

Appendix C

Department of Public Works



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1 Department of Public Works

1.1 Agency Overview

The Baltimore County Department of Public Works (DPW) provides various functions to the public through its seven bureaus. Baltimore County DPW is divided into the following bureaus and divisions as noted below. Each group provides a sizable number of services to both the public and to the County itself.

Director's Office:

The main functions of the Director's office are to provide general administration to DPW, set department specifications, write the Master Water and Sewer Plan, establish Metropolitan District extensions, provide floodplain verifications and regulations, and to provide Local Area Network (LAN) administration. Although most of these functions relate directly to the day-to-day operations of DPW, many have direct impacts on the public and the services they use.

Metropolitan District Financing and Petitions is responsible for administering the petition process for health related and citizen-financed projects such as sewer and water extensions and connections, and alley improvements. The Metropolitan District Financing office is responsible for the assessment and maintenance of files for all Metropolitan Charges, such as water and sewer benefit charges, sewer service charges, and water distribution charges. This group is also responsible for billing food service class and industrial wastewater surcharges.

The Petition Project group receives requests for extensions of public sewer and water lines, alley repairs, and construction of roadways, curbs and gutters, and private road takeovers. Being the point of contact for petitioners, this group coordinates design and construction with other County agencies, secures methods of funding and repayment, and conducts the necessary public meetings to explain health projects, costs, and payment options available to property owners.

The following programs included in this study fall under the Director's office:

- Basic Services
- Building Permit Review (Residential)
- Floodplain Management
- Inquiries – Citizen
- Master Plan Development
- Metropolitan District Financing and Petitions



Bureau of Highways:

The Bureau of Highways provides a broad range of services related to the repair, maintenance, reconstruction, and the improvement of more than 2,600 miles of Baltimore County's roads system. This includes travel lanes, roadside shoulders, ditches, appurtenance paving, curbs and gutter, sidewalks, and guard rails. In addition, the Bureau also provides a number of related services. These services include emergency bridge repair on over 400 major bridge structures, maintenance and repair of open drainage systems (including stream channels, culverts, flumes, catch basins, and ditches), removal of storm debris, roadside mowing and brush control, tree removal (including branch trimming and stump removal), and street sweeping. During emergencies and special circumstances, the bureau provides services in the areas of snow and ice control, natural disasters such as flooding and tornadoes, and civil emergencies.

The following program included in this study falls under the Bureau of Highways:

- Highways (Roads) Management

Bureau of Solid Waste Management:

The Bureau of Solid Waste Management's mission is to provide a safe, environmentally sound integrated solid waste management program to promote waste prevention, increase recycling and resource recovery, and decrease the quantity of solid waste requiring land filling, in accordance with the Ten Year Solid Waste Management Plan.

The Bureau is divided into four divisions. Administration oversees the daily operation of all aspects of the Bureau (including budget, procurement, and customer service). Collection manages the collection of residential trash, recycling, and yard materials. Recycling promotes recycling and waste prevention. Refuse Disposal operates and manages disposal of trash, recycling, and other materials at the Eastern Sanitary Landfill. This group also oversees operations of transfer of waste into and out of other Baltimore County waste facilities.

The following program included in this study falls under the Bureau of Solid Waste Management:

- Solid Waste Management

Bureau of Traffic Engineering and Transportation Planning:

The Bureau of Traffic Engineering and Transportation Planning plans for anticipated Baltimore County-wide transportation needs and ensures a safe, efficient operation of the County's highway system.

The Bureau has five divisions, each with its own specific set of responsibilities. Traffic Engineering maintains all traffic regulations, manages Baltimore County's Street Lighting Program, and develops traffic control needs and detours. Transportation Planning provides technical assistance to the Office of Planning and also evaluates and recommends specific projects in anticipation of future



transportation, land use, and economic development needs. Traffic Signal installs and maintains all traffic signals, flashers, and signal systems along the Baltimore County highway system. Traffic Sign and Roadway Marking installs and maintains county traffic signs, as well as painting and marking Baltimore County roadways. Traffic Calming is a program for slowing traffic on residential roadways.

The following program included in this study falls under the Bureau of Traffic Engineering and Transportation Planning:

- Traffic Management

Bureau of Utilities

The Bureau of Utilities is responsible for 24-hour maintenance and repair of 3,000 miles of sanitary sewer pipeline, 112 sewage pumping stations, Richlyn Manor community treatment plant, Sunnybrook and Phoenix community wells, and 14,000 storm drain inlet boxes. In addition, the Bureau also is in charge of issuing Fire Hydrant meters to permit holders and the permitting of industrial and commercial users of the sanitary sewer system. The Bureau also conducts monitoring and analysis of industrial and commercial wastewater discharge.

The Bureau of Utilities is comprised of four divisions: Pipeline Maintenance; Sewer, Water and Storm Drain Construction/Repair; Pumping and Treatment; and Engineering and Regulations.

The Pipeline Maintenance Division is responsible for inspecting and maintaining the gravity sewer collection system and for inspection and cleaning of storm drain inlet boxes and drain pipes. The Division also responds to emergency calls to replace manhole covers and to relieve sewer backups and overflowing manholes. The inspection process utilizes closed circuit television, fog testing, dye testing, as well as visual inspection techniques. Maintenance includes the use of cleaning equipment to clear blockages and debris from sewers and storm drain pipes.

The Sewer, Water and Storm Drain Construction/Repair Division provides labor and equipment to repair sewer pipelines and all portions of the storm drain system that are below grade. They also support Baltimore City repair crews in fixing broken water mains and valves.

The Pumping and Treatment Division is responsible for the operation and maintenance of 224 pumps located at 112 sewage pumping stations, one community sewage treatment plant, three treatment and water distribution systems, and approximately 2,300 grinder pumps.

The Engineering and Regulations Division's primary responsibilities, as the delegated authority by the U.S. Environmental Protection Agency (EPA) through the Maryland Department of the Environment (MDE), are to manage and effectively enforce the Wastewater Monitoring and Analysis Program through permitting, monitoring, and analysis of wastewater from industrial and commercial customers.



The following programs included in this study fall under the Bureau of Utilities:

- MDE/EPA Consent Decree Requirements/Deliverables
- MDE/EPA Utilities Maintenance Applications/Program Management (CASSWORKS)

Bureau of Engineering and Construction Inspection:

This Bureau handles a wide variety of engineering functions, separated into specific divisions. Those divisions are Administration, Geographic Information Systems, Design (including Water, Sewer, Storm Drain, Highway, Bridge, and Building Design sections), Engineering Records, Land Surveys, Construction Inspection, and Contracts Administration.

- Administration is responsible for various support services for the Bureau. This division also manages the Professional Services Selection Committee which handles pre-qualification for engineering firms and contractors, and the selection of consultants, engineers, and contractors.
- Geographic Information Systems (GIS) is responsible for providing DPW facilities mapping, digital data availability, and Department GIS Project Management.
- Design is responsible for the design of the public infrastructure of Baltimore County.
- Engineering Records is responsible for housing and producing copies of construction drawings.
- Land Surveys provides services to various County agencies, including mapping, property work, stakeout, utility recovery, and right-of-way and easement delineation.
- Construction Contracts Administration provides engineering and construction administration services for Baltimore County infrastructure, acting as owner and guardian during construction for all new and rehabilitation contracts including sanitary sewers, water mains, roads, bridges, and storm drains. They also inspect and manage the construction of public buildings throughout the County.

The following programs included in this study fall under the Bureau of Engineering and Construction Inspection:

- Bridge Management
- Complaint Tracking and Response (Research)
- Engineering Management
- MDE/EPA Consent Decree Requirements/Deliverables
- Surveys

Bureau of Building and Equipment Services:

The Bureau of Building and Equipment Services is broken down into three divisions: Building Maintenance, Building Operations, and Equipment Maintenance.

The Building Maintenance Division provides for the maintenance and repair of County general government owned and leased facilities. This includes the following services: electrical; plumbing; heating, ventilating, and air conditioning (HVAC); carpentry; painting; locksmithing; facilities inspection; roofing repairs; and general maintenance.



The Building Operations Division provides for the daily operation of County general government owned and leased facilities. The services this division provides include the following: custodial services, mail delivery, pest control, surplus equipment (pick-up, removal, and disposal), operation of the information desk at the County Courts Building, relocation of County offices, and furniture moving and set-up for special Baltimore County events and activities.

The Equipment Maintenance Division provides equipment maintenance and repair services for approximately 2,600 pieces of equipment throughout various agencies of the County. The division also prepares equipment replacement schedules, in-services of new equipment, and disposes of surplus equipment.

The following program included in this study falls under the Bureau of Building and Equipment Services:

- Building and Equipment Services Management

Agency-wide:

A Consent Decree, brought forth by the EPA and MDE against Baltimore County after three years of negotiations, has an effective "Date of Entry" of September 20, 2005. The Consent Decree outlines the agreed upon work (capital, equipment, and operations improvements over the next 14 years) with deadlines necessary for compliance with the Clean Water Act and the Maryland water pollution control laws with the goal of eliminating sanitary sewer overflows.

In addition to the programs listed above that fall under the various DPW bureaus, the following programs included in this study support the entire Agency:

- Database Maintenance
- Miscellaneous Map and Display Creation

1.2 Agency Public Access Programs

Each bureau within DPW makes a variety of static information about its programs available on the county's web site. Additionally, the following public access forms are provided on-line:

- Bureau of Highways provides an on-line form to report potholes and request service.
- Bureau of Solid Waste provides an on-line form to request a trash collection schedule.
- Bureau of Traffic Engineering and Transportation Planning provides a copy of the Street Light Petition form on-line.
- Bureau of Utilities provides a copy of the Fire Hydrant Connection Form on-line.

As can be seen, the majority of the public access information provided by DPW focuses on customer service in the form of providing ready access to forms and ways to request service. Each of the DPW



bureaus and several key DPW programs are focused on responding to questions and complaints from the public. All of these programs benefit from the use of GIS, and all could be enhanced in various ways to improve customer service. Key programs include the following.

Program	Public Access Description
Basic Services	Answer questions from homeowners about what services (water, sewer, transportation) are available and where there are restrictions on new development
Bridge Management	Respond to inquiries regarding carrying capacity of bridges and truck routing
Building Permit Review	Review permits and add water and sewer connections for new houses
Complaint Tracking and Response (Research)	Research drainage complaints
Floodplain Management	Make in/out and elevation determinations
Highways (Roads) Management	Respond to citizen concerns about roadway maintenance, snow removal, etc.
Inquiries – Citizens	Respond to requests for use of county fire hydrants for pool filling
Utilities Maintenance	Respond to citizen inquiries and complaints
Metropolitan District Financing and Petitions	Review citizen petitions for alley reconstruction, sidewalk extensions, and water and sewer extensions
Solid Waste Management	Provide information about trash collection routes and schedules, respond to requests for community clean-ups
Surveys	Provide information about survey control points to land surveyors doing work in the county
Traffic Management	Provide information about road closures and detours; respond to requests for traffic calming devices; respond to requests for new traffic signals; respond to citizen concerns about visibility of signage and signals; and add and maintain sidewalk ramps

Table 1 – DPW Public Access Programs

1.3 Binding Legal Agreements

There are several Federal, State and local laws, regulations, orders, and other similar legal agreements that are relevant to DPW. A current Agency focus is on fulfilling the requirements of a Consent Decree brought against the county by the EPA and MDE for violations of the Clean Water Act. The Consent Decree was filed on September 21, 2005 as Case Number 1:05-cv-02028-AMD Document 9-2



in the U.S. District Court for the District of Maryland Northern Division by the EPA and MDE (Plaintiffs) v. Baltimore County (Defendant).

