North Carolina
Geographic Information Coordinating Council

2011 Annual Report to the Governor and the North Carolina General Assembly

September 2011

Submitted to:

Governor Beverly E. Perdue
and
The Joint Legislative Commission on Governmental Operations

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Executive Summary

Purpose of the Geographic Information Coordinating Council

The North Carolina Geographic Information Coordinating Council (GICC) was established in August 2001 and is incorporated under General Statute §143-725 through 143-727. The purpose of the GICC is to develop policies regarding the utilization of geographic information, geographic information systems (GIS), and related technologies. The GICC advises the Governor, General Assembly, and the State Chief Information Officer on needed directions, responsibilities, opportunities, and funding related to GIS and geospatial data.

The value of GIS continues to grow as public and private sector organizations use geospatial information in a variety of ways. GIS is a planning and analysis tool that is used on a routine basis to perform many business functions of government. The technology makes many operational matters in the public sector more efficient such as the optimal routing of emergency vehicles, garbage trucks, and school buses. GIS is a multidisciplinary tool that brings together a geographically referenced description of natural resources, open space, transportation, and economic development activity for decision makers who need to look at these and other facets together.

Investments in GIS have occurred in 100 North Carolina counties, numerous municipalities and regional agencies, most state government agencies, the federal government and in a wide range of private enterprises and nongovernmental organizations in recent years. All of these stakeholders contribute to a robust environment of geospatial data and information technology systems that enable local, regional, state, and national decision support. The GICC contributes to this picture by bringing the stakeholders together on a regular basis to discuss and reach common ground on policies, best practices, and standards that can be adopted across North Carolina to make those investments as efficient and cost effective as possible.

Continued support of GICC initiatives and the work of the Center for Geographic Information and Analysis (CGIA) are important as the GICC continues to implement a Statewide GIS Strategy to achieve the recommendations of the GIS Study and implementation plan endorsed by the General Assembly in 2009.

The Geographic Information Coordinating Council met four times in this reporting period. The Council achieved steady progress on a number of issues, which are reflected in this report. A bulleted summary of the major accomplishments during FY 2010-11 and the action plan for 2011-12 follows. The accomplishments and the action plan are described in greater detail in the full report.

Accomplishments

- Delivery of high resolution orthophotography was completed for all 100 counties in North Carolina through a project funded by the NC 911 Board. Contractors acquired the imagery between January and April 2010. Processing and quality control were completed between May 2010 and February 2011 and final products were delivered to county 911 Coordinators and GIS Managers at 26 locations across the state between late February and April 2011. The data are also available to state, federal and regional government agencies, the private sector, the academic community and private citizens as map services and downloadable files from *NC OneMap,* which was upgraded to support the demand for the imagery. The exciting outcome of this project is that consistent high resolution imagery is available to emergency responders and the statewide GIS community for the entire state for the first time ever.
- Adoption of a Business Plan for Orthoimagery in North Carolina to support the continuing coordinated acquisition of a seamless statewide imagery dataset of standardized quality, resolution, age, and format. The plan describes alternative imagery acquisition scenarios and funding opportunities. The GICC and its member organizations, working in cooperation with the NC 911 Board, are evaluating how to implement the plan.
- Completion of a pre-planning project, as directed by the General Assembly, to revitalize and define the business and functional requirements of *NC OneMap*.
- Creation of the *NC OneMap* Governance Committee to develop, direct, and control *NC OneMap* strategy and resources to ensure that it sustains and extends the Council's strategies and goals.
- As part of the *NC OneMap* revitalization project, the *NC OneMap* team implemented several of the recommendations in the *NC OneMap* revitalization pre-planning report to improve the performance and functionality of *NC OneMap*. Progress includes:
    - Release of the *NC OneMap* Geospatial Portal to discover and access geospatial data for North Carolina. The Geospatial Portal can be used to download data or to stream data through an image service directly into a user's desktop or web application. The Geospatial Portal proved to be a valuable resource for local, state and federal agencies responding to the disaster when Hurricane Irene came ashore in North Carolina on August 27, 2011 causing major flooding and significant damage to the coastal region.
    - Development of an enhanced web service search tool to facilitate data discovery.
- Preparation of a communications plan to promote and communicate activities and accomplishments related to 1) initiatives of the GICC and its committees and 2) mission/project activities of the GICC members, especially in the area of geospatial data development.
- Adoption of revised bylaws for all six standing committees.
- GICC members and partners in the statewide GIS community regularly create applications, resources and data that benefit geospatial data users across North Carolina. A new section in this report highlights a selection of these activities.

Action Plan for 2011-12

The Geographic Information Coordinating Council will pursue a combination of activities to achieve its mission in FY2011-12. The goals for the coming year continue to be driven by the 21 recommendations referenced in the State Geographic Information/Consolidation Implementation Plan as well as ongoing, high priority actions that the GICC has planned based on quarterly Council meetings and committee work. Actions for 2011-12 include:

Continuation of *NC OneMap* Technology Revitalization

Working under the direction of the *NC OneMap* Governance Committee, the *NC OneMap* technical team will continue to implement those requirements identified during the pre-planning project that can be completed without additional resources.

Statewide Program for Orthoimagery

The Statewide Mapping Advisory Committee and its Working Group for Orthophotography Planning (WGOP) completed a Business Plan for Orthoimagery that defines the business case for statewide collaborative orthoimagery projects in North Carolina. The Council and the WGOP will begin to implement the plan for acquisition of new imagery for a portion of the state in 2012.

Completion of the Statewide GIS Strategy

Under the direction of the GICC's Management & Operations Committee, CGIA will complete a Statewide GIS Strategy to present to the Council that will address development, enhancement and management of geospatial data as a strategic resource for North Carolina; support best practices in a wide range of public and private applications of geospatial data; and identify benefits of investments in data, technology, and practitioners.

Adoption and Promotion of Standards

The GICC will apply its process for creation, assessment, update and adoption of standards, and promote application of standards in geospatial data management. Standards under consideration may originate with the GICC, other state agencies, local governments or federal agencies.

Review Information Technology Projects

CGIA will support the Office of the State Chief Information Officer through the Enterprise Project Management Office in the review of Information Technology Projects that involve geospatial data and technology with the goal of achieving maximum benefits within and across state agencies.

Complete the Return on Investment (ROI) Federal Grant Project

CGIA received a federal grant from the Federal Geographic Data Committee to apply an ROI methodology to a GIS project in Lenoir County. CGIA is working with Interagency Leadership Team (ILT), a combination of federal and state agencies involved in the transportation planning process. The methodology provides a tool to assess costs and benefits in terms of present

value. The project will generate the ROI for developing and using GIS data in the transportation planning realm, with applicability to other areas as well.

Execution of Communication Plan

CGIA, with support from the Council and its standing committees, will execute the tasks set forth in the communications plan to promote and communicate activities and accomplishments of the Council, its committees and GICC members.

Ongoing GICC Actions

In addition to the actions cited above, additional actions are planned and listed as high priorities of the GICC and staff. The Council will continue to leverage its committee structure to improve data resources including parcel boundaries, statewide roads, and preservation of geospatial data. Clearinghouse and warehouse activities will revolve around *NC OneMap* (www.nconemap.gov), managed by CGIA for public access to statewide geospatial data. The Council will continue outreach activities to share the GICC's mission, goals, initiatives, and plans, and engage the many North Carolinians who benefit from and enhance the state's geospatial resources. In addition, the GICC, CGIA and GIS users will consider sponsoring another "GIS Serving North Carolina" day to display examples of geospatial data applications to the General Assembly in 2012 to showcase the value of the data, tools and practices in North Carolina.

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Section I. Purpose of the Geographic Information Coordinating Council

The North Carolina Geographic Information Coordinating Council (GICC) was established in August 2001 and is incorporated in the General Statutes §143-725 through 143-727. The purpose of the GICC is to develop policies regarding the utilization of geographic information, geographic information systems (GIS), and related technologies. The Center for Geographic Information and Analysis (CGIA) staffs the GICC.

A key initiative of the GICC is *NC OneMap*, the geospatial data clearinghouse and warehouse supporting North Carolina geospatial data users. *NC OneMap* supports data discovery and web-based viewing of North Carolina's geospatial data and reflects the GICC's vision of enabling access to complete, consistent, up-to-date geospatial data that meet accepted standards and are documented. The GICC and the North Carolina GIS community lead an organized effort of numerous partners throughout North Carolina, involving local, state, and federal government agencies, the private sector and academia to achieve this vision.

In 2009, the NC General Assembly in Session Law 2009-451 formally called for Geographic Information Consolidation, finding "that there is a critical need for consolidating the investments made in geographic information systems and developing common infrastructures in order for the State to reap all the potential benefits of geographic information systems at the lowest cost."

As part of the FY 2009-2010 budget bill, the General Assembly directed that recommendations set forth in the "State Geographic Information Consolidation Implementation Plan" shall be implemented in three distinct work streams, as follows:

(1) Transferring CGIA to the Office of the State Chief Information Officer and establishing appropriated funding for staff activities supporting the GICC, statewide standards, and the coordination of data acquisition.
(2) Reestablishing the professional services component and refocusing that effort toward current needs of the community while reducing those overhead costs.
(3) Revitalizing the *NC OneMap* project by leveraging new technology to reduce costs while increasing utility of the service.

To review the State Geographic Information Consolidation Implementation Plan, visit http://www.scio.nc.gov/initiatives/default.aspx, and click under "Reports and Presentations" on "Geographic Information/Consolidation Implementation Plan."

The GICC met four times in this reporting period: August 11, 2010, November 10, 2010, February 9, 2011, and May 11, 2011.

