Schedule 13
Funding Request for the 2014-15 Budget Cycle

Department: Governor's Office of Information Technology

Request Title: Broadband Mapping and Planning Services

Priority Number: R-5

Dept. Approval by: _David B. King_ 11/1/2013
Date

OSPB Approval by: _[signature]_ 10/29/13
Date

- ☑ Decision Item FY 2014-15
- ☐ Base Reduction Item FY 2014-15
- ☐ Supplemental FY 2013-14
- ☐ Budget Amendment FY 2014-15

Line Item Information		FY 2013-14		FY 2014-15		FY 2015-16
		1	2	3	4	5
	Fund	Appropriation FY 2013-14	Supplemental Request FY 2013-14	Base Request FY 2014-15	Funding Change Request FY 2014-15	Continuation Amount FY 2015-16
Total of All Line Items	Total	5,319,745	-	5,449,040	428,866	554,347
	FTE	-	-	-	-	-
	GF	57,499	-	-	428,866	554,347
	GFE	-	-	-	-	-
	CF	-	-	-	-	-
	RF	5,262,246	-	5,449,040	-	-
	FF	-	-	-	-	-
(5) Office of Information Technology, (A)Management and Administration of OIT, Statewide IT Management	Total	5,319,745	-	5,449,040	428,866	554,347
	FTE	-	-	-	-	-
	GF	57,499	-	-	428,866	554,347
	GFE	-	-	-	-	-
	CF	-	-	-	-	-
	RF	5,262,246	-	5,449,040	-	-
	FF	-	-	-	-	-

Letternote Text Revision Required? Yes: ☐ No: ☑ If yes, describe the Letternote Text Revision:

Cash or Federal Fund Name and COFRS Fund Number: COFRS Fund 613

Reappropriated Funds Source, by Department and Line Item Name: User Charges
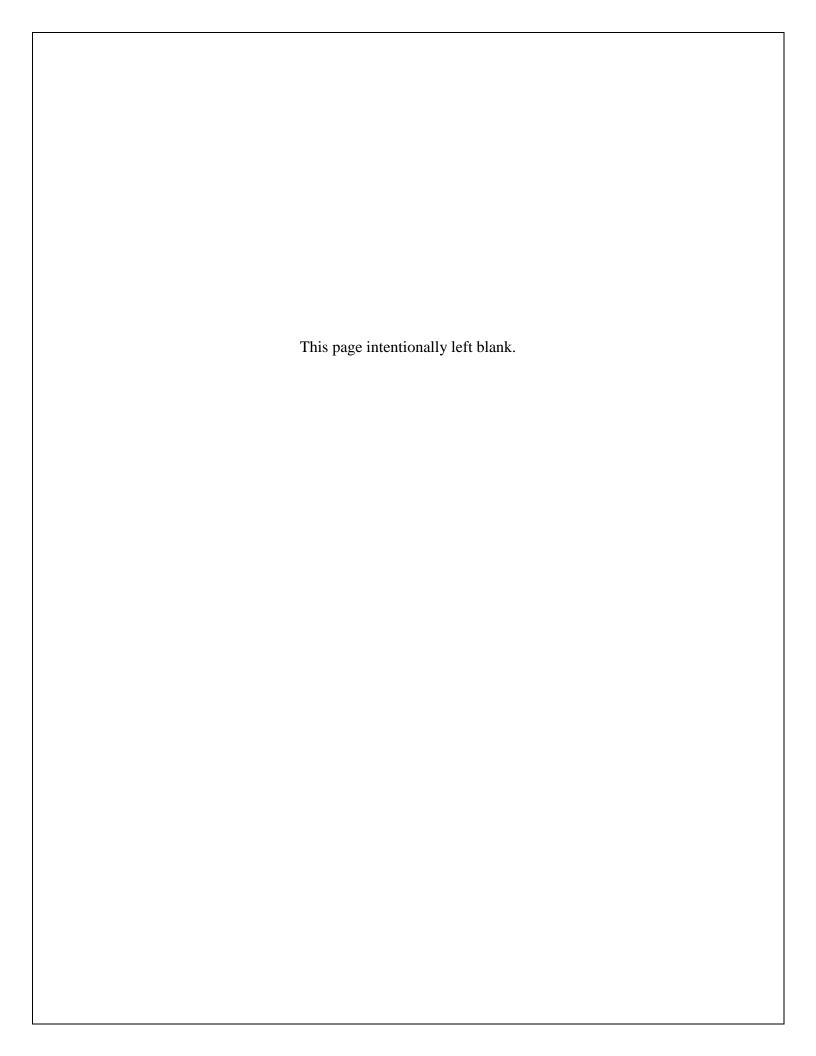
Approval by OIT? Yes: ☑ No: ☐ Not Required: ☐

