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Project Title: An Enterprise Architecture Plan for Colorado Geospatial Information Technology

Final report

Organization: Colorado Governor's Office of Information Technology
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Executive Summary

This project produced an enterprise architecture plan for GIS for the State of Colorado. The plan outlined structures for reporting and managing geospatial technologies and data across the state enterprise. It included means by which the state can more effectively deliver services within state government and to the state GIS community. It began with a survey of geospatial applications among state agencies and also included a preliminary work breakdown structure that the State may utilize to identify tasks to be accomplished to realize the enterprise architecture. The plan also reflects considerable input from state agencies through several meetings during which needs and potential uses for geospatial technologies were discussed. The work was done by an outside contractor. The contractor received frequent input from a working group of state personnel responsible for developing an implementation plan for GIS consolidation in the state.

Project Narrative

The purpose of this project was to develop an enterprise architecture business plan for geospatial information and technologies in state government in Colorado. Implementing an enterprise architecture was one of the programmatic goals of the GIS coordination strategic plan developed with assistance from USGS partnership funds in 2008.

The Governor's Office of Information Technology contracted with Applied Geographics to assist with the development of the plan. They were directed to accomplish four tasks: 1) inventory geospatial applications among state agencies, 2) develop an organizational structure including personnel needs for an enterprise GIS, 3) develop a technical enterprise GIS architecture, and 4) produce a work breakdown structure for implementing the described architectures. Because of political dynamics occurring around the GIS consolidation efforts in the State, the organizational structure component was removed from the project.

Applied Geographics met with GIS staff from several state agencies and with Chief Information Officers from several agencies that do not have existing GIS operations to try and understand their uses of and potential needs for GIS. In addition, they defined a survey to collect information on existing GIS applications among state agencies. The purpose of this survey was to develop an awareness of the skill sets available among GIS

staff to share expertise among state agencies and to identify common components among applications that may be supported on enterprise wide GIS infrastructure.

Applied Geographics delivered a final plan to the State that proposed an enterprise structure for GIS services that state agencies can push data to or otherwise interact with. In addition, they identified a series of tasks that the State should pursue in implementing this architecture to ensure its success. This list of tasks was the source of a loose work breakdown structure. It is a loose structure because it does not specify time frames for the tasks due to some remaining unknowns.

This funded project is a part of a GIS consolidation effort occurring in the State of Colorado within which a group of state agency personnel are working with the State GIS Coordinator to identify services or tasks that should be managed from an enterprise perspective. This GIS effort is a part of a larger IT consolidation effort in Colorado state government. The GIS consolidation effort has involved staff from the Colorado Departments of Agriculture, Corrections, Natural Resources, Public Health and Environment, Public Safety, Transportation and, of course, the Governor's Office of Information Technology. In addition, the State GIS Coordinator has been keeping the GIS community within the state informed of consolidation developments through various user meetings, a Colorado GIS community listserv and the Colorado Geospatial Information Advisory Council. The GIS consolidation project is assessing what aspects of the following geospatial components should be managed centrally: software licenses, application development, hardware/infrastructure, databases and data development, and funding.

This larger GIS consolidation project is still underway. It is in a planning phase, in which the state agency working group is developing an implementation plan for the consolidated GIS environment. The work performed by Applied Geographics will be used in and will inform this implementation plan. In addition, to the Applied Geographics work, the state agency working group has also surveyed data assets maintained and required by state agencies, software licenses within state departments and hardware assets supporting geospatial activities.

This plan has been concentrating on an improved architecture for state government activities. This approach has followed the philosophy that the state needs to present a more coordinated and unified face to the GIS community to interact with the community more effectively. Feedback from the GIS community has been generally positive in this regard. A concrete example of this improvement is that the implementation plan resulting from this effort will detail a configuration for a state data clearinghouse, both for state agencies and the GIS community at large.

The process for developing the implementation plan for a consolidated enterprise architecture has been slow due to the political and sometimes contentious environment around the consolidation effort. The implementation plan is still being developed by the state agency working group, but there are some successes that may be reported. In this particular effort, it was important to have leadership support from the beginning and from

the top. The State CIO has been very enthusiastic about this work. An initial step also involved CIOs from state agencies in developing a charter for this effort.

One of the most difficult characteristics of this project has been the politics surrounding the consolidation effort. It has taken the working group a fair amount of time to gel as a team behind the objective of producing the implementation plan.

Next Steps

The next steps in this project include, first, finishing the implementation plan for geospatial consolidation. This implementation plan will actually include a work breakdown structure for specific implementation tasks. These will include high level tasks and specific steps such as analyzing network latencies that might impact data delivery or remote applications.

In the mean time, work related to this effort is proceeding. This related work includes some consolidation of software licenses and proceeding with a plan for geospatial data governance in the state. The latter will include identifying areas for specific policies and standards and initiating working groups for stewardship plans for specific data sets. This work will be done under the rubric of the CO Geospatial Information Advisory Council and the statutorily created Government Data Advisory Board, which develops governance policy for all data in state government.

The implementation of a consolidated GIS is a multi-year project. As long as state agencies are involved and see benefit and the State CIO supports it, it will progress. An enterprise GIS group is being organized, although not staffed as yet, within OIT, so the position of GIS within the enterprise IT structure is being institutionalized. Ultimately the ability to deliver on this consolidated environment will rely on resources. Most significant among resource needs is a staff to implement the recommended steps and developments.

Attachments

The final enterprise architecture plan delivered by Applied Geographics is being submitted to the USGS with this final report.

Feedback on Cooperative Agreements Program

The CAP program is impressive in its inclusiveness and desire to assist all states at some point. The categories are well-defined and reflect important priorities of the federal government. The biggest weakness of the program is the size of the grants. As a recipient, Colorado does appreciate receiving the grant. However, the amount of money often only seeds a project or program at a very fundamental level. This makes it difficult to take the next step.

The CAP programs do benefit efforts in that they bring attention to them. This is particularly the case with the 50 states initiative grants for planning activities. One of the most productive results of developing these plans is often coalescing a community around

GIS coordination within states, regardless of what the plans say. Of course, the next question is what concrete changes do these planning efforts bring.

Missing factors or additional needs are not immediately obvious to us at this time. Other categories may become more relevant as time goes on though. The program management of the grant was very good. Milo and Gita were helpful and knowledgeable when answering questions. We did obtain an extension for the work, so the time frame was adequate.