A portion of the Consent Decree requirements and penalties are summarized as follows:

Paragraph 7B.1				
<p>Sanitary Sewer Overflow (SSO) Characterization Report:</p> <p>Baltimore County shall submit a Sanitary Sewer Overflow (SSO) Characterization Report that includes the following:</p> <ol style="list-style-type: none"> 1. A map of the Collection System and all Appurtenances; 2. Identification of the Sewersheds; and 3. Identification, including mapping, of the location, frequency, date, duration, and volume of SSOs. 				
Deliverable Frequency	Penalty 1-30 Days	Penalty 31-60 Days	Penalty 60+ Days	Total Annual Cost Avoided
Annual	\$1,000 per day	\$1,500 per day	\$2,250 per day	\$761,250
Paragraph 10				
<p>Sewershed Repair, Replacement, and Rehabilitation (SRRR) Plan:</p> <p>Baltimore County shall prepare an SRRR Plan for each Sewershed that includes the following:</p> <ol style="list-style-type: none"> 1. A report that describes the deficiencies identified through the Collection System Inspection (closed circuit television or CCTV); and 2. Inflow/Infiltration (I/I) rainfall flow meter information. 				
Deliverable Frequency	Penalty 1-30 Days	Penalty 31-60 Days	Penalty 60+ Days	Total Annual Cost Avoided
On-going	\$1,500 per day	\$3,000 per day	\$6,000 per day	\$1,965,000



Paragraph 11 D.III				
<p>Database and GIS Mapping of Grease Generating Facilities:</p> <p>Within one (1) year of the Effective Date, Baltimore County shall use its GIS to develop a map that identifies the following:</p> <ol style="list-style-type: none"> 1. SSOs caused by or contributed to by grease blockages since June 30, 2000; 2. The locations of all known Grease Generating Facilities; and 3. The locations of any Grease Generating Facilities that have been the subject of enforcement actions by the County due to Fats, Oils, and Grease (FOG)-related blockages since June 30, 2000. 				
Deliverable Frequency	Penalty 1-30 Days	Penalty 31-60 Days	Penalty 60+ Days	Total Annual Cost Avoided
Semi-annual	\$1,000 per day	\$1,500 per day	\$2,250 per day	\$761,250
Paragraph 14 E				
<p>Model Certification:</p> <p>Baltimore County shall complete implementation of the InfoWorks CS Collection and Transmission System Model for each Sewershed and certify completion of each Sewershed Model.</p>				
Deliverable Frequency	Penalty 1-30 Days	Penalty 31-60 Days	Penalty 60+ Days	Total Annual Cost Avoided
Reoccurring until complete	\$750 per day	\$750 per day	\$2,000 per day	\$655,000



Paragraph 16 B.I and II

Geographic Information System (GIS):

Baltimore County shall use a computerized GIS to map the Collection System.

The GIS shall be able to:

- A. Display all Collection System Components and Pump Stations;
- B. Use embedded objects to link schematic diagrams and attribute data for Collection System components;
- C. Display by color coding the portions of the Collection System that have been inspected and rehabilitated; and
- D. Display the location(s) at which samples from flow meters and rain gauges have been collected for development of the model required under Paragraph 14.

Baltimore County shall install all hardware and software necessary for the GIS System and ensure the system is operational and that the County has beneficial use of the specified features by no later than one year from the Effective date. Following completion of the requirements, Baltimore County shall certify in the applicable Quarterly Report, and, if requested, demonstrate to EPA and MDE, that the GIS is fully functioning and capable of displaying information described in paragraph 16 B.i, above.

Deliverable Frequency	Penalty 1-30 Days	Penalty 31-60 Days	Penalty 60+ Days	Total Annual Cost Avoided
Annual	\$750 per day	\$750 per day	\$2,000 per day	\$655,000



Paragraph 16 D.I and II				
<p>Inventory of Collection System Components:</p> <p>Within two (2) years of the Effective Date, the Utilities Management Application shall include an inventory database of the Collection System components. Following completion of this requirement, Baltimore County shall certify in the applicable Quarterly Report, and demonstrate if requested to the EPA and MDE, that the Utilities Management Application is functioning and capable of displaying the information as required.</p> <p>The inventory requires each pipe segment and asset to have the following attributes: Identification #, Capacity (diameter or flow rate), Installation Date, X,Y location, construction material, invert elevations, etc.. These attributes are also necessary for the Flow Model.</p>				
Deliverable Frequency	Penalty 1-30 Days	Penalty 31-60 Days	Penalty 60+ Days	Total Annual Cost Avoided
Annual	\$750 per day	\$750 per day	\$2,000 per day	\$655,000
Summary - Total Annual Consent Decree Costs Avoided:				
Total Annual Consent Decree Costs Avoided:			\$5,452,500	

Table 2 - Consent Decree Summary and Costs Avoided

As can be seen from the summary of requirements, the use of GIS is **mandated** by the Consent Decree. GIS is essential to the County’s being able to effectively plan and analyze to develop the SRRR Plans, for the organization and visualization of all the CCTV defect information, the Flow Meter information, and the infrastructure assets by Sewer Service Area (SSA). In order to ensure the requirement of CCTV capture of all assets within each SSA, GIS is essential for tracking the progress of the CCTV inspections against the infrastructure assets. GIS is also a necessary tool to track the repairs by SSA to ensure the SRRR Plans are executed. The only feasible way to effectively develop and manage the SRRR is through the use of GIS and the maps of the infrastructure. Additionally, the GIS attribute data on each of the sewer segments is required in order for the Flow Model to function, therefore the updated Sanitary Sewer geodatabase layer is required in order for the County to meet the Consent Decree requirements.

The county has prioritized development of the necessary data layers as well as certain key additional software (notably, InfoWorks for modeling sewersheds) in order to meet these requirements and avoid the fines that would result from non-compliance.

In addition to the Consent Decree, the following regulations also apply to DPW programs and activities:



Regulation	Authority	Regulation Description
Clean Water Act	U.S. Environmental Protection Agency	The cornerstone of surface water quality protection in the United States, the statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff.
Chesapeake Bay Critical Area Act	Maryland Department of Natural Resources	Addresses the impacts of land development on habitat and aquatic resources by identifying a "Critical Area" within 1,000 feet of the Chesapeake Bay and its tributaries.
Baltimore Watershed Agreement	Baltimore County and City of Baltimore	A Memorandum of Understanding between the City of Baltimore and Baltimore County to address water quality issues including stormwater management, community greening, development and redevelopment, public health, and trash.
Code of Maryland Regulations	State of Maryland	The Code of Maryland Regulations set forth numerous requirements for managing issues including well and septic, public health, groundwater quality, and erosion and sediment control.

Table 3 - Other Binding Legal Agreements

1.4 Agency Study Participants

Seventy three DPW staff completed the on-line short form survey developed for this study. These staff represented a good cross section of DPW, ranging from the Deputy Director of DPW, several of the Bureau Chiefs, engineers, CADD designers, customer service representatives, and field crews. A complete list of survey results can be found in Appendix A.

The following individuals were interviewed in person for this study. Additionally, a budget analyst from each agency, as well as Office of Information Technology (OIT) staff, participated in the interview process.

Name	Section
Abed Bssisso	Engineering
Ann Briggeman	Director's Office
Bonny Jasinski	Highways
Carl Broyles	Engineering
Carolyn Bellusci	Highways



Name	Section
Dale Volz	Buildings
Daniel J. Hardisky	Engineering
David A. Bayer	Engineering
David Diaz	Traffic
David Freeman	Engineering
David L. Thomas	Director's Office
Deb Delahanty	Metro Finance
Donald G. Wuest	Engineering
Donna Selander	Engineering
Doug Gabbert	Engineering
Edward Tress	Engineering
Glen A. Keller	Engineering
Gloria Simpson	Highways
Hal Southern	Buildings
James Gullivan	Traffic
James W. Arford	Engineering
Jim Ford	Engineering
Joann Pearson	Engineering
John Ruke	Engineering
John Vlach	Solid Waste
Lisa Eicholtz	Engineering
Mark Benner	Highways
Mark Gonce	Traffic
Mark Tabisz	Utilities
Maurice White	Traffic
Michael Harner	Utilities
Michael Lorenzo	Traffic
Patrick C. Semone	Engineering
Patrick Simon	Engineering



Name	Section
Paul Bollard	Engineering
Radu L. Zamfirache	Engineering
Robert C. Berner	Engineering
Robert M. Lidard	Engineering
Robin B. Hurley	Director's Office
Ronald E. Houck	Engineering
Scott Miller	Engineering
Sharon Dziwulski	Highways
Sheldon Epstein	Engineering
Stacey Tamalavicz	Engineering
Steven Makowski	Solid Waste
Steven Walsh	Engineering
Suzanne E. Hale	Engineering
Terry Curtis	Engineering
Thomas C. Smith	Traffic
Thomas Stehr	Traffic
W William Korpman	Deputy Director
W. Keith Link	Traffic
Wayne Shorb	Engineering
William D. Fox	Traffic

Table 4 - DPW Study Interviewees

The following individuals responded to the short-form questionnaire and provided information about their activities. A few of these individuals also provided information to specific follow-up questions, but were not directly interviewed.

Name	Section
Bob Moore	Solid Waste
Connie Crews	Metro Finance
Darrell Wiles	Traffic
Dave Snook	Engineering



Name	Section
Emery J. Hines	Traffic
Gene Miller	Utilities
Gerald R. McHenry	Engineering
Gunesh K. Patel	Engineering
J. Daniel Miller	Utilities
JoAnn Famolaro	Buildings
Jos Venturina	Engineering
Joseph Treadwell	Engineering
Kerry Hartline	Solid Waste
Kevin Summers	Traffic
Linda Leake	Metro Finance
Praful R. Bhatt	Engineering
Rene ' S. Henry	Engineering
Sandi Isner	Engineering
Serafin W. Buendia	Engineering
Sharon Ganzler	Utilities
Tammy Harris	Engineering
William Frankenfield	Utilities

Table 5 – DPW Study Participants



2 Cost/Benefit Information

This section outlines the costs and benefits that are associated with GIS use and maintenance within DPW. The total benefits and costs have been summarized in the table below, which are discussed in further detail in the remainder of this section.

Based on the information provided during the interview process, it appears that DPW is realizing \$149,041.94 annually in benefits, over and above its annual GIS costs, through the use of GIS in the programs and activities performed within the agency. This figure does not include the Consent Decree penalty cost avoidance. All costs and benefits have been calculated on an annual basis, and all dollar amounts are based on a flat rate of \$33.95 per hour.

Summary – Total Annual GIS Benefits	
Time Benefits:	\$793,744.88 (approx. 23,380 hours)
Other Benefits:	\$26,539.75 **(Does not include Consent Decree Penalty Cost Avoidance)
Total Annual Benefits:	\$820,284.63
Summary - Total Annual GIS Costs	
Total Annual Costs:	\$671,242.69
Summary - Total GIS Cost/Benefit	
Total GIS Cost/Benefit:	+\$149,041.94

Table 6 – Annual DPW Cost and Benefit Summary

This table only includes benefits that are associated with capital returns and does not consist of other benefits such as more accurate information, faster response times, etc. A detailed review of all qualitative benefits realized by GIS users will be documented and analyzed in the Enterprise volume of the report.

2.1 Annual Agency Cost

DPW has several expenses that contribute to the cost of supporting the Enterprise GIS for Baltimore County. The agency maintains several datasets, has relatively small operational costs, and supports almost five full time GIS employee equivalents. The total agency cost to support all of these elements is \$671,242.69 annually.

Total Agency GIS Cost: \$671,242.69
--

Details of each of the cost issues are discussed in the sections below.



2.1.1 Annual Operational Costs

DPW supports the cost to send three employees to GIS-related conferences each year. Doug Gabbert and Steve Makowski attend the ESRI User Conference and Suzanne Hale attends the ESRI Mid-Atlantic User Group conference. The agency also sends Doug Gabbert, Steve Makowski, and Suzanne Hale to the TSU GIS Seminar each year. GIS training is also provided for two employees annually. Each of these costs is recorded in the table below. All other training is performed in-house at no additional cost to the agency.

Type of Training	Estimated Cost	# of Staff Attending	Total Cost
ESRI User Conference	\$1,850.00	1	\$1,850.00
ESRI User Conference	\$1,850.00	1	\$1,850.00
ESRI Mid-Atlantic User Group Conference	\$425.00	1	\$425.00
TSU GIS Seminar	\$200.00	3	\$600.00
GIS Training	\$400.00	2	\$800.00
Total Cost:			\$5,525.00

Table 7 – DPW GIS Training Costs

DPW has one GIS supply expense for supporting the plotter and related expenditures each year.

Supplies Items	Annual Costs
Plotter Supplies, Paper and Ink	\$1,500.00

Table 8 – DPW GIS Supply Costs

2.1.2 Annual Resources (GIS Staff)

The agency resources include eight GIS staff that perform activities that support GIS for the agency. \$363,446 is spent annually to support the personnel associated with GIS maintenance activities (these data layers are listed in section 3.1.4). This figure is based on the salary and overhead of GIS personnel multiplied by the percentage of time performing GIS maintenance activities. These individuals are listed in the table below, along with the percentage of their time allocated to GIS maintenance activities.