Schedule 13s from Affected Departments:

Other Information:

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Cost and FTE

- This request is for $428,866 General Fund to refinance and fund an existing 6 FTE to continue the broadband mapping, planning, and integration efforts begun through the federal State Broadband Initiative (SBI) Grant program. That grant ends October 2014 and this request would be effective at its conclusion. This request will annualize to $554,347 General Fund in FY 2015-16 and beyond.

Current Program

- Currently the SBI programs funds 7.5 FTE to map broadband availability throughout the state, develop statewide standards for public safety, assist local governments to develop and implement regional broadband plans, integrate broadband technologies throughout various State and local agencies, and promote and coordinate Distance Learning opportunities across the State. The program works with over 150 private broadband carriers, 20 public safety entities and local officials in over 50 counties.
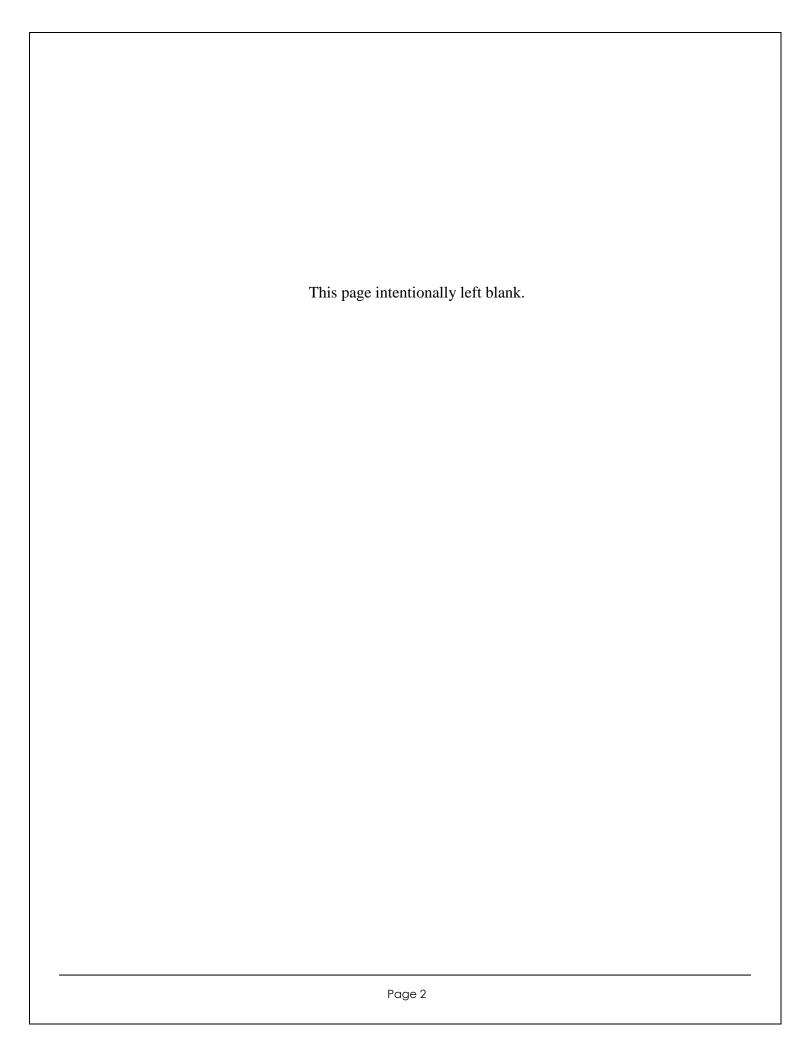
Problem or Opportunity

- Broadband has become an essential infrastructure for economic development, healthcare, education and public safety. Many areas in Colorado lack the sufficient broadband capacity or coverage to effectively deliver on these services. Continuing the current program is essential to make necessary policy decisions regarding broadband and support broadband expansion across the state.
- The current federal grant funding ends in October 2014.

Consequences of Problem

- If this work is not continued, the state will be forced to make critical public policy decisions without clear and accurate data while many parts of Colorado will continue to lack adequate broadband.

