

**FGDC CAP Grant Category 5: 2011
Interim Project Report**

Date: November 30, 2011

Agreement Number: G11AC20056

Project Title: New York Statewide Imagery Return on Investment Study

Interim Report

Organization:

Office of Cyber Security (OCS)
New York State Division of Homeland Security and Emergency Services
1220 Washington Avenue
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Listing of Collaborating Organizations:

New York State Department of Transportation
New York State Division of State Police
New York State Department of Agriculture and Markets
Schenectady County

(Only organizations which have committed to collaborating are listed. We anticipate the cooperation of many more State and County organizations.)

Executive Summary

While this project was intentionally delayed in light of the training schedule (an extension will be requested), we have laid good groundwork for a successful ROI study. Training was completed and has helped us refine the scope of the study and to set priorities for data collection and analysis. Given our agency's inclusion on the Division of Homeland Security and Emergency Services, we have decided to prioritize data from related organizations and activities to be able to report on the value of the imagery program in security and emergency activities. Similarly, the majority of the program funding is State funding, so we feel we need to gather enough data to show good return for State activities. Additional data collection and analysis will then be used to study the ROI for local governments (County, city, etc.) If time and resources allow, we will include data from Federal Agencies and the private sector. Preliminary data collection from the previous months will be fleshed out, and we will procure the assistance of a contractor for collection, analysis, and summarization. Our agency still intends to use the knowledge and skills acquired in this project to perform other ROI studies and to transfer the knowledge to other agencies.

Project Narrative

Since the grant award, OCS has focused on becoming familiar with the GITA methodology for ROI analyses. We used background information to begin limited, preliminary data collection for our own office and from a County agency. With completion of training in October, we have refined our project's scope and developed guidelines for data collection. We anticipate data collection to start in earnest in December 2011, with the assistance of a contractor. In addition to the final ROI study, final products will consist of presentation materials for training other agencies.

When submitting the application for the grant, OCS expected the ROI training to occur soon after the award. Our proposed schedule for the project (March 2011-March 2012) was based on this expectation. However, it became clear in discussions with FGDC and the State of Maine, that it was preferable and feasible to delay the training until Maine's contractors could attend. This resulted in the training occurring in October 2011. As a result, OCS' project is behind the original schedule and we **plan to request a schedule extension** for anticipate project completion in September 2012.

Other than schedule, our current project plan is still true to the original proposal. We will focus on the ROI for the products of the statewide orthoimagery program. This will be divided into two groups of analyses: a purpose-based grouping and a user-type grouping. We feel it is very important to be able to show the ROI for differing collections of agency roles. Because OCS is part of the NYS Division of Homeland Security and Emergency Services (DHSES), we want to be able to show the ROI for DHSES alone and then as part of a larger homeland security and emergency services group. This larger collection will be built by including data from related organizations (i.e. – State Police) and from specific related activities from agencies with more generalized responsibilities (i.e. – a County's mitigation planning). A final ROI analysis will be done for all purposes.

The user-type grouping is based on a desire to show the ROI for State Agencies because the majority of the program funding is State funds. Budget pressures have increased the desire to show that state funds are going to core missions, which are often defined as critical state functions. If OCS' ROI study can show that the expenditure of NYS funds results in a positive return when only NYS agencies are included, a solid business case can be made for continued funding. At the same time, we will collect data from local governments to be able to show both their return on investment if they contributed funds and the compound (State plus local agency) return. If time and resources allow, we will pursue data from Federal Agency users and private firms.

Sample Fiscal Analysis Tables

The following table shows a fiscal analysis based on preliminary data from a local government. This entity invested some funds to upgrade the resolution of the imagery covering their area. These investments are shown as Contract/Procurement Costs. The entity reports significant benefits from their use of the orthoimagery and has supplied data on estimated Productivity benefits they realize because of having orthoimagery. The preliminary data is showing a high rate of return when benefits

are only compared to the entity's investments. Ultimately these specific investments and benefits will be folded into an ROI study for the entire program.