GIS Personnel	% Allocated to GIS Maintenance Activities
Doug Gabbert	100%
Suzanne Hale	100%
Mark Tabisz	40%
Mike Harner	40%
Sharon Ganzler	10%
Thomas Stehr	25%
Steve Makowski	60%
Stacey Tamalavicz	95%
Total GIS Personnel Cost:	\$363,446

Table 9 – DPW GIS Personnel Costs

2.1.3 Annual Enterprise Costs

Each of the costs for providing the enterprise GIS have been totaled for the county and distributed among each of the county agencies relative to the number of users in each agency. These costs have been categorized as operating cost, or the cost that is expended to provide GIS support and resources (such as database management, infrastructure, software licensing etc.), and capital costs, which reflect the cost of purchasing the GIS data (such as Orthophotography or Contours). The total annual operating cost for the County GIS enterprise is \$859,717.21 and the total annual capital cost is \$272,000.00. DPW has a relatively large number of GIS users, 59 (or 26.58% of the total users in the county). Annual enterprise costs have been proportionately distributed to DPW based on this 26.58% factor. These costs are calculated as \$228,483.00 in operating costs and \$72,288.29 in capital costs, totaling \$300,771.69. Each of these figures is provided in the table below.

# of Users	% of Total Users	Factor of Operating Cost Applied to Agency	Factor of Capital Cost Applied to Agency	Total Enterprise Cost Applied to Agency
59	26.58%	\$228,483.00	\$72,288.29	\$300,771.69

Table 10 – DPW Annual Enterprise GIS Costs

2.2 Agency Benefit Assessment

Throughout the interview process, several common themes as to how DPW is benefiting from its use of GIS surfaced. Many interviewees have been with the county long enough to remember how their activities were performed before GIS, and without exception, all users noted that GIS benefited them



in their daily tasks by making their jobs easier, saving them time, saving field visits, etc. The following specific benefits are realized through time savings in the following ways:

- Better/faster customer service
- Better/faster maintenance of county resources (e.g., buildings and equipment, signs and signals, roads, etc.)
- Less research time
- More accurate information
- Access to historic photos allowing more complete research and analysis
- Faster updates
- Better communication between county employees
- Better information is provided to the public resulting in a better informed public
- Fewer field visits
- Fewer surprises or re-work based on conditions encountered in the field
- Site surveys are reduced or are better targeted
- Less digitizing in CADD for design projects
- Lower consultant's fees
- Historic changes can be recorded and analyzed
- Trends can be noted and analyzed
- Faster hydrologic and hydraulic modeling
- Better management of county services (e.g., trash collection, snow plowing, street sweeping)
- Better management of county infrastructure (e.g., bridges, roads, sewers, etc.)

In addition to the time savings noted above, the following benefits were realized by DPW through the use of GIS:

- FEMA prioritized production of the county's Digital Flood Insurance Rate Map (DFIRM)
- Homeowners save survey costs on elevation determinations and Letter Of Map Amendments (LOMAS)

Additionally, it must be noted that DPW realizes benefits through the use of GIS by avoiding over \$5.4 million in fines that could be levied on the county if the Consent Decree deliverables were not met. The use of GIS is the only way the Consent Decree requirements can be fulfilled, thus allowing the county to comply with Federal and State regulations and avoiding significant financial penalties. **To date, no penalties have been levied against Baltimore County by EPA or MDE for failure to submit required deliverables or certify requirements.**

2.2.1 Existing GIS Benefits

The benefits realized by DPW have been determined for each activity by analyzing the effort needed to perform a task with GIS in comparison to the time spent without GIS. This examination allows each activity to be measured in terms of hours, which have been then recomputed to dollars. Each of these benefits has been summarized by program below and is discussed in more detail in section 4. All dollar amounts are based on a flat rate of \$33.95 per hour. All benefits have been computed on an annual basis.



Program	Basic Services
Description	The Basic Services Analysis is used to study areas that are deficient for Transportation, Water, and Sewer, and is an important factor when analyzing areas for future development.
Activities	<ul style="list-style-type: none"> • Basic Services Maps (Water, Transportation, and Sewer)
Time Benefits (Annual)	\$3,259.20 (96 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$3,259.20
Program	Bridge Management
Description	Bridge Management is a Federally mandated program necessary for maintaining bridge safety for the citizens.
Activities	<ul style="list-style-type: none"> • Bridge Inspections • Bridge Inventory • Bridge Permitting and Routing • Surplus Property Reviews
Time Benefits (Annual)	\$22,440.95 (661 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$22,440.95
Program	Building and Equipment Services Management
Description	Maintain and repair all County government owned and leased facilities; provide custodial services; deaccession surplus equipment; provide county equipment maintenance and repair.
Activities	<ul style="list-style-type: none"> • County Owned Buildings Analysis
Time Benefits (Annual)	\$0.00
Other Benefits (Annual)	N/A
Total Benefits	\$0.00



Program	Building Permit Review (Residential)
Description	Infill Lot review is part of the Development Process Review and DPW verifies floodplain determinations, water and sewer availability, ingress/egress, and approves water and sewer hook ups for the infill lots.
Activities	<ul style="list-style-type: none"> • Building Permit Review (Residential) • Perc Test Approvals
Time Benefits (Annual)	\$42,437.50 (1,250 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$42,437.50
Program	Complaint Tracking and Response (Research)
Description	The GIS planimetric/topographic data is used to perform research needed to respond to drainage complaints, thus reducing the fieldwork necessary to respond to a complaint.
Activities	<ul style="list-style-type: none"> • Complaint Tracking and Response (Research)
Time Benefits (Annual)	\$44,712.15 (1,317 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$44,712.15



Program	Engineering Management
Description	Engineering Management is a part of the overall infrastructure maintenance and repair process of the county facilities.
Activities	<ul style="list-style-type: none"> • Alley Reconstruction • Grinder Pump Locations • Pump Stations • Curb and Gutter – Conditions/Repair/Permits/Petitions • Hydrologic Modeling (HSPF and SWMM) • Preliminary Alignment and Engineering Studies • Rehab Projects • Road/stream Intersections for Bridge Inspection • Sidewalk Ramp Design • Storm Drain Culvert Studies
Time Benefits (Annual)	\$231,725.73 (6,825.5 hours)
Other Benefits (Annual)	\$6,000.00
Total Benefits	\$237,725.73
Program	Floodplain Management
Description	Floodplain management is a Federal Emergency Management Agency (FEMA) required process. Baltimore County must provide information to individuals verifying if a property is in a 100-year floodplain.
Activities	<ul style="list-style-type: none"> • Floodplain Analysis and Investigations, Flood Control, Inspections • Flood Studies • Letters of Map Amendment • Letters of Map Revision • Map Modernization
Time Benefits (Annual)	\$7,876.40 (232 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$7,876.40



Program	Highways (Roads) Management
Description	Highways 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"> • Master Roads Inventory / Street Segment Integration • Responding to Citizen Complaints • Right of Way Investigations • Repaving Support • Salt Dome Runoff Investigation • Snow Removal / Routing Issues • Street Sweeping Program – Street Sweeping Schedule Maps
Time Benefits (Annual)	\$75,725.47 (2,230.5 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$75,725.47
Program	Inquiries - Citizen
Description	Response to citizen inquiries must be made as quickly as possible. Having GIS functionality available greatly improves response time since most inquiries involve data that can be viewed/investigated at the responder's desk.
Activities	<ul style="list-style-type: none"> • Fire Hydrant – Pool Filling
Time Benefits (Annual)	\$4,074.00 (120 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$4,074.00



Program	Master Plan Development – Water and Sewer Master Plan Development
Description	The Baltimore County master plan development is a required function for planning, allowing, and controlling development in the County. It is required by the Code of Maryland Regulations (COMAR) Title 26 Department of Environment. Maps are prepared entirely through GIS. The water and sewer master plan consists of maps of areas planned, conditionally planned, and not planned for public water and sewer utility service with associated attributes.
Activities	<ul style="list-style-type: none"> • Water and Sewer Amendment Process
Time Benefits (Annual)	\$8,419.60 (248 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$8,419.60
Program	MDE/EPA Consent Decree Requirements / Deliverables
Description	Baltimore County is under a Consent Decree required by MDE/EPA. Most phases of the decree necessitate using a GIS and associated databases to accomplish the requirements. Not meeting the numerous deadlines and requirements will result in substantial financial penalties levied upon the County.
Activities	<ul style="list-style-type: none"> • MDE/EPA Consent Decree Map Deliverables • Placement of Sewer Flow Monitors • Placement of Rain Gauges • Sanitary Sewer – Large Line Cleaning
Time Benefits (Annual)	\$1,565.77 (46 hours)
Other Benefits (Annual)**	\$2,716.00
Total Benefits	\$4,281.77
<p>**Other Benefits does not include Cost Avoidance of Fines from EPA/MDE Consent Decree. See section 1.3 for details about the Consent Decree requirements and penalties.</p>	



Program	MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS)
Description	Baltimore County performs pipeline maintenance activities to repair and replace sanitary sewer and storm pipes, as well as responding to citizen requests for emergency service problems or inspection requests. The CASS WORKS application tracks the maintenance activities performed on a work order and associates the work order with the specific infrastructure assets of the sewer and storm systems. Baltimore County is under a Consent Decree required by MDE/EPA. Numerous phases of the decree necessitate using the CASS WORKS application and associated databases to accomplish the requirements. Not meeting the numerous deadlines and requirements within the decree will result in substantial financial penalties levied upon the County.
Activities	<ul style="list-style-type: none">• Geographic Analysis of Sewer Study Area• Responding and Tracking Citizen Inquiries and Complaints• Identification of Infrastructure Drawing Numbers• Tracking Cleaning and Television Inspections of Utility Lines• Assigning New Connections to Sewer Service Areas
Time Benefits (Annual)	\$94,550.75 (2,785 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$94,550.75



Program	Metropolitan District Financing and Petitions
Description	This program includes administration of the petition process for sewer and water extensions and connections, and alley improvements. Also included is the assessment and maintenance of files for all Metropolitan Charges, such as Water and Sewer Benefit Charges, Sewer Service Charges, and Water Distribution Charges. This program also includes responsibility for billing Food Service Class and Industrial Wastewater surcharges. Requests are received for extensions of public sewer and water lines, alley repairs, and construction of roadways, curbs and gutters, and private road takeovers. Design and construction are coordinated with other County agencies, methods of funding and repayment are secured, and the necessary public meetings are conducted.
Activities	<ul style="list-style-type: none"> • Alley Petitions • Sanitary Sewer Extensions • Sidewalks • Assessments (Citizens and Developers)
Time Benefits (Annual)	\$41,045.55 (1,209 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$41,045.55
Program	Miscellaneous Map and Display Creation - Department Wide
Description	The GIS data allows maps to be created for: public presentations/meetings, quick studies of County features, proposed projects, problem areas, informational print-outs, etc. All increase the speed of responding to our citizens. Additionally, maps of all DPW Facilities, including Pumping Stations, Highway/Utility Shops, Highway Districts, and Snow Routes, along with maps of all County owned bridges, and numerous other features are prepared and forwarded to the Emergency Operations Center periodically for their use in emergency preparations and response.
Activities	<ul style="list-style-type: none"> • Miscellaneous Map and Display Creation – Department Wide • EOC Maps
Time Benefits (Annual)	\$53,820.94 (1,585.5 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$53,820.94



Program	Solid Waste Management
Description	This program's function is to provide a safe, environmentally sound, integrated solid waste management program to promote waste prevention, increase recycling and resource recovery, and decrease the quantity of solid waste requiring land filling, in accordance with the Ten Year Solid Waste Management Plan.
Activities	<ul style="list-style-type: none"> • Community Clean-ups • Collection Routes and House Counts • Collection Routes – Truck Turnarounds • Recycling Route Studies
Time Benefits (Annual)	\$38,804.85 (1,143 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$38,804.85
Program	Surveys
Description	This program includes maintenance of the County's approximately 27,000 benchmarks that have been established using GIS and GPS. Additionally, this program includes field surveys that support engineering design projects. Survey crews are sent out with GIS location maps showing existing GIS generated topography. The survey crews use the GIS data as a base layer and then refine areas that need more detail or a higher degree of accuracy.
Activities	<ul style="list-style-type: none"> • Project Site Survey Base • Survey Control Management
Time Benefits (Annual)	\$2,580.20 (76 hours)
Other Benefits (Annual)	\$17,823.75
Total Benefits	\$20,403.95