Proposed Solution

- The proposed solution is to continue and refine the efforts started through the SBI program. The requested funding will allow OIT to further customize the program to meet Colorado specific needs.
- The specific positions impacted by the expiring federal grant include 6.0 FTE:
- Broadband Communications Manager (1.0 FTE) to continue the planning efforts with local, regional and state level governments;
- 3.0 FTE to continue and expand the broadband mapping efforts and also provide GIS services;
- Address Data Coordinator (1.0 FTE) to continue the efforts to develop accurate address data for both state and local public safety needs; and
- Broadband Architect (1.0 FTE) to develop technical and architectural standards for broadband.

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COLORADO

Office of Information Technology

FY 2014-15 Funding Request | November 1, 2013

John W. Hickenlooper
Governor

Kristin D. Russell
Secretary of Technology and
Chief Information Officer

Department Priority: R-5
Request Detail: Broadband Mapping and Planning Services

Summary of Incremental Funding Change for FY 2014-15	Total Funds	General Fund
Broadband Mapping and Planning Services	$428,866	$428,866

Problem or Opportunity:

The federal State Broadband Initiative (SBI) Grant program ends in October 2014 and OIT has no available funds to continue to support the positions employed under that grant. This budget request is for the funding of six (6.0) existing full time employees to continue OIT's efforts in developing broadband solutions for Colorado. The specific efforts include:

- Continuation and refinement of the mapping of broadband availability and capacity throughout the state
- Continuation of the efforts to develop a statewide address data set to increase the effectiveness of public safety response throughout the state
- Continue to assist local governments and regions in developing broadband plans to identify specific issues and develop solutions for all regions of the state
- Hire a Broadband Architect to ensure that all broadband solutions within the state are developed with proper technical guidance

Currently these resources are being funded through a federal grant that expires in October 2014 and has no potential for renewal or extension. OIT is responsible by executive order (D2012-037) for overseeing and coordinating broadband activity across all State agencies for the State of Colorado. OIT also has statutory authority for statewide coordination of geographic information systems (GIS).

Broadband service has been recognized as critical for Colorado's competiveness in business attraction and retention and for expansion of modern educational and medical opportunities to rural areas of the state. It is also crucial for the next generation of public safety technologies. OIT includes a broadband mapping and planning initiative in its Playbook and measures broadband availability and level of service across the state semi-annually. The measurement of broadband service relies on broadband service data collected through OIT's broadband mapping effort.

OIT currently collects, maps and analyzes data on the extent and quality of broadband service across the state with a staff of four GIS specialists. OIT also has one position, a Broadband Communications Manager, who oversees the creation, implementation, and sustainability of local technology planning teams (LTPTs) at the regional and individual county level. This position promotes best practices learned through

establishing LTPTs as a guide for starting new teams. All of these positions are funded with a federal grant from the National Telecommunications and Information Administration (NTIA). This grant was for approximately $5.3 million over five years, and it ends in October 2014. The NTIA will not be providing an additional round of funding for any of the states (in part due to the sequestration). OIT is submitting this budget request to continue supporting these positions and continue the work and successes they have established.

In addition to the planning and mapping activities, this staff is collecting and managing a statewide geographic address file. This address data is the foundation for mapping anything listed or located by address. For example, during the recent wildfires, OIT was requested to identify the number of State employees potentially impacted by the fires. This was done by matching the list of employee addresses to the statewide geographic locations of addresses resulting in a map of the addresses. These locations were then compared to the area of the wildfire impact to count the number of addresses potentially impacted. It is possible to see how such a mapping can be applied to any list of events or objects that have address information. A well managed, current address location database is very important for many applications such as emergency management, taxation and others.

Last, the capacity and knowledge developed through the work on the grant is allowing OIT to provide GIS services to State agencies. Geographic information is used in multiple ways in the State including management of State-owned lands, emergency management and response, management of cultural and historical resources, public health monitoring, and so on. The services that OIT provides allow State agencies to utilize geographic information to accomplish their agencies' business. OIT is supporting web mapping applications that provide information to the public as well as analyses of geographic information for agencies.

