North Carolina
Geographic Information Coordinating Council

Minutes
August 10, 2011

PRESENT

Chair, Dr. Lee Mandell. Members: Bob Brinson (Vice Chair), Jay Bissett, Michael Brown (for David Hoyle), John Cox (for Moses Carey), Hugh Devine, John Dorman (for Reuben Young), Ryan Draughn, Dianne Enright (for Lanier Cansler), John Farley, Jerry Fralick, Ben Matthews (for Derek Graham), Bliss Kite, Chris Koltyk, Steve Kornegay (for Saundra Williams), Kelly Laughton, Dan Madding, Tom Morgan (for Elaine Marshall), Anne Payne, Alex Rankin, Linda Rimer, Allan Sandoval, Colleen Sharpe, Julie Stamper, Richard Taylor, 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 May 11, 2011 meeting were approved with no changes.

Dr. Mandell reported many changes to the Council's membership. He welcomed two new members. Alex Rankin is the President of CESI, a civil engineering firm in Concord that provides GIS and GPS services. Mr. Rankin was appointed by the Governor at the recommendation of the North Carolina Society of Surveyors as a representative to enhance the efforts of geographic information coordination. Chris Koltyk is the GIS Director for Moore County and will represent county government at the recommendation of the Association of County Commissioners.

Dr. Mandell noted that there are qualifications for membership on the GICC. Members have to represent some group or organization. The Governor reappointed six members. They are Bob Brinson, also as a representative to enhance the efforts of geographic information coordination; James Caldwell, to represent regional organizations; Anne Payne, who represents the general public; Dr. Linda Rimer, representing the federal government; Colleen Sharpe, who represents city government at the recommendation of the League of Municipalities; and Dr. Lee Mandell as chair. The term of the new appointments and the reappointed members is through May 31, 2014. The GICC is awaiting one more Governor's appointment, a representative of an at-large state agency. On behalf of the Senate, Senator Berger reappointed Richard Taylor, John Gillis and

Kelly Laughton. The Senate appointments are for one year. Finally, Julie Stamper was reelected chair of the Local Government Committee and represents the LGC on the GICC. Dr. Mandell congratulated and welcomed the new and reappointed members.

Status and Discussion of Priorities Before the Council

Priority #1: NC OneMap Implementation
(see NC OneMap implementation file at GICC website - http://ncgicc.net/Meetings/tabid/138/Default.aspx)

Tim Johnson reported that since the last Council meeting, staff have continued to make progress on NC OneMap and specifically the Geospatial Portal. He introduced Brett Spivey, the NC OneMap Applications Developer. Mr. Spivey recalled that one of the main themes that came out of the pre-planning project is that users wanted improved access to geospatial data with a more intuitive interface to the data and faster response time. The response has been the implementation of an online application called the Geospatial Portal, which was operational on schedule at the end of June.

The second goal that was described at the May Council meeting was to provide access to the 2010 statewide orthoimagery. This has been accomplished in a couple of ways. One is through an online web service know as an image service whereby users can access the data through a browser or an online application and avoid having to download the data. The second capability is to offer a download service for users than need the data in-house. Both of these tasks were successfully completed.

The current 90-day task list includes a number of items. The migration of the vector data on CGIA servers to the NC OneMap Geospatial Portal is complete. These data sets were previously available for download from NC OneMap. Now they are accessible through the Geospatial Portal as web services and for download. The Geospatial Portal provides a variety of intuitive methods for discovering data. The NC OneMap team is currently working to consolidate the 65 existing map services to about 25. The goal is to provide logical groupings of data. For example, railroads, roads and ferries will be combined into a single transportation service rather than three separate ones. This approach will also simplify the administration of the site.

Another task underway is to migrate historical imagery that had been collected through various programs over the years to the Geospatial Portal and to add these as image services. Upon completion, all of the imagery, including the 2010 imagery, will be combined into a master data set that will be served as an image service. The data will be time enabled so that users can do time change analysis using a slider bar.

Two additional tasks will begin soon. The first task is to integrate the NC OneMap "Service Checker" into the Geospatial Portal database. This will provide an automated method for checking the current status of web services from NC OneMap partners and will automatically generate an email to the steward that their service is experiencing issues. The second task is to develop the first iteration of a new NC OneMap viewer. Mr. Spivey said that the team will use the Agile Project Management process to accomplish this. Rather than working from a design document, the team will construct the viewer in a collaborative and iterative fashion so that when the project is complete, everyone will have had an opportunity to review the progress and provide input.

Next, Mr. Spivey provided data on usage statistics for a two-month period since the Geospatial Portal went live in June. The number of page views averaged between 5,000 and 10,000 per week with some unexplained spikes the first two weeks in July. He noted that the pattern of spikes over those two weeks apply to the other statistics. The Geospatial Portal website averaged about 30,000 hits a week. Data download was heavy as 224 GB of data were transferred, mostly though image zip files, of which 1,131 were delivered.

