

## **Contractor's Project Summary**

This year's study was developed as a follow-on to two previous financial analysis projects: the original IGIC multi-agency analysis, which focused on seamless statewide data sharing built up from county level data; and the analysis of the use of GIS, imagery and modeling in response to 2008 Iowa flooding. The vision was to extend and update previous analyses to incorporate:

- benefits from economic development, which were identified in the original study as a potentially valuable area
- benefits related to utilities, particularly in the area of public/private partnerships focused on data acquisition and maintenance
- benefits for municipalities, particularly small municipalities that have not yet acquired GIS capabilities

Our research in the area of economic development was particularly successful. We were able to interview representatives of 16 of the 18 state regional development groups, as well as the Iowa Area Development Group, Iowa Department of Economic Development, Iowa Workforce Development, numerous municipal Chambers of Commerce and related ED groups, county level ED organizations, independent site selection professionals, and Iowa commercial real estate brokers. We collected a wide variety of benefits metrics from these organizations and ultimately developed a model of potential economic development activity based on Cedar Rapids Priority One annual metrics scaled to comparable US Census Bureau job metrics at the county level.

Our investigation of the potential for public/private partnerships related to data use in the utility sector was not as productive. Private utility companies consistently indicated an unwillingness to share data, even with password-protected access, due to corporate policies regarding liability issues. Although utilities would very much like to receive county and municipal data through the proposed service agency, their inability to participate in data sharing appears to be a deal killer for full participation data partnerships.

However, we were quite successful in developing a business case for a utility work management system leveraged on a mature municipal GIS. The City of Ames Public Works Department plans to deploy a sophisticated work management/asset management project in 2012 and was able to provide extensive cost and benefits metrics to construct a financial analysis for their project. Results of the ten-year forward-looking analysis showed \$196,000 Net Present Value, 4.65% annualized Return on Investment, with a four-year payback period.

A municipal analysis was also done for Polk City, providing a detailed description of the adoption of GIS by a very small municipality. Results from Polk City were used to model costs and benefits for 100 small municipalities adopting GIS over the next 20 years.

We did a financial analysis for the full life cycle of developing GIS capabilities for Linn County REC. Linn County is the largest REC in Iowa and began its GIS project in 2004 as part of a three-utility consortium. Startup costs were quite high, as the utility invested heavily in field inventory of its facilities, development of landbase data as well as in software and hardware for GIS, field design and inspection, field mobility, and outage management. Analysis of this project from 2004 through 2013 showed \$317,000 Net Present Value, 1.26% annualized ROI, and eight year payback period. We chose not to extend these metric to the potential for other RECs adopting GIS as the Linn County project appears somewhat atypical due to the size of this utility.

#### What didn't work:

At the start of the project, we were quite optimistic regarding the opportunity to perform an analysis of Dubuque Smart City efforts, particularly in the area of Smart Grid and GIS. The first utility rollout was for water meters and we worked with water department GIS staff to quantify benefits. However, we were not able to discover sufficient benefits to balance the large startup costs, nor were we able to access internal business cases developed by the city for this project. We also learned that this project has not yet addressed connections to the city's GIS which further hinders the development of realistic projected benefits related to GIS technology. Current rollouts of electric and gas smart meters as well as Smart City projects for transportation and health will no doubt also lead to significant realization of benefits through

GIS analysis of data collected. It remains uncertain at this time how long it will take until staff are able to quantify benefits they are receiving from this project.

We made a number of attempts to quantify benefits of using GIS to analyze potential for joint trenching projects, hoping to leverage previous GITA ROI research regarding this type of benefit. Municipalities showed enthusiasm for the concept but we were not able to collect sufficient metrics to complete a financial analysis addressing joint trenching.

Barriers:

- GIS literacy, particularly in ED organizations where staff are unfamiliar with the technology
- joint trenching and One Call issues (standards for data sharing, ability to enforce policies to minimize pavement breaks)
- full integration with GIS of innovative projects such as Dubuque's Smart City

Recommendations for future studies:

- public benefits from increased data availability
- benefits to educational organizations, including stimulation of workforce development through those organizations
- novel approaches to public/private partnerships, attempting to solve the utility liability dilemma
- joint trenching benefits, worth a revisit given large potential ROI (we note that Cleveland Water projected joint trenching benefits were in excess of costs for its entire multi-year paper maps to digital GIS conversion project).