe the project activities. Two are still being finalized. She said that they will be provided to the Council. Dr. Mandell applauded this work but wants to raise the profile on the CIR issue because the economic opportunity here is of short duration.

**ACTION #3** GTM and the orthoimagery project team will finalize the five technical papers and provide them to the staff for distribution to the Council members and on the web site.

John Dorman confirmed that the discussions must be with the contractors and that these discussions are outside the role of any of the state government agencies, as Wake County did.

Secretary Elaine Marshall noted that the Land Records Management Office is a section of the Secretary of State's Office and wanted the record to reflect that fact.

Working Group for Seamless Parcels. Mr. Morgan, co-chair of the WGSP, reported for both the WGSP and the WGRP in the absence of Alex Rickard. The working groups are in the process of gathering parcel and roads data from the 25 counties that volunteered to be part of the pilot group. The working group members will review the data to verify that the proposed schema is reasonable. The data will then be delivered to the EPA contractor to use as test data in the development of the translation tool. Mr. Morgan acknowledged the receipt of the comments on the schema from the LGC and included a summary of the comments and the working groups' response to the comments in the members' packet.

Regarding the collaboration with EPA, the technical and functional requirements, the statement of work and the independent government cost estimate have passed the technical review of EPA staff. A technical meeting with the EPA project team is to be scheduled later this week. The EPA contractor will be asked to provide a detailed cost estimate and a proposed work plan by the end of February. Mr. Morgan was pleased to report that finally things are beginning to happen.

Ms. Payne continued the SMAC report. The SMAC received a presentation from James Armstrong, who chairs the subcommittee that is reviewing the water / sewer utility standard, reporting on the progress to date. The report generated considerable discussion and the SMAC will continue to work on a revised standard to bring to the GICC.

The United States Thoroughfare, Landmark and Postal Address Data Standard, better known as the Addressing standard will be voted on by the Federal Geographic Data Committee today. Once it is adopted, the SMAC will consider whether to propose that the GICC endorse it as a North Carolina standard.

***State Government GIS Users Committee (SGUC).*** Dianne Enright reported on behalf of John Farley, chair of the SGUC. The State GIS User Committee held a general meeting on February 3. The meeting was held at a new venue at the DOT/GIS offices on Capital Blvd with a web conferencing setup. There were some technical difficulties with it but those will be worked out for future meetings. The group shared information on projects and initiatives, including a review of the GICC structure (subcommittees and working groups); the orthoimagery project; new map services for the National Agriculture Imagery Program (NAIP); geospatial archiving (GeoMAPP); the NCDOT spatial data viewer and the development of a base map service (enhancing Esri services); and data sharing (NC OneMap).

The SGUC work plan is ready for review and adoption at the next Executive Committee meeting on February 22.

SGUC members are looking forward to attending the NC GIS Conference next week.

***Technical Advisory Committee (TAC).*** The TAC met in November. The TAC will be working on the NC OneMap revitalization project requirements, focusing on tasks that can be completed without new funds. In addition, the TAC will finalize its work plan.

#### Council Member Announcements and News: Opportunities and Activities in 2011

Mary Penny Thompson reported that the Department of Environment and Natural Resources is focusing on land cover change, streams, smart growth, climate change, and hydrologic units. She noted that consistency is important and that users throughout DENR need to use the same hydrologic units data layer.

Dr. Pilant reported that EPA continues research on Sustainable Communities, Waters and Ecosystem Services in the Albemarle-Pamlico Watershed and Estuary. For more information visit <http://www.epa.gov/ecology/>. He also reported that the new 2006 National Land Cover Data (NLCD) was released, adding to the 1992 and 2001 data sets which map land cover for the nation at 30-meter pixel resolution. For more information see <http://www.mrlc.gov/>.

Mr. Morgan reported that the Secretary of State's Office is working as the liaison with the Census Bureau on the Boundary and Annexation Survey (BAS), through which counties and municipalities report changes to jurisdictional boundaries. It is critical to submit accurate jurisdictional boundaries to the Census Bureau as they affect accurate affects voting, taxes, and law enforcement. The Secretary of State's Office will serve as the catalyst to ensure that local jurisdictions complete the BAS surveys.