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"> • Detour Plans • Install Roundabouts • Pavement Marking Inventory (Restriping) Activities • Road Closures Permanent / Temporary • Street Signs – Maintenance • Street Sign Inventory • Traffic Calming • Traffic Signals – Maintenance • Sidewalk Ramp Maintenance • Traffic Signals – Design, Inventory • Traffic Studies
Time Benefits (Annual)	\$120,705.83 (3,555.5 hours)
Other Benefits (Annual)	N/A
Total Benefits	\$120,705.83

Table 11 - Existing GIS Benefits by Program



Total Annual GIS Benefits Summary			
Time Benefits Summary (By Program):	Hours Saved	Labor Rate (Avg)	Annual Time Benefits
Basic Services	96.0	\$33.95	\$3,259.20
Bridge Management	661.0	\$33.95	\$22,440.95
Building and Equipment Services Management	0	\$33.95	\$0.00
Building Permit Review (Residential)	1,250.0	\$33.95	\$42,437.50
Complaint Tracking and Response (Research)	1,317.0	\$33.95	\$44,712.15
Engineering Management	6,825.5	\$33.95	\$231,725.73
Floodplain Management	232.0	\$33.95	\$7,876.40
Highways (Roads) Management	2,230.5	\$33.95	\$75,725.47
Inquiries – Citizen	120.0	\$33.95	\$4,074.00
Master Plan Development – Water & Sewer Master Plan Development	248.0	\$33.95	\$8,419.60
MDE / EPA Consent Decree Requirements	46.0	\$33.95	\$1,565.77
MDE / EPA Utilities Management Applications / Program Management (CASS WORKS)	2,785.0	\$33.95	\$94,550.75
Metropolitan District Financing and Petitions	1,209.0	\$33.95	\$41,045.55
Miscellaneous Map and Display Creation	1,585.5	\$33.95	\$53,820.94
Solid Waste Management	1,143.0	\$33.95	\$38,804.85
Surveys	76.0	\$33.95	\$2,580.20
Traffic Management	3,555.5	\$33.95	\$120,705.83
Total Time Benefits:	23,380	\$33.95	\$793,744.88
Other Benefits Summary (By Program):			Annual Other Benefits
Engineering Management			\$6,000.00
MDE / EPA Consent Decree Requirements			\$2,716.00
Surveys			\$17,823.75
** (Other Benefits do not include Consent Decree Penalty Cost Avoidance)			
Total Other Benefits:			\$26,539.75
Grand Total Annual Benefits:	\$820,284.63		

Table 12 - Total DPW Annual Benefits

Each of the benefits for these programs have been depicted in the figure below, which provides a clear picture of the areas that are receiving the most benefits from GIS usage.

**Note that the \$5,452,500.00 Consent Decree Penalty cost avoidance is not included in the tables above or the chart below.



DPW GIS Benefits

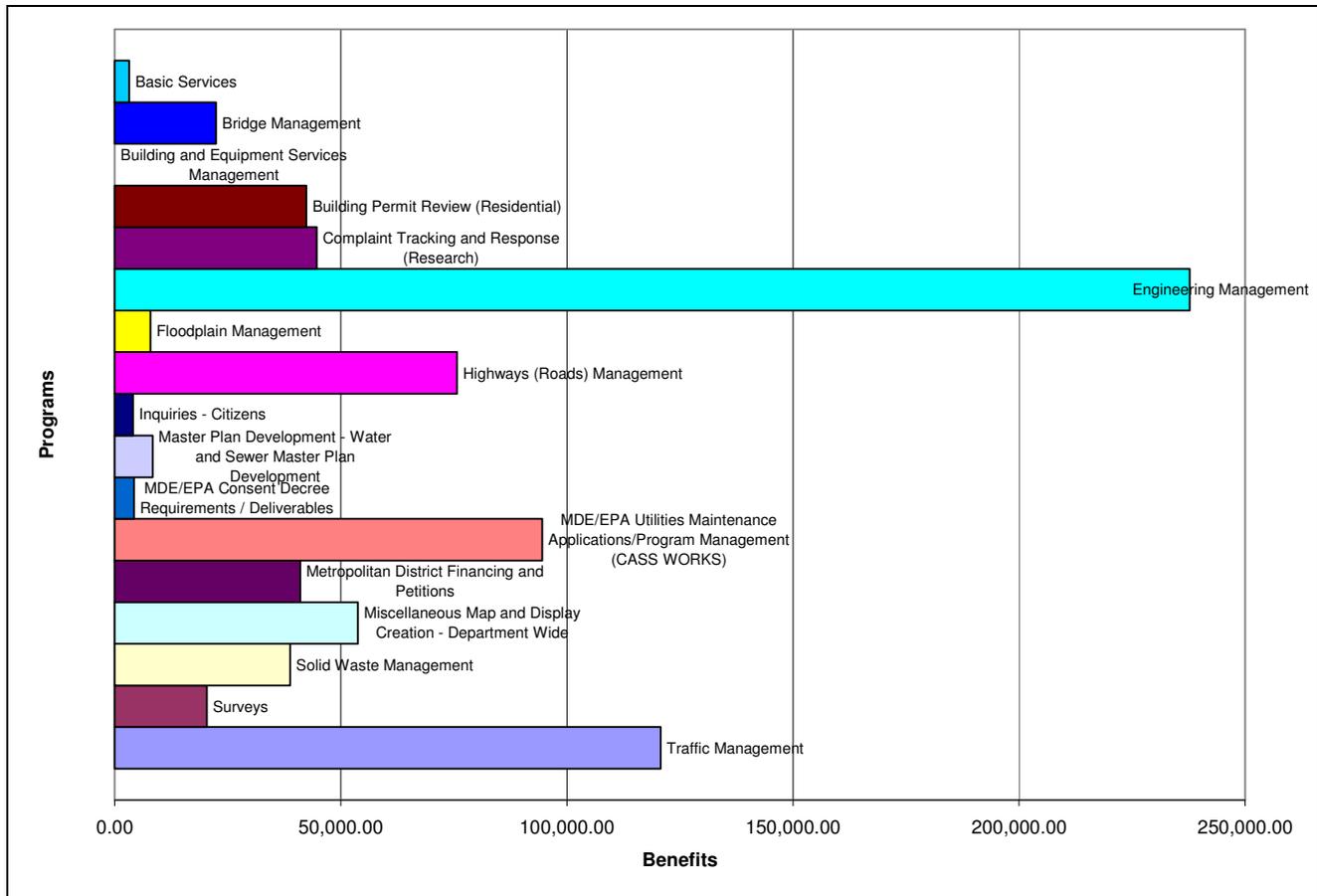


Figure 1 - DPW GIS Benefits

Engineering Management realizes most of its benefits by saving field visits as well as re-dos of work on larger engineering projects. Traffic Management realizes significant benefits by saving field visits on a large number of small tasks. MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS) realizes significant benefits due to the sheer volume of work underway at present for infrastructure inspection and maintenance (all related to the Consent Decree). Although the remaining programs have incorporated GIS use into most of their activities, the effort expended by these programs is lower than other programs, which reduces the benefits realized.



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3 GIS Utilization and Recommendations

3.1 GIS Utilization Analysis

DPW has a long history of GIS use throughout the Agency and probably has the most GIS users of any county Agency. In fact, before GIS was used throughout the county, DPW was a champion for expanding GIS use countywide. The Deputy Director of DPW, Bill Korpman, sits on the County’s Information Technology Steering Committee, and continues to promote the use of GIS throughout the Agency and the county.

3.1.1 GIS Personnel

DPW has already invested in providing GIS training through the Computer Training Center in the Office of Information Technology for its staff. The following shows a breakdown of the levels of training and the number of DPW staff that have received training at that level:

Basic Training (DataQuery, ArcView)	Mid-Level (ArcGIS Intro)	Advanced (ArcGIS 8x or higher)
21	8	26

Table 13 - DPW Training

3.1.2 GIS Data Usage

DPW uses many of the GIS datasets provided by OIT’s ArcSDE services via the County LAN. These datasets are used in a variety of ways. The datasets used by ten or more of the agency’s 17 programs are listed below.

GIS Data Layer	Used by # Programs
AddressPoints (View)	14
Buildings	14
County Facilities	14
Index Grid - 600 Scale	14
County Boundary	13
Key Sheets	13
Roads	13
Basic Services	12
Councilmanic Districts (2002)	12
Facilities	12
Tax Parcel	12
Business Parks	11



GIS Data Layer	Used by # Programs
Contours	11
Election Districts	11
Orthophoto (2005)	11
Spot Elevations	11
Street Centerlines	11
Street Centerlines (View)	11
Basic Services - Transportation (Intersections)	10
Parcel Based Landuse	10
Streams and Ponds	10
Subwatersheds	10

Table 14 - Most Used GIS Data Layers

3.1.3 GIS Applications Usage

ArcGIS (Standard) and ArcGIS DataQuery are used by personnel working on all of the programs supported by the agency. ArcGIS version 9.0, service pack 3 (SP3) is the current County standard that is deployed throughout the various agencies. Currently, most DPW users are using a generic .MXD that was developed in advance of the DataQuery application that is now available. DPW will be migrating to use of the newer DataQuery application as staff are trained. Additionally, many of the users take advantage of the less robust ArcIMS applications provided by the county, since these can be made available on almost any computer and provide simple tools for spatial analysis and map viewing. They are ideal for use at the county’s field offices, such as the highways, traffic, and building services field offices.

DPW is the only agency, to date, to have access to CASS WORKS and CASSView. CASS WORKS is a work order management system that is integrated with the CASSView map interface. Together they provide access to GIS layers and spatial query / proximity and geocoding functionality for analysis. Several programs require the use of CASS WORKS and/or CASSView, notably those that involve tracking citizen inquiries about problems related to storm drains and sanitary sewer service. The Bureau of Utilities and the Bureau of Engineering, Storm Drain Design are currently using CASS WORKS and CASSView. Several other bureaus (e.g., Highways, Solid Waste, and Traffic) are looking forward to use of CASS WORKS and CASSView in the near future, as they each handle a large volume of customer service calls (10,000 per year alone in Highways).

The Bureau of Engineering and Construction Inspection is also using InfoWorks for hydrologic modeling of sewersheds. InfoWorks modeling software is used to create 3D dynamic models of each sewershed. The county’s GIS data are the model inputs. Using InfoWorks, running a model on a sewershed takes hours instead of weeks. Additionally, it would not be possible to meet the Consent Decree requirements without InfoWorks (and hence without GIS).



3.1.4 GIS Database Maintenance

DPW is responsible for maintaining the following layers in support of the enterprise GIS:

Dataset	Basic Services
Description	Used to study deficient areas for Transportation, Water, and Sewer.
Update Frequency	Annually
Location	Gis_Nw1
Complete	Yes
Programs Using Data	<ul style="list-style-type: none"> • Basic Services • Bridge Management • Building Permit Review (Residential) • Engineering Management • Highways (Roads) Management • Inquiries – Citizens • Master Plan Development – Water and Sewer Master Plan Development • MDE/EPA Consent Decree Requirement / Deliverables • MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS) • Metropolitan District Financing and Petitions • Solid Waste Management • Traffic Management



Dataset	Bridges
Description	Point locations of county-owned bridges. Needs better alignment to orthophotos.
Update Frequency	As needed
Location	SDE
Complete	Yes
Programs Using Data	<ul style="list-style-type: none"> • Bridge Management • Complaint Tracking and Response (Research) • Engineering Management • Floodplain Management • Highways (Roads) Management • Inquiries – Citizens • Master Plan Development – Water and Sewer Master Plan Development • Miscellaneous Map and Display Creation – Department Wide • Solid Waste Management • Surveys • Traffic Management

Dataset	Capital Project Management - Location Mapping
Description	Locations of on-going and future Capital Projects.
Update Frequency	As needed
Location	SDE
Complete	No
Programs Using Data	<ul style="list-style-type: none"> • Bridge Management • Engineering Management • Highways (Roads) Management • Miscellaneous Map and Display Creation – Department Wide • Solid Waste Management • Traffic Management



Dataset	Digital Flood Insurance Rate Map
Description	Locations of floodplains and Base Flood Elevations. Draft data are currently available. Final effective data coming from FEMA in early 2007.
Update Frequency	As needed
Location	SDE
Complete	Yes
Programs Using Data	<ul style="list-style-type: none"> • Building Permit Review (Residential) • Complaint Tracking and Response (Research) • Engineering Management • Floodplain Management • Inquiries – Citizens • Master Plan Development – Water and Sewer Master Plan Development • Metropolitan District Financing and Petitions • Surveys • Traffic Management

