

## NSDI Cooperative Agreements Program

### Category 3: Expanding Use of the GIS Inventory System

#### Final Report from the Center for GIS at Towson University

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**Project title:** Strengthening the Maryland Statewide GIS Inventory in Ramona  
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#### **Executive Summary**

The project comprises two phases: a metadata gap analysis and 3-week campaign in November to update and complete the records in Ramona for Maryland, and a campaign beginning in February to encourage GIS users in Maryland to create a profile and enter records. The metadata gap analysis revealed in most cases that fields required for FGDC-compliant metadata were complete but in need of updating and/or revising for clarity. For example, the description given for many records needed to be made more clear and concise to fulfill the abstract requirement of the metadata. The gap analysis results were sent to the data owners prior to the training Webinar held on November 13. The 3-week campaign to update records ran from November 26 through December 14. Two state agencies and one university GIS center updated their records. The project team then met with each targeted agency or jurisdiction to obtain support and discuss the request for updates. All agencies or jurisdictions participated in the meeting and agreed to make a best attempt to update their data in Ramona. An obstacle encountered with Ramona was the limited amount of FGDC-compliant information that could be added. The team determined that questions can be added at a user level, but not at a data layer level. This is a limitation of Ramona. The team compiled a training document that describes the process for creating a profile and entering descriptive records. The project is actively promoted at Maryland State Geographic Information Committee quarterly and executive meetings and at MD iMap meetings. The project expended 100 per cent of the funding awarded (\$15,000 funded plus \$7,500 non-cash recipient share).

## Project Narrative

### *Project Activities*

#### *Background*

The Center for GIS (CGIS) and the Maryland State Geographic Information Committee (MSGIC) previously ran two successful campaigns to populate Ramona. The campaigns were short, aggressive, focused, and well supported by the Maryland State Geographic Information Officer (GIO) and the Maryland Governor's Office. The Maryland campaigns are timed to coincide with Geography Awareness Week and GIS Day in November, and GIS Inventory Month in February (as declared by Maryland's Governor). Generally, the GIS community in Maryland understands the value of participating in a state and nationwide GIS Inventory, although barriers to participation hinder several state agencies and local jurisdictions.

#### *Project Goal*

The project goal is to strengthen Maryland's statewide GIS inventory by further populating Ramona with Federal Geographic Data Committee-compliant metadata for nationally significant geospatial data themes, and by increasing agency and jurisdiction participation. As of January 2012, 1,364 data layers had been entered in Ramona for Maryland. Approximately 400 are registered to state agencies. As shown in the following table, Phase I of the current project targets seven key state agencies and two local jurisdictions that maintain nationally significant datasets, have established a considerable GIS presence in the state, and are likely to have associated web services and freely available data.

Maryland State Agencies	# Layers in Ramona	Local Maryland Jurisdictions	# Layers in Ramona
Natural Resources (DNR)	125	Howard County	131
Maryland Transit Administration (MTA)	35	Baltimore County	60
Planning (MDP)	27		
State Highway Administration (SHA)	10		
Housing & Community Development (DHCD)	5		
Business & Economic Development (DBED)	4		
Environment (MDE)	0		

#### *Project Tasks*

CGIS completed the following tasks as described in the proposal.

### **Task 1 Identify the minimally compliant elements of the FGDC CSDGM, Version 2.0.**

The Maryland State Geographic Information Officer (GIO) assigned a technical lead (Lisa Lowe, Senior GIS Analysis, Geographic Information Office) to work with the project team on training that describes the requirements for descriptive entries. The FGDC metadata workbook was also used ([www.fgdc.gov/metadata/documents/workbook\\_0501\\_bmk.pdf](http://www.fgdc.gov/metadata/documents/workbook_0501_bmk.pdf)). At this point, the project team experienced a challenge: the GIO officer and the technical lead wanted to collect additional metadata fields, such as spatial reference and entity/attributes. However, this could not be accomplished through Ramona. After further investigation, the team determined that questions can be added at a user level, but not at a data layer level. This is a limitation of the Ramona system.

The team determined that Ramona contains seven descriptive entries that are included in the FGDC CSDGM, as follows.

- Production Date
- Update Frequency

- Map Service URLs
- Persistent URLs
- Description
- Status
- Source

**Task 2      Perform a gap analysis on the existing entries in Ramona to assess compliance with FGDC CSDGM, Version 2.0.**

Through the administrative console in Ramona and with assistance from a Towson University student, CGIS determined by agency the framework layers that do not meet the requirements for descriptive entries. The metadata gap analysis revealed in most cases that fields required for FGDC-compliant metadata were complete but in need of updating and/or revising for clarity. For example, the description given for many records needed to be made more clear and concise to fulfill the abstract requirement of the metadata.