	Year 1	Year 2	Year 3	Year 4	Year 5
Historical Cash Flows					
Internal Labor Costs	\$0	\$0	\$0	\$0	\$0
Contract/Procurement Costs	(\$30,215)	\$0	\$0	\$0	(\$18,732)
Productivity Benefits	\$75,004	\$76,879	\$78,801	\$80,771	\$82,790
Other Benefits	\$0	\$0	\$0	\$0	\$0
<i>Year 1 Value Multiplier:</i>	100.0%	97.6%	95.3%	93.0%	90.8%
Year 1 Values					
Internal Labor Costs	\$0	\$0	\$0	\$0	\$0
Contract/Procurement Costs	(\$30,215)	\$0	\$0	\$0	(\$17,011)
<i>Total Annual Costs</i>	(\$30,215)	\$0	\$0	\$0	(\$17,011)
<i>Cumulative Costs</i>	(\$30,215)	(\$30,215)	(\$30,215)	(\$30,215)	(\$47,226)
Productivity Benefits	\$75,004	\$75,049	\$75,093	\$75,138	\$75,183
Other Benefits	\$0	\$0	\$0	\$0	\$0
<i>Total Annual Benefits</i>	\$75,004	\$75,049	\$75,093	\$75,138	\$75,183
<i>Cumulative Benefits</i>	\$75,004	\$150,052	\$225,146	\$300,283	\$375,466
Cumulative Net Benefits	\$44,789	\$119,837	\$194,930	\$270,068	\$328,240
Breakeven Year: Year 1 Payback Period (in Years): 0 Net Value (in Year 1 dollars): \$328,240 Year 1 Value of Costs: \$47,226 Return on Investment: 139.01% (Annualized)					

In comparison, the following table shows rough, estimated data for a State Agency. Costs are documented for this agency's work on the program in cooperation with OCS. These are shown as Internal Labor Costs. The Agency realizes benefits in many ways. The example shows benefits from avoiding mapping projects where the existing orthoimagery can be used instead of planimetric mapping. The savings from not having to pay for mapping are shown in the Other Benefits. With the estimated costs and benefits shown, the return is hovering around the break-even point. While we expect to be able to identify many more benefits associated with use of orthoimagery at this agency, we do not expect to find many more sources of cost. We expect the ROI to grow.

	Year 1	Year 2	Year 3	Year 4	Year 5
Historical Cash Flows					
Internal Labor Costs	(\$12,357)	(\$12,666)	(\$12,983)	(\$13,307)	(\$13,640)
Contract/Procurement Costs	\$0	\$0	\$0	\$0	\$0
Productivity Benefits	\$0	\$0	\$0	\$0	\$0
Other Benefits	\$16,000	\$16,000	\$16,000	\$16,000	\$16,000
<i>Year 1 Value Multiplier:</i>	100.0%	97.6%	95.3%	93.0%	90.8%
Year 1 Values					
Internal Labor Costs	(\$12,357)	(\$12,365)	(\$12,372)	(\$12,379)	(\$12,387)
Contract/Procurement Costs	\$0	\$0	\$0	\$0	\$0
<i>Total Annual Costs</i>	(\$12,357)	(\$12,365)	(\$12,372)	(\$12,379)	(\$12,387)
<i>Cumulative Costs</i>	(\$12,357)	(\$24,722)	(\$37,094)	(\$49,473)	(\$61,859)
Productivity Benefits	\$0	\$0	\$0	\$0	\$0
Other Benefits	\$16,000	\$15,619	\$15,247	\$14,884	\$14,530
<i>Total Annual Benefits</i>	\$16,000	\$15,619	\$15,247	\$14,884	\$14,530
<i>Cumulative Benefits</i>	\$16,000	\$31,619	\$46,866	\$61,750	\$76,280
Cumulative Net Benefits	\$3,643	\$6,897	\$9,773	\$12,278	\$14,421
Breakeven Year: Year 1 Payback Period (in Years): 0 Net Value (in Year 1 dollars): \$14,421 Year 1 Value of Costs: \$61,859 Return on Investment: 4.66% (Annualized)					

Expected Schedule

OCS staff will begin detailed data collection in December 2011. This work will help finalize the scope of work for procuring contract staff to assist with data collection, analysis, and reporting. The procurement should occur in January 2012. We plan to complete the majority of priority data collection by June 2012. The remaining months (through September 2012) will be used to analyze and summarize the data, while also completing targeted additional data collection to address gaps.

Expected Deliverables

The final report will summarize the ROI analyses for the orthoimagery program from the perspective of the different groupings described above. In addition, we also hope to obtain data which will be useful in indicating the value (relative or absolute) of the variables in the program, such as frequency of updates (how old can the imagery be before benefits are not realized?), the bands collected (is there enough use of CIR orthoimagery to merit the costs of 4-band products?), and distribution methods (how many users can realize the same benefits with imagery if it is made available through a central web service rather than a delivery of image files?). We believe this information may be measured more in the form of “strategic benefits” than in any quantitative way.

Ultimately, we hope and expect to complete an ROI study which confirms the merits of continued investment in the orthoimagery program. We also expect to learn things which will help us improve the program in the coming years. In addition, we plan to document the process so that we can foster ROI analyses on other projects and at other agencies.