Dataset	Flow Monitors
Description	Point locations of flow monitors needed for Consent Decree.
Update Frequency	Annually
Location	Local
Complete	Yes
Programs Using Data	<ul style="list-style-type: none"> • Complaint Tracking and Response (Research) • Engineering Management • MDE/EPA Consent Decree Requirement / Deliverables • MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS)



Dataset	Master Plan Areas
Description	Consists of maps of areas planned, conditionally planned, and not planned for public water and sewer utility service.
Update Frequency	Annually
Location	Local
Complete	Yes
Programs Using Data	<ul style="list-style-type: none"> • Basic Services • Building Permit Review (Residential) • Highways (Roads) Management • Inquiries – Citizens • Master Plan Development – Water and Sewer Master Plan Development • MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS) • Metropolitan District Financing and Petitions • Surveys

Dataset	Rain Gauges
Description	Point locations of rain gauges needed for Consent Decree
Update Frequency	Annually
Location	Local
Complete	Yes
Programs Using Data	<ul style="list-style-type: none"> • MDE/EPA Consent Decree Requirement / Deliverables • MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS)



Dataset	Road / Stream Crossings
Description	Point locations of all road / stream crossings used for bridge inspections.
Update Frequency	When new LiDAR is acquired.
Location	Local
Complete	Yes
Programs Using Data	<ul style="list-style-type: none"> • Bridge Management

Dataset	Sewer Gravity / Pressure Mains and Manholes / Point Features
Description	Locations of gravity and pressure sewer mains, manholes, and other point features – needed for Consent Decree functions.
Update Frequency	Daily
Location	SDE
Complete	No
Programs Using Data	<ul style="list-style-type: none"> • Bridge Management • Building Permit Review (Residential) • Complaint Tracking and Response (Research) • Engineering Management • Highways (Roads) Management • Inquiries – Citizens • Master Plan Development – Water and Sewer Master Plan Development • MDE/EPA Consent Decree Requirement / Deliverables • MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS) • Metropolitan District Financing and Petitions



Dataset	Sewer Service Areas
Description	Sewer Service Areas – needed for Consent Decree functions.
Update Frequency	As needed
Location	SDE
Complete	No
Programs Using Data	<ul style="list-style-type: none"> • Complaint Tracking and Response (Research) • Engineering Management • Master Plan Development – Water and Sewer Master Plan Development • MDE/EPA Consent Decree Requirement / Deliverables • MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS) • Miscellaneous Map and Display Creation – Department Wide

Dataset	Snow Removal Routes
Description	Locations of snow removal routes.
Update Frequency	Not currently maintained. Needs to be updated and maintained.
Location	SDE
Complete	Yes, original compilation is complete. However, no maintenance has been performed.
Programs Using Data	<ul style="list-style-type: none"> • Complaint Tracking and Response (Research) • Highways (Roads) Management • Solid Waste Management • Traffic Management



Dataset	Solid Waste Collection Routes
Description	Solid waste collection routes used to manage 229 different pick-up day plans. Built from road centerline files.
Update Frequency	Weekly
Location	Local
Complete	Yes
Programs Using Data	<ul style="list-style-type: none"> • Bridge Management • Building Permit Review (Residential) • Complaint Tracking and Response (Research) • Highways (Roads) Management • Inquiries – Citizens • Solid Waste Management • Traffic Management

Dataset	Storm Drains
Description	Locations of storm drainage features. A more accurate layer is needed in the future.
Update Frequency	As needed
Location	SDE
Complete	No
Programs Using Data	<ul style="list-style-type: none"> • Bridge Management • Complaint Tracking and Response (Research) • Engineering Management • Floodplain Management • Highways (Roads) Management • Surveys • Traffic Management



Dataset	Survey Control Points (Benchmarks)
Description	Point locations of county-maintained survey control points.
Update Frequency	Weekly
Location	SDE
Complete	Yes
Programs Using Data	<ul style="list-style-type: none">• Surveys

Dataset	Traffic Calming Datasets
Description	Locations of speed deterrents such as speed bumps, traffic islands, roundabouts, etc.
Update Frequency	As needed
Location	SDE
Complete	Yes
Programs Using Data	<ul style="list-style-type: none">• Engineering Management• Highways (Roads) Management• Solid Waste Management• Traffic Management



Dataset	Traffic Signals Datasets
Description	Locations of traffic cabinets, devices (e.g., signals, cameras, etc.), handboxes, and poles. Located using GPS.
Update Frequency	As needed
Location	SDE
Complete	Yes
Programs Using Data	<ul style="list-style-type: none"> • Complaint Tracking and Response (Research) • Engineering Management • Highways (Roads) Management • Solid Waste Management • Surveys • Traffic Management

Dataset	Water and Sewer Amendments
Description	Property owners and developers seeking to amend the Water and Sewer Plan.
Update Frequency	Annually
Location	Local
Complete	Yes
Programs Using Data	<ul style="list-style-type: none"> • Basic Services • Master Plan Development – Water and Sewer Master Plan Development • Metropolitan District Financing and Petitions

Table 15 - Data Layers Maintained by DPW

The cost of maintaining each of these data layers is discussed in section 2.1.2.

3.1.5 Assessment of Business Process with GIS

GIS is effectively used across DPW programs. It has been used for several years and a mature and robust GIS program has evolved within DPW. Many DPW employees use GIS daily as a tool to support decision making and other employees use and benefit from GIS products on a daily basis. There are GIS staff within each bureau that support each bureau’s activities.

However, GIS is still used most frequently within DPW for looking up address locations, viewing data, and making maps. While these are valuable activities and GIS clearly improves the speed and



accuracy with which these functions can be done, they do not take full advantage of the power of GIS. Only a few of DPW’s business processes include performing spatial analyses. Future examinations of business processes should review what additional analysis functions might benefit DPW.

DPW’s use of GIS can be categorized in the following general ways:

Category	Description
Customer Service	<ul style="list-style-type: none"> • Calling up GIS data on-screen to respond to a customer complaint • Calling up GIS data on-screen to determine ownership of a property • Locating an address and performing analysis of its proximity to, or eligibility for, a county service (e.g., water and sewer service, alley reconstruction, sidewalk addition, in/out floodplain determinations, etc.). Also determining the appropriate assessment for billing purposes.
Map Production	<ul style="list-style-type: none"> • Making maps for use by field crews • Making maps that will be used in a public forum • Making maps for the County Council (e.g., Basic Services and Master Plan maps) • Making maps required by County Code or COMAR • Making maps for use in the Emergency Operations Center
Data Access	<ul style="list-style-type: none"> • Providing GIS data to a county contractor • Exporting data to a CADD form to serve as a base map for engineering design • Database maintenance activities that support the entire agency and/or county
GIS Analysis	<ul style="list-style-type: none"> • Supporting hydrologic and hydraulic modeling • Fulfilling all Consent Decree requirements • Managing trash collection routes and recycling functions • Supporting Bridge Inspection program

Table 16 - DPW's Use of GIS

As discussed more fully in the next section of this report, DPW’s use of GIS will continue to expand as GIS is extended to more locations/users and as additional training and access to GIS applications expands to the field locations. Use of GIS in DPW will also expand as the availability of additional data layers and applications expand.



3.2 GIS Needs Assessment

3.2.1 Applications

The following applications would benefit users within DPW. Some are ones that DPW has already implemented that need to be provided to additional bureaus (CASS WORKS and CASSView). Others would be new to the agency.

- Implement CASS WORKS and CASSView for Highways, Solid Waste, and Traffic to help manage the volume of customer service requests and work orders that these bureaus receive. The Bureau of Utilities and the Bureau of Engineering, Storm Drain Design have demonstrated how well CASS WORKS and CASSView are working for them and other bureaus within DPW are looking forward to taking advantage of its functionality to help them meet their own and their constituents' needs.
- Implement an automated drainage area calculation application.
- Provide GIS-based hydrologic applications that would support TR55 and TR20 for use by design engineers.
- Develop a system for electronic work orders for Building Services.
- Implement route mapping for Solid Waste to help improve the management of trash collection routes and schedules. Note that this would require a road centerline data layer that can support routing.
- Scan the building floor plans and link them to the GIS building features so they could be viewed on-line. In addition to supporting Building Services activities, emergency and rescue workers could call up building floor plans before entering a building.

Additionally, extending GIS to more locations/users is something that would benefit the agency, particularly providing more training and access to GIS applications at field locations for use by maintenance and service personnel.

3.2.2 Data

The following additional data layers were identified as ones that would benefit the agency. Many datasets are already being created and maintained by OIT and DPW, but are not available, are not complete, or do not meet all of the spatial accuracy requirements of the users. The data layers listed below could be enhanced or completed to provide benefits to DPW:

Data Layer	Status	Programs That Could Benefit From Data
Accident locations	Police collect this information; data may need to be made more widely available.	<ul style="list-style-type: none"> • Highways (Roads) Management • Traffic Management



Data Layer	Status	Programs That Could Benefit From Data
Address points	More accurate data are underway, being verified by the 911 Center.	<ul style="list-style-type: none"> • Basic Services • Bridge Management • Building and Equipment Services Management • Building Permit Review (Residential) • Complaint Tracking and Response (Research) • Engineering Management • Floodplain Management • Highways (Roads) Management • Inquiries – Citizens • Master Plan Development – Water and Sewer Master Plan Development • MDE/EPA Consent Decree Requirement / Deliverables • MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS) • Metropolitan District Financing and Petitions • Miscellaneous Map and Display Creation – Department Wide • Solid Waste Management • Surveys • Traffic Management
Basic Services	Current data are not at a suitable compilation scale.	<ul style="list-style-type: none"> • Basic Services • Bridge Management • Building Permit Review (Residential) • Engineering Management • Highways (Roads) Management • Inquiries – Citizens • Master Plan Development – Water and Sewer Master Plan Development • MDE/EPA Consent Decree Requirement / Deliverables • MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS) • Metropolitan District Financing and Petitions • Solid Waste Management • Traffic Management



Data Layer	Status	Programs That Could Benefit From Data
Bridges	Improved accuracy of GPS points needed.	<ul style="list-style-type: none"> • Bridge Management • Complaint Tracking and Response (Research) • Engineering Management • Floodplain Management • Highways (Roads) Management • Inquiries – Citizens • Master Plan Development – Water and Sewer Master Plan Development • Miscellaneous Map and Display Creation – Department Wide • Solid Waste Management • Surveys • Traffic Management
Digital Flood Insurance Rate Map (DFIRM)	Draft data are currently available; effective data to be available in Spring 2007.	<ul style="list-style-type: none"> • Building Permit Review (Residential) • Complaint Tracking and Response (Research) • Engineering Management • Floodplain Management • Inquiries – Citizens • Master Plan Development – Water and Sewer Master Plan Development • Metropolitan District Financing and Petitions • Surveys • Traffic Management
Location of dumpsters, pitch-in cans, etc.	May be some existing data but it has not been maintained recently.	<ul style="list-style-type: none"> • Solid Waste Management
Encumbrance (ROWs)	Underway in PDM; completion should be prioritized.	<ul style="list-style-type: none"> • Basic Services • Bridge Management • Building and Equipment Services Management • Building Permit Review (Residential) • Complaint Tracking and Response (Research) • Engineering Management • Floodplain Management • Highways (Roads) Management • Inquiries – Citizens • MDE/EPA Utilities Management Application • Metropolitan District Financing and Petitions • Miscellaneous Map and Display Creation – Department Wide • Solid Waste Management • Surveys • Traffic Management



Data Layer	Status	Programs That Could Benefit From Data
Sanitary sewer	Currently underway.	<ul style="list-style-type: none"> • Bridge Management • Building Permit Review (Residential) • Complaint Tracking and Response (Research) • Engineering Management • Highways (Roads) Management • Inquiries – Citizens • Master Plan Development – Water and Sewer Master Plan Development • MDE/EPA Consent Decree Requirement / Deliverables • MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS) • Metropolitan District Financing and Petitions • Miscellaneous Map and Display Creation – Department Wide • Traffic Management
Street Centerlines	Need to be able to support network analysis	<ul style="list-style-type: none"> • Engineering Management • Solid Waste Management

Table 17 – Data Layers that need to be Completed or Enhanced

There are several datasets that could be developed to support the needs of various programs in DPW. Some of these datasets are listed in the table below. This should not be considered an exhaustive list of all additional data layers that would benefit every program in DPW. Such a list would be quite extensive.