Mr. Spivey said that the team is making a concerted effort to encourage users to use the image service. Image services have become much easier to incorporate with the availability of various clients and online browsers. Image service hits averaged about 250,000 per week, again with big spikes, up to 750,000 hits, the first two weeks in July. He reported that users have been more than satisfied with the performance and the quality. He expressed hope that this trend will continue and that more and more people will use the image service rather than downloading data. Response time for displaying image pages is about 2 seconds, which is the target when the service was established.

A number of organizations have incorporated the image service into local applications. The Department of Transportation is using the NC OneMap image service to display imagery to approximately 500 internal users of DOT's Spatial Data Viewer. The NC Office of Historic Preservation is also using the image service in their data viewer. The team received good feedback from the City of Asheville and Cherokee County, both of which integrated the image service into their viewer applications within a couple of weeks of the release of the Geospatial Portal.

Mr. Spivey gave a live demonstration of the Geospatial Portal. He showed the key word search and noted that users can also search through Esri's ArcGIS.com. Yesterday the team released a series of 5 instructional videos that provide short but specific directions on using the Geospatial portal for data discovery, downloading data and the image service.

Mr. Spivey said that there are several different mechanisms to discover resources, which may include map and image services and geospatial tools in addition to downloadable data. Users can search by key word phrase or by content type and filter the search by date or by spatial extent. A viewer can also use a map viewer to define the search parameters. When the results of a search are displayed, the extent of the data are shown on the adjacent map and a user can hover over any of the data listings and view a brief description of the dataset; the full metadata and a short metadata record; preview data; and link to tools to access data. He demonstrated a search of the 2010 imagery, which displays through the image service in the area map. He then zoomed in several times to demonstrate the speed at which the images are redisplayed.

The results of a data search provide information on how to integrate the data into various clients, such as Google and ArcGIS; how to add the data to existing online viewers that a user may support; and even how to load an image into a PowerPoint.

Mr. Spivey demonstrated the download tool. The user simply defines a small area. He noted that that imagery download has size limitations because of the file size of raster data and bandwidth limitations. The limit is approximately the size of twenty 5,000' by 5,000' tiles. If the viewer draws a box that exceeds the size limitation, an error message will appear. The viewer will then

draw a smaller box. The server then processes the data, creates a zip file and automatically notifies the user by email when the data is ready for download. He again emphasized that using the image service is an effective way to get around the size limitations of the download function.

He noted that the feedback on the Geospatial Portal has been extremely positive so far. Information about data updates and new features are shared through the NC OneMap Blog. Users can subscribe to the Blog and to the Geospatial Portal through an RSS feed.

John Farley commended CGIA and the NC OneMap team for providing a tremendous product. DOT is using the image service, which has been successful, and performance has been outstanding, as good as what he had hoped if DOT had hosted it themselves.

Dr. Mandell noted two important factors. First, there was no money from the Legislature for the NC OneMap revitalization and the impressive work to date has been accomplished with in-house resources. Second, the results are a direct response to needs identified through the pre-planning project. He is very pleased with the results achieved under trying budget circumstances and expressed confidence that additional progress will be achieved.

Dr. Rimer asked if the Governor is aware of this progress. Mr. Fralick said that Governor Perdue receives good status reports but that the NC OneMap work is probably well down her list.

Priority #2: Legislative Agenda

Dr. Mandell reminded the members that there were originally two bills before the Legislature. One sought funding for the NC OneMap revitalization. That bill was withdrawn because there was zero chance of it being passed due to the budget situation. A second bill made changes in the GICC's enabling legislation, clarifying changes that have been made through previous budget bills and adding a couple of new members to the Council. This bill simply never came to the floor in the Appropriations Committee because attention was focused on the budget and other matters.

Dr. Mandell said the challenge is to keep these bills alive for the short session in 2012 so that the Council does not have to wait until the next long session for these bills to be considered. He expressed hope that in the short session the Legislature will at least consider the non-controversial bill that includes the proposed addition of the Executive Director of the NC 911 Board as a permanent Council member. He noted the value that Mr. Taylor brings to the Council, particularly given the important support by the NC 911 Board of the statewide orthoimagery projects. Currently Mr. Taylor serves a one-year term as a Senate appointment. Adding the NC 911 Executive Director as a permanent member will avoid the uncertainly inherent in annual legislative appointments.

Presentation: "Google Fusion Tables for Easy Web Mapping"
(see PPT file at GICC website - http://ncgicc.net/Meetings/tabid/138/Default.aspx)

Dr. Mandell introduced Colleen Kiley, GIS Specialist with the Ecosystem Enhancement Program (EEP) in the NC Department of Environment & Natural Resources (DENR), and John McNeirney, Web Integration Manager with DENR Information Technology Services. Ms. Kiley said that Bill Gilmore, former Director of EEP and former Council member, was very excited

about this project and wanted to show it off to the Council. Unfortunately, Mr. Gilmore retired before the project was ready to be presented.