Mr. Newcomb, US Fish and Wildlife Service, announced that he used the statewide 60-foot tree canopy height layer, which he created earlier, as a base to create 12 raster layers of potential solar energy in watt-hours/square meter/day for the state of North Carolina. Using this method incorporates the effect of shading from the height of trees and other structures on the landscape. The layers represent one per day for the first day of every month. US FWS intends to use this data in conjunction with the canopy height data to characterize in-stream temperature impacts from shading over streams on mussels and other sensitive species. This data has already been provided to the NC Solar group at NCSU and to NCDENR. US FWS will continue this work, processing data for every day of the year and aggregating it by month, to create 12 monthly summation layers of potential solar energy.

Mr. Madding reported that the Department of Agriculture and Consumer Services (DAG&CS) is working with the USDA Natural Resources Conservation Service to improve statewide soils layer to include soil productivity information. The estimate will enable users to estimate yields for a given crop such as corn or long leaf pine.

Mr. Dorman reported that in 2009 the General Assembly designated the NC Division of Emergency Management as the lead agency for risk assessment. GTM is modeling sea level rise in Outer Banks. GTM is also creating a building footprint data set that now includes more than 5.1 million buildings. The effort targets buildings greater than 800 square feet. Once counties have conducted a quality control review of the data, GTM will release the data to NC OneMap.



GTM plans to create an iRisk website so citizens can view risk factors around their property in quantifiable measures.

Bill Gilmore reported that the Ecosystem Enhancement Program (EEP) is rolling out a new portal and a major feature will be related to GIS mapping and information sharing. This is a high priority action item. The program has a database that tracks EEP mitigation sites and includes a crude geospatial location and a clickable map. The new portal and GIS mapping uses a Google maps platform and has direct linkages to EEP sites in term of quantities, monitoring reports, contact persons, stage of development, investments and construction plans. Future plans are to link mitigation sites to regulatory permits geospatially and permits to mitigation sites geospatially and portray this using GIS, but these goals remain a work in progress. The site will be rolled out in phases and updated and enhanced in stages.

Mr. Gilmore stated that the program is designed to meet EEP's regulatory obligations using a platform that is available to all. Dr. Mandell commented that such a mapping system has potentially important potential policy implications. Mr. Gilmore hopes to demonstrate the portal to the GICC at a future meeting.

Ms. Enright announced that the Department of Health and Human Services is developing a spatial data set of private water wells in NC, either new construction or those that have requested water testing. The data will be used to support analyses on health outcomes. The data set is expected to be complete in 2011.

Jerry Fralick commended the agencies on their activities. He suggested that the GICC needs to promote these activities more widely and get the messages out to citizens, legislators and other decision-makers and not just the GIS community.

**ACTION #4** Staff will develop a plan for disseminating information on activities by members of the statewide GIS community.

Mr. Madding added that DAG&CS would like to see statewide, up-to-date land cover developed at three-meter resolution. The purpose is to assess land cover change and to measure the loss of agricultural land. Dr. Pilant asked if he could use the 2006 National Land Cover Database. Mr. Madding replied that DAG&CS really needs data at a higher resolution than 30-meters.

### 2011 NC GIS Conference

Mr. Johnson referenced the "Conference at a Glance" handout in the packet and noted that the conference will be held on February 17-18 at the Raleigh Convention Center. Based on pre-registrations, the turnout is expected to be over 700 participants this year. Many interesting sessions are included among the eight tracks. The Herb Stout Awards will be given to local governments including a city/town, a county, and a regional or local/regional authority.

### **ADJOURNMENT**

There being no other business, the meeting was adjourned. The next meeting will be May 11, 2011 from 1:00-3:00 pm at the Department of Public Instruction Board Room, Room 755, 301 N. Wilmington Street, Raleigh.

PowerPoint presentations and reports are on the Council Web site: [www.ncgicc.org](http://www.ncgicc.org) . Click on “Meetings.” Presentations and documents presented during the meeting are available in a Zip file for easy download.