The committee structure is the backbone of the GICC. User committees focus on issues from their unique point of view, and include the Local Government Committee (LGC), State Government GIS Users Committee (SGUC), and the Federal Interagency Committee (FIC). The GIS Technical Advisory Committee (TAC) and the Statewide Mapping Advisory Committee (SMAC) are the two standing committees that combine representation from each committee

with subject experts to work on policy and technical issues from a collaborative perspective. The Management and Operations Committee (M&O), comprised of standing committee chairs and other GICC members, provides advice and support to the GICC on organizational and programmatic matters concerning policy, management, and operations of geographic information, geographic information systems (GIS) and related technology. The M&O members also comprise the *NC OneMap* Governance Committee whose purpose is to develop, direct, and control *NC OneMap* strategy and resources. A diagram of the GICC structure is attached as Appendix A. GICC members for the 2010-2011 fiscal year are listed in Appendix B. The establishing authority and precedent for the GICC is described in Appendix C.

The major topics in this annual report include: the acquisition and distribution of orthoimagery for the entire state and the preparation of a business plan to support the coordinated acquisition of imagery in the future; the accomplishments of state and local government in sharing and leveraging data resources through the *NC OneMap* initiative; improvements to the GICC's management structure; and the action plan for 2011-12, as approved by the Council and in support of the State Geographic Information / Consolidation Implementation Plan approved by the General Assembly as a path forward for GIS in North Carolina.

Section II. Accomplishments

Imagery for the State

The North Carolina 911 Board awarded a grant in the amount of $12.3 million to the City of Durham's Emergency Communications Center in September 2009 for the acquisition of high resolution (6-inch ground resolution) orthoimagery for all 100 counties. The City of Durham Public Safety Access Point (PSAP) recognized the value of up-to-date, consistent, cross-jurisdictional orthoimagery for visual reference in emergency call answering and responding. Prior to this project, North Carolina had a patchwork of county-acquired imagery of various ages and resolutions (see Figure 1). By involving the GICC in the grant application process, the City of Durham PSAP was able to fine tune its application and take advantage of the GICC's expertise in imagery acquisition and commitment to state and local cooperation.

To accomplish a statewide project, the project team engaged two prime contractors, each with two contractors leading teams to acquire and process the imagery. More than a dozen planes using digital cameras acquired imagery for all 100 counties between January and April 2010. Processing the digital camera exposures into finished orthoimagery was completed in December 2010. The project contributed to the state's economic health by sustaining private sector jobs in photogrammetric services throughout the year.

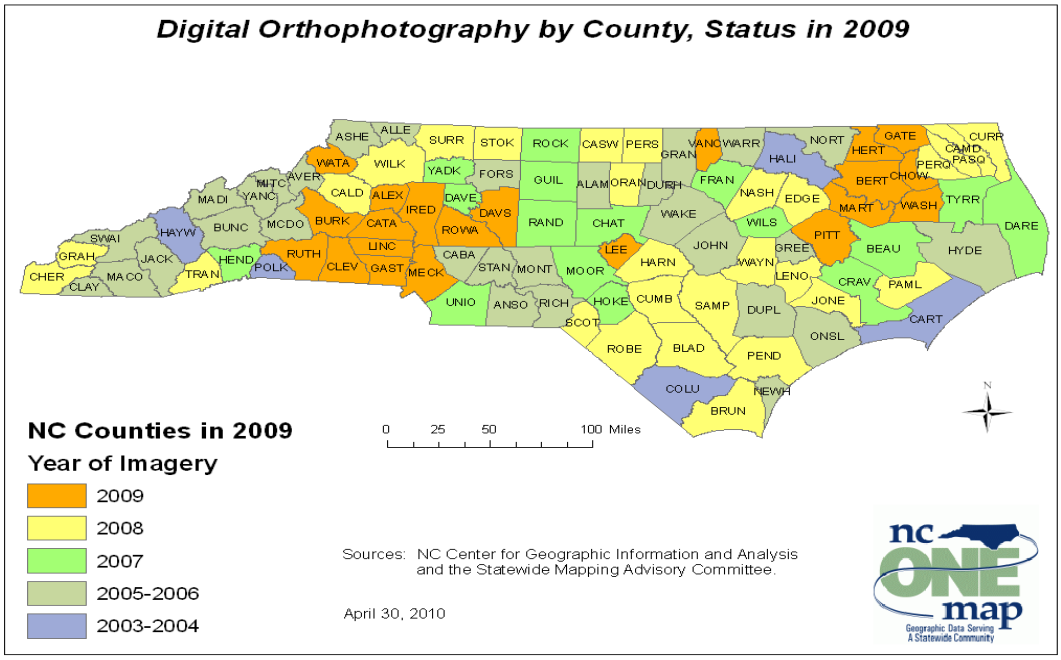


Figure 1

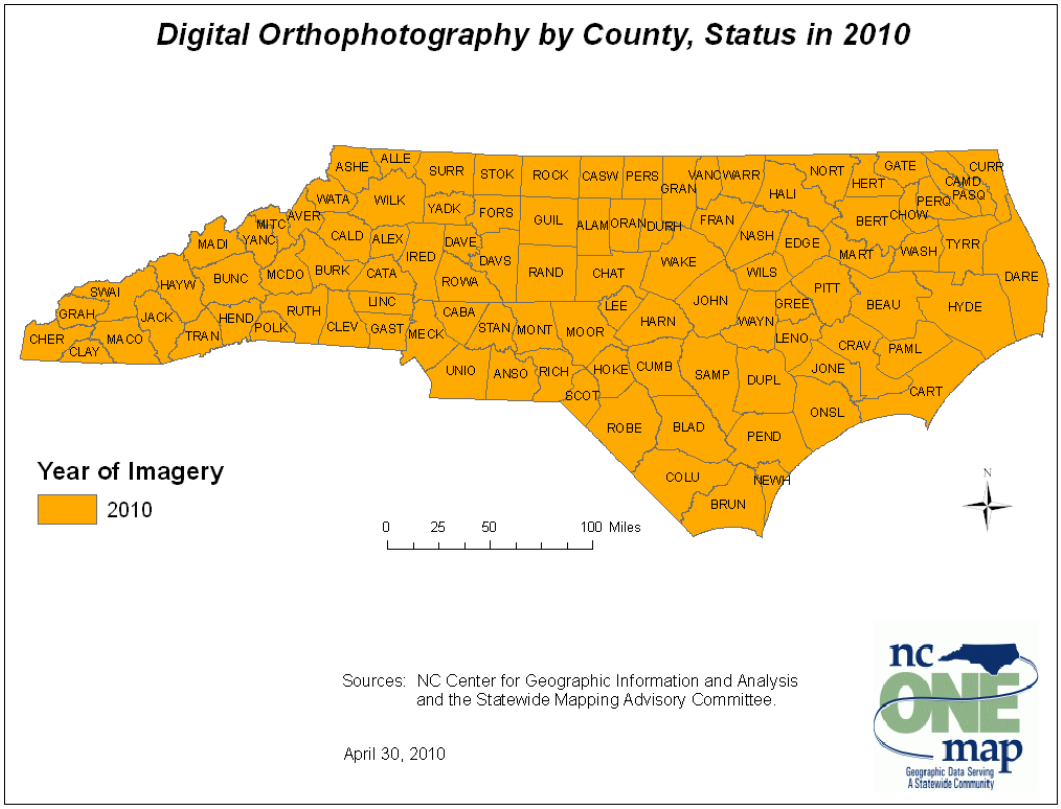


Figure 2

Quality control, both visual and positional, was completed in February 2011, involving eight additional contractors and three state agencies. Final products were delivered to county 911 Coordinators and GIS Managers at 26 locations across the state between late February and April. The recipients were encouraged to share the data with municipalities and regional organizations. The products include true color imagery captured and processed at 0.5-foot resolution (6-inch pixels, equivalent to mapping at 1 inch = 200 feet) as well as compressed images.

The exciting outcome of this project is that consistent high resolution imagery is now available for the entire state for the first time ever (see Figure 2). In addition to its value to emergency responders at all levels of government, the imagery will serve as a fundamental data layer for numerous other applications by government and the private sector.

The data are also available free to the public as an "image service" and downloadable files from the new *NC OneMap Geospatial Portal (http://data.nconemap.com)*. Within weeks of release, image services were streaming from NC OneMap to state and local government computers and applications. Other state, federal and regional government agencies, private businesses, the academic community and private citizens began downloading the data directly from *NC OneMap*.

CGIA managed the project, in collaboration with:

- The NC Floodplain Mapping Program in the Geospatial Technology and Management Office, Department of Crime Control and Public Safety, to take advantage of Qualifications-Based Selection contracts in place for orthoimagery acquisition;
- The NC Geodetic Survey, Department of Environment and Natural Resources, to assure positional accuracy of the new products;
- The Land Records Management Section in the Secretary of State's Office (standards);
- The Statewide Mapping Advisory Committee's Working Group for Orthophotography Planning for technical advice.

This massive project would not have been successful without the effort and cooperation of the project partners, the GICC's active user committees and the cooperation of the NC GIS community. The effort exemplifies the value and benefit of the GICC model for fostering collaboration among government agencies, universities and the private sector.

Additional Benefits of the Project

Several outcomes of the project will benefit both government agencies and the private sector in the future.

Continuously Operating Reference Stations. The NC Geodetic Survey operates Global Positioning System (GPS) base stations across the state. These stations support GPS users in correcting their data. The project enabled the addition and upgrade of these stations, which support private sector and government users of GPS.

Aerial Imagery Validation Range. An aerial imagery validation range was established in Surry County. This range enables private sector service providers to assure that digital cameras meet technical specifications. It will be invaluable to the private sector photogrammetry service companies for aerial imagery projects. The US Geological Survey (USGS) plans to establish a series of validation ranges across the country. It is anticipated that USGS will incorporate the Surry County range as one of two east coast locations in their national network.