Ms. Kiley began by providing background on the Ecosystem Enhancement program. EEP was established in 2003 and does stream, wetland and buffer mitigation for the state, supporting both public and private industry projects. EEP supports environmentally responsible economic development by focusing mitigation projects where greatest environmental returns will be realized. EEP does significant watershed planning to identity where to site mitigation efforts. Through their work, EEP supports green industry by outsourcing all work related to project design, construction and monitoring (~ $370 million in contract awards) through fair and competitive processes. EEP produces wetland, stream, buffer and nutrient (nitrogen and phosphorus) mitigation offsets for the Department of Transportation and industry.

She reported that EEP currently supports over 560 projects, 95% of which meet regulatory standards. The projects involve high levels of advanced mitigation, which means that the mitigation is in place and functioning before a new road or parking lot is paved so that there is no net loss of wetlands or streams. The program boasts consistently high rates of compliance with permit requirements.

Ms. Kiley acknowledged the program's growing pains. EEP started out as the DENR Wetlands Restoration Program. At that time DOT handled mitigation for its projects. In 1998 WRP had 4 projects, in 1999 11, then 19, building slowly. In 2003 WRP evolved into the EEP, which assumed the mitigation projects for DOT. That year EEP handled 194 projects, because it assumed projects from DOT and had to produce seven years worth of mitigation in one year to get ahead of DOT projected impacts with the goal of having projects in the ground and monitored before DOT even needs a permit. Today EEP manages more than 560 projects.

Tracking the projects and the spatial and tabular information associated with all these projects proved to be a big challenge. An Information Management System (IMS) was implemented in 2005-06 to store project information, program requests and requirements. The system also included a financial database to track contracts, revenues, and expenditures and a spatial database to track project locations, buffers and other spatial features.

EEP needs to share essentially all of this information – location, project progress, project size, documents, financial and contractual information and scientific data – with a variety of users, including contractors, regulators, monitoring firms, internal staff and the public.

To accomplish this, a new capability was needed, one that included a better mapping interface. Mr. Gilmore wanted a system that shows project sites, easements and watershed plans; shows project data; and has links to project documents. Mr. Gilmore emphasized that the tool should look like Google Maps so that viewers can see the location and size of project sites.

The initial effort was an ArcGIS server site, which involved a steep learning curve and many problems. There were communications issues between EEP professional staff and DENR IT specialists. Neither group had experience with the new Esri ArcGIS server software. Information and files were not centrally stored and often not digital. Digital files of construction drawings and easements that were available were not georeferenced. There was insufficient infrastructure to support the system and limited funding resources. When the initial system was implemented, it

was discovered that the data in the EEP IMS was not compatible with the DENR ITS servers and could not be displayed on the map. The outcome was a site that was less than satisfactory and very, very slow. In addition the system was a black box to EEP staff because the programming was done by a contractor. Finally, the system did not support hyperlinks to documents, an important requirement.

There were many lessons learned. In-house support for Esri products in DENR was lacking. The server was underpowered. The program was hard wired and could not be changed by EEP staff. Finally, server changes had to be made by DENR ITS staff and communications between EEP staff, with limited understanding of ITS issues, and DENR ITS staff, with limited understanding of GIS issues, made it difficult to respond quickly to problems.

The decision was made to scrap the system and start over. Ms. Kiley reported that fortunately John McNeirney joined DENR ITS and brought a knowledge of new software from Google, called Google Fusion Tables. The software is very flexible and requires fewer special skills to manage, negating the need to hire an outside contractor. The new site is a great improvement although not perfect. There are still no direct connections to the EEP IMS database or to the geospatial data so batch processes are required to update and upload data. There is a limitation on the number of map layers that can be displayed but this is not a big problem because too many layers often create a confusing map. There is also a limitation on the background imagery that can be displayed.

Ms. Kiley gave a short demonstration of the site (http://portal.ncdenr.org/web/eep/interactive-mapping). The goal was to create a very basic, simple site that allows the user to easily zoom and pan around the site and then click on and view information. This is exactly what the site allows. She reported that the site has proved to be a valuable resource for users and the public.

Ms. Kiley introduced Mr. McNeirney who reported that it was an easy process to integrate EEP's data into Google Maps. He identified Google Fusion Tables as the tool to support the EEP site. The resource is free and is quick and easy to implement. He estimated that it took about two weeks and involved only a few hundred lines of code. Ms. Kiley provided all the data. Google servers support the site at no cost.

Google Fusion Tables is a service provided by Google that allows users to import, share and query tabular data, including geospatial data. If data includes addresses, the tool will georeference the data. Using shapefiles provided by EEP, he was able to use various open source tools to extract the .kml files and import them into Google Fusion Tables. He noted that the DENR Division of Water Quality also uses Google Fusion Tables to support other applications.