The results were presented in table format to each agency targeted for the project's first phase. On November 9, the following e-mail was sent to each of the agency and jurisdiction contacts scheduled to attend the first training Webinar. The email and attachments were customized for each recipient.

"Good afternoon [name],

In preparation for the Webinar on Tuesday, November 13, 10 a.m., we reviewed your current entries in the GIS Inventory system. We highlighted the areas that will improve each data layer that you documented and will ensure compliance to FGDC minimally compliant metadata.

Attached to this e-mail is a spreadsheet detailing each data layer, with fields highlighted for review. The specific action needed is listed in the comments field. Red highlighting indicates blank fields or fields that require rewrites. Yellow highlighting indicates fields that require a review for changes since last entered.

Below is a summary of your data layers and the information we are asking you to update during the 3-week challenge from November 26 through December 14 as part of your commitment to the current CAP 3 project.

**[SAMPLE for this report] Your County: 52 Records**

- Production Date – no blanks: *Compliant; no further update needed.*
- Update Frequency – no blanks
  - 8 are listed as Do Not Know
- Map Service URLs – all blank: *Please add if applicable*
- Persistent URLs – all blank: *Please add if applicable*
- Description – *all layers are sufficiently described*
- Status – no blanks
  - 4 are listed as In Work
- Source – no blanks
  - 5 are listed as Not Sure

During the Webinar on Tuesday we will discuss the project in more detail and the actions needed to make this GIS Inventory project as successful for the State of Maryland as the previous ones.

Thanks for your support!”

**Task 3            Work with the targeted agencies to update individual data records with the missing information, and/or to add additional layers.**

The first training Webinar was held on November 13, 2012, at 10 a.m. GIS managers from the following agencies and jurisdictions participated.

Maryland Transit Administration  
 Maryland National Capital Park and Planning (Prince George’s County)  
 Anne Arundel County  
 Baltimore City Health Department

The PowerPoint presentation was included in the Interim Report as an appendix.

To further encourage updates, the project team sent the following e-mail on May 15, 2013 to the entities that signed letters of commitment to the project (Maryland DNR, Baltimore County, Maryland Transit Administration, Howard County, and Maryland Department of Planning).

Good afternoon,

As part of your commitment to the current CAP 3 project, we are asking that you join us in a 15 minute call to discuss progress on the request made in November, 2013 to improve your documentation in the GIS Inventory System (see email below).

We understand that some of the records will not change, but need to be able to document that no change is required.

Are you available on Friday, May 17<sup>th</sup> anytime between 1 and 2:30 pm?

Thanks for your support!

Satisfactory responses were received from Maryland Transit Administration, Howard County, Baltimore County, Maryland Department of Planning, Maryland State Highway Administration, and Department of Natural Resources. The 15-minute teleconference meetings were held on May 17, with each agency discussing the need to update the GIS Inventory per the November request. All agencies and jurisdictions revisited their data entries and updated where possible.

*Summary report and item listing of all entries from the GIS Inventory entered or updated as a result of the award.*

Verbal or written confirmation of record updates was received from the following agencies or jurisdictions.

Maryland Department of Planning  
 Maryland Department of Natural Resources  
 Maryland Transit Administration

Baltimore County  
Howard County

Ramona's administrative console provides a report by state that lists all records as well as other information, including an "UpdateDate" column. The project team intended to use this field to track the date that a data record was last updated by the project's targeted users. However, a closer review of the data revealed unexpected abnormalities. For example, 130 data records tied to Maryland had an update date of December 24, 2012 (Christmas Eve), which is no doubt inaccurate because that was a state holiday. After speaking with NSGIC further about the issue, CGIS concluded that the UpdateDate column cannot be used as an accurate indication that a data user actually made a change to a data record. Specifically, when NSGIC makes system-wide updates, such as moving layers around or adding new layer categories, the UpdateDate changes.

After this discussion, NSGIC decided to remove this functionality from the *database* side and is now making the system-wide changes on the *application* side, which will allow changes to the database without disturbing the update timestamp. Unfortunately, this change will only affect future reporting and does not provide the information needed to report results for this project. A letter from William S. Burgess, Washington Liaison for the National States Geographic Information Council, further describes the technical situation and the actions NSGIC took to assist the CGIS team (*Appendix 1*).

**Task 4            Work with GIS managers to populate Ramona with profiles for key entities, and conduct up to three online workshops.**

Phase II strengthened participation in Ramona by determining the local and state agencies that had not yet participated in Ramona. CGIS and MSGIC conducted a challenge campaign to encourage the GIS managers to at minimum create a profile.

CGIS contacted the Maryland Emergency Management Agency several times to request a current list of GIS managers and other staff associated with emergency management in Maryland, but was unsuccessful in obtaining the desired response. CGIS then met with the State GIO and Deputy GIO to discuss the GIS Inventory initiative and other emergency management related efforts occurring simultaneously in Maryland. It was determined at this meeting that the GIO does not want to use Ramona to manage GIS contacts throughout Maryland.