Business Plan for Orthoimagery in North Carolina

The state is now faced with the challenge of keeping this critical dataset up-to-date. The digital aerial imagery is the most fundamental dataset for use with geographic information systems in local, state, and federal government and in numerous private and non-profit organizations. The GICC adopted statements and resolutions in 2003 and 2005 that called for a sustainable program for keeping high resolution statewide orthoimagery current and accessible. In December 2008, the General Assembly recommended a statewide imagery program as stated in Recommendations 13 through 17 in the State Geographic Information / Consolidation Implementation Plan, as directed by Session Law 2008-0107 Section 6.13.

Orthoimagery benefits a wide range of users of geospatial data, including private industry, public agencies, nongovernmental organizations, citizens, and educational institutions. Benefit measures include (a) saving time in locating and responding to emergencies; (b) saving time in informing public decisions; (c) avoiding the cost of erroneous information from out-of date imagery and map features.

In 2010, the SMAC's Working Group for Orthophotography Planning developed a Business Plan for Orthoimagery in North Carolina to support the coordinated acquisition of a seamless statewide imagery dataset of standardized quality, resolution, age, and format. The plan describes alternative imagery acquisition scenarios and funding opportunities. The goal for 2012 is to continue the program with acquisition of one-fourth of the state as the beginning of the next four-year phase. The NC 911 Board will fund the program in 2012, with CGIA leading the collaboration of state agencies, engagement of private service providers, and coordination of state and local participants.

Statewide GIS Strategy

The GIS Study Report and the State Geographic Information/Consolidation Implementation Plan tasked the GICC through the Management and Operations (M&O) Committee with the responsibility of setting and managing the Statewide GIS Strategy. The M&O initiated discussion of issues that will inform the strategy in preparation for publishing a formal report in 2012, including prioritization of datasets on NC OneMap, business requirements for NC OneMap, funding mechanisms to enhance data access and data quality, a communications plan for more effective outreach, and opportunities to collaborate on projects that advance data sharing.

GICC Chair Dr. Lee Mandell presented aspects of the Statewide GIS Strategy at the December meeting of the Joint Legislative Oversight Committee on Information Technology. The committee gained a greater understanding of the value of statewide geospatial coordination and was receptive to the need for a steady stream of funding support for *NC OneMap*. The committee's report from that meeting included two 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. It is anticipated that the General Assembly will consider the bill in the 2012 short session.

- A second draft bill proposed appropriated funding to revitalize the *NC OneMap* project. The bill proposed $758,000, all in the second year of the biannual budget. Unfortunately, the state's budget situation precluded new appropriations to support *NC OneMap* and statewide geospatial coordination.

The GICC continued work on initiatives that could be addressed with existing staff resources and volunteer committees. A formal review of *NC OneMap*, described below, will help inform the preparation of a Statewide GIS Strategy.

NC OneMap Revitalization Preplanning Project

In August 2010, the GICC initiated the *NC OneMap* revitalization pre-planning project to define the business and functional requirements of *NC OneMap*. This effort was prompted by Session Law 2009-451, passed by the NC General Assembly in 2009, formally called for Geographic Information Consolidation, finding "that there is a critical need for consolidating the investments made in geographic information systems and developing common infrastructures in order for the State to reap all the potential benefits of geographic information systems at the lowest cost." This legislation calls for revitalizing *NC OneMap* by leveraging new technology in the market to reduce costs while increasing utility of the service and reducing geographic information systems data layer costs through singly managed contracts.

The project was led by the Enterprise Project Management Office in the Office of the State Chief Information Officer. The pre-planning project had no funds and one goal of the GICC is to acquire funds to continue the project in a more formal way.

Focus sessions were conducted with the user committees of the GICC - the Local Government Committee, State Government GIS Users Committee and Federal Interagency Committee. Requirements were added through a survey of *NC OneMap* users. Staff conducted a web research on data discovery, access and distribution by other states. This effort included personal interviews with state GIS Coordinators for six states. Additional requirements surfaced through the statewide orthoimagery project.

The outcome was a *NC OneMap* Business/Functional Requirements document. It outlines the requirements to improve the data search tools, the *NC OneMap* viewer, data download functionality, map services and administrative functions.

One finding of the project is that there is some duplication of geospatial data hosting across state agencies, which is costly and confusing to geospatial data users. A key benefit of *NC OneMap* is access through one location to the most up-to-date geospatial data. A Statewide GIS Strategy will address the issue of consolidated data hosting.

GICC Structure

Bylaws. To reflect the direction set forth in Session Law 2009-451 and to address developments since 2002, the GICC adopted revised bylaws in August 2010. The revised bylaws reflect changes to the enabling legislation and the transfer of the GICC and CGIA to the Office of the State Chief Information Officer. Among the changes are a section that addresses attendance, in response to the Governor's rules on Boards and Committees; a section that clearly defines the responsibility of Council members regarding potential conflicts of interest; and clarifications on the role of standing committees and working groups.

The Action Plan for 2010-11 in the 2010 annual report called for the revision of the bylaws for the standing committees to bring them in line with the revised GICC bylaws. This action has been accomplished. Revised bylaws for the SMAC, SGUC, LGC, FIC, TAC and M&O committees were approved by the GICC at the May 2011 meeting.

Work Plans. In 2010-11, all standing committees prepared formal, written work plans. The membership of the standing committees is comprised of volunteers from the NC GIS community, representing local, state and federal government and the academic sector. The user committees – the LGC, SGUC and FIC – represent their respective government sectors and bring issues of concern to the GICC. The user committees, as well as the SMAC, the TAC and the M&O, also work on issues and initiatives at the direction of the GICC. These activities include development and review of standards, policy papers and technical reports. Staff recommended the preparation of formal work plans to promote accountability and to document the accomplishments of the committees.

***NC OneMap* Governance Function**. The *NC OneMap* revitalization pre-planning project report recommended that the Council establish a *NC OneMap* Governance process. The *NC OneMap* Governance function consists of the leadership and the organizational structure of relationships, processes, and communication mechanisms used to develop, direct, and control *NC OneMap* strategy and resources to ensure that it sustains and extends the Council's strategies and goals. This set of formal processes will guide the GICC in managing *NC OneMap*, establishing priorities and implementing decisions. The M&O members will comprise the *NC OneMap* Governance Committee. The GICC adopted the *NC OneMap* Governance plan in May 2011.

State and Local Governments Share and Leverage Data Resources

***NC OneMap* Services**. Digital geographic information is created and used extensively by state and local governments to conduct their daily business. Every government agency uses data produced by other agencies, and many rely on *NC OneMap* www.nconemap.gov as a data distribution point and service provider. In addition, private and nongovernmental organizations are increasingly frequent users of geospatial datasets managed by public agencies. *NC OneMap* is the state's prime site for discovery of and access to numerous data layers (lines, points, and areas) as downloadable files and/or map services (instances of datasets that are served over the Internet as map images). About one-fourth of the layers are stored by CGIA, and the rest are hosted on servers across the state. Since the opening of the new NC OneMap Geospatial Portal featuring the statewide 2010 imagery, the website has experienced heavy traffic from a wide range of users. During the first month (June 2011) http://data.nconemap.com experienced around 20,000 hits per week. The featured image service for the new 2010 statewide imagery experienced over 200,000 hits per week (counting all zoom in, zoom out and pan operations). During June there were 704 requests for imagery downloads (areas up to 20 square miles each) and total download volume through the Geospatial Portal was 135 GB. In terms of performance, the average time for the image service to refresh after a user hit was less than 2.5 seconds. Among users of the new image service are the NC Department of Transportation GIS Unit (streaming the images into its internal Spatial Data Viewer instead of storing the same image files locally) and the Historic Preservation Office in the Department of Cultural Resources (displaying the image service in its online mapping application).

The majority of NC OneMap users are anonymous to the NC OneMap team, taking advantage of the self-service features of the website. Nonetheless, the team does receive numerous inquiries that indicate the breadth of users of NC OneMap. Examples include inquiries from a scientist from a US Army base in Texas inquiring about geospatial data in the vicinity of Fort Bragg, a mapping specialist from a dairy management company, an environmental scientist from an engineering firm, an engineer from an environmental engineering firm, an analyst from an energy company, a topographic analyst from the US Marine Corps, an analyst from a law firm, a timber company from eastern North Carolina, and requests for information about statewide orthoimagery from an imagery firm, a GPS car navigation company, and an electric power company. NC OneMap inquiries from federal and state agencies included NC Department of Transportation, NC Department of Corrections, US Fish and Wildlife Service, US Forest Service, and US Geological Survey.

Local government high-resolution orthoimagery (i.e., aerial photography), the most requested data used by all government agencies, utilities and the private sector, is also distributed through *NC OneMap*. With the completion of statewide orthoimagery project, 2010 imagery is now available for download from *NC OneMap* for all 100 counties. An additional 146 imagery datasets from earlier time periods are also available for download. Data users with

GIS software can download the files onto their computers, or access the data as image services. The website enables people to browse this photography without GIS software.

As part of the *NC OneMap* revitalization project, the *NC OneMap* team implemented several of the recommendations in the *NC OneMap* revitalization pre-planning report to improve the performance and functionality of *NC OneMap*.

Geospatial Portal. An exciting outcome of the statewide imagery project is the release of the *NC OneMap Geospatial Portal* to discover and access spatial data for North Carolina. The Geospatial Portal can be used to download data or to stream data through an image service directly into a user's desktop or web application. Keyword searches and searches by spatial extent make it easy to find content in a user's area-of-interest. The launch of the Geospatial Portal represents a major technological advancement in supporting data sharing and access. The new Geospatial Portal has been praised by users across the state.