The EEP tables include attributes extracted from shapefiles and contain geospatial information. It is possible to import data into fusion tables and have it automatically generate a map without doing any programming. Embedded code can be copied and used but to make it searchable and to display different layers, some programming is required. Google does make available a Java script application programming interface (api) tool kit to enable users to integrate a fusion table of data as a layer on a map.

Data can be quickly and easily edited and permission to edit can be restricted. There are limitations, including the number of layers that can be displayed. He noted that Google regularly

updates the api tool kit to add new capabilities so these limitations may disappear. The code that he wrote can serve as boilerplate code for displaying similar maps. There is the possibility of using imagery other than the imagery that Google uses.

Ms. Kiley continued the presentation by describing the next steps. EEP is exploring ways to automate updates of the spatial data, to use the portal to query DENR databases and to improve or customize maps for specific data or audiences.

Dr. Mandell asked if other agencies are using fusion tables. Julie Stamper reported that Pasquotank County has mapped family cemeteries and is using Google Maps to display them. The application does support open edits so a citizen could locate a family plot on their land and display it on Google maps. For citizens that are uncomfortable with the technology, county GIS staff will add it for them.

Dr. Mandell noted that EEP faces a challenge similar to that of NC OneMap and that is how to make a vast quantity of geospatial information available to the general public in a way that is easy to understand and easy to use. NC OneMap has an obligation to the professional GIS community but also to the general public.

Dr. Mandell thanked Ms. Kiley and Mr. McNeirney for the presentation.

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

Mr. Johnson commented that the project is now in the "short rows," to use a tobacco field analogy. He reported that the technical tasks are 100% complete. All of the imagery, excluding the tiles that abut the military boundaries, has been loaded to the Geospatial Portal. The team has been working closely with the military facilities so that the tiles can be clipped and the imagery outside the military boundaries can be provided to the counties. Final delivery of this data will be completed by August 19.

In addition to the users that Mr. Spivey noted, Mr. Johnson reported that the commercial real estate sector is using the data. TomTom, a commercial company that supports GPS car navigation systems, has submitted a request to acquire the statewide data as have some other private sector firms.

Staff are currently in the midst of the 90-day evaluation of problems with the imagery reported by the counties. Staff are working with both the PSAP and GIS coordinators. Sixty-one counties are complete. The end of the 90-day review period for counties to submit problems is the end of this week. Mr. Johnson emphasized that the problems are not major and staff and the NC Geospatial Technology and Management Office are working with counties to resolve the problems.

Mr. Johnson reported on the final steps to complete the project. The team expects to resolve all issues identified during the 90-day review period by September 1 and will distribute the revised imagery to PSAP recipients and load the revised data to the website in September. CGIA will submit a final report to the City of Durham and the NC 911 Board by September 30, as required by the contract. The remainder of the fiscal year will be devoted to outreach to promote the availability of the imagery.

At the end of July, the NC 911 Board approved a contract with CGIA to initiate a new cycle of orthoimagery acquisition. The agreement covers 2012 with the intention of extending the work through 2015. CGIA will work with the project team and with potential contractors to initiate the next phase.

He noted that even though the project is 99% complete, the final report will be important. It will enable the team to review the lessons learned and identify ways to improve the process. The project has been a valuable learning process. The report will document lessons learned for the entire project, covering planning, coordination with the military, work flows, data distribution, release of the imagery through NC OneMap and resolution of issues identified during the 90-day review process.

Mr. Johnson displayed a map showing the plans for data acquisition for the next four years. The eastern portion of the state will be acquired in 2012, followed by the piedmont / coastal plain area in 2013, the western-north section of the state in 2014 and finally the western-south section of the state in 2015. This schedule was recommended by the Working Group for Orthophotography Planning as the most efficient way to update the imagery across the state over the next four years.

Planning for the acquisition of imagery for 25 eastern counties is already underway. Flight acquisition will occur in January-February 2012. Production and delivery will be complete between November 2012 and February 2013.

In the spring of 2012, the NC 911 Board will consider the plans for the remaining sections of the state.

Ms. Stamper noted with pleasure that the eastern counties will have an embarrassment of riches. Many of the eastern counties had some of the oldest imagery prior to the 2010 flights and now will have imagery for 2010 and 2012. She thanked the team. She said that the LGC wanted to know about the status of the delivery of the data adjacent to the military bases and the outcomes of the review process. Mr. Johnson's report covered these questions but she asked Chris Koltyk, another LGC member, if he had any specific questions.

Mr. Koltyk said that he was happy to hear that the imagery adjacent to the military bases would be available by the week's end and that the review process is almost complete. He said that imagery is a time sensitive dataset and that the value of the imagery decreases as time passes. It is now the end of August 2011 and users can still not fully benefit from the 2010 imagery. He said that one lesson learned is to acquire a smaller piece of the state and deliver it sooner.

He also said that one of the most important uses of the imagery is for tax revaluation. He suggested that the team consider the county re-evaluation schedules when scheduling the areas that will be flown. Ms. Stamper indicated that tax assessors may be willing to adjust their schedules if they know when the new imagery will be acquired. Mr. Koltyk said that it is important for the NC 911 Board and the project team to coordinate with the tax assessors.

