

# Charting Future Direction Baltimore County's GIS Strategic Business Plan

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# Project Intent

Performed in conjunction with Office of Budget and Finance

Provide a Cost Benefit Analysis snapshot of Baltimore County's Geographic Information System (GIS) implementation

Provide recommendations for improvement, expansion and future investment

Contracted Dewberry and Davis to perform independent audit



# Project Scope

The project began in August 2006 (vendor selection) and was executed during a 9 month timeframe

Assess the current annual costs and annual benefits of GIS technology for Baltimore County

Reviewed 389 business processes of all 24 agencies, including the description and assessment of GIS utilization

Identify additional benefits, such as cost avoidance, revenue sources or other benefits



# Project Initiation

## Kickoff meetings

Internal Cluster Meetings  
Tactical Kickoff Meeting  
Stakeholder Expectations Meeting

Program	Traffic Management
Description	Traffic Management is a portion of the overall infrastructure maintenance and improvement of the county facilities. GIS data is used to analyze activities.
Activities	<ul style="list-style-type: none"><li>• Install Roundabouts</li><li>• Traffic Calming</li><li>• Traffic Signals – Maintenance</li><li>• Traffic Signals – Design, Inventory</li></ul>

## Uncover Existing Business Processes

Coordinated with Agency Managers and GIS POC  
Outlined Programs Using Geographic Information  
Developed List of Business Processes

## Review of Operating and Capital Costs

Coordinated with Budget Analysts  
Determined Costs for Software, Hardware, Services  
Estimated Costs for Resources Related to Enterprise GIS

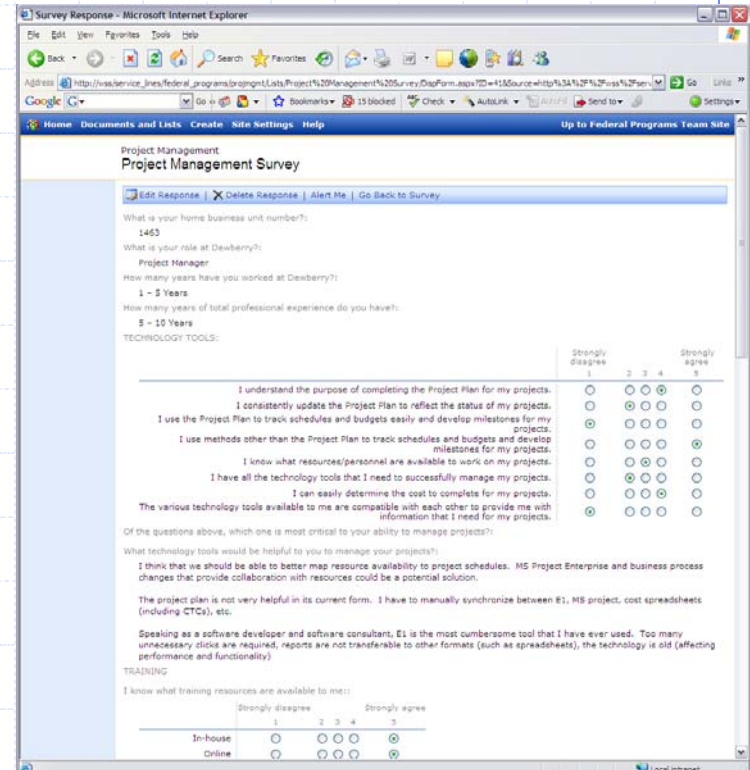


# Methodology

Short-form Questionnaires (309)  
Online Survey with GIS Specific Questions  
Used to Determine Overview of GIS Use  
Helped Narrow the Focus for User  
Interviews

User Interviews (223)  
Interviewed Individuals and Groups  
Asked About Specific Business Processes  
and Effort  
Forum for Discussion of Opportunities

Gap Analysis and Agency Review  
Determined Gaps in Information  
Follow Up Questions and Interviews  
Agencies Reviewed Gathered Information for Approval