Geospatial Portal Supports Hurricane Irene Response. The NC OneMap Geospatial Portal proved to be a valuable resource for local, state and federal agencies responding to the disaster when Hurricane Irene came ashore in North Carolina on August 27, 2011 causing major flooding and significant damage on the outer banks and throughout the coastal region of North Carolina. The NC Department of Transportation (NCDOT) and the National Oceanic and Atmospheric Administration (NOAA) had planes in the air on Sunday and Monday over the Outer Banks after the hurricane passed, capturing aerial photography with digital cameras. The imagery was delivered to CGIA late Monday, August 29. CGIA staff loaded the post-hurricane imagery from NCDOT and NOAA to the ITS servers that support NC OneMap and released the imagery on Tuesday, August 30.

County, state and federal agencies in coastal North Carolina immediately began to access the imagery to assess damage and prepare response plans. In addition to the image services, CGIA staff created an application that enables users to view the post-hurricane imagery in conjunction with the 2010 statewide aerial photography. It includes a swipe tool to slide the post-hurricane imagery on and off so a user can compare "before and after."

Web Service Search. An enhanced web service search tool was developed to facilitate data discovery. A key word search tool enables users to quickly find relevant data. The user can then preview the data to determine if it fits their needs. An improved, intuitive data catalog supports the search function. The user can download the dataset or use the *NC OneMap* image service to display the data on their local computer. The outdated search capability was identified as one of the primary shortcomings of *NC OneMap* in the pre-planning project focus group sessions.

***NC OneMap* Blog**. Social media provide an increasingly popular way to search for and share information. The *NC OneMap* team created the *NC OneMap* blog that includes regular postings of data updates and enhancements to *NC OneMap*. Users can subscribe to the blog through a web feed called RSS that automatically delivers updates to their computer or

smart phone. The advantage to the user is that new information is delivered automatically without having to regularly visit the web site. The blog also enables valuable, interactive exchanges with users by permitting users to post comments on recent developments.

Working Group for Seamless Parcels and Working Group for Roads and Transportation. The SMAC's Working Group for Seamless Parcels (WGSP) developed detailed technical requirements for work on a $500,000 grant from the US Environmental Protection Agency to construct a statewide parcel dataset. The purpose of the grant is to develop a translation tool that will allow participating North Carolina local governments to submit a standardized version of their cadastral data so that it can be shared with state, tribal and federal agencies using an open source platform.

Simultaneously the SMAC's Working Group for Roads and Transportation (WGRT) is working on a $75,000 grant from the Federal Geographic Data Committee to facilitate the sharing of roads data between regional planning organizations, local governments, state agencies, and the public. A critical task, and a common goal of both the WGSP and the WGRT, is the development of tools to assist local data stewards with converting their data into common formats.

The joint team first created a new statewide parcels schema. A schema refers to the organization of data to create a blueprint of how a database will be constructed to represent the attributes or information about the parcels. The data transformation tool will be able to take a county's parcel schema and translate it into the statewide schema. In this way, counties will not have to restructure their data locally. The LGC, the SGUC and the NC Property Mappers Association participated in a review of the proposed statewide schema.

The working groups are now 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 used as test data in the development of the translation tool.

Geospatial Data Archiving. Under a grant from the Library of Congress, CGIA and the North Carolina State Archives lead a project called Geospatial Multistate Archive and Preservation Partnership (GeoMAPP), that pairs state government archives staff with geospatial experts to analyze the issues surrounding the preservation of "at risk" geospatial content. In collaboration with the states of Kentucky, Montana and Utah, the project team is compiling lessons learned and recommendations relating to the policies, process, inventory, technical infrastructure, storage capacity, and funding issues involved in ensuring long-term access to geospatial data. As part of the project's national outreach efforts, GeoMAPP meets regularly and shares findings with the GeoMAPP Informational Partnership, which is comprised of 14 additional states and several federal agencies including the National Archives and Records Administration. The project team will also engage an external contractor to develop business planning tools and templates to help agencies predict and justify the costs of preserving data. A variety of whitepapers generated by the project that

can benefit those interested in preserving geospatial data can be found with other project information at http://www.geomapp.net.

CGIA and NC State Archives continue to collaborate to transfer geospatial datasets from NC OneMap to the Archives. Some historic data is made available for user discovery and access via the North Carolina Digital Collections. This partnership will conclude December 31, 2011 after four and a half years of valuable research, implementation and outreach.

National Geospatial Platform. The federal government has embarked on an ambitious project to create a National Geospatial Platform, which is described as a set of common data services and applications for geospatial data that would be hosted on a shared infrastructure and used to support the mission of the federal government and its partners, including state and local governments. Ms. Karen Siderelis, Geospatial Information Officer for the Department of the Interior, presented the National Geospatial Platform to the GICC at its November meeting. She described the platform as *NC OneMap* for the country, a resource that provides access to data that are widely used and will support applications like 911, disaster response and the business processes of countless government agencies and the private sector.

Ms. Siderelis praised the efforts of the GICC in promoting statewide coordination activities in North Carolina. She noted that there is national recognition of the historic culture of collaboration on geospatial activities in North Carolina. The federal government has been directed to develop the National Geospatial Platform in collaboration with state, local and tribal governments and to make sure that geospatial initiatives are addressing the most important mission activities at all levels of government.

Ms. Siderelis invited the GICC to review the preliminary road map of the National Geospatial Platform and to provide feedback, particularly as it relates to North Carolina's interests. The GICC submitted a letter expressing support of the platform and outlining ways in which North Carolina and the federal government can collaborate to accomplish their common goals.

National Enhanced Elevation Assessment. Elevation data are critical to a broad range of government and private sector applications including resource management, infrastructure planning, environmental monitoring, and disaster mitigation. A statewide elevation dataset for North Carolina, derived from LIDAR (Light Detection and Ranging), played a critical role in creating the statewide orthoimagery.

The federal government initiated a national effort to assess the requirements, benefits and costs associated with developing a national elevation dataset. In response to a request from US Geological Survey, the LGC and the SGUC completed a formal survey on the needs and uses of elevation data by local and state government agencies.

Geographic Names. The North Carolina Board on Geographic Names (NCBGN), a subcommittee of the SMAC, makes recommendations to the SMAC and to the US Board on Geographic Names (USBGN) on local government and private requests to rename map features. During FY2011, NCBGN considered five requests for changes in geographic names, with the following results: approval to rename five streams; approval of a community name change; and denial of a request to change a lake name. The recommendations were approved by the SMAC and USBGN and will be entered into the federal Geographic Names Information System.

Standards and Issue Papers

The State Geographic Information/Consolidation Implementation Plan tasks the GICC with creating and updating GIS standards. The GICC's process for creation, assessment, update and adoption of standards relates to (1) standards created and updated by the GICC, and (2) other state or federal standards suitable for adoption by the GICC. The GICC addressed the following standards and technical issues in FY 2010-2011.

Geographic Data Content Standard for Water Distribution Systems and Sanitary Sewer Systems. The GICC adopted this standard in 1997. The LGC recognized that the standard needed to be updated, enhanced to meet the needs of local public works managers, and officially revised by the Council. The SMAC convened a small subcommittee of individuals who are knowledgeable in the water and sewer utility area. The subcommittee proposed revisions to the data content standard and drafted a set of best practices to help guide public and private efforts to map water and sewer systems.

LIDAR Specifications. The Secretary of State's Land Records Management Office drafted state specifications for acquisition and development of elevation data from LIDAR. Reviews by stakeholders and technical experts are underway, with adoption by the Secretary of State expected in 2011.

NAD 27 to NAD 83 Conversion. In 1986 the National Geodetic Survey officially adopted a redefined horizontal control network for North America. The North America Datum for 1983 (NAD 83) replaced the earlier version (NAD 27). In North Carolina, the State Legislature later updated the general statute on the State's Official Survey Base, to be based on NAD 83. The SMAC's Working Group for Orthophotography Planning completed an issue paper, adopted by the SMAC, with background and guidelines for converting and referencing mapping and photogrammetry products and the resulting coordinate-based Parcel Identification Number (PIN) determinations from NAD 27 to NAD 83. The paper will be valuable to local government agencies that have not converted their parcel and other geospatial data to the NAD 83 datum.

Technical Issue Papers from the Statewide Orthoimagery 2010 Project. The project team led by the Department of Crime Control and Public Safety's Office of Geospatial and Technology Management and the Department of Environment and Natural Resources, NC Geodetic Survey, in consultation with project contractors and the Working Group for

Orthophotography Planning, issued five technical papers based on experience in acquiring, processing, controlling quality for the statewide imagery. The topics related to quality control, aerial triangulation, camera validation, file compression, and coordination of private contractors.

Accomplishments by Partners

This section highlights projects, applications and data development activities by GICC members and partners in the statewide GIS community.

Department of Transportation Spatial Data Viewer. The NC Department of Transportation (NCDOT) needs accurate and timely access to geospatial information as many of its mission activities are dependent on good geospatial data. NCDOT created a Spatial Data Viewer (SDV) to support geospatial data users across the department. Previously DOT staff assessed, disseminated and viewed geospatial data through various ad hoc processes including file transfer protocol, by 'sneaker' net or by downloading data from the NCDOT public web site. The SDV serves as the primary deployment tool for geospatial data. This tool accomplishes the following: (1) provides much easier access by NCDOT staff to spatial information and analysis; (2) provides a more central and consistent source for data; (3) provides shorter delivery time for requested functionality and customization; (4) establishes a spatial web deployment infrastructure that is scalable and extensible; and (5) saves money by reducing the number of licensed spatial application products required. NCDOT saved disk storage space by using the new 2010 image service from the NC OneMap Geospatial Portal instead of storing a copy of the imagery.