Due to the impossibility of obtaining the emergency management contact list that had been anticipated, workshops were not held. CGIS then decided to reach out to the attendees of TUGis, the Maryland GIS conference. Handouts with instructions were distributed at the CGIS and MSGIC booths (*Appendix 2*). The team's presentation on the GIS Inventory project (see Task 5) emphasized the importance of creating a profile in Ramona.

**Task 5            Present the results of the project at the MSGIC Quarterly Meeting in Spring 2013 and at the TUGis conference on March 19, 2013.**

The project team presented at the annual TUGis conference on March 19, 2013 in a setting that enabled one-to-one discussion. Attendees stated that they either had already entered a profile into Ramona and it was up to date, or that they intended to do so when they returned to work after the conference.

**Responses to FGDC Questions**

- *Will this project's activities continue after the performance period?*
  - Yes. Maryland is committed to using Ramona and plans on continuing to conduct annual 3-week challenges to keep the data current and increase participation.

- *What formal or informal organizational relationships have been established to sustain activities beyond the performance period?*
  - CGIS, MSGIC, and the State GIO maintain an active and pro-active partnership to achieve GIS coordination in Maryland.
- *Describe the next phase in your project.*  
CGIS will continue to work with MSGIC and the GIO Office to ensure that Ramona is maintained and used. The team is encouraged by the level of success achieved thus far, and considers that the GIS Inventory is now in a maintenance phase. The team will continue to push for a new challenge each February, which is GIS Inventory Month in Maryland.
- *Requirements (more technical assistance, software, other?)*
  - CGIS required technical assistance due to obstacles within Ramona that prevented updates with more specific FGDC-compliant information and the addition of fields requested by the GIO Office and the technical lead. Currently, Ramona generates generic text in some fields to create FGDC minimally compliant metadata. The project team wanted to update the text in those fields to more specific text for each dataset. In addition, the GIO Office and the technical lead requested additional fields for FGDC-compliant metadata. However, the team was unable to add these questions for individual dataset being inventoried and was only able to update the fields already available within Ramona. There was no immediate solution to the problem. When CGIS encountered a different issue with the UpdateDate column, the issue was satisfactorily resolved for the future. CGIS does not require additional technical assistance for intended maintenance of Maryland's GIS Inventory.
- *What other areas need work?*
  - CGIS communicated with NSGIC about adding the functionality to add fields. NSGIC agreed to look into a way to possibly alter the system for each state.
  - The administrative console reports are not always up-to-date. While the date of the file is up to date, the column entries specifically for the UpdateDate are not. NSGIC is aware of and working to fix the issue.

### **Expenditures**

The project expenditure report is current as of May 31, 2013, the project completion date. The project expended 100 per cent of the funding awarded (\$15,000 funded plus \$7,500 non-cash recipient share). There is no unspent balance.

### **Feedback on Cooperative Agreements Program**

*What are the CAP Program strengths and weaknesses?*

The CAP Program funds statewide projects that might not otherwise be supported. The only weaknesses CGIS encountered with the GIS Inventory project were technical limitations within Ramona that prevented the addition of data fields specifically requested by Maryland's GIO, and the tracking of user updates by data layer.

*Where did it make a difference?*

The CAP program allowed the State of Maryland to continue keeping the state's GIS Inventory system "alive" with current information.

*Was the assistance you received sufficient or effective?*

CGIS requested assistance with issues encountered with the Ramona system. NSGIC was prompt to reply and available to support.

*What would you recommend that the FGDC do differently?*

CGIS proposed a project that had expectations of results that in fact could not be achieved due to the technical design of the Ramona GIS Inventory system. For future projects, perhaps FGDC could describe more fully what is and is not possible to accomplish with the inventory system.

*Are there factors that are missing or are there additional needs that should be considered?*

There are no additional considerations for Maryland's GIS inventory.

*Are there program management concerns that need to be addressed, such as the time frame?*

CGIS had adequate time to complete the project and did not require an extension.

*If you were to do the project again, what would you do differently?*

1. CGIS would work with NSGIC prior to project rollout to determine a way to allow users to update fields or add fields that are not currently inventoried.
2. Prior to commencing project work, CGIS had received agreement from the Maryland Emergency Management Agency to provide support via a contact list. Decisions and circumstances beyond CGIS's control altered the level of support. In retrospect, a contingency plan might have increased project results.

### **Closing Statement**

The Center for GIS, the Maryland Geographic Information Committee, and the Maryland State Geographic Information office appreciate the funding that makes the opportunity to work on this important endeavor for the State of Maryland possible.