Data Layer	Comments	Programs That Could Benefit From Data
County-owned properties/facilities	Multiple bureaus look up ownership to determine if land is county-owned. Should be developed by PDM.	<ul style="list-style-type: none"> • Building and Equipment Services Management • Engineering Management • Highways (Roads) Management • Metropolitan District Financing and Petitions • Traffic Management
Easements	Multiple bureaus look up ownership to determine if land is county-owned. Should be developed by PDM.	<ul style="list-style-type: none"> • Bridge Management • Highways (Roads) Management • Metropolitan District Financing and Petitions • Traffic Management
Gas mains	Would require coordination with BGE.	<ul style="list-style-type: none"> • Engineering Management



Data Layer	Comments	Programs That Could Benefit From Data
Historic survey control point data	Point locations of historic survey data currently stored on index cards could save field work.	<ul style="list-style-type: none"> • Surveys
Location of preliminary engineering and/or structural projects	Better storage and retrieval of previous studies would allow review and possible re-use of previous studies.	<ul style="list-style-type: none"> • Engineering Management • Metropolitan District Financing and Petitions
Location of previously developed traffic calming studies	Multiple requests are received for traffic calming studies. Better storage and retrieval of previous studies would eliminate rework, allow re-use of previous studies.	<ul style="list-style-type: none"> • Traffic Management
Location of proposed land development projects	Knowledge of planned project details would be helpful, possibly saving the county from performing work already underway by a developer.	<ul style="list-style-type: none"> • Engineering Management • Highways (Roads) Management • Metropolitan District Financing and Petitions • Solid Waste Management
Property information that includes numbers and types of buildings and building use	Would assist in identifying which building to service, etc. and to improve communication and customer service.	<ul style="list-style-type: none"> • Building and Equipment Services Management • Metropolitan District Financing and Petitions
Retention ponds	Would aid in preliminary alignment studies.	<ul style="list-style-type: none"> • Bridge Management • Complaint Tracking and Response (Research) • Engineering Management • Floodplain Management • Highways (Roads) Management • Traffic Management
Storm drains	Storm drain layer with accuracy similar to that of sanitary sewer is needed.	<ul style="list-style-type: none"> • Bridge Management • Complaint Tracking and Response (Research) • Engineering Management • Floodplain Management • Highways (Roads) Management • Surveys • Traffic Management



Data Layer	Comments	Programs That Could Benefit From Data
Water mains	Water main layer with accuracy similar to that of sanitary sewer is needed.	<ul style="list-style-type: none"> • Basic Services • Building Permit Review (Residential) • Engineering Management • Highways (Roads) Management • Inquiries – Citizens • Master Plan Development – Water and Sewer Master Plan Development • Metropolitan District Financing and Petitions • Traffic Management

Table 18 – Data Layers that need to be Created

Additionally, there are several existing non-spatial databases in use throughout the agency that could benefit from being associated with the GIS databases or from having their attributes added to the GIS database. These include:

Database	GIS layer	Programs That Could Benefit From Data
Bridge ownership	Planimetric road polygons	<ul style="list-style-type: none"> • Bridge Management
Building maintenance	County owned facilities	<ul style="list-style-type: none"> • Building and Equipment Services Management
Highway conditions	Road centerlines	<ul style="list-style-type: none"> • Highways (Roads) Management
Roadway striping	Road centerlines	<ul style="list-style-type: none"> • Traffic Management
Snow removal routes	Road centerlines	<ul style="list-style-type: none"> • Building and Equipment Services Management • Highways (Roads) Management
Solid waste routes	Road centerlines	<ul style="list-style-type: none"> • Solid Waste Management
Traffic counts	Road centerlines	<ul style="list-style-type: none"> • Basic Services • Bridge Management • Highways (Roads) Management • Traffic Management
Trash collection	Address points	<ul style="list-style-type: none"> • Solid Waste Management

Table 19 - Databases that Need Spatial Representation

There are several existing data layers that could be posted to the county’s web site for use in the on-line GIS applications. Doing so would reduce the need to provide this information individually, saving time and providing better customer service. These include:



Data Layer	External Users	Programs That Could Benefit From Data
County-owned bridges	<ul style="list-style-type: none"> • Truckers • Trash haulers • School bus drivers • Fire departments 	<ul style="list-style-type: none"> • Bridge Management
Survey control points	<ul style="list-style-type: none"> • Land surveyors 	<ul style="list-style-type: none"> • Surveys

Table 20- Data Layers that Need to be Posted to the Web

3.2.3 Training

In addition to the training already provided, many DPW personnel expressed an interest in additional training, either on new applications or to expand their skills. DPW personnel would benefit from training on GIS data and applications that are specific to each program. This training would include an overview of how applications can be used to support business processes and data that could be useful to activities.

In addition to training, the following training related needs were identified as ones that would improve the users' experience:

- More on-line help
- Same data layers available in CASS WORKS and CASSView as other county applications

3.2.4 Best Practices

DPW could benefit from implementing the following:

- Engineers within DPW perform drainage area calculations hundreds of times per year and have acknowledged that they could make better use of GIS for this function if they had additional training. Most of the contractors they work with are already far ahead of the county in this regard.

Drainage area calculations could be automated in GIS through the use of ESRI's Spatial Analyst extension and/or use of the free statewide GIS Hydro application. DEPRM currently uses Spatial Analyst to perform drainage area calculations and could possibly provide training on its use to DPW. Use of GIS Hydro would have the benefit that it would standardize drainage area calculations following the guidance provided by MDE, MSHA, and FEMA. GIS Hydro is currently available as an ArcView 3.2 application or it can be accessed as a web-based application. An upgrade to ArcGIS is underway. Use of GIS Hydro would make calculations of drainage areas a point and click operation that would take only a few minutes. However, it may not currently allow use of local data sets, so it might not be suitable for all of DPW's project needs.

- Storage of all datasets in ArcSDE. Several of the GIS data layers that DPW is responsible for maintaining are currently stored locally. In some cases, this is because the data are still not complete or the bureau responsible for it does not want it to be more widely available until it is



deemed more reliable. However, to the extent possible, all of the GIS data layers should be stored in SDE so that the widest possible audience can make use of the data holdings the county has invested in.

- Solid Waste has a vision for enhanced use of GIS to better manage its assets.
 - Monitor landfill authorizations by performing a spatial analysis of users to identify unauthorized use.
 - Perform spatial analyses of recycle routes and tonnage to help equalize pickup routes and schedules as well as to send out targeted mailings if it appears that recycling is falling off.

3.2.5 Communication and Agency Coordination

By expanding the number of GIS users within each bureau, DPW could make better use of GIS. Currently, GIS requests are funneled through a limited number of staff in each bureau. These users know how important GIS is to the bureau and are advocates for its use and expansion. As more staff are exposed to GIS on a daily basis, they will come to realize its benefits to them in their daily activities and will be able to make recommendations for improvements to data layers and/or business processes. DPW could also benefit from extending GIS access to more locations and users, particularly providing more training and access to GIS applications at field locations for use by maintenance and service personnel.

DPW should also look across bureaus and across county agencies for ways to refine its business processes.

DEPRM

There are many areas where DPW and DEPRM have many similar requirements for data, analysis, and reporting and should continue to coordinate these activities. The following appear to have many related programs, activities, and requirements between DPW and DEPRM:

- Chesapeake Bay restoration
- Development review and permit processing
- Floodplain management
- Food facility reviews
- Groundwater management
- Sanitary sewer management
- Solid waste management
- Stormwater management
- Stream and shoreline management
- Water quality monitoring
- Watershed management

The 911 Center

The street centerline and address points data collection activities funded by the 911 Center will benefit all DPW programs and activities. Similarly, the apartment survey planned by DPW's Bureau of Solid Waste Management should be coordinated with the 911 Center.



OCC

The apartment survey planned by DPW's Bureau of Solid Waste Management should also be coordinated with OCC.

OIT

Obviously, all applications, data, and training needs should be coordinated through OIT.

PDM

One apparent cross-agency need that touches DPW is to look at how the permit review process is handled, add a spatial component to its key elements, and try to automate it further, since so many agencies are involved with this process. Additionally, there are several data layers that PDM should develop and maintain that would benefit DPW, including County-Owned Property, ROWs, and Easements.

Police

The police department is currently collecting information about accident locations that could benefit DPW's Highway- and Traffic-related activities and programs.

3.3 Recommendations

DPW could further benefit from GIS in many ways. This section outlines recommendations that can be implemented in the short-term and long-term to enhance the agency's GIS usage and further take advantage of the enterprise system provided by the county. These will in turn reduce time and money spent on activities performed by DPW and increase the level of service provided to customers.

3.3.1 Short-term Recommendations & Potential Benefits

There are several undertakings that should be implemented in the near term to improve GIS use within the agency and meet the needs that were outlined in the previous section. These recommendations are categorized by activities that can be quickly deployed with little effort and those that require a greater investment but are greatly needed. Each of these recommendations is discussed below. See section 4 for more detailed recommendations to support individual activities.

3.3.1.1 Quick Deployment

The following recommendations have the potential to provide additional benefits to the agency and can be implemented with few additional resources. Note that there are quite a number of activities already planned and underway at the county that will greatly benefit DPW. These include items such as completing the sanitary sewer data layer, improving the bridge layer, completing the address points layer, and posting the survey control data on the county's web site. These activities are not included in the following recommendations since they have already been scoped, budgeted, and are underway.



Opportunity 1: Extend GIS Access to Additional DPW Field Locations

DPW should provide access to GIS to more locations and users. This would include providing more training and access to GIS applications at field locations for use by maintenance and service personnel. The field offices of the Bureaus of Highways and Traffic should be targeted first.

Each of the resources needed to extend GIS access to more field locations within DPW has been included in the table below by program. The benefits that should be realized from the introduction of GIS have also been summarized by activity in the table below, including the estimate of cost savings. The activity-based time savings by utilizing GIS as illustrated below are general estimates based on the provided workflow for enhancing the activities with the GIS tool. The costs were not calculated for this rollout, since most requirements are readily available and would be a minimal cost to implement.

Extend GIS Access to Additional DPW Field Locations	
Software Requirements:	ArcGIS Enterprise License
Hardware Requirements:	GIS Computers Plotter
Data Requirements:	None
Training Requirements:	Introduction to DataQuery
Additional Costs:	None
Rolled Up Potential Benefits:	\$5,961.96



Benefits By Activity:						
Activity	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)
Highways (Roads) Management: Right-of-Way Investigations	0.25	0.08	0.17	300	51	\$1,731.45
As-Is Process Without GIS	GIS personnel plot a map for field crew use.					
To-Be Process With GIS	Field personnel call up the data on screen themselves.					
Projected Process Savings	Extending GIS access to additional field locations would result in savings derived from field personnel calling up data themselves instead of relying on GIS personnel to plot a map for them.					
Traffic Management: Street Sign – Maintenance	0.25	0.08	0.17	700	119	\$4,040.05
As-Is Process Without GIS	GIS personnel plot a map for field crew use.					
To-Be Process With GIS	Field personnel call up the data on screen themselves.					
Projected Process Savings	Extending GIS access to additional field locations would result in savings derived from field personnel calling up data themselves instead of relying on GIS personnel to plot a map for them.					
Traffic Management: Traffic Signals – Maintenance	0.25	0.08	0.17	20	3.4	\$115.43
As-Is Process Without GIS	GIS personnel plot a map for field crew use.					
To-Be Process With GIS	Field personnel call up the data on screen themselves.					
Projected Process Savings	Extending GIS access to additional field locations would result in savings derived from field personnel calling up data themselves instead of relying on GIS personnel to plot a map for them.					



Traffic Management: Sidewalk Ramp Maintenance	0.25	0.08	0.17	13	2.21	\$75.03
As-Is Process Without GIS	GIS personnel plot a map for field crew use.					
To-Be Process With GIS	Field personnel call up the data on screen themselves.					
Projected Process Savings	Extending GIS access to additional field locations would result in savings derived from field personnel calling up data themselves instead of relying on GIS personnel to plot a map for them.					

Table 21 – Opportunity 1: Extend GIS Access to Additional DPW Field Locations

Opportunity 2: Post County-Owned Bridge Data on Web

The county should provide access to information about the county-owned bridges on its web site once the bridge data layer has been fully verified.