Web Map Services for Agricultural Imagery. The NC Department of Agriculture and Consumer Services created web map services for statewide 1-meter resolution imagery for 2006, 2008, 2009 and 2010, with additional color-infrared versions for 2009 and 2010. NC Department of Environment and Natural Resources assisted in data acquisition from the National Agriculture Imagery Program. The web map services that are now accessible to the public through NC OneMap.

Building Footprints. The Department of Crime Control and Public Safety's Office of Geospatial and Technology Management (GTM) created a statewide building footprint dataset that now includes more than 5.1 million buildings. The effort targets buildings greater than 800 square feet. The data were delivered to counties in April 2011. Once final review is complete and metadata are prepared, GTM will release the data for distribution on *NC OneMap*.

Western Foothills Regional GIS Website. A consortium of seven counties in the western NC foothills created a regional GIS web site that supports parcel search by owner, PIN number and address for the seven-county region.

Wake County/City of Raleigh Web Resource. Wake County and the City of Raleigh collaborated to create an interactive multi-access parcel system (iMAPS). The application

provides access to geospatial and supporting data for internal and citizen uses. Over 10 city and county databases are used to deliver iMAPS seamlessly. Through its collaborative approach with other Wake County cities/towns and citizens, positive impacts have been achieved including higher confidence in data integrity, greater organizational trust and understanding, cost and resource sharing, and a positive impact on the citizens of Wake County. The application received an award for visionary use of GIS by local government in North Carolina at the 2011 NC GIS Conference.

City of Asheboro Mobile 311 Program. The City of Asheboro has made exemplary use of emerging technology in a practical manner to serve its citizens, particularly for a municipality of its size. The Mobile 311 Program was created to get field data into the office and reduce expenses such as fuel costs for the sanitation department. An additional goal was to make the application scalable for future applications beyond the needs of the sanitation department. Results have included more efficient routing, lower fuel costs, and a significant decrease in operations costs including equipment and staff resources (allowing those precious staff resources to meet other city needs). The application received an award for visionary use of GIS by local government in North Carolina at the 2011 NC GIS Conference.

Communication and Outreach

North Carolina GIS Conference, February 17-18, 2011

The 2009 North Carolina GIS Conference attracted more than 850 participants from state, local, and federal government and academia, even more than in 2009 despite a continuing difficult economic climate. Speakers, exhibitors and attendees from 21 other states traveled to North Carolina for the conference.

The biennial North Carolina conference is one of the largest in the nation, and was held again this year in the beautiful Raleigh Convention Center. The planning committee depends on volunteers from local, regional, state and federal governments, professional associations and the private sector to produce a statewide conference that meets the needs of our growing GIS user community.

The conference featured more than 170 presenters, including K-12 students from Exploris Middle School in Raleigh, the John M. Morehead Stem Academy in Charlotte and Fuquay-Varina High School. The program also included presentations by 19 students from 13 universities and colleges selected as the Herb Stout Student Award winners. The City of

Asheboro, the Metropolitan Sewerage District of Buncombe County, and Wake County were recognized with Herb Stout Awards for Visionary Use of GIS by Local Government.

GICC initiatives were prominently featured on the conference program, which included more than a dozen presentations on statewide GIS coordination issues.

"GIS Serving North Carolina" Day. The Council hosted a "GIS Serving North Carolina" Day at the General Assembly on May 18. Six local government agencies and six state agencies presented posters and computer displays to demonstrate the broad use of GIS across the state and to emphasize the value of good geospatial data. Attending legislators and staff found the event informative.

Communications Plan. The *NC OneMap* revitalization project report recommended that the Council develop a more focused communications strategy for *NC OneMap*. The Council acted on this recommendation, but recognized that an effective communications plan needed to include the entire scope of the Council's initiatives and activities.

While information is widely shared with the North Carolina GIS community, information is not well distributed to the non-GIS community including elected officials, local government officials, higher level state government officials and the press. The communications plan addresses all initiatives and activities of the GICC, its members and the statewide GIS community, not just *NC OneMap*. The goal of the communications plan is to promote and communicate activities and accomplishments related to (1) initiatives of the GICC and its committees and (2) mission/project activities of the GICC members, especially in the area of geospatial data development. The M&O Committee finalized the plan in June 2011. The plan is dynamic and will change as new opportunities are identified.

Statewide Orthoimagery Project Meetings. Between February and May 2011, the statewide orthoimagery project team distributed the 2010 imagery to all 100 counties at 26 meetings across the state. The project team informed the attendees about the mission of the Council and its committees and their role in this project. The team also presented the Business Plan for Orthoimagery in North Carolina. In addition the CGIA Director briefed the NC 911 Board on the statewide project on four occasions.

Professional Meetings and Events. GICC initiatives were promoted in numerous venues around the state. Staff, along with Council and committee members, presented at meetings sponsored by the NC 911 Board, NC State Data Center, NC Property Mappers Association, NC Chapter of the National Emergency Number Association, the Mountain Region GIS Alliance, the Charlotte Metropolitan GIS User Group, the NC Arc User Group, and the Chapel Hill GIS User Group. CGIA staff represented the Statewide Orthoimagery 2010 Project Team in a series of 26 regional meetings to distribute the county copies of the new imagery products.

As part of the National Digital Information Infrastructure and Preservation Program (NDIIPP), funded by the Library of Congress, staff presented at the NDIIPP annual meeting, the Society of American Archivists annual meeting, the Esri International Users Conference, the Esri Federal Users Conference, the Best Practices Exchange Conference and the National States Geographic Information Council mid-year meeting.

GIS Day, November 17, 2010. GIS Day is an international event sponsored by numerous agencies and professional associations. As in recent years, numerous map displays, events and school presentations sponsored by local and state governments occurred across North Carolina on GIS Day.

Website. The GICC (www.ncgicc.org) and *NC OneMap* (www.nconemap.com) web sites are widely used by committee members, the NC GIS community and the public to keep current on initiatives, meetings, opportunities and news about both the GICC and *NC OneMap*. "*GIS in NC – Who? What? Where?*," a feature accessible from both the GISS and *NC OneMap* sites, provides information of interest to GIS users in North Carolina. It now includes lists of county, city, regional, state and federal GIS contacts; a summary of higher education programs in Geographic Information Science; and a calendar of events.

Section III. Action Plan for 2011-12

The GICC will pursue a combination of activities to achieve its mission in FY2011-12. The goals for the coming year continue to be driven by the recommendations called for in the GIS Study Report and further referenced in the State Geographic Information/Consolidation Implementation Plan. The Council is also driven by ongoing, high priority actions based on quarterly Council meetings and committee work.

The GICC will continue to pursue implementation of the remaining recommendations called for in the Implementation Plan. Fifteen of the original 21 recommendations have either been completed or have been superseded by other decisions or actions of either the Council or the General Assembly. The remaining six recommendations require additional work and follow-up actions by the Council and its stakeholder groups, in cooperation with the General Assembly and the Governor. See Appendix D: GIS Consolidation/Implementation Plan Status for detail by recommendation. Actions for 2011-12 include:

NC OneMap Technology Revitalization

The GICC will continue to revitalize the technology and data used to achieve the *NC OneMap* vision. The M&O Committee and TAC, with support from the user committees, made significant progress in FY 2010-2011 on this effort. The new NC OneMap Governance Committee will be taking on the leadership role for revitalization of the NC OneMap technology and data resource. The revised *NC OneMap* vision and characteristics, the set of business requirements defined by the TAC, and the implementation of the *NC OneMap Geospatial Portal* have all led to the plan for 2011-2012 to enhance the *NC OneMap* resource through the following actions:

1. Add all priority datasets and older aerial imagery to the new NC OneMap Geospatial Portal for discovery and access.
2. Replace the *NC OneMap* map viewer with a viewer based on current technology.
3. Work with collaborating data custodians to make more geospatial data discoverable and accessible through the *NC OneMap* Geospatial Portal.
4. Promote the new 2010 image service as a resource to users statewide.
5. Define a business case for and develop a pilot demonstration of *NC OneMap* serving as an archive for local datasets for purposes of disaster recovery and retention of superseded geospatial data.

The focus in 2011-12 will be on those requirements that can be completed without additional resources. Fully implementing final recommendations for revitalizing *NC OneMap* will require new funding.

Statewide Program for Orthoimagery

In 2010, funding from the NC 911 Board enabled the acquisition of high-resolution orthoimagery for a single time frame for all 100 counties for the first time ever. The SMAC and its Working Group for Orthophotography Planning developed a Business Plan for Orthoimagery in North Carolina that defined the business case and recommended a

practical approach for future orthoimagery production for North Carolina. This plan was accepted by the Council. For 2012, the plan is to continue the statewide orthoimagery program with acquisition of one-fourth of the state as the beginning of the next four-year cycle. The NC 911 Board will fund the program in 2012, with CGIA leading the collaboration of state agencies, engagement of private service providers, and coordination of state and local participants.