# Methodology

## Determine GIS Benefits

Calculated Time Spent for Each Activity

Used Average Rate to Determine Cost With GIS

Estimated Costs Without GIS – Difference Gives Benefits

### Activity: Install Roundabouts

#### Annual Time Savings from Use of GIS:

Staff Hours w/o GIS (Manual)	Staff Hours with GIS	Difference	Annual # Iterations Per Year	Total Hours Saved Using GIS	Annual Time Savings Benefit (Based on \$33.95/hr)
70	21	49	2	98	\$3,327.10



# Methodology

## GIS Data and Application Inventory

Determined Availability and Use of Spatial Data by Agency  
Information Used to Determine Importance and Priorities of Data

## Industry Research

Sent Survey to Several County Agencies  
Used Responses to Determine Best Practices  
King County, WA  
Mecklenburg County, NC

## Consensus Building Workshops

Workshops Conducted to Present Results and Build Consensus

## Final Presentation

Study results were presented to County Management



# Results

## Annual Costs:

Total Operating Costs:	\$859,717	Hardware, Software, Supplies OIT GIS Personnel, Training
Total Capital Costs:	\$272,000	Enterprise Databases
Total Agency Costs:	\$976,353	GIS Database Maintenance Staff, Training, Supplies
<b>Total GIS Enterprise Costs:</b>	<b>\$2,108,070</b>	

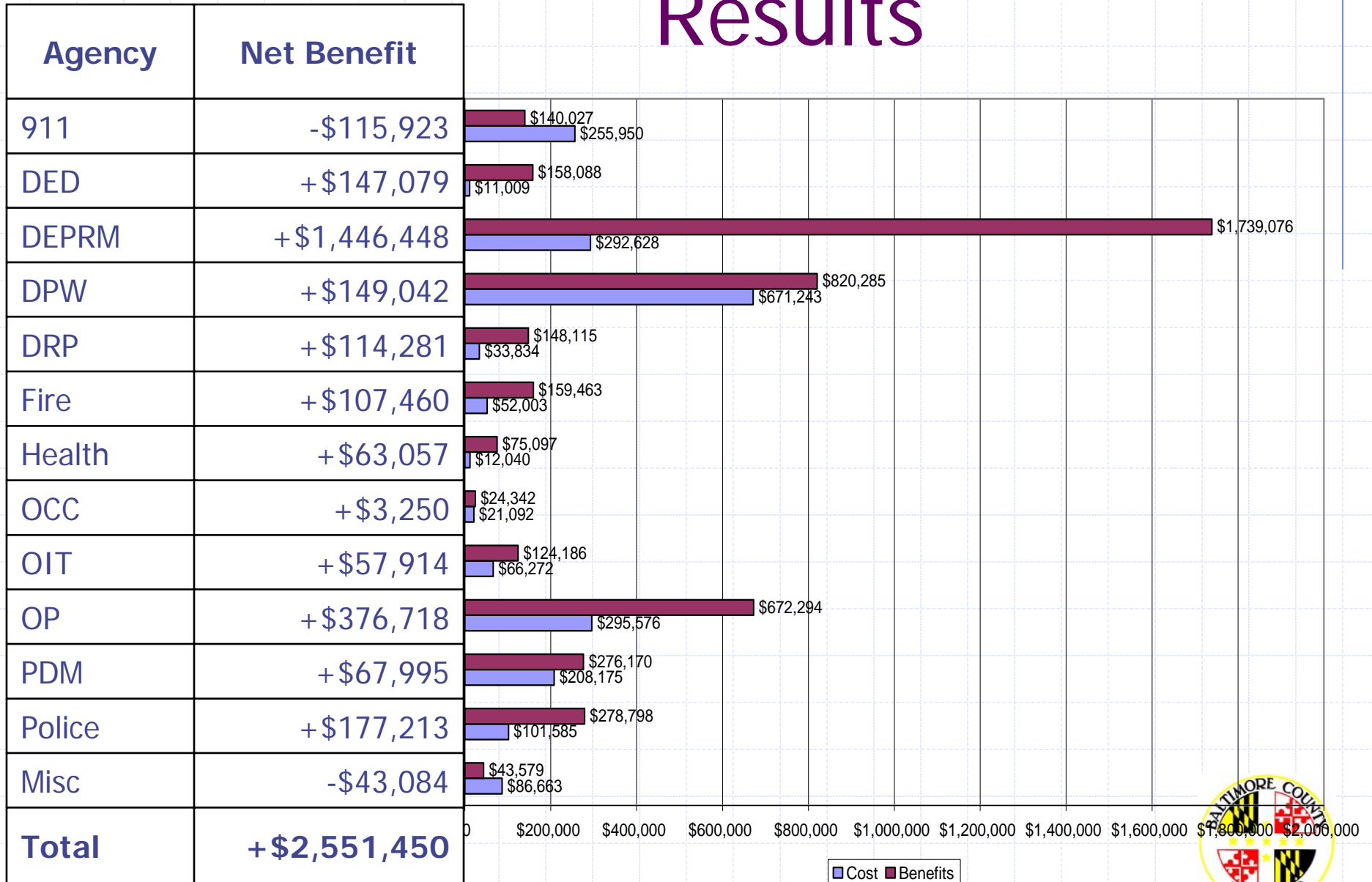
## Annual Benefits:

