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Agreement Number: 06HQAG01105

Project Title: NC OneMap Future Directions with Fifty States

Interim or Final Report: Final

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Executive Summary: In 2006, North Carolina determined that it possessed eight of the nine critical characteristics of successful statewide GIS coordination, using a self-assessment process adopted by the FGDC Fifty States Initiative. The missing characteristic for North Carolina at that time was the lack of ‘sustained funding’ needed to resource GIS coordination efforts and the development of North Carolina’s comprehensive statewide geospatial resource, NC OneMap. This project supported and enabled staff to participate in two high-profile statewide coordination planning and funding initiatives. Work also centered on the development of an ‘initial stewardship framework’ intended for further consideration in near term implementation planning exercises. The primary project activity areas are described.

Office of State Budget and Management GIS Study Report

The CAP project supported, in part, staff involvement on a project led by the Office of State Budget and Management (OSBM) to conduct a GIS Study, as ordered by the NC General Assembly. The OSBM GIS Study Report was released in February 2008. The report contains solid recommendations for advancing the NC spatial data infrastructure and helped to examine coordination issues as well as make recommendations for improving statewide coordination. Recommendations from the report were reflected in the Governor’s Proposed Budget and considered by the NC General Assembly in the 2008 “short” session, a session devoted to making adjustments to the 2007 – 2009 biennial state budget. The Governor’s proposed budget

included the report recommendations and proposed appropriations of \$6.5 million, including 9 positions. The OSBM GIS Study report is on-line at the Fifty States initiative project site:

<http://www.fgdc.gov/grants/2006CAP/projects/06HQAG0105>

Interagency Leadership Team Business Case

The CAP project also supported, in part, staff participation in the vetting, marketing, and budget planning process for a business case developed by the Interagency Leadership Team (ILT). The ILT consists of ten key state and federal agencies involved with transportation planning. The ILT had developed the business case for implementation of a statewide GIS consisting of 171 data layers just prior to the launch of the CAP project. The ILT business case was referenced in the OSBM GIS Study Report yielding benefits of \$50.4 million per year with full implementation. The ILT summary report is on-line at:

<http://www.fgdc.gov/grants/2006CAP/projects/06HQAG0105>

Initial Stewardship Framework

The CAP project also supported staff in the development of an ‘initial stewardship framework’ for consideration in near term planning opportunities. The initial stewardship framework (ISF) outlines the elements necessary to document the programmatic requirements and fiscal benefits to position NC OneMap as an enterprise-caliber, stakeholder driven resource for the North Carolina geospatial community. The ISF includes five key principles: organizational participation; investment in technology and infrastructure; value of spatial data; spatial data development and maintenance; geospatial specialist.

Fifty States Management Tools

Staff resources were applied in the utilization of two FGDC and NSGIC Fifty States management tools as follows:

- a) Compilation and analysis of management information to inform the OSBM GIS Study Report using harvested data from the NC GIS Inventory (powered by RAMONA). OSBM needed baseline data about the statewide community and utilized the inventory. By using the inventory OSBM helped promote it, and it now contains policy, system, organization, and content entries from over 200 registered statewide stakeholders.
- b) Supported OSBM in a self graded assessment against the FGDC Fifty States Coordination Criteria. The results are documented as a “report card” in Appendix F of the OSBM GIS Study.

Project Narrative:

Background

In 2006, North Carolina determined that it possessed eight of the nine critical characteristics of successful statewide GIS coordination, using a self-assessment process adopted by the FGDC Fifty States Initiative. The missing characteristic for North Carolina at that time was the lack of ‘sustained funding’ needed to resource GIS coordination efforts and the development of North Carolina’s comprehensive statewide geospatial resource, NC OneMap.

North Carolina Geographic Information Coordinating Council

The North Carolina Geographic Information Coordinating Council (established under North Carolina General Statutes Article 76, §143-725 through §143-727) provides a forum for collaboration, communication, and policy-making among the statewide geospatial community. The GICC includes key representation from state agencies, local government, academia, federal field offices, and also includes private sector representation. The reach of the GICC through its “collaborative network” is widespread. As an example, distribution of material on GICC actions and requests for input extend to over 3,000 individuals via email.