Completion of Statewide GIS Strategy

Under the direction of the GICC's M&O Committee, CGIA will complete a Statewide GIS Strategy to present to the Council. Elements of the Strategy will include the following:

- Strategies for NC OneMap Geospatial Portal as a focal point of data discovery and public access
- A plan for all framework layers defined in the Statewide GIS Strategy, to include identified custodians, costs associated with development and maintenance, and potential funding sources for data enhancement
- Enterprise approaches to software and services
- Methods for project consistency
- Application of data standards
- Best practices in data development, data management and applications
- Ways to extend the benefits of investments in geospatial data, technology, and practitioners

Adoption and Promotion of Standards

In 2010, the GICC established a process for creation, assessment, update and adoption of standards. This document guides the GICC, the SMAC and CGIA regarding (1) standards created and updated by the GICC; and (2) other local, state or federal standards suitable for adoption by the GICC. The Council will evaluate standards associated with each Framework layer (orthoimagery, parcels, transportation, elevation, streams, geodetic control, and governmental unit boundaries) and identify for each the best course of action that may include one or more of the following: development of a new state standard; adoption of a federal standard; update or enhancement of a current state standard; and promotion among practitioners through communication of best practices. To inform an action plan for standards, the SMAC and CGIA will analyze the costs and benefits of applying standards to development and maintenance of framework layers. The Council will adopt revised or proposed standards based on recommendations by the SMAC.

The Council will collaborate with state agencies and counties and municipalities to promote the adoption and implementation of Council approved standards. Outreach and technical assistance are needed at the state, regional, and local government levels, and with private organizations, to promote application of standards. The end result is more consistent, complete, well-documented geospatial data for local, regional and statewide business needs, including data discoverable and accessible through *NC OneMap*.

Seek Federal and Other Funding Grants

The Council, CGIA and other agencies will continue to seek federal and other grants to support Council initiatives. This approach is being pursued throughout the state government agencies. There have been successes in obtaining federal funds to support GIS activities statewide. With a Statewide GIS Strategy in hand, a more coordinated effort to pursue federal grants could be achieved to significantly increase the chances of further success.

Review Information Technology Projects

CGIA will support the Office of the State Chief Information Officer through the Enterprise Project Management Office (EPMO) in the review of Information Technology Projects using GIS to ensure no cross state government agency duplication and ensure that the business case has been made for the requested investment. CGIA will provide a report to the Joint Legislative Oversight Committee on Information Technology and the Fiscal Research Division of the General Assembly by January 1, 2012 based on the review of projects.

Complete the Return on Investment (ROI) Federal Grant Project

CGIA received a federal grant from the Federal Geographic Data Committee to apply an ROI methodology to a GIS project in Lenoir County. CGIA is working with Interagency Leadership Team (ILT), a combination of federal and state agencies involved in the transportation planning process. The methodology provides a tool to assess costs and benefits in terms of present value. The project will generate the ROI for developing and using GIS data in the transportation planning realm, with applicability to other areas as well.

Ongoing GICC Actions

In addition to the actions cited above from the State Geographic Information/Consolidation Implementation Plan, the following actions are planned and listed as high priorities of the GICC and staff. These actions fall under one of several priority categories:

- Best Practices
- Development of Statewide Datasets
- Clearinghouse
- Outreach

Best Practices. The Council will add a feature to the *NC OneMap* and GICC websites to post documents describing best practices in geospatial data development, data management, and applications. The focus in 2011-2012 will be best practices related to adopted standards.

Development of Statewide Datasets. Statewide datasets have value for multi-county, cross-jurisdictional mapping and analysis related to emergency management, 911 communications, infrastructure planning, and many other public and private business needs. The Council is working through its committee structure in three areas: seamless parcel boundaries, statewide roads, and archival and long term preservation and access to geospatial data.

For **seamless parcels**, the Council will look to one of its working groups that received an EPA grant to develop a foundation for a seamless parcels data layer for North Carolina. The goal is to make the parcels layer more readily available to potential users.

The effort behind **statewide roads** involves all of the key stakeholders in developing a consistent set of information to be shared by data producers in local governments throughout North Carolina with potential users. This is coupled with development of an enhanced road centerline standard to increase functionality, data integrity, quality, and to provide improved guidance to producers. A working group of the GICC received a federal grant to implement this objective.

A third key activity is handling of **archival geospatial data for long-term preservation and access**. A multi-year grant from the Library of Congress has funded an effort by CGIA, the North Carolina State Archives and selected collaborating states to pursue this goal. The Council and its subcommittees will evaluate the results of the Library of Congress project and identify opportunities for developing guidelines and suggested best practices for government agencies to support preservation of geospatial data.

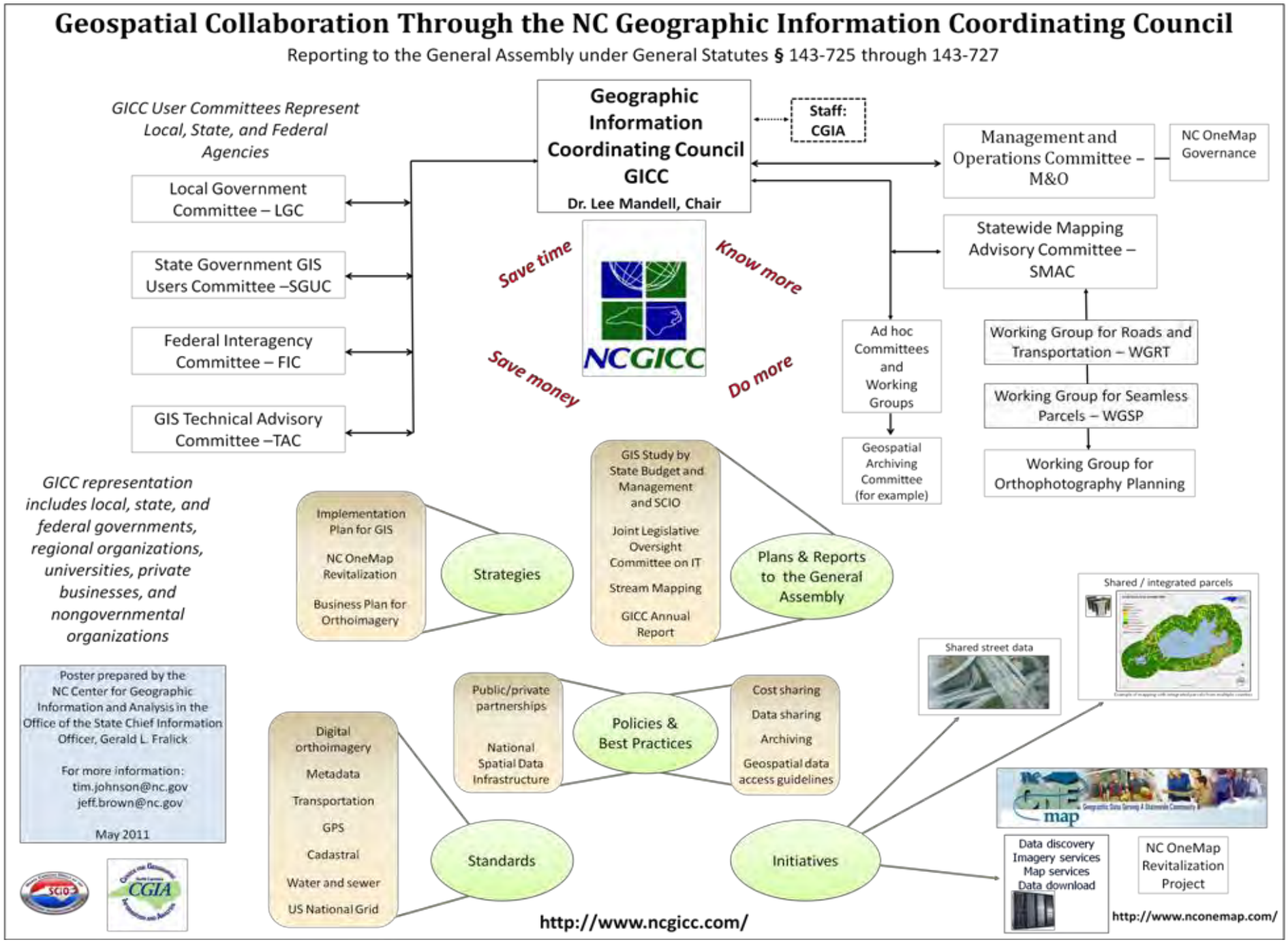
Clearinghouse. One key mission of the GICC is to enable better access to geospatial data developed in the public sector by many data producing agencies. Historically, it has been difficult to know what datasets are available and how to obtain them. The *NC OneMap* initiative was adopted as a direction by the GICC in 2003 to pursue greater availability and access to geospatial data. The focus in 2011-2012 is the new *NC OneMap* Geospatial Portal that enhances and expands data discovery and data access for the public. The plan is to add datasets from the *NC OneMap* database, including historic orthoimagery, to the Geospatial Portal as map services and downloadable files. In addition, the GICC will evaluate the current GIS Inventory as a resource for data discovery by the public in the context of the new Geospatial Portal.

Outreach. Outreach efforts are critical for sharing the GICC mission, goals, current activities, and plans. GICC committees and staff will share knowledge about standards, best practices, opportunities for cost-sharing, and participation in *NC OneMap*. The M&O developed a communication plan in 2011 to guide outreach efforts. The plan includes participation in local, regional, and statewide meetings, and further enhancements to the GICC and *NC OneMap* websites. The 2012 orthoimagery project will provide another opportunity to share information with local 911 and GIS practitioners.