Each of the resources needed to post the county-owned bridge data to the county’s web site has been included in the table below. The benefits that should be realized from this opportunity have also been summarized in the table below, including the estimate of cost savings. The activity-based time savings by utilizing GIS as illustrated below are general estimates based on the provided workflow for enhancing the activities with the GIS tool. The costs were not calculated for this rollout, since most requirements are readily available and would be a minimal cost to implement.

Post County-Owned Bridge Data on Web	
Software Requirements:	None
Hardware Requirements:	None
Data Requirements:	Bridge data layer
Training Requirements:	None
Additional Costs:	None
Rolled Up Potential Benefits:	\$1,086.40



Benefits By Activity:						
Activity	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)
Bridge Management: Bridge Permitting and Routing	0.5	0	0.5	64	32	\$1,086.40
As-Is Process Without GIS	DPW staff look up information about county-owned bridges for requesters.					
To-Be Process With GIS	Users look up the information themselves on the county's web site.					
Projected Process Savings	This would reduce the need to provide this information individually to requesters who need information about bridge load capacity.					

Table 22- Opportunity 2: Post County-Owned Bridges on Web

3.3.1.2 Additional Investment Opportunities

The following recommendations have the potential to provide additional benefits to the agency and can be implemented with additional resources:

Opportunity 1: Automated Drainage Area Calculations

Description

Engineers within DPW perform drainage area calculations hundreds of times per year and have acknowledged that they could make better use of GIS for this function if they had additional training. Drainage area calculations could be automated in GIS through the use of ESRI's Spatial Analyst extension and/or use of the free statewide GIS Hydro application. DEPRM currently uses Spatial Analyst to perform drainage area calculations and could possibly provide training on its use to DPW. Use of GIS Hydro would have the benefit that it would standardize drainage area calculations following the guidance provided by MDE, MSHA, and FEMA. GIS Hydro is currently available as an ArcView 3.2 application or it can be accessed as a web-based application. An upgrade to ArcGIS is underway. Use of GIS Hydro would make calculations of drainage areas a point and click operation that would take only a few minutes. However, it may not currently allow use of local data sets, so it might not be suitable for all of DPW's project needs.

The data required for the automation of drainage area calculations includes contours or LiDAR elevation data and stream centerlines, both of which are currently available. DPW may want to discuss the pros and cons of using GIS Hydro versus using ESRI's Spatial Analyst with users in DEPRM who



perform this activity to determine which would provide the best results for DPW. DPW may also want to perform calculations on some test data using both applications to evaluate ease of use and results. Once a decision is made on which application to deploy, training for key staff may be required.

The total costs and benefits associated for this activity have been provided in the table below. This includes the cost to evaluate the applications and provide training for 10 key users. The benefits that should be realized over the following three years have also been provided.

Potential Cost/ Benefit for Automation of Drainage Area Calculations		
Development Costs	Benefits (3 years)	Cost/ Benefit Difference
\$7,469.00	\$30,555.00	+\$23,086.00

Table 23–Cost/Benefit for Automation of Drainage Area Calculations

Preliminary Cost Estimate

The development costs have been determined by estimating the time that would be needed to evaluate the available tools and providing training on the use of the chosen tool to 10 key staff. Note: the training requirements of GIS Hydro are believed to be significantly lower than for Spatial Analyst so the higher Spatial Analyst estimate is used here. This cost is an approximation only and should be followed with a more thorough investigation before proceeding with actual implementation.

Automated Drainage Area Calculations Costs		
Task	Estimated Hours	Cost
Evaluate GIS Hydro vs. Spatial Analyst Tools and results on test data	80	\$2,716.00
Provide training to 10 key staff, 2 days each	140	\$4,753.00
Total Cost		\$7,469.00

Table 24– Costs of Automated Drainage Area Calculations

Preliminary Benefits Estimate

Benefits have been determined by evaluating the time that would be saved performing drainage area calculations using a more automated tool and multiplying this time by a flat rate of \$33.95 to produce a dollar value. Currently, these drainage area calculations take 20 minutes. With a point and click tool, it is estimated that those 20 minutes could be saved, saving \$10,185.00 per year. This results in a savings of \$30,555.00 over a period of three (3) years. The table below summarizes these benefits.



Automated Drainage Area Calculations Benefits Details				
Program/Activity	Staff Hours Saved with Tool	Annual # Iterations Per Year	Total Hours Saved Using Tool	Annual Time Savings Benefit (Based on \$33.95/hr)
Complaint Tracking and Response (Research)	0.33	439	144.87	\$4,918.34
Engineering Management – Pump Stations	0.33	20	6.6	\$224.07
Engineering Management – Preliminary Alignment and Engineering Studies	0.33	50	16.5	\$560.34
Engineering Management – Storm Drain Culvert Studies	0.33	400	132	\$4,481.40
Total Annual Benefit			300	\$10,185.00

Table 25 – Benefits of Automated Drainage Area Calculations

Opportunity 2: Easement Feature Class

Description

An easement feature class should be developed by PDM to support the research and analysis performed by programs within that agency as well as other agencies such as DPW and DEPRM. This feature class should show all drainage and utility easements, as well as forest buffers, conservation areas, and any other declarations granted to the county. The layer should be a polygon feature class that will include relevant information linked to the Land Acquisition Database. There should also be a URL to link to a scanned image of the easement deed and drawing if available.

The easement feature class will reduce the amount of time currently spent by personnel looking at hardcopy and digital tax parcel maps to research ownership and easement locations. The types of research that will see benefits from the development of this feature class include:

- DPW can use the layer to locate existing easements for new construction projects and investigating customer complaints to determine if the county is responsible for a problem.
- DEPRM could use the layer for storm drain easements location.
- Office of Planning could use the layer for new projects, such as streetscapes.
- Police Department can use layer to settle civil disputes.

The total costs associated with this data development activity have been captured under PDM. Additional benefits that would come from DPW’s use of the data over the following three years are provided in the table below.



Potential Cost/ Benefit for Easement Feature Class Development				
Development Costs	Maintenance Cost (2 Years)	Total Cost	Benefits (2 years)	Cost/ Benefit Difference
Captured under PDM	Captured under PDM	Captured under PDM	\$17,806.10	Captured under PDM

Table 26 – Cost/Benefit for Easement Feature Class Development

Preliminary Benefits Estimate

Benefits have been determined by evaluating the time that would be saved handling inquiries using the easement feature class and multiplying this time by a flat rate of \$33.95 to produce a dollar value. Currently, these inquiries take 15-20 minutes. With the proposed GIS layer, it is estimated that this activity would take 3-5 minutes each time, saving \$8,903.05 per year. This results in a savings of \$17,806.10 over a period of two (2) years. The table below summarizes these benefits.

Easement Feature Class Benefits Details						
Task	Staff Hours w/o Layer	Staff Hours with Layer	Difference	Annual # Iterations Per Year	Total Hours Saved Using Layer	Annual Time Savings Benefit (Based on \$33.95/hr)
Bridge Management – Surplus Property Reviews	0.28	0.06	0.22	104	22.88	\$776.78
Engineering Management – Preliminary Alignment and Engineering Studies	0.28	0.6	0.22	68	14.96	\$507.89
Highways (Roads) Management – Right-of-Way Investigations	0.28	0.6	0.22	300	66	\$2,240.70
Traffic Management – Street Sign Maintenance	0.28	0.6	0.22	700	154	\$5,228.30



Easement Feature Class Benefits Details						
Traffic Management – Traffic Signals Maintenance	0.28	0.6	0.22	20	4.4	\$149.38
Total						\$8,903.05

Table 27 – Benefits of Easement Feature Class Development

Cost /Benefit Analysis and Dewberry Recommendation

The Easement feature class requires significant development costs, which do not provide the return necessary from the one activity analyzed under PDM. However, there should be additional benefits realized in a multitude of other activities that could potentially provide the necessary return on investment. Based on the needs assessment performed, the data layer would certainly be useful, but further analysis should be performed before the dataset is determined to be a good return on investment.

Opportunity 3: Master Plans Geodatabase

Description

A Master Plans Geodatabase should be developed to support the activities that DPW performs to meet the requirements of COMAR Title 26, County Code, and County Regulations for the development of maps that show the water, sewer, and transportation infrastructure in the county. The laws and regulations provide specific language for representation, attribution, and symbology for these maps. The county has created small-scale versions of these maps in the past. However, in practice, the original paper/drafting media documents are used due to the approximate nature of the data currently represented in the GIS layers. These data should be recompiled from the original source material to enable the integration of the maps with the county’s large-scale geodatabases.

The Master Plans geodatabase should include master plans, cycle amendments, basic services maps and the Metropolitan District boundary. The data should be represented as polygons taken from the County’s Cadastral geodatabase. The following feature and object classes should be included:

- Master Water Plan
- Master Sewer Plan
- Basic Services Map – Water
- Basic Services Map – Sewer
- Basic Services Map – Transportation (base is Commuter Sheds)
- Cycle Amendments Water
- Cycle Amendments Sewer
- Metropolitan District Line



The Master Plans geodatabase will provide improved spatial representation of these features that are legally authoritative and suitable for integration and display with other county GIS features. In addition to DPW, the Master Plans geodatabase will support internal county users in the following agencies or boards:

- DEPRM
- PDM
- Office of Planning
- County Planning Board
- County Council

External users are expected to include the following:

- Maryland Department of Planning,
- Maryland Department of the Environment
- Baltimore Metropolitan Council
- Various planning councils,
- Community groups and citizen groups

The total costs and benefits associated for this data development activity have been provided in the table below. This includes the cost to develop the data, as well as the costs for maintaining the dataset for two (2) years. The benefits that should be realized over the following two years after development have also been provided. These associated costs are not a quote and should be used as an estimate only. Further formal analysis should be done to formulate an accurate cost/ benefit assessment and an appropriate business case.

Potential Cost/ Benefit for Master Plans Geodatabase Development				
Development Costs	Maintenance Cost (2 Years)	Total Cost	Benefits (2 years)	Cost/ Benefit Difference
\$284,037.27	\$10,026.12	\$294,063.39	\$179,595.50	-\$114,467.89

Table 28- Cost/Benefit for Master Plans Geodatabase Development

Preliminary Cost Estimate

The development costs have been determined by using estimated level of efforts based on having the work performed by a contractor. These development costs have been broken down by task according to the table below:



Master Plans Geodatabase Development Costs			
Task	Number of Instances	Time Per Instance (In Hours)	Estimated Cost
Requirements/Design	2 Design Iterations	N/A	\$41,000.00
Data Compilation/Migration	N/A	N/A	\$208,409.76
Geodatabase Maintenance Plan	N/A	N/A	\$34,627.51
Total Cost			\$284,037.27

Table 29– Costs of Master Plans Geodatabase Development

The data maintenance costs have been calculated assuming maintenance activities will be performed by Baltimore County staff, using an estimate of the number of annual updates needed per year provided by the Baltimore County OIT department, which was multiplied by a rate of \$33.95 to give the cost associated with maintaining the layer within DPW. These maintenance costs include:

Master Plans Geodatabase Maintenance Costs			
Task	Number of Instances	Time Per Instance (In Hours)	Cost
Update Basic Services Maps	1	31.5	\$1,069.43
Annual Master Plan Amendment Cycle Processing	1	42	\$1,425.90
Triennial Review of Water & Sewer Master Plans	0.33	72	\$806.65
Annexation Petitions	3	16.8	\$1,711.08
Total Cost			\$5,013.86

Table 30– Costs of Master Plans Geodatabase Maintenance

Preliminary Benefit Estimate

Benefits for developing and utilizing the Master Plans Geodatabase will be realized by a number of programs and activities. The benefits realized for each of these activities are shown in the table below, which were derived using the difference time it currently takes to perform the activity to the estimated time that would be spent with the new layer.

Additionally, DPW would realize an indirect benefit from developing the Master Plans geodatabase. The Metropolitan District Water and Sewer revenue stream depends on continuing authority to operate a community water and sewerage system under the Metropolitan District Act (Article 20, Baltimore County Code. Section 20-1-101 requires the map to reside in the Director's Office, DPW). This "indirect benefit" is the \$114,071,670 annual revenue from continued operation of the Metropolitan District utilities.



Even if all of these potential benefits were not realized, the investment would still be a good use of funding based on the increased accuracy, consistency, and legal, authoritative nature of the layers being developed for managing the county.