Dr. Mandell again expressed his appreciation to Mr. Johnson, the project team and everyone who had a hand in the project. He was impressed with how smoothly the project went, especially considering the massive scope of the project – the entire state in one year. He also mentioned that

through all of the presentations, there was a strong emphasis on quality, which reflects the GICC's philosophy.

Committee Reports

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

Management and Operations Committee (M&O). Dr. Mandell said much of the work of the M&O now falls under the new NC OneMap Governance Committee. He reminded the members that CGIA is working on a FGDC funded Return on Investment (ROI) project. After some delays, work is now ongoing. He is hopeful that the project will provide good results, not only for agencies that want to consider ROI for GIS projects but may also provide a methodology for broader IT based projects.

The M&O is working with staff to enhance the GICC website to make it a more useful resource. Finally, the M&O is preparing the annual report to the Governor and the General Assembly. Dr. Mandell anticipates that the annual report will provide an opportunity for him and the State CIO to schedule some visits with lawmakers to promote the Council's accomplishments and future needs.

NC OneMap Governance Committee. Dr. Mandell reminded the members that the committee is brand new, having been approved by the GICC at its May meeting. The Governance Committee was established to provide direction, between GICC meetings, for two of the top priorities of the GICC - NC OneMap and the ongoing orthoimagery program. These activities form a strong foundation for the GICC's work. Because NC OneMap is in some ways the face of the GICC, it deserves special oversight from an accountability perspective and this is a major reason for creating the NC OneMap Governance Committee. The committee meets monthly to review progress on the revitalization efforts. Another focus is on standards that apply to NC OneMap and thanks to the SMAC there is a new process for assessing and updating standards.

The committee is also working on new and important policy issues. A priority for the committee is to develop a strategic business plan or GIS strategy for the state. He acknowledged that a lack of resources is a barrier to accomplishing the Council's initiatives.

Finally, to provide effective oversight, the committee recognized that it needs specific objectives and goals for NC OneMap. The committee is working from the NC OneMap vision and characteristics that the GICC revised some months ago to create a very specific set of objectives and goals that can be turned in to targets and measures of progress. Over the next few months, the Governance Committee Plans to present a plan to the Council outlining the goals and objectives for NC OneMap.

ACTION #1 The NC OneMap Governance Committee will prepare objectives and goals, to include targets and measures of success, for NC OneMap.

Local Government Committee (LGC). Ms. Stamper, chair of the LGC, reported that the LGC met on June 1. There was significant discussion of the statewide orthoimagery project, most of which has already been covered today. One concern is that there was not good communications between the state and the municipalities about the dates of the distribution meetings. Counties were informed but many of the municipalities were not informed about the meetings.

Ms. Stamper said that the LGC has established a Facebook page to improve communications with local governments. There are only 12 members or "friends" to date but she expects it to grow. All members of the LGC are administrators and can post to the Facebook page.

Dr. Mandell said that he was delighted that the LGC has established a Facebook page and reminded the Council members that the M&O is working on a Communications Plan to improve the distribution of information. He reminded members that the NC OneMap Blog includes an RSS feed that will provide automatic notice of new announcements related to NC OneMap. He encouraged the LGC to encourage the local government community to sign up for the RSS feed. Ms. Stamper acknowledged that between the RSS feed, the LGC Facebook page and the various list servs, information is widely distributed to the GIS community. How to get people to read the notices is another question.

***Federal Interagency Committee (FIC*).** Dr. Rimer, chair of the FIC, reported that with the change to the FIC and SMAC bylaws, the FIC now has a seat on the SMAC. The FIC appointed Silvia Terziotti of USGS Water Resources Center to be the FIC representative to the SMAC. Unfortunately she had to miss the July SMAC meeting as she was out of the country but she looks forward to being an active member of the SMAC.

Dr. Rimer reported that Mr. Johnson asked the FIC to coordinate an effort to update the federal land ownership layer in NC OneMap. This layer is sadly out-of-date. The FIC has appointed a committee to develop recommendations on how to update that data layer. Tom Colson, National Park Service, will chair the committee, joined by Susan Pulsipher, representing the US Army at Ft. Bragg, and Mark Endries, US Fish & Wildlife Service. The committee has agreed to a definition of federal lands, which sounds simple but apparently is not as federal agencies may manage or lease land that is not actually owned by the federal government. The committee is now gathering information from the various federal agencies about federal land ownership data.

The committee reviewed one summary of federal land ownership, dated 1995, and reported that North Carolina ranked 46th among the states in the percentage of federally owned land. Only about .44% of land is in federal ownership. Dr. Rimer expressed her surprise about this information. Rebecca Troutman expressed surprise as well, noting that 85% of the land in Graham County is under federal ownership. Ms. Troutman said that the federal government makes payments to local governments in lieu of taxes on federal lands and that North Carolina receives a high percentage of these funds. Dr. Rimer noted that tribal lands are not included in the definition of federal lands. She expressed confidence that the new inventory will help clear up the confusion.