Proposed Solution:

OIT is requesting ongoing support in the form of General Fund for 6.0 FTE currently funded with federal grant funds. The base salary costs of these FTE are listed below for a full fiscal year, however because the grant expires in October 2014 the FY 2014-15 impact is only for eight months. The positions supported and their anticipated base salaries will be:
- Broadband Communications Manager - $5,000
- 3 GIS Analysts – 2 positions @ $4,400 each, 1 @ $3,800
- GIS Outreach Coordinator - $6,800
- Broadband Architect - $9,000

The grant currently provides about $1.0 million in funding a year; however, OIT is requesting a lower amount. There are a couple reasons for the difference. First, OIT has done an assessment to determine which activities currently funded by the grant align with OIT's core services. There are 1.5 FTE currently funded by the grant that are working on distance learning activities. While OIT believes the work these individuals are doing is extremely important, it does not align with OIT's core services, and OIT will be looking for other places outside of OIT where this work should be continued. Second, OIT evaluated how many positions are needed for continuing these services. After two years of performing broadband mapping with in-house staff, OIT has been able to determine the level of work required for the broadband mapping task. The manager of the broadband mapping unit observes and prioritizes the tasks assigned to the GIS group and oversees the time required to accomplish these tasks to ensure that there is no slack time or that critical tasks do not remain incomplete for excessive periods of time. While more work was required to implement these services initially, given further automation of some of the data collection and the scope of

the work described in this request, the reduced staffing levels described here are appropriate. OIT expects to maintain the current staff in these positions, as they have developed the expertise to perform the necessary tasks well. OIT will continue to collect data on broadband availability and convert it to a standard format. OIT will make this data available to the public and will perform the necessary analyses for informing or guiding policy or funding efforts. OIT will also continue to coordinate planning efforts among local and regional governments.

Without this staff, OIT will not be able to continue the broadband mapping effort and an important source of information on the status of broadband services to residents of Colorado will be lost. The State will not have the capacity to track and measure unserved and underserved areas and whether access to this important technology is improving. Consequently, Colorado will lose one of the most important measures for understanding the impact of broadband efforts across the state.

Without the Broadband Communications Manager, OIT will lose the capacity to encourage local and regional planning efforts and will be forced to significantly reduce broadband outreach which could jeopardize the efforts and goals of the broadband program. These planning efforts are critical in two ways. First, planning for improved broadband, including identifying potential demand for broadband and working with broadband providers to bring higher speed and lower cost service to an area is essential to effective action to improve this service. Second the local approach to planning recognizes Colorado's local emphasis in governing and problem solving. However, based on experience, without a staff person at the State coordinating local planning efforts, sharing best practices and policy developments, and helping to establish milestones, it is very likely that many of the local efforts will not continue or will not be as effective as possible. To date, this program has been tremendously successful. It has initiated over 15 Local Technology Planning Teams (LTPT's) throughout the state (covering over 30 counties) that are focusing on identifying the key broadband issues in their community. Additionally, the program has launched two regional planning efforts bringing together 12 counties to develop formal regional plans to solve their broadband issues. It has recently identified two other regions (central western slope and northeast) and are working to replicate these regional planning efforts. Without the Broadband Communications Manager OIT will not be able to continue to develop these regional plans that are crucial to the overall goals of the state.

The Broadband Architect will be a technical resource that will work not only within OIT, but across State agencies to ensure that broadband solutions developed are properly vetted and designed from a technical perspective. Currently OIT lacks the specific skill set that is required to fully integrate broadband solutions.

The GIS staff will also continue to support and develop GIS services that will be used by multiple State agencies. This presents significant opportunities for cost reduction or cost avoidance by sharing infrastructure, applications, services and knowledge across agencies.

Last, it is clear from recent events and potential new requirements (e.g., sales tax calculations resulting from the Marketplace Fairness Act), that an accurate address database to map addresses all around the state will improve State government services and efforts. The OIT team has collected an estimated 90 to 95% of the addresses in the state from local governments and is in the process of evaluating their quality. Without the requested budget, the maintenance of this data will not continue, leaving State agencies to rely on third party data sets of undocumented quality.

