

**The State of GIS Coordination in Colorado**  
**State of Colorado**  
**Geospatial Information Advisory Council**  
**2009 Annual Report Framework**



**Prepared for the State Chief Information Officer**

**November 2009**

## Executive Summary

This annual report describes the current state of and progress toward achieving the objectives, roles and responsibilities assigned to the Colorado Geospatial Information Advisory Council (“the Council”) by the State Chief Information Officer (CIO). The State’s CIO initiated the Colorado Geospatial Information Advisory Council in December 2008 as an advisory body to the CIO on matters relating to geospatial coordination in the state. The Council should recommend activities or structures that enhance the geospatial environment in Colorado, with particular focus on the sharing of data and knowledge among the geospatial community.

This report provides the framework for an assessment of progress made on the goals defined by the CIO over the most recent fiscal year (state fiscal year is July 1 to June 30), and to report such progress to the CIO at the end of each fiscal year. This first report demonstrates how this framework can provide an overall status of geospatial ‘ecosystem’ activities occurring across the state of Colorado and an identification of priorities for the upcoming year. Future reports will measure progress across the state against these priorities.

The process for assessing the state of GIS activities in Colorado and developing objectives for state coordination and the annual report follows this process:

1. Collect information about geospatial programs and activities in the state. Particular focus is on projects that reflect the overall goals of data sharing and collaboration.
2. Identify objectives for the Geospatial Information Advisory Council using the projects as a platform to expose where expansion of their approach could achieve the broad goals of the Council. These objectives identify priorities for the council during the upcoming year and potentially lead to working groups of the Council. In future years, this report will indicate progress of the geospatial community in the state toward achieving these objectives. This progress will also be gathered by each stakeholder group.
3. Enumerate priority activities for the upcoming year. These will result from the objectives and will be a more tactical set of steps to accomplish them. These will be the measurable steps toward the objectives and will provide a basis for measuring progress from the previous year. As this is the first year of this report, the outgoing Council has not established objectives or priority activities. The outgoing Council was tasked primarily with developing the organization of the Council which it has accomplished through by-laws and a membership structure.

This report includes information on several federal, regional and state programs as examples of information that will be collected for future annual reports. The incoming Council will be charged with developing comprehensive information regarding geospatial efforts and developing objectives for statewide coordination over the year.

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## Introduction

This annual report describes the current state of and progress toward achieving the objectives, roles and responsibilities assigned to the Colorado Geospatial Information Advisory Council (“the Council”) by the State Chief Information Officer (CIO). The State’s CIO initiated the Colorado Geospatial Information Advisory Council in December 2008 as an advisory body to the CIO on matters relating to geospatial coordination in the state. The Council should recommend activities or structures that enhance the geospatial environment in Colorado, with particular focus on the sharing of data and knowledge among the geospatial community.

The CIO directed the Council to:

- Advise the State's Chief Information Officer (CIO) of The Governor's Office of Information Technology on plans that involve statewide GIS activity.
- Recommend appropriate data governance, including stewardship procedures and state agency stewardship roles for priority geospatial data.
- Recommend metadata and data exchange standards as well as spatial information sharing guidelines among the state GIS community.
- Recommend procedures for defining priorities; methods to coordinate development and use of geospatial information; and forums for sharing technical expertise and ideas from all sectors in the geospatial community.
- Recommend an effective strategy to share and integrate spatial data across all levels of government as well as with higher education, the private and non-profit sector.
- Promote cross agency cooperation and recommend cost sharing and collaborative arrangements.

and

- **Deliver an annual progress report to the State CIO, to include current status of GIS activities in the state, progress made throughout the year on priorities and activities, and objectives for the following year.**

This report provides the framework for an assessment of progress made on these goals over the 2008-2009 and the beginning of the 2009-2010 fiscal year (the state fiscal year runs from July 1 to June 30), and the Council will use this framework to report such progress to the State CIO at the end of each fiscal year. As the Council is newly formed in its advisory role to the CIO, this first report will focus on demonstrating how the annual report can provide an overall status of geospatial ‘ecosystem’ activities occurring across the state of Colorado and an identification of priorities for the upcoming year. Future reports will measure progress across the state against these priorities.