Appendices

A. GICC Structure 2011
B. 2010-2011 Geographic Information Coordinating Council Members
C. NC Geographic Information Coordinating Council Establishing Authority and Precedent
D. State Geographic Information / Consolidation Implementation Plan Status

Appendix A: GICC Structure 2011



Appendix B: 2010-11 Geographic Information Coordinating Council Members

Member	Title and Organization	Appointing Authority
***Chair,* Dr. Lee Mandell** 5124 Melbourne Rd. Raleigh, NC 27606-1748	Adjunct Professor, Ctr. for Public Tech. *School of Government, UNC-CH* 919/327-8112	Governor
***Vice Chair*, Bob Brinson** 2020 Yonkers Road Raleigh, NC 27604	Chief Information Officer *Department of Correction* 919/716-3501	Governor
June S. Atkinson 301 N. Wilmington Street Raleigh, NC 27601	State Superintendent *Department of Public Instruction* 919/807-3430	Executive Office *Designee—Derek Graham* *919/807-3571*
Rodney Bunch PO Box 39 Elizabeth City, NC 27907	Assistant County Manager *Pasquotank County* 252/335-5177	Governor *(for County Government)*
James Caldwell PO Drawer 1510 Fayetteville, NC 28302	Executive Director *Mid-Carolina Council of Governments* 910/323-4191	Governor *(for Lead Regional Organizations)*
Lanier Cansler 2001 Mail Service Center Raleigh, NC 27699-2001	Secretary *Dept. of Health and Human Services* 919/733-4534	Executive Office *Designee—Melodee Stokes* *919/855-4401*
Moses Carey, Jr. 1301 Mail Service Center Raleigh, NC 27699-1301	Secretary *Department. of Administration* 919/807-2425	Executive Office *Designee—John Cox* *919/807-4674*
Gene Conti 1501 Mail Service Center Raleigh, NC 27699-1501	Secretary *Department of Transportation* 919/733-2520	Executive Office *Designee—John Farley* *919/707-2151*
Keith Crisco 4301 Mail Service Center Raleigh, NC 27699-4301	Secretary *Department of Commerce* 919/733-3449	Executive Office
John Farley 1587 Mail Service Center Raleigh, NC 27699-1587	Section Manager *Dept. of Transportation, GIS Section* 919/707-2151	Appointed by GICC Chair *Chair, State Government GIS Users Committee*

Member	Title and Organization	Appointing Authority
Edward S. Finley, Jr. 4325 Mail Service Center Raleigh, NC 27699-4325	Chair *NC Public Utilities Commission* 919/733-4249	Executive Office *Designee—Bliss Kite* *919/733-0854*
Jerry Fralick PO Box 17209 Raleigh, NC 27609	State Chief Information Officer *Information Technology Services* 919/754-6575	Executive Office *Designee—George Bakolia* *919/754-2980*
Dee Freeman 1601 Mail Service Center Raleigh, NC 27699-1601	Secretary *Dept. of Environment & Natural Res.* 919/715-4101	Executive Office *Designee-Mary Penny Thompson* *919/715-0691*
John M. Gillis, Jr. 128 S. Churchill Dr. Fayetteville, NC 28303	Farming and Land Development *Gillis Group Partnership* 910/308-4255	NC Senate
William D. Gilmore 1652 Mail Service Center Raleigh, NC 27699-1652	Director *Ecosystem Enhancement Program* 919/715-1412	Governor *(for At Large State Agency)*
Ellis Hankins PO Box 3069 Raleigh, NC 27602	Executive Director *NC League of Municipalities* 919/715-4000	Executive Office *Designee—Ryan Draughn* *919/715-2915*
David Hoyle 4501 Mail Service Center Raleigh, NC 27699-4501	Secretary *Department of Revenue* 919/733-0023	Executive Office
Kelly Laughton 241 Freeman Creek Rd. Zirconia, NC 28790	Consultant *Davenport Group* 704/552-5228	NC Senate
Elaine F. Marshall PO Box 29622 Raleigh, NC 27626-0622	Secretary of State *Office of Secretary of State* 919/807-2008	Executive Office
Anne Payne PO Box 550 Raleigh, NC 27603	GIS Database Administrator *Wake County* 919/856-6383	Governor *(for General Member)*
Jeremy Poss PO Box 908 Pittsboro, NC 27312	GIS Coordinator *Chatham County* 919/545-8469	NC House of Representatives

Member	Title and Organization	Appointing Authority
Steven D. Puckett 5314 Highway 55, Suite 104 Durham, NC 27713	SD Puckett & Associates *Past President, NC Society of Surveyors* 919/544-7717	Governor
Dr. R. Scott Ralls 5001 Mail Service Center. Raleigh, NC 27699-5001	President *Department of Community Colleges* 919/807-6950	Executive Office *Designee—Saundra Williams* *919/807-6977*
Dr. Linda Rimer 4930 Old Page Road Mail Code: C304-05 Durham, NC 27703	Region 4 Liaison to NC and SC *US Environmental Protection Agency* 919/541-0785	Federal Representative
Thomas Ross PO Box 2688 Chapel Hill, NC 27515-2688	President *UNC-Office of the President* 919/962-1000	Executive Office *Designee—Dr. Hugh Devine* *NCSU 919/515-3682*
Colleen Sharpe PO Box 590 Raleigh, NC 27602	GIS Manager *City of Raleigh* 919/516-2520	Governor *(for Municipal Government)*
Julie Stamper 206 E. Main St. Elizabeth City, NC 27909	GIS Coordinator *Pasquotank County* 252/331-2336	Chair, Local Government Committee
Richard Taylor 3810 Mitchell Circle New Bern, NC 28562	Executive Director *NC 911 Board* 919/754-2942	NC Senate
David Thompson 215 N. Dawson St. Raleigh, NC 27603	Executive Director *NC Assoc. of County Commissioners* 919/715-2893	Executive Office *Designee—Rebecca Troutman* *919/715-2893*
Steve Troxler 1001 Mail Service Center Raleigh, NC 27699-1001	Commissioner of Agriculture *Dept. of Agriculture & Consumer Services* 919/733-7125	Executive Office *Designee—Daniel Madding* *919/807-4344*
Andy Willis 20320 Mail Service Center Raleigh, NC 27699-0320	State Budget Director *Office of State Budget & Management* 919/807-4700	Executive Office *Designee—Sarah Porper* *919/807-4775*

Member	Title and Organization	Appointing Authority
Ron York PO Box 1006 Charlotte, NC 28201-1006	Principal Consultant – GIS Strategies *Duke Energy Power Delivery* 704/382-2158	NC House of Representatives
Reuben Young 4701 Mail Service Center Raleigh, NC 27699-4701	Secretary *Dept. of Crime Control and Public Safety* 919/733-2126	Executive Office

Appendix C: NC Geographic Information Coordinating Council

Establishing Authority and Precedent

The North Carolina Geographic Information Coordinating Council was established by Senate Bill 895 in August 2001 and was incorporated in the General Statutes §143-725 through 143-727.

The purpose of the Council is to develop policies regarding the utilization of geographic information, geographic information systems (GIS), and other related technologies. The Council is responsible for the following:

- Strategic planning,
- Resolution of policy and technology issues,
- Coordination, direction, and oversight of State, local, and private GIS efforts, and
- Advising the Governor, the General Assembly, and the State's Chief Information Officer as to needed directions, responsibilities, and funding regarding geographic information.

The Council is charged with statewide geographic information coordination and fosters cooperation among State, federal, tribal, and local government agencies; academic institutions; and the private sector in order to improve the quality, access, cost-effectiveness and utility of North Carolina's geographic information and to promote geographic information as a statewide strategic resource.

Precedent. Prior to the enactment of legislation, the North Carolina Geographic Information Coordinating Council existed through Executive Orders issued by Governor James G. Martin and Governor James B. Hunt Jr. Executive Order No. 147 by Governor James G. Martin first established the Council in July 1991. Governor James B. Hunt Jr. issued Executive Order No. 16 in May 1993 that remained in effect until 2001.

Staff to the Council. The Center for Geographic Information and Analysis (CGIA), located in the Department of Environment and Natural Resources and formerly attached to the Office of the Governor, staffs the Council. CGIA manages and distributes digital geographic information about North Carolina maintained by numerous State and local government agencies. It operates a service bureau, a statewide data clearinghouse, and manages the *NC OneMap* program which provides Internet access to State and local government through the *NC OneMap* website and FTP geospatial data distribution site.

Changes Resulting from SL2009-0451. Through SL2009-0451, which was approved on August 7, 2009, certain changes were made via Section 6.8 regarding "Geographic Information Consolidation." Those changes are listed below with language taken directly from the session law.

SECTION 6.8.(a) Findings. – The General Assembly finds that there is a critical need for consolidating the investments made in geographic information systems and developing

common infrastructures in order for the State to reap all the potential benefits of geographic information systems at the lowest cost.

SECTION 6.8.(b) Implementation Plan. – The recommendations outlined in the 2008 legislative report prepared by the State Chief Information Officer, the Geographic Information Coordinating Council, and the Office of State Budget and Management, made pursuant to Section 6.13 of S.L. 2008-107, entitled "State Geographic Information Consolidation Implementation Plan," shall be implemented in four distinct work streams, as follows:

(1) Transferring the Center for Geographic Information and Analysis to the Office of the State Chief Information Officer and establishing appropriated funding for staff activities supporting the Geographic Information Coordinating Council, statewide standards, and the coordination of data acquisition.

(2) Reestablishing the professional services component and refocusing that effort toward current needs of the community while reducing those overhead costs.

(3) Revitalizing the NC OneMap project by leveraging new technology in the market to reduce costs while increasing utility of the service.

SECTION 6.8.(c) Transfers of Agencies, Powers, Duties. – The statutory authority, powers, duties, functions, records, personnel, property, and unexpended balances of appropriations, allocations, or other funds of the State agencies and subunits listed in this subsection are transferred from those entities to the State Chief Information Officer, Office of Information Technology Services, with all of the elements of a Type II transfer as defined by G.S. 143A-6:

(1) The North Carolina Geographic Information Coordinating Council.

(2) The Center for Geographic Information and Analysis.

The Center for Geographic Information and Analysis shall remain in its current office space unless the State Chief Information Officer determines otherwise.