Annual Hours Saved:	119,377
Annual Time Benefits:	\$4,052,895
Other Benefits:	\$606,626
<b>Total Annual Benefits:</b>	<b>\$4,659,521</b>





# Results



# Results

## GIS Databases

98% (270 of 274) of supported & maintained GIS data layers are utilized by County agency programs and activities

<b>Dataset</b>	<b>Used By Number of Programs</b>
Roads	80
Orthophoto (2005)	74
Buildings	73
Street Centerlines	72
County Boundary	70
Tax Parcel	68
AddressPoints (View)	65

## GIS Applications

Most agencies are maximizing use of software provided by the County, especially ArcGIS standard (79 out of 91 programs) and DataQuery



# Enterprise Recommendations

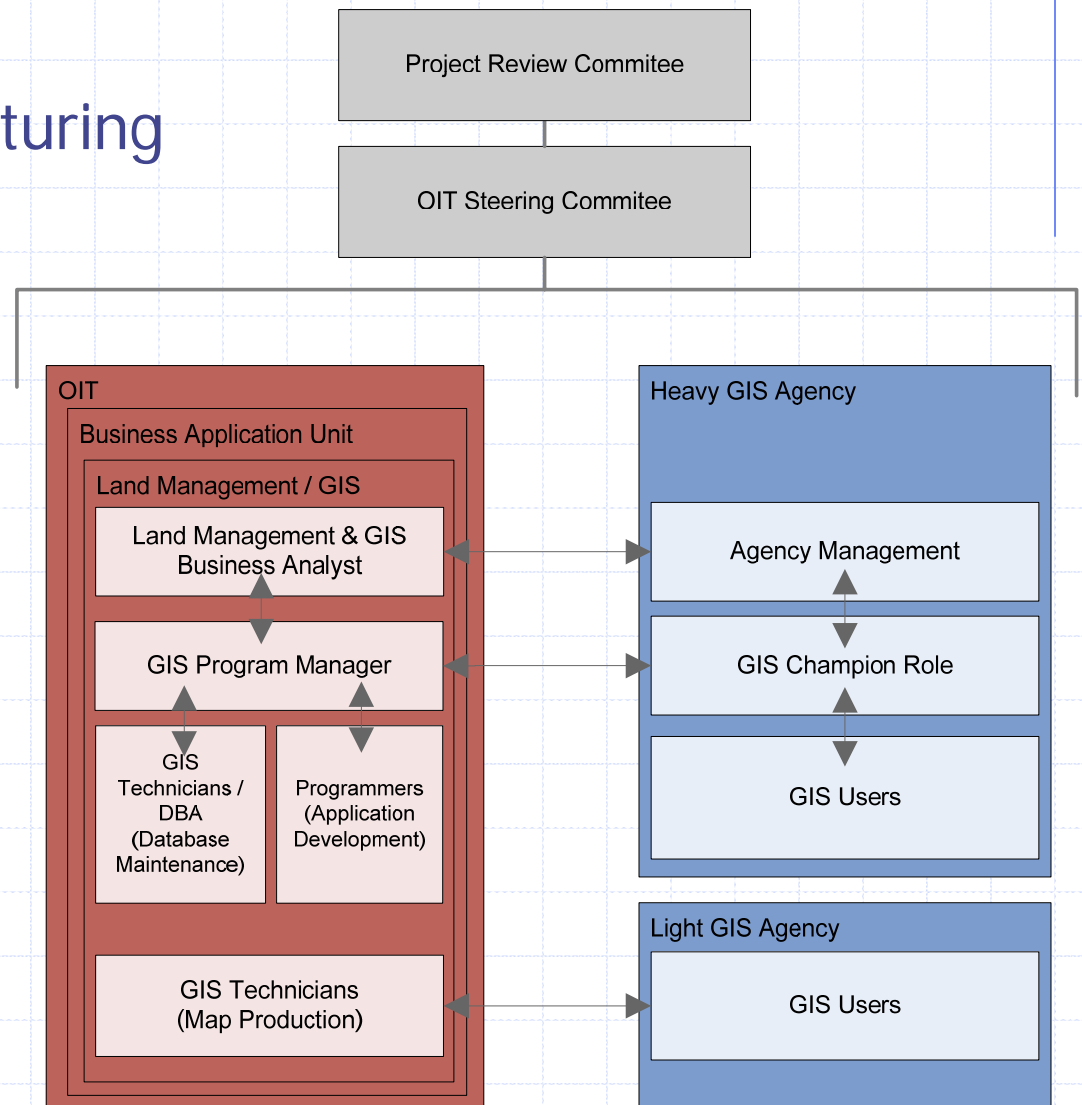
## Organizational Restructuring

GIS Program Manager

Agency GIS Champion

## Resource Consolidation

- 911
- Office of Planning
- DEPRM
- DPW
- PDM



# Enterprise Recommendations

## GIS Data Development and Maintenance

Master Water and Sewer Plans  
Chesapeake Bay Critical Area Database  
County-Owned Property Database

## GIS Application Development and Maintenance

Prioritize and Develop "Activity-Specific" applications

## Business Process Redesign

Enhance GIS Utilization in Additional Agencies

- ◆ PDM
- ◆ Health
- ◆ DSS



# Benefits of Study

More Efficient Use of Resources

Potential Cost Savings Recognized

Better Coordination Between Agencies

Increase in Awareness of Activities Between Agencies

Potential for an Increase in Services



# Lessons Learned

Structured, coordinated document review with timely follow up and persistent communication related to due dates and actions

Consistency between teams is essential for accurate estimates

Several different programs support the same activity and therefore the metrics for the activities were being duplicated, diluted or confused

Better agency communication to interviewees prior to the interview session could have relieved tension and improved preparation for the questions



# Keys to Success

Budget Analysts support as active stakeholders

Agency participation and commitment to accurate documentation

Voice recording of the interview sessions

Reduced impact of project team turnover

Allowed for sessions to be reviewed multiple times

Flexible, professional vendor committed to a high quality deliverable



# Questions

Download the Study at:

[http://www.baltimorecountymd.gov/Agencies/infotech/  
geographic\\_information\\_systems/strabusinessplan.html](http://www.baltimorecountymd.gov/Agencies/infotech/geographic_information_systems/strabusinessplan.html)