One of the GICC’s initial actions as a legislated body in 2002, was to form a vision for statewide GIS. That and other actions of the Council form the direction for NC OneMap. Key actions were:

- The setting of a vision and characteristics for statewide GIS which it branded as NC OneMap, “geographic data serving a statewide community;”
- The setting of an implementation plan for NC OneMap, including four main concentration areas: achieve a common understanding of data resources needed; preparation of an on-going inventory of all geospatial resources across North Carolina; development of data content standards and cost projections; enable widespread use of data resources by improving access and distribution of the data. Additionally, one of fourteen steps in the implementation plan is to “seek funding for full implementation of *NC OneMap* as a fully-maintained data resource;”
- Establishment of 37 themes as initial data layers to include in NC OneMap;

- Endorsement of the Interagency Leadership Team report: Enhancing and Managing a Shared GIS Database;
- Adoption of Data Sharing Recommendations;
- Adoption of other standards and directives for the planning and handling of NC OneMap content, see www.ncgicc.org.

Though active and successful in the setting of policies, guidelines, and standards for the statewide geospatial community, GICC efforts to secure sustained funding for NC OneMap and statewide coordination has had minimal success, thus far.

North Carolina Center for Geographic Information and Analysis
The Center for Geographic Information and Analysis serves as staff to the GICC and its numerous committees and workgroups. Though specified in statute to serve in this capacity, CGIA is not funded through appropriations to do so and instead relies on the revenue generating capabilities of its services program to support the GICC staffing and the NC OneMap support role.

As a receipt funded agency, CGIA depends on project revenues and/or financial assistance in the form of federal assistance awards and grants to support its coordination initiatives. For this reason, CGIA sought and received assistance from FGDC to address the funding deficiency through the CAP program.

CAP Project Activities

This CAP project enabled staff to participate in two high-profile statewide coordination planning and funding initiatives which emerged and were prominent during the specified project performance period. For reporting purposes, these initiatives are referenced as: 1) Office of State Budget and Management GIS Study Report; and 2) the Interagency Leadership Team Business Case. The two planning initiatives were led at the executive level in state government and became a focal point for addressing plans and funding opportunities for statewide GIS coordination. To that end goal, efforts to support the planning and furtherance of these planning initiatives became a practical and logical priority for CGIA staff on the CAP project.

Descriptions of the two initiatives and their status are provided below.

Office of State Budget and Management GIS Study Report

A GIS Study was ordered by the NC General Assembly to be led by the Office of State Budget and Management (OSBM). CGIA staff participated in various aspects of the project, providing consultation as requested and materials to OSBM. Staff involved in the activities included the CGIA Director, Program Managers, and Technical Analysts. The report included 21 recommendations under 6 general categories that advance GIS in North Carolina and include funding strategies for NC OneMap. The categories are:

- Governance;
- Organization;
- Staffing/Funding Model;
- Infrastructure;
- Leveraging Local and Federal Support;
- Consolidation of State GIS Initiatives.

The OSBM GIS Study Report was released in February 2008. Recommendations cited in the report were reflected in Governor Michael F. Easley's Proposed Operating and Capital Budget recommendations for fiscal year 2008-09. The Governor's proposed budget included recurring and non-recurring appropriations for a total of \$6.5 million and 9.0 positions. See http://www.osbm.state.nc.us/files/pdf_files/2008-2009_adjustments.pdf

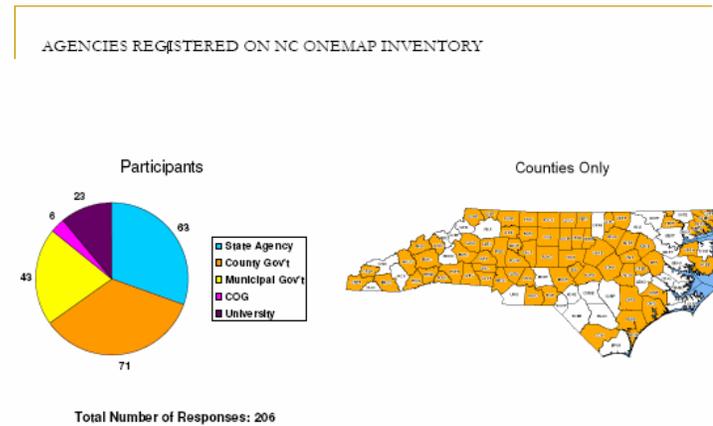
The House and Senate chambers of the General Assembly each introduced legislative bills, H2240 and S1801, entitled "Improve State GIS/CGIC Funds" advocating favorable action on the recommendations. The bills were introduced in May 2008 as part of the General Assembly "short" session, a session devoted to making adjustments (rather than taking on new initiatives) to the 2007 – 2009 biennial state budget. The General Assembly adjourned in July without taking final action on those bills. However, the appropriations bill, (H2436) directed OSBM to develop further detail in the implementation of the recommendations and report by December 1, 2008.

As part of its support to the OSBM, CGIA project activities also included the utilization of FGDC Fifty States initiative management tools.