Anticipated Outcomes:

This request will succeed when the outcomes from staff are successful as stated below:

- Updating geographic database on broadband availability in Colorado and an on-line mapping application displaying and allowing residents to interact with that information as well as test their broadband speeds for comparison to the information. OIT currently measures the availability of broadband services across the state and in rural and urban areas with these data and will continue to provide these measurements to indicate improvements in broadband service in the state.
- Updating geographic information of address locations in the state for use by the federal government, multiple State agencies for mapping their business needs (e.g. planning wildfire response) and local governments. OIT includes standards-based quality assessment methodologies in its compilation of the address data and is communicating these assessment methods to the local governments that provide local address data. Increases in the number of local governments assessing their data, as well as improvements in the data quality as expressed through these assessments, indicate improvements in the data.
- Maintaining infrastructure to support web-based mapping applications and the support of existing and new applications. OIT reports on the number of mapping services provided and the number of agencies using these services. Through this is also possible to estimate the cost avoidance of financial efficiencies provided by these services.
- Ongoing information sharing published plans and further growth of Local Technology Planning Teams for locally-based broadband planning. OIT is tracking the number of teams and their activities to demonstrate increase in planning activities across the state.
- Increasing broadband technical understanding and analytical capability

The success of these efforts will be evident by the effective maintenance of the data mentioned above and additional mapping applications. In addition, growth of new local technology planning teams and the development and implementation of their plans to improve broadband service that is ultimately reflected in the mapping data will demonstrate success.

Assumptions and Calculations:

The personnel cost in this request is based on current salaries paid to GIS and broadband staff over the life of the grant. With the federal grant covering expenditures through October 2014, the FY 2014-15 need totals $428,866. This will annualize to $554,347 in FY 2015-16 and beyond.

ALTERNATIVES CONSIDERED:

In the case of the Broadband Communications Manager, the only alternatives are retaining a contractor for this effort or not doing it. Due to the nature of the task, the contract would probably be an hourly amount rather than a firm, fixed price. A contractor would be more expensive than the salary of the Communications Manager.

In the case of mapping broadband service, OIT has some background information to compare the cost of alternatives. OIT contracted for a broadband mapping project on two different occasions. The first was a one-time effort at data collection. It did not include collection of all of the information currently collected by OIT nor did it include an ongoing validation effort or a robust web application for displaying the information and collecting additional input (i.e., user speed tests). OIT paid approximately $290,000 over a half-year period. The second effort again did not include all of the information currently collected, did not

have the follow-up with providers or validation currently under way, and it included no speed tests or web mapping application and was not as comprehensive or accurate as OIT's current effort. It cost OIT approximately $490,000 over two years. There is significant discrepancy in these numbers, but OIT's current effort more closely resembles the former in terms of comprehensiveness of work and scope. However, simple average of these two results in an annual cost of approximately $413,000, significantly more than the mapping component cost of this request.

Outsourcing the GIS work is also a complex analysis, but based on price quotes for server infrastructure and hosting and management of applications and web services similar to those performed and proposed by OIT, the estimated cost would be a minimum of $316,000 in the first year and $254,000 in subsequent years. This does not account for additional services provided by OIT in terms of scoping and managing geospatial web applications.

Looking at the maintenance of address data, OIT paid a contractor $270,000 to develop GIS address data for nine counties. While OIT is focusing on assembling data for counties and providing training to build capabilities among counties that do not have data yet, this contractor cost is indicative of the work required to collect data from counties and integrate it into a seamless, accurate database.

For the Broadband Architect the primary alternative would be to hire outside consulting to perform the necessary analysis on an hourly basis. Standard rates for such resources average $250 per hour which would equate to an overall cost of $520,000 for a one-year time period.

RATIONALE FOR GENERAL FUND:

While OIT is an internal service organization per rules of the Internal Revenue Service and almost all other funds originate via charges assessed to State agencies, this function of OIT does not fit within the existing service catalog or cost recovery methodology. OIT provides services to State departments on a cost recovery basis, meaning that the cost pool for each service is built into the rate structure charged to departments. OIT is prohibited by the federal Division of Cost Allocation (DCA) from using one service to subsidize another.

Broadband mapping utilizing GIS technology and coordinated efforts presents a common good utilized by multiple State departments, Colorado citizens, and private sector companies. However, it does not present a chargeable model because none of these entities has an incentive to purchase the service of mapping a certain area even if they would benefit. The most recent example of the use of GIS mapping data came not via broadband but through the flooding of September and October 2013 in Colorado. OIT was able to utilize GIS mapping to provide a detailed map of flooded areas and potential water flow directions.

Private companies looking to establish facilities in Colorado have a vested interest in the broadband capabilities of different geographic regions, which is broadband mapping. However, their desire to pay a government entity for that service is a challenge. Therefore, this request is viewed as having benefits to State agencies, citizens, and private companies and would be a sound economic investment for the State but cannot be charged back to agencies. With existing federal resources disappearing, if Colorado intends to further broadband mapping and GIS initiatives the only avenue forward is the use of General Fund.