Master Plans Geodatabase Benefits Details						
Activity	Staff Hours w/o Layer	Staff Hours with Layer	Difference	Annual # Iterations Per Year	Total Hours Saved Using Layer	Annual Time Savings Benefit (Based on \$33.95/hr)
Basic Services Maps (Water, Transportation, and Sewer)	128	32	96	1	96	\$3,259.20
Building Permit Review (Residential)	3	1	2	385	770	\$26,141.50
Building Permit Review (Residential) – Perc Test Approvals	2	0.08	1.92	250	480	\$16,296.00
Floodplain Management – Floodplain Analysis and Investigations, Flood Control, Inspections	2	1	1	205	205	\$6,959.75
Master Plan Development- Water and Sewer Master Plan Development – Water and Sewer Amendment Process	280	32	248	1	248	\$8,419.60
Metropolitan District Financing and Petitions – Sanitary Sewer Extensions	70	42	28	20	560	\$19,012.00
Metropolitan District Financing and Petitions – Assessments (Citizens and Developers)	14	3	11	26	286	\$9,709.70
Total Annual Benefits						\$89,797.75

Table 31– Benefits of Master Plans Geodatabase

There are other programs within DPW that could benefit from having the Master Plans geodatabase available, increasing the return significantly on the development expenditure. These programs have been provided in the table below, along with the potential number of annual iterations of the activity



that could benefit from access to the Master Plans geodatabase. This gives an idea of the significance of the data and the impact that its development could have on DPW.

Programs Providing Additional Benefits from Master Plans Geodatabase	
Program	Number of Iterations
Complaint Tracking and Response (Research)	439
Engineering Management	509
Highways (Roads) Management	300
Inquiries – Citizens	600
MDE/EPA Consent Decree Requirements / Deliverables	36
MDE/EPA Utilities Maintenance Applications/Program management (CASS WORKS)	5,500
Miscellaneous Map and Display Creation – Department Wide	90
Total	7,474

Table 32- Programs Providing Additional Benefits from Master Plans Geodatabase

In addition to DPW, the Master Plans geodatabase will support users in the following agencies:

- DEPRM
- PDM
- Office of Planning

Cost /Benefit Analysis and Dewberry Recommendation

The Master Plans geodatabase will save significant effort within DPW across several programs and activities, justifying its creation. The geodatabase should also provide benefits to other activities throughout the county, providing an additional reason to develop the dataset.

However, the development costs will likely not be offset within the first three years. The Master Plans geodatabase is still a good investment, even if the financial aspects of the cost recovery are not evident in this high-level analysis.

The elements of the Master Plan Geodatabase are required by State and Local law, and use of GIS is the appropriate and most cost-effective way to accomplish this task. If the County does not deliver a timely and adequate report of its review of its County plan, the State of Maryland could have the power to suspend development in the County. This is interpreted from the Environmental Article of Annotated Code of Maryland, section 9-509(c) (2) (ii). A violation of either an inadequate delivery or not timely delivery, could result in the State not issuing any permit to install or alter a water supply system, sewerage system, or solid waste disposal system in that County under 9-204.

The political disincentives for not developing the Master Plans geodatabase noted above could far outweigh the relatively small negative financial benefit to developing this dataset.



3.3.2 Mid-term Recommendations & Potential Benefits

There are several undertakings that can be implemented in the mid-term to improve GIS usage within the agency. These are summarized below. See section 4 for more detailed recommendations to support individual activities.

Opportunity 1: Develop link between existing databases and GIS databases

Several databases are used within DPW that would benefit by having link built to GIS databases, allowing for a spatial representation of the permit addresses. These include:

- Bridge ownership – add attributes to planimetric road polygons
- Building maintenance databases – link to county-owned facilities locations
- Highway conditions – add to road centerlines
- Roadway striping information – add to road centerlines
- Snow removal routes – link to road centerlines
- Solid waste route information – link to road centerlines
- Traffic counts – link to road centerlines
- Trash collection – link to address points

Opportunity 2: Implement CASS WORKS for additional Bureaus

Implement CASS WORKS and CASSView for the Bureaus of Highways, Solid Waste, and Traffic to help manage the volume of customer service requests and work orders that these bureaus receive. The Bureau of Utilities and the Bureau of Engineering, Storm Drain Design have demonstrated how well CASS WORKS and CASSView are working for them and these other bureaus are looking forward to taking advantage of its functionality to help them meet their own and their constituents' needs.

Opportunity 3: Create Storm Drain Feature Class

A storm drain feature class with similar accuracy to that of the sanitary sewer data currently being collected would benefit numerous programs and activities within DPW, as well as benefiting other agencies such as DEPRM and PDM.

Opportunity 4: Create Water Main Feature Class

A water main feature class with similar accuracy to that of the sanitary sewer data currently being collected would benefit numerous programs and activities within DPW, as well as benefiting other agencies such as DEPRM and PDM.

Opportunity 5: Support Solid Waste's Vision for Enhanced Use of GIS

Support Solid Waste's vision for enhanced use of GIS to better manage its assets. The following activities would benefit the Bureau of Solid Waste:

- Monitor landfill authorizations by performing a spatial analysis of users to identify unauthorized use



- Perform spatial analyses of recycle routes and tonnage to help equalize pickup routes and schedules as well as to send out targeted mailings if it appears that recycling is falling off.
- Implement route mapping for Solid Waste to help improve the management of trash collection routes and schedules. Note that this would require a street centerline data layer that supports routing.



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4 Programs and Activities

Each of the interviews conducted with agency officials and personnel were used to compile information about the business processes used for each program within the agency, as well as look at how GIS is being used and benefits are being realized.

Each program is described below, listed with GIS-related funding and mandates, as well as any social or political benefits that are being seen as a result of using GIS. The associated products, customers served, and data/ applications used are also discussed. Activities have also been included under their associated programs, along with the process with and without GIS used to complete this activity, benefits that have been realized, and recommendations for additional GIS implementation where appropriate.



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4.1 Basic Services

Program: Basic Services		
Primary Point of Contact:		
Director's Office: David Thomas		
Overview:		
The Basic Services Analysis is used to study areas that are deficient for Transportation, Water, and Sewer, and is an important factor when analyzing areas for future development.		
Funding:		
There is no external funding for this program. However, citizens pay \$90 for signed copies of the Basic Services Maps.		
Mandates:		
This program is required by the county and is done in conjunction with the master planning process. The County Council must annually sign the Basic Services Maps.		
Political Benefits:		
This program impacts development opportunities within the county. No new development is permitted in areas where basic services (transportation, water, and sewer) are already at their maximum capacity until those services can be expanded.		
Social Benefits:		
Citizens are assured that basic services will be met when development is approved.		
Products/Services:		
Basic Services Maps		
Customers:		
<ul style="list-style-type: none"> • County Council • Citizens • Planning / Engineering firms • Various County agencies 		
Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • Basic Services • Basic Services - Transportation (Intersections) • Basic Services - Water • Basic Services -Sewer • BCMD Grid • County Boundary 	<ul style="list-style-type: none"> • Cycle Amends Sewer • Cycle Amends Water • Index Grid - 200 Scale (BCMD) • Index Grid - 200 Scale (MCS) • Key Sheets • Master Plan - Sewer 	<ul style="list-style-type: none"> • Master Plan - Water • Metropolitan District Line • Roads • Sewer • Streams and Ponds • Street Centerlines • Street Centerlines (View)
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) 		
Associated Activities:		
4.1.1 Basic Services Maps (Water, Transportation, and Sewer)		



4.1.1 Basic Services Maps (Water, Transportation, and Sewer)

Activity: Basic Services Maps (Water, Transportation, and Sewer)					
Primary Point of Contact:					
Director's Office: David Thomas					
Overview:					
The Basic Services Maps are used to identify areas that are deficient for Transportation, Water, and Sewer and are an important factor when analyzing areas for future development. By having the data layers available on GIS, the areas can be recognized easily and accurately.					
Interviewee(s) Providing Information:					
David Thomas, Suzanne Hale					
Process with GIS:					
Annual updates are made to three GIS layers (transportation, water, and sewer). Approximately twelve areas throughout the county change per year. The County Council signs a copy of each of the maps. This process takes approximately 32 hours per year.					
Process without GIS:					
Mylar maps were updated manually. Without GIS it took four times as long.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • High 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster map updates. • Historic changes can be stored in GIS and reviewed for trends. 					
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)
128	32	96	1	96	\$3,259.20
Other Benefits: \$					
None noted					
Total Annual Benefit \$3,259.20					
Areas for Improvement:					
Fully accurate GIS layers that would include legally authorized polygons would be ideal, especially if they could be given out to the public. Currently, citizens who inquire are told if they are inside or outside of an area where development is restricted; however, providing this information electronically would reduce the number of customer calls.					
New Opportunities:					
Fully accurate GIS layers that would include legally authorized polygons that could be given out to the public.					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • More accurate GIS data • Decreased customer calls 					



4.2 Bridge Management

Program: Bridge Management
Primary Point of Contact:
Engineering: Dan Hardisky, Jim Arford, Doug Gabbert
Overview:
Bridge Management is a Federally mandated program necessary for maintaining bridge safety for the citizens.
Funding:
Funding for the Bridge Management program is approximately \$6 million per year for Capital Improvements. There are approximately 450 bridges in the county, including 320 over-20' bridges that the state inspects and 150 under-20' bridges for which the state provides funding for inspections at 80%. The funding sources include (1) capital bonds, (2) the Federal Aid Program which funds \$2 million per year at an 80/20 cost share and \$1 million towards over-20 inspections at 100%, and (3) State aid at 80/20 cost share for the 150 under-20' bridges is around \$3000 to \$4000 per bridge every 2 years.
Mandates:
The county must effectively manage its bridge program to receive Federal and State funding. Compliance with the inspection program is assured through the use of State inspectors. Capital improvement projects each have approximately four to five Federal reviews over the lifetime of the projects. The over-20' inspections are required every two years by Federal regulations. The State manages compliance through use of State on-call inspectors. Non-compliance could cause management to be taken over by the state or loss of funding. The U.S. Army Corps of Engineers (USACE) and MDE require joint permits for bridge construction. The Federal Highway Administration (FHWA) requires that all bridges are inspected and rated by a qualified registered P.E. every two years. There are several categories for the ratings that must be addressed by the engineer.
Political Benefits:
The county has liability for the safety of its bridges and must maintain and ensure their load-bearing capacity. Proper maintenance and management of the county's bridge inventory can result in reduced mileage for school buses, fire and emergency vehicles, trash trucks, and snow plows, which in turn results in lower county costs. New bridges may be needed to support new development. Citizens perceive bridges as barriers to development and some view avoidance of their expansion as a traffic calming device.
Social Benefits:
Bridge safety is the primary social benefit. Other benefits include reduced mileage for school buses, fire and emergency vehicles, trash trucks, and snow plows as well as access to new developments.
Products/Services:
GIS maps and data are given to consultants at no cost for use in design projects if the projects are county projects. GIS data are also provided to the Department of Planning for use in assessing conservation easements. Surplus land transactions reviews require use of bridge data. The GIS bridge layers help DPW develop its capital budget. GIS is used to create maps used by the bridge maintenance crews.



Customers:		
<ul style="list-style-type: none"> • Truckers • Trash haulers • School bus drivers • Citizens • Fire departments • Various County agencies 		
Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Athletic Fields • Basic Services • Basic Services - Transportation (Intersections) • Basic Services - Water • Basic Services -Sewer • Bridges • Buildings • Bulkheads • Capital Projects • Chesapeake Bay Critical Area • Contours • County Boundary • County Facilities • County Historic Districts • Dams • Election Districts • Facilities • Fire Stations • Floodwalls 	<ul style="list-style-type: none"> • Golf Courses • Highway Districts • Hydrologic Facilities • Hydrology • Index Grid - 600 Scale • Index Grid - ADC Map • Key Sheets • Orthophoto (2002) • Orthophoto (2005) • Parcel Based Landuse • Parks and Recreation • Playgrounds • Position Sheet Grid • Railroads • Refuse Collection Routes • Right of Way (LACQ) • Rights-of-Way Inception Instances • Roads • SCADA Sensors • Sewer • Sewer Relief Points 	<ul style="list-style-type: none"> • Solid Waste Facilities • Spot Elevations • State Legislative District • Storm Water Management Facilities • Stormwater (Geodatabase) • Streams and Ponds • Street Centerlines • Street Centerlines (View) • Subwatersheds