Dr. Rimer reported that the next general FIC meeting will be August 31 in Raleigh at the USGS Water Science Center. There will be a demonstration on the NC OneMap Geospatial Portal. One presentation will be a report from the Southeastern Natural Resources Leadership Group, a consortium of 14 federal agencies. One focus of this group is to consider climate change adaptations and the group was charged with finding a location in the southeast to conduct a pilot project to leverage resources and consolidate the roles of federal agencies to implement climate change adaptations. The group considered 15 locations and eventually recommended the Albemarle-Pamlico Estuary area for the study. The selection process was assisted by Jim Fox, with the UNC Asheville National Environmental Modeling & Analysis Center.

The FIC meeting will also include a presentation by The Nature Conservancy on a project in the Albemarle peninsula, funded by Duke Energy, to restore hydrology and install best management practices in preparation for anticipated storm surge events.

Dr. Rimer said that North Carolina is a hotbed of activity at the federal level regarding climate change issues. The Department of Interior has two major efforts underway in response to concerns about climate change. One is the Landscape Conservation Cooperative, led by the US Fish & Wildlife Service. A second is the South Atlantic Landscape Conservation Cooperative, which is housed at the NC Wildlife Resources Commission. Still another effort is being led by USGS, which is funding nine climate science centers across the nation. One of the first to be established is the Southeast Climate Center at NC State University. Dr. Gerald McMahon of USGS is leading that effort and will report on their plans at the August 31 FIC meeting.

Statewide Mapping Advisory Committee (SMAC). Anne Payne, chair of the SMAC, reported that the Committee had a very full meeting on July 13. Mr. Johnson reported on GICC and M&O activities and there were reports by the SGUC, the LGC and the FIC. Ms. Payne expressed her pleasure at the appointment of Silvia Terziotti to the SMAC by the FIC. She also commended Steve Strader for wearing two hats at the SMAC meetings over the past several years, representing the National Geospatial Program Office and reporting for the FIC.

The meeting also included a demonstration of the new Geospatial Portal and reports from the Floodplain Mapping Program (now called "Risk Mapping, Assessment and Planning), the GeoMAPP preservation project and the 2010 orthoimagery project.

Update on Library of Congress Project. Ms. Payne introduced Kelly Eubank with NC State Archives to give an update on the Geospatial Multi-State Access and Preservation Partnership (GeoMAPP) project.

Ms. Eubank reported that Montana has joined North Carolina, Kentucky and Utah as partner states in this project to explore preservation of and access to older geospatial data. She reported that there have been three transfers of data from CGIA to State Archives representing more than 1TB of data. State Archives has tested and vetted the process of providing access to this data. She encouraged members to visit the website: http://digital.ncdcr.gov/cdm4/all_colls.php. In addition to the data that are available, users will find a document entitled "A Finding Aid of the GIS Data Collection."

The project team presented this summer at the Esri International Users Group Conference, the National Association of Governors Archives and Records Administrators Conference and at EROS Data Center. The project team also met in Utah. The team is working hard to spread the message on the importance of preserving historical data.

The GeoMAPP team released a Geospatial Data File Formats Reference Guide, which is available at the GeoMAPP website: http://www.geomapp.net/publications_categories.htm. The team is also developing a data transfer best practices document, which will be released soon.

The GeoMAPP project will end in December and discussions are underway on retention schedules and preservation opportunities. State Archives has acquired 70TB of storage, which will provide mirror storage in Raleigh and at the Western Data Center. The GeoMAPP team looks forward to

updating the Council on future plans and developments related to preservation and access to historical geospatial data.

Ms. Payne said that this project is an important part of the SMAC's charge and the outcomes will be valuable to the GIS community.

Working Group for Seamless Parcels. Tom Morgan, co-chair of the WGSP, gave an update on the activities of the WGSP. Mr. Morgan reported that the state budget brought bad news that affects the work of the WGSP. DENR is moving entirely to Esri software and does not plan to support the EPA grant to develop an open source solution for sharing parcel data with EPA. The M&O is exploring ways the grant can be supported. Mr. Morgan asked Dr. Mandell to report on this development.

Dr. Mandell said that the M&O and staff will do a careful analysis of the initiation document for the grant project, which he noted is 170 pages long. The M&O will report to the Council when the analysis is complete. Mr. Morgan said that if another organization cannot take over management of the grant, he is unsure what will transpire but that the WGSP will look for direction from the SMAC.