NC GIS Inventory (Powered by RAMONA)

Project staff compiled management information to inform the OSBM GIS Study Report using harvested data from the NC GIS Inventory (powered by NSGIC's RAMONA tool). OSBM helped promote the use of the inventory, which now

contains policy, system, organization, and content entries from more than 200 registered North Carolina stakeholders. See illustration below.



Inventory Harvest
Date: 11/14/2007



A new vision for data coordination and distribution in North Carolina

A powerpoint illustrates the type of information routinely collected and publicly provided via the NC GIS Inventory. http://ncgicc.org/Portals/3/documents/RAMONA0908_PowPt.pdf

Success Criteria Report Card

Staff supported OSBM in a self graded assessment using the Fifty States Success Criteria. The report card takes the assessment one step further in the analysis of each success criteria. Results are documented as a “report card” in Appendix F of the OSBM GIS Study Report.

The OSBM GIS Study Report is available on-line at <http://www.fgdc.gov/grants/2006CAP/projects/06HQAG0105>

The FGDC June 2008 Newsletter includes an article on the Study http://www.fgdc.gov/library/newsletters/2008/FGDC_Summer_2008-web.pdf

Interagency Leadership Team Business Case

The CAP project also supported, in part, staff participation in an initiative led by the Interagency Leadership Team (ILT). The ILT consists of ten key state and federal agencies involved in transportation planning. The ILT developed a proposal and business case for implementation of a statewide GIS consisting of 171 data layers. The ILT business case was referenced in the OSBM GIS

Study Report yielding benefits of \$50.4 million per year with full implementation.

Agency members of the ILT are:

- North Carolina Department of Transportation;
- North Carolina Department of the Environment and Natural Resources;
- North Carolina Department of Commerce;
- North Carolina Department of Cultural Resources;
- North Carolina Wildlife Resources Commission
- United States Army Corps of Engineers;
- United States Department of Transportation, Federal Highway Administration
- United States Department of Interior Fish and Wildlife Service
- United States Environmental Protection Agency;
- United States Department of Commerce, NOAA National Marine Fisheries Service.

The business case of the ILT originated upon the following problem description:

“The quality of life for the citizens of North Carolina, both urban and rural, is heavily dependent on transportation. There is consensus among the Interagency Leadership Team that the transportation system should be planned hand-in-hand with economic development and the protection and enhancement of our State’s cultural and natural resources. To facilitate the effective and efficient development and management of our transportation systems, we need a tool that provides reliable, up-to-date, and complete data necessary for planning transportation projects and identifying and assessing their impacts on the economy and natural and human resources. Geographic information systems (GIS) is just that tool. Unfortunately, the GIS data necessary for transportation and environmental decision-making is either out of date or does not exist at all statewide.”

The business case cites the following benefits from ILT implementation: cost savings, current and reliable data, improved decision making, and productivity gains. Of the highest cost data sets identified in the business case, the following data layers were identified as being of high benefit to the agencies:

- Digital Aerial Imagery (Orthophotography);

- Stream Mapping;
- Transportation: System and Non-System Road Network;
- Wetland Types (Coastal North Carolina);
- Designated Historic Properties and Districts.

Staff supported the vetting, marketing, and budget planning process for the ILT business case during the performance period. Efforts to secure full implementation and funding of the ILT are on-going.

The ILT summary document is available on-line at

<http://www.fgdc.gov/grants/2006CAP/projects/06HQAG0105> .

Initial Stewardship Framework

In addition to the two initiatives described above, project work also centered on the development of an *initial stewardship framework*. The framework outlines the elements necessary to document the programmatic requirements and fiscal benefits to position NC OneMap as an enterprise-caliber, stakeholder driven resource for the North Carolina geospatial community. The framework identifies five principles linking programmatic planning, fiscal support, and technical implementation:

- **Organizational participation** addresses responsibilities and guidance provided by the NC Geographic Information Coordinating Council;
- **Investment in technology and infrastructure** establishes the advantages of a shared geospatial infrastructure;
- The **value of spatial data** principle identifies the programmatic dependencies and fiscal benefits of stakeholders aligning business cases to enterprise resources;
- The **spatial data development and maintenance** principle outlines a stewardship model for stakeholder requirements and dependencies for framework and other geospatial datasets that support business functions;
- The **geospatial specialist** principle highlights the importance and benefits of dedicated staff for infrastructure and data maintenance in support of business users.