SECTION 6.8.(d) Center for Geographic Information and Analysis Coordination.– The State Chief Information Officer shall coordinate a professional services component for geographic information systems coordination with the Center for Geographic Information and Analysis that is refocused toward current community needs.

SECTION 6.8.(e) North Carolina Geographic Information Coordinating Council Coordination. – The State Chief Information Officer, in cooperation with the North Carolina Geographic Information Coordinating Council, shall coordinate the refocusing of the NC OneMap geographic information systems infrastructure project to leverage new technology, to increase the utility of geographic information systems services, and to reduce geographic information systems data layer costs through singly managed contracts.

SECTION 6.8.(f) Information Technology Fund. – The Information Technology Fund shall be used for the purpose of acquiring and managing, at the lowest cost, data layers useful to multiple State and local organizations, according to the priorities set by the North Carolina Geographic Information Coordinating Council. The Information Technology Fund may receive private grants

and may include State, federal, local, and matching funds. Any funding received for GIS may be used only for that purpose.

SECTION 6.8.(g) Geographic Information Systems Funding. – Of the funds appropriated in this act to the Information Technology Fund, the sum of seven hundred forty thousand dollars ($740,000) for the 2009-2010 fiscal year and the sum of seven hundred forty thousand dollars ($740,000) for the 2010-2011 fiscal year shall be used to effectuate the transfer of the Center for Geographic Information and Analysis, including the cost of moving personnel positions, as provided by this act.

Additional changes resulted from SL2010-0031, approved on June 30, 2010, whereby Section 6.9(b) addressed review of information technology projects involving geospatial data and/or technology by CGIA. Those changes are listed below with language taken directly from the session law.

SECTION 6.9.(b) All State agencies shall coordinate any Geographic Information System (GIS) initiatives through the Center for Geographic Information and Analysis (CGIA) to ensure that they are not duplicating an existing function. The CGIA shall monitor and approve all new GIS-related information technology projects and expansion budget requests. By January 1, 2011, the CGIA shall make a written report to the Joint Legislative Oversight Committee on Information Technology and to the Fiscal Research Division on the results of these efforts.

Appendix D: State Geographic Information / Consolidation Implementation Plan Status, July 2011

See: http://www.scio.nc.gov/initiatives/default.aspx, then click under "Reports and Presentations" on "Geographic Information/Consolidation Implementation Plan."

	Description	What's Been Done	What's in Progress	What's Left
1	Task the GICC through the Management and Operations (M&O) Committee with the responsibility of setting and managing the Statewide GIS Strategy.	NC OneMap vision and characteristics reconfirmed by GICC; M&O prioritized datasets and completed business requirements for NC OneMap	Developing strategies for data sharing, data archiving, and funding maintenance of priority datasets	Specify funding needs for data layer creation/update; confirm roles and responsibilities; produce a Statewide GIS Strategy document.
2	Task the CGIA with the responsibility of coordinating the implementation of the Statewide GIS Strategy and GICC policies and standards for state government.	Progress dependent on completing Recommendation #1	N/A	N/A
3	Provide the GICC, through the M&O, and the CGIA with authority to: • Create and update GIS standards • Ensure that GIS related standards are implemented by state agencies • Collaborate with counties and municipalities to promote the adoption and implementation of GIS standards • Establish statewide GIS roles responsibilities for all state agencies for updating framework plus other key data layers	GICC SMAC has adopted a process for reviewing standards, created a Standards Working Group to assess standards for priority datasets, and supported stakeholder efforts related to standards for water and sewer system mapping and LIDAR data development.	Update to the content standard for water and sewer system mapping, with accompanying best practices for local applications.	Outreach needed to state and local government agencies; create roles and responsibilities based on agency missions and statutory authority. Work within current SCIO policy development processes to ensure that GIS policies are implemented by state agencies.
4	Establish a GIS Reserve account, by which OSBM will have oversight to manage annual General Assembly appropriated funding for framework data plus other key data layers according to the priorities set by the GICC through the M&O Committee to agencies" data stewards.	Has not been initiated	N/A	Complete Statewide GIS Strategy and determine when GIS Reserve needs to be in place to support its implementation.
5	The GICC/CGIA, OSBM and the Agencies to identify both the existing and required recurring funds for framework data layer maintenance to establish the GIS Reserve account. The amounts must be netted out for any anticipated cost share from federal or local governments.	Has not been initiated	N/A	Dependent on completion of Statewide GIS Strategy and identification of roles and responsibilities and funding sources.

	Description	What's Been Done	What's in Progress	What's Left
6	Move the CGIA and all of its responsibilities (currently under DENR) to the State Chief Information Officer (CIO).	Completed in Sep 2009	N/A	N/A
7	Align the current CGIA Director to report directly to the State CIO.	Complete, Director reports to Senior Deputy State CIO	N/A	N/A
8	Leave agency GIS personnel in agencies.	Complete	N/A	N/A
9	Subject to inclusion in the Governor‟s Budget for 2009-10, appropriate funding for 7 CGIA positions.	Complete, funding provided through State IT Fund;	N/A	N/A
10	Leave 11 positions as „fee based‟ to support the development of multi state agency enterprise GIS product offerings.	Complete	N/A	N/A
11	Subject to inclusion in the Governor‟s Budget for 2009-10, appropriate funding for an additional OSBM position for GIS Reserve oversight.	Not funded, since GIS Reserve Account has not been created	Future consideration	Creation of position when needed to support handling of GIS Reserve funds.
12	Subject to inclusion in the Governor‟s Budget for 2009-10, appropriate funding for a system architecture plan and follow up with funding for implementation of that plan to complete the NC OneMap vision.	Not funded, but NC OneMap pre-planning project was completed to make progress on sustaining the initiative; evaluated information from service providers; defined business requirements for a revitalized NC OneMap; submitted an expansion budget request that was not approved.	Enhancements to NC OneMap in an agile development process carried out by NC OneMap staff without additional funding.	Evaluate an expansion request to pursue further revitalization of NC OneMap.
13	GICC/CGIA and the Land Records Management Program (in the Department of the Secretary of State) should coordinate a statewide flyover for orthophotography both logistically and via funding across the different levels of government. This should be based on a four-year cycle to complete and maintain the statewide coverage.	Statewide Orthoimagery 2010 project funded by NC 911 Board grant to City of Durham was completed on time and within budget; team included CGIA, Land Records Management Program, CCPS, DENR, and DOT. GICC member committees also involved as advisors	Imagery is being served free to the public through a new NC OneMap Geospatial Portal (June 2011).	Implementation of a 2012 project. NC 911 Board approved funding for the first year of a four-year cycle to update the orthoimagery, one-quarter of the state annually.
14	GICC/CGIA and the Land Records Management Program should implement an aggregate cost share model with the Counties contributing 50%, the State contributing 25% and the Federal Government contributing 25% for the leaf-off product based on the Technical Specifications for Digital Mapping (Orthophotos) GS 102-17, Land Records Management Division, North Carolina Secretary of State, as adopted by the GICC.	The SMAC, Working Group for Orthophotography Planning completed a "Business Plan for Orthoimagery in NC" that addressed technical, management, and potential funding alternatives for future years. GICC endorsed the plan.	Further consideration of funding percentages in the context of funding from the NC 911 Board and cost-share history and continued interest by US Geological Survey.	Evaluation of the 2010 statewide project, including benefits to 911 communications and local GIS operations.

	Description	What's Been Done	What's in Progress	What's Left
15	Consideration should be given regarding the 50% County participation to ensure counties with very high growth which require more frequent orthophotography pay more of a share versus counties with little to no growth who should pay a much smaller to no share of the cost.	The statewide orthoimagery project in 2010 acquired imagery over all parts of the state at the same high resolution. The Business Plan for Orthoimagery recommends a similar approach for one-fourth of the state annually. The benefits of consistency across jurisdictions for 911 communications outweigh the benefits of a more complex imagery acquisition approach.	Project planning for imagery acquisition for one-fourth of the state in 2012.	Implement the 2012 project, evaluate funding options, and plan for annual projects in following years.
16	Subject to inclusion in the Governor‟s Recommended Budget for 2009-2010, appropriate 25% (or $635,625) to the GICC for the State‟s participation and/or	Superseded for 2010 by statewide funding provided through 911 Board	N/A	N/A
17	Request 911 Board to review the language pertaining to the 911 Fund to consider specifically allocating monies for the State flyover.	Completed	N/A	N/A
18	GICC via the NC Department of Crime Control and Public Safety (CCPS) should seek Homeland Security Grants to augment GIS.	Has not been initiated	N/A	N/A
19	Agencies/GICC/CGIA should continue to aggressively seek federal funding grants to fund GIS projects in addition to orthophotography flyovers.	Ongoing effort by agencies participating on the GICC	GICC and CGIA continue to explore Federal funding possibilities with other state agencies and organizations	Need to match up federal funding opportunities with the needs expressed in the Statewide GIS Strategy once it is in place
20	Information Technology Projects using GIS should be reviewed by CGIA to ensure no cross state government agency duplication and ensure that the business case has been made for the requested investment. If multiple projects are solving the same problem, then an enterprise offering should be considered, coordinated and/or built by the CGIA.	General Assembly directed this work through SL2010-031, sec. 6.9 and CGIA now looks at GIS-related IT projects	Review of projects is ongoing as submitted by state agencies	Report to General Assembly and Fiscal Research by January 1, 2012; potential for folding project needs into the overall Statewide GIS Strategy
21	State Agencies should evaluate consolidation opportunities to reduce the number of servers if and where appropriate.	As part of Recommendation #6, CGIA migrated and consolidated all GIS data and applications on its independent servers to the ITS managed server service; the 2010 statewide orthoimagery is served by ITS.	N/A	N/A