On another topic, the SMAC has created a Working Group for Standards. Mr. Morgan will chair the group. Other members include Kelly Eubank, John Farley, David Giordano, Steve Strader and James Armstrong. The group has not met yet but has prepared a plan of action, which includes:

- Reviewing adopted GICC standards to identify a standard that needs updating to reflect changes in technology, methods, or practices in North Carolina.
- If multiple standards needing attention, prioritizing the set based on potential benefits to those who apply the standard and to end users of the data.
- For the priority standard, outlining key elements, steps and resources to support the research, analysis and revision.
- Distinguishing between standards and practices. Mr. Morgan explained that within many standards, a section is included that documents best practice. Standards and best practices are quite different. The goal is to develop a separate document for best practices.
- Reporting findings and recommendations to the SMAC to initiate a plan for updating the standards.

Mr. Morgan thanked Jeff Brown for helping prepare the plan of action. The new working group will meet within the next month.

Mr. Morgan has been working on the LiDAR standard for the State of North Carolina. It is different than a content standard in that it will be a collection standard describing how to contract for services for acquiring LiDAR data. A state review has been completed, involving DOT, the Floodplain Mapping Program, CGIA and NC Geodetic Survey. The draft has also been distributed to 25 people around the nation asking for comments and he has received one-half dozen responses and anticipates several more. The standard will be submitted to the SMAC with the hope that the SMAC will submit to the Council for adoption at the November meeting.

Colleen Sharpe asked if there has been any action on the Addressing standard. Ms. Payne said that it is on the list for review.

Dr. Mandell said one of the Council's statutory requirements is to adopt and promote standards and a formal process for reviewing and adopting standards is important. Ms. Payne agreed and said that is why the SMAC established the Working Group for Standards.

Working Group for Orthophotography Planning. Gary Thompson, chair of the WGOP, said that the committee has been assisting Mr. Morgan in the review of the LiDAR collection standard. The project team for the 2010 orthoimagery project prepared five issue papers and WGOP members assisted in the review of these papers, which will support future statewide and county projects. The issue papers are now accessible at the NC OneMap website. The WGOP also completed the Color Infrared issue paper. It will be distributed soon. *(Post meeting note: The Color Infrared issue paper has been released and it posted to the NC OneMap web site. Guide for Using Color Infrared Imagery http://www.nconemap.com/NCOrthos/Resources.aspx)*

Mr. Thompson provided an update on the LightSquared situation. He reminded the members that a company called LightSquared 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 FCC extended the comment period to August 15. LightSquared is putting the blame on GPS users, claiming the users are using a technology that interferes with their service. The test results showed that there is major interference with all different types of GPS receivers. One receiver was affected over 22 miles away from the base. LightSquared has not acknowledged that in the test they were only using about 10-15% of the power so additional interference is likely when the system is operated at full power. The test does not represent a real world test of the network. LightSquared's latest claim is that the transmitter will only affect .5% of the users. The truth is that .5% of the users that are affected are the critical users – surveyors, engineers, farmers, GIS professionals – as opposed to users of recreational grade GPS and the .5% of the users represent over 90% of the use.

Mr. Thompson emphasized that this is a critical issue. Broadband coverage is important but not at the sacrifice of a critical technology that is used every day. He said that it is important that the voice of the GIS community is heard. Mr. Thompson has briefed the Department of Agriculture on this issue and is keeping the Governor's Office informed. Ms. Payne praised Mr. Thompson's efforts.

Mr. Farley asked if Mr. Thompson has any sense of the outcome. Mr. Thompson said that in a recent interview, the President of LightSquared expressed confidence that their position would prevail. Mr. Thompson noted that during a session at the Esri conference, LightSquared sent a lawyer who said that by this time next year they would have 100 million customers so they seem very confident. Regarding the current plan or approach that only affects 0.5% of the users, LightSquared said that they would only guarantee that they would stay on that plan for six months. If they move to another part of the spectrum, it could have a devastating effect on satellite positioning.

Ben Matthews mentioned a recent article on a solar flare and the impact on GPS and asked about the implications of solar flares. Mr. Thompson said that in some cases GPS receivers cannot track the satellites during a peak of solar flares because the atmosphere is so unstable. NOAA has a website that tracks solar flare events and predictions and recommends GPS users be aware of potential impacts on GPS readings.

Dr. Mandell asked about the position of the industry on this issue. Mr. Thompson responded that the industry is very vocal. There is a coalition and a website of the same name called Save Our GPS,

made up of manufacturers and companies like John Deere that relies heavily on GPS to support farming practices. He acknowledged that LightSquared is very vocal as well and has lots of money, citing LightSquared advertisements on the Metro in Washington. Ms. Payne reminded the members that the GICC did send a letter of concern to the FCC. Mr. Thompson said the comment period is still open and there are two ways to comment. The FCC website provides a way to submit a brief comment or an agency can submit a letter. Mr. Thompson reported that a template for a letter to the FCC is available for anyone who wants to submit a letter. The template includes all of the background information on the issue but agencies can personalize the letter to reflect their specific concerns. Dr. Mandell asked Mr. Johnson to send out the template to all GICC members.

ACTION #2 Staff will send template of letter on the LightSquared issue to GICC members.

Mr. Rankin said that this is a critical issue to the NC Society of Surveyors. Obviously surveyors will be impacted but any GPS user will be affected. Planes may be flying blind. Precision agriculture, forestry applications, monitoring of dams and emergency response are among the applications that rely heavily on GPS. It is just phenomenal the number of people that will be affected. GPS is now another critical utility. People use it in their cars but once you understand the precision applications of GPS, this change will have a devastating economic impact. He encouraged everyone to speak out and let the decision-makers know that this is a bad idea and that they need to find another way to support broadband coverage but not with this segment of the spectrum.

Dr. Mandell asked about the position of other federal agencies. Mr. Thompson said the Federal Aviation Administration, the Department of Defense and the Department of Transportation all have concerns. Dr. Mandell expressed puzzlement that the waiver is under serious consideration given that so many people and organizations are opposed. Mr. Rankin said that LightSquared acquired the rights to the spectrum to be used for low power, low orbit satellite communications at a cost of $400M when the government auctioned off the spectrums. Had they bought it on the market, it would have been worth billions of dollars. Consequently they can spend a lot of money to use it but not in the way it was intended to be used.

Dr. Mandell thanked Mr. Thompson for staying on top of the situation and keeping the Council informed. Ms. Payne encouraged members to educate themselves about the issue and to visit the Save Our GPS website and submit a comment.

Working Group for Roads and Transportation. In the absence of Alex Rickard and Chris Tilley, co-chairs of the WGRT, Ms. Payne reported for the WGRT. In light of the developments with the WGSP's EPA grant, the WGRT is negotiating with a vendor to develop a geo-synchronization tool for the state centerline project and hope to have the vendor in place in time to compete the project before the FGDC grant deadline of April 12. The WGRT is also continuing work on the creation of a statewide railroad layer under the leadership of DOT.

Ms. Payne continued the SMAC report. The NC Board on Geographic Names recommended the approval of proposals to rename three streams. The SMAC approved their recommendations, which will be passed on to the US Board on Geographic Names.

Returning to the issue of standards, she said that the SMAC has compiled an inventory of standards that will be used by the Working Group for Standards to make their determinations and evaluations. The SMAC also discussed the difference between standards and best practices. She expects a revised

Water and Sewer Standard to be submitted to the SMAC for review in the next week or so. If approved at the October SMAC meeting, it will be presented to the GICC in November for adoption. The SMAC is also participating in the review of the LiDAR collection standard and will consider the Addressing standard once the new committee makes a recommendation.

She reminded the members that at the request of the LGC the SMAC has established a committee to assess and develop improved procedures for collaborating with and sharing data with the Census Bureau. Alec Rickard, Tom Morgan, another LGC representative and someone from CGIA will participate on that committee.

The SMAC summarized its 2010-11 accomplishments for the 2011 GICC annual report and drafted its 2011-12 work plan.

State Government GIS Users Committee (SGUC). John Farley reported that the Executive Committee met July 28. The primary topic of discussion was the technical architecture definition, which will be finalized soon. The SGUC approved a work plan for 2011-12. He said that Jeff Brown reported on the template for a best practices document. There was an update on the Esri Enterprise License Agreement. An ELA MOU will be distributed to state agencies soon.

The SGUC general meeting was held on August 4. NC Geodetic Survey presented the LightSquared issue. There was a presentation from the Department of Commerce on mapping industry performance metrics. There was an excellent open discussion on ArcGIS 10. Members who attended the Esri International Users Conference in San Diego were able to provide some good input. There were also presentations on GeoPDF products from TerraGo Technologies and on the NC OneMap Geospatial Portal. Overall it was an excellent and informative meeting.

Technical Advisory Committee (TAC). Colleen Sharpe, chair of the TAC, said the committee met on June 21. As with all the other committees, the TAC received a demonstration of the NC OneMap Geospatial Portal. Dr. Mandell remarked that the Communications Plan seems to be working.

The TAC reviewed the requirements for the new version of the NC OneMap viewer as well as the Geospatial Portal. The TAC recommended that the NC OneMap team review the list; document which items are complete; identify items that can be completed without outside resources; and recommend priorities for those tasks. The TAC will submit its recommendations on the process to the M&O. The TAC recommended that the NC OneMap team utilize an Agile Project Management approach for developing the new version of the viewer.

The TAC also drafted a 2011-12 work plan, which will be approved at the August 23 meeting.

Dr. Mandell took this opportunity to thank all of the committees for work they do. As the committee reports make clear, much of the Council's work is accomplished outside the GICC meetings. It would be impossible for the GICC to make progress without all the hard work of the volunteers on these committees.

GICC Member Announcements

There were no new announcements.

ADJOURNMENT

There being no other business, the meeting was adjourned. The next meeting will be November 9, 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 Website: www.ncgicc.org . Click on "GICC Meetings." Presentations and documents presented during the meeting are available in a Zip file for easy download.