The *initial stewardship framework* is a living document and serves as a resource for possible consideration in near term planning exercises. For example, elements of the framework could be implemented as part of the OSBM Study Report recommendation for coordination and execution of a ‘statewide GIS Strategy’ as that becomes formalized and institutionalized through the implementation of the GIS Study recommendations. Vetting of the ISF will take place as ‘next steps’ with a broader stakeholder group as work to this point has been internal at CGIA.

Level of Effort

The following staff positions (with % of total CAP project hours) were involved in some aspect of the work during the performance period:

- IT Director (Director) 34%
- Business Technology Applications Specialist (Coordination Manager) 32%
- IT Manager (Services Manager) 26%
- Business Technology Applications Specialist (Database Administrator) 4%
- Technology Support Analyst (GIS Analyst) 4%

A total of 963 hours of in-kind and billable hours were recorded by CGIA staff on the CAP project during the performance period. These numbers do not represent the participation level of non CGIA staff during the performance period. Numerous members of the at-large community worked on or participated in the various activities referenced above, including GIS Study, Interagency Leadership Team, and NC Inventory.

Potential for Change

The potential for change resulting from the activities described above are as follows.

OSBM GIS Study Report Recommendations

Implementation of the OSBM GIS Study recommendations has the potential for significantly improving statewide GIS coordination with funded support. As examples, implementation of key recommendations will result in improvements and actions to:

- Create, update and enforce GIS standards for state agencies;
- Establish GIS roles and responsibilities for all agencies that develop and maintain GIS data and holding state agencies accountable;
- Establish a GIS reserve account to manage annual General Assembly appropriated funding;

- Align the Center for Geographic Information and Analysis directly to the State CIO;
- Establish a coordinated statewide program for orthophotography across different levels of government.

Interagency Leadership Team Business Case

Implementation of the Interagency Leadership Team business case will also result in dramatic improvements for statewide GIS, especially for the stewardship of numerous data layers. The anticipated monetary benefits of full implementation is documented at \$50.4 million per year.

Initial Stewardship Framework

The potential for change resulting from further vetting and implementation of the initial stewardship framework include:

- Accountability through stewardship and governance;
- Prioritization of framework datasets and enterprise services through comprehensive business case-based planning;
- Efficiencies and cost avoidance through reducing duplicate data maintenance;
- Productivity gains across business lines through shared enterprise services;
- Support for tighter integration of citizen services between state agencies and local governments;
- Increased opportunities for inter- and intra-agency spatial applications;
- Increased opportunities for spatially-enabling enterprise services;

NC GIS Inventory (Powered by RAMONA)

The actions by OSBM to utilize the NC Inventory (powered by RAMONA) during the GIS Study motivated local and state agencies to register and add content to the system. Since then, others have embraced the Inventory system and are utilizing it as a statewide resource for data inventory and management information. As an example, the GICC's parcel work group is soliciting counties to register, asking the remaining 25 counties (of 100) to register, and

asking the current registrants to update their entries. The group is also adding 23 state specific management questions to the tool. Use of the tool by others to help in policy decisions and planning will only further motivate individuals to register and use the tool.

Key Success Factors

Though sustained funding for NC OneMap has not yet been realized as envisioned, the following success factors contributed to the progress made during the project period.

- The NC Geographic Information Coordinating Council had an established vision and a direction for statewide GIS coordination and NC OneMap, and had taken several related policy actions which were relevant to project activities.
- Leadership from the General Assembly and the Executive Branch brought much needed focus and heightened attention to the importance of improved statewide GIS coordination and the need for solutions.
- Alignment of project staff resources to the high profile planning initiatives that emerged during the performance period was an important factor in that it provided support to executive leadership at a critical time.

Next Steps:

Future Steps to be taken will center on the following:

- CGIA will support the Office of State Budget and Management and the Geographic Information Coordinating Council, as requested and appropriate, on the directive given by the General Assembly to develop further detail in the implementation of the GIS Study Report recommendations and report by December 1, 2008. The report contains solid recommendations for advancing the NC spatial data infrastructure and statewide GIS coordination;
- CGIA will support the Interagency Leadership Team Business Case for Enhancing and Managing a Shared GIS Database. Work in this area will be led by the ILT and proceed through the standard budget planning process;
- CGIA will vet the Initial Stewardship Framework in appropriate forums and consider its elements in near term

opportunities and in any appropriate implementation of GIS Study report recommendations

- CGIA will support actions by GICC members and the stakeholder community to further populate the NC GIS Inventory (powered by RAMONA) and generate output.
- As follow-up to the more detailed fifty states report card included in the GIS Study Report, CGIA will evaluate the “maturity assessment” system co-developed by Georgia and Texas as part of their Fifty States projects.
- CGIA will report to FGDC on future milestones achieved on any of the activities described above.