The process for assessing the state of GIS activities in Colorado and developing objectives for state coordination and the annual report follows this process:

4. Collect information about geospatial programs and activities in the state. While all activities that demonstrate the robustness of the geospatial ecosystem are of interest, particular focus is placed on projects that reflect the overall goals of data sharing and collaboration as identified by the State CIO.
5. Identify objectives for the Geospatial Information Advisory Council using the projects as a platform to expose where expansion of their approach could achieve the broad goals of the Council. For example, the immediate objective of the NAIP aerial photography project was to assemble the necessary funds to partner with the USDA on the effort. It was realized after the data was delivered to the State and USGS that it would have been beneficial to expand the effort to address the effective dissemination of the data. These objectives identify priorities for the council during the upcoming year and potentially lead to working groups of the Council. In future years, this report will indicate progress of the geospatial community in the state toward achieving these objectives. This progress will also be gathered by each stakeholder group.
6. Enumerate priority activities for the upcoming year. These will result from the objectives and will be a more tactical set of steps to accomplish them. These will be the measurable steps toward the objectives and will provide a basis for measuring progress from the previous year. As this is the first year of this report, the outgoing Council has not established objectives or priority activities. In fact, the outgoing Council was tasked primarily with developing the organization of the Council which it has accomplished through by-laws and a membership structure.

The organization of this report follows this same flow as these steps. Since this is the first annual report, it does not contain all of the indications of progress described above. Instead, after describing the Council in some detail, it lays out the objectives for the Council during the upcoming year.

### **Colorado Geospatial Information Advisory Council (CGIAC)**

The CGIAC was formed to represent the diverse voices of the geospatial community within Colorado. Its purpose is to make recommendations to the State CIO on how to address the broad responsibilities assigned by the State CIO. The first incarnation of the Council consisted of invited members from county, municipal, state, federal and regional governments as well as the private sector, higher education and GIS professional groups. In addition to the roles listed above, the Council was instructed to:

“...draft and adopt by-laws and procedures, which I will approve, that address an equitable manner in which the Council will conduct its business. These procedures should include, but not be limited to, the process for considering and deciding on coordination priorities, methods for selecting representatives of stakeholder groups and mechanisms for communicating the Council’s work to the state’s GIS and other communities.”

The Council typically met monthly during the last year, specifically to establish a working process for the Council starting January 2010. After some deliberation, the Council determined that an effective membership structure for the long term pursuit of its goals should be two representatives and one alternate from each of the following stakeholder groups:

- Municipal government
- County government
- State government
- Federal government
- Regional government or quasi-government entities (e.g., councils of governments, regional service districts, metropolitan planning organizations, administrative regions with some form of recognized governance, etc.)
- Tribal nations
- Higher education
- Private sector

The current Council defined a process to select these representatives that relied on the stakeholder groups soliciting volunteers and, if necessary, selecting among the volunteers. The Office of the CIO (i.e., the Governor's Office of Information Technology) provided support for this volunteer and selection process.

The Council also identified desired qualifications as well as roles and responsibilities for representatives. They should have a broad perspective and knowledge of geospatial technologies. This broad perspective is important to recognize those areas where geospatial technologies can improve decision making and business processes in the public and private sector. The representatives should also have support of their leadership to participate in the Council. Representatives may have several roles. However, these responsibilities can be categorized into expressing the interests and issues of their stakeholder group and communicating the activities of the Council to their stakeholder sector. While the Office of Information Technology (OIT) will support this communication function, the stakeholder representatives will need to be proactive and consistent about this outreach. It became clear throughout this process that the representatives will coalesce a community of stakeholders for each group. The role of representing stakeholder interests will culminate in voting on recommendations to the CIO. Appendix A includes the document outlining the representative roles and responsibilities.

In addition, the current Council developed by-laws for the operation of the Council on an ongoing basis. The by-laws are included in Appendix B. The meetings will be fully open to the public, but only representatives, or an alternate if necessary, will vote on recommendations by the Council. These recommendations will be delivered to the State CIO for his consideration and implementation if feasible and appropriate.

The Council will institute working groups to for specific issues or tasks. The working groups may include members from outside the Council membership and may meet on a schedule decided on by the group. At the time of this drafting, the working groups have not been specified.

The annual report will be one of the primary roles of the Council. It will provide a depiction of the status of GIS activities across the state and progress made within the GIS community each year. The State CIO will be the main audience for the report, but it will be delivered to the executive leadership of OIT and will be distributed among the GIS community in the state. The remainder of this report contains incomplete information or placeholders for the content that will continue to be collected by the new Council membership. In some sections, brief example content is included to elucidate the nature of the report, but it is important to remember these are simply hypothetical examples at this point.

### Colorado’s Current Ecosystem of Projects

This section will report on projects, programs or activities that may be representative of the broad objectives specified for the Council by the State CIO with the ambition of the council to support or be involved in activities like the ones outlined below. It is the intent for the Council to maintain a listing of projects throughout the year. This section won’t list every activity but will describe new efforts that represent progress or relate to the objectives of the Council. Accordingly, this section will categorize the projects into each of the objectives.

Goal	Projects	Possible Expansion
<b>1. Advise the State’s CIO on plans that involve statewide GIS activity.</b>	CO Geospatial Information Advisory Council - The organization of the Council was solidified with transition to a formal membership structure, by-laws and this annual report.	Working groups for priority objectives need to be established to begin concrete work on data sharing, collaboration, policy and other initiatives. Continue to fill out project information and the annual report.
<b>2. Recommend appropriate data governance, including stewardship procedures and state agency stewardship roles, for (at a minimum) the geospatial framework data layers defined by the Federal Geographic Data Committee (FGDC).</b>	Colorado NHD Stewardship - The USGS worked closely with the Colorado State GIS Coordinator and the State Division of Water Resources to build and establish the State NHD Stewardship. The Colorado Department of Water Resources received \$50k from the USGS to help with the Stewardship implementation.	Colorado NHD Stewardship – Expand the NHD data content and structure to make it useful for a wide variety of applications (include watershed boundaries as well as geographic names) Make the NHD data available in easily usable formats for the GIS community.
	Colorado Geospatial Data Governance – State agencies began developing a data governance plan for geospatial	Move to actual recommended data stewardship procedures for specific data sets.

	data in the state. It started with an inventory of spatial data assets and needs among state agencies and has also surveyed standards and practices adopted by state agencies.	Integrate participation from local and federal entities and other potential stakeholders in the state GIS community. Develop the process for incorporating this effort into the state Government Data Advisory Board.
<b>3. Recommend metadata standards and data exchange standards as well as spatial information sharing guidelines among the state geospatial community.</b>		
<b>4. Recommend procedures for defining priorities, methods to coordinate development and use of geospatial information, and forums for sharing technical expertise and ideas from all sectors in the geospatial community.</b>	USGS Grand County - The USGS Rocky Mountain Geographic Science Center (RMGSC) initiated a pilot study which evaluated the feasibility of, and developed methodology for, the use of medium resolution remotely sensed imagery for the assessment of conifer health in Grand County, Colorado. As part of the 2009 Stimulus package USGS will acquire LiDAR over 350 square miles of this project area to further investigate the Pine Beetle impacts on issues such as surface water flooding and erosion issues associated with these forest conditions.	USGS Grand County - These data sets will be in the public domain and available for a number of science applications. Develop mechanisms for easily discovering and distributing these data.
<b>5. Recommend an effective strategy to share and integrate spatial data across all levels of government as well as with institutions of higher education, the private sector and nonprofit organizations.</b>	USFS Colorado Stereo Imagery - has acquired 1-foot, 4-banded stereo imagery for the Arapaho/Roosevelt NFs, Pawnee NGs, and the White River NF in 2008 and are flying the Routt NF this summer.	USFS Colorado Stereo Imagery – Acquisition in all of Colorado National Forest will provide High quality Stereo Imagery for future Environmental Science Studies. Making this data available requires overcoming infrastructure issues as well as the expertise required to use the data.
	The Sangre de Cristo Regional GIS Cooperative, which encompasses 9 counties in Southern Colorado, partnered to establish a data repository, a consolidated parcel dataset (where parcels are available), a consolidated transportation dataset and a regional online ArcGIS Server application. The group is currently working on compiling a critical infrastructure dataset for the region.	The Sangre de Cristo Regional GIS Cooperative is working to build a central website for regional GIS data sharing and collaboration amongst city, county, state and federal agencies. Mechanisms for interacting and sharing data with the state and other government entities is under



	Funding for this project was allocated by both the local agencies and a grant from the USGS.	consideration.
	Denver Regional Council of Governments (DRCOG) Regional Data Consortium – DRCOG initiated a regional data consortium to develop means for data sharing and collaborative data management across the region. The consortium has participation from multiple member governments.	Share knowledge of overcoming obstacles to data sharing and collaboration with the rest of the GIS community and leverage work in other regions. Develop mechanisms for sharing regional data with the state and other jurisdictions.
<b>6. Promote cross agency cooperation and recommend cost sharing and collaborative arrangements resulting in more efficient government processes as well as more effective service delivery and decision-making.</b>	FEMA Risk Map - As part of its activities related to the National Flood Insurance Program (NFIP), FEMA has begun the transition from Map Mod to Risk MAP in fiscal year (FY) 2009. The vision for Risk MAP is to work collaboratively with State, local, and tribal entities to deliver quality data that increases public awareness and lead to action that reduces risk to life and property.	
	OIT coordinated state and local contributions to the USDA state-wide NAIP aerial photography program. The result was publicly available photography across the state four years after the last statewide acquisition. Individual state and local entities contributed between \$2,000 and \$10,000 for a product costing approximately \$1.5 million. The project was underwritten by the USDA and approximately 90% of the funding came from federal agencies.	Dissemination of this photography through physical data download as well as display through on-line image services should be part of the future planning. Payment and equitable distribution of cost burdens should also be smoothed out for the next round. Possible derivative could be investigated and planned as well.
	Pueblo County is working with six counties in the San Luis Valley and Southern Colorado to implement VMWare-hosted Assessor/Treasurer applications for each county. This application includes all CAMA & tax management functionality, as well as integrated GIS capabilities. All GIS parcel datasets for these counties are stored in ArcSDE and each county is provided an ArcGIS Server-driven parcel query application. This project is funded by the participating counties, and is being programmed in-house by Pueblo County.	Share experiences and knowledge gained through this effort to assist other shared services approaches.

## Council Objectives for Year

In this section, objectives generalized from the projects listed above will be enumerated. The projects will be evaluated as to how they may be expanded or amended to realize broader responsibilities of the Council. These objectives will also be prioritized and serve as a basis for instituting working groups.

The incoming Council should continue to share information about projects and cooperative opportunities and develop objectives from them in the early part of 2010.

### Assessment of Status toward Objectives

Future annual reports will contain a self-assessment by each stakeholder sector of its general status in achieving the objectives from the previous year. This assessment will be a general summary measure of the sector's level of achievement. One method under consideration for this reporting is a simple matrix as follows:

Sector	Expand Projects to Include Data Sharing								
Municipal	IP								
County	I								
Regional	SI								
State	C								
Federal									
Tribal									
Private Sector									
Higher Education									

#### Hypothetical Ratings

IP = Improvement Possible

I = Improving

SI = Significant Improvement

C = Complete

## Priority Activities

Priorities for Council work over the upcoming year will be tactical steps for accomplishing the objectives. The priority activities will provide metrics toward for measuring progress more concretely than the self-assessment above. This year specific priorities were:

- Draft by-laws for performing the Council’s work
- Develop a means for selecting and transitioning to the new membership
- Identify priority working groups with tangible outcomes

**Progress on Priority Activities**

Last the annual report will indicate progress on the priority activities by reporting on steps taken toward these priorities. For each activity, progress will be indicated as:

- Fully Implemented
- Fully Resourced to Complete
- Partial Resources Available
- Resources Assigned
- Plan in Place, No Resources Assigned
- No Progress

For this year’s priorities of defining Council processes, the following ratings apply:

Draft by-laws for performing the Council’s work	Fully Implemented
Develop a means for selecting and transitioning to the new membership	Fully Resourced
Identify priority working groups	Partial Resources

## Colorado Geospatial Information Advisory Council Members

The following table lists the current Council members who have participated in the development of the by-laws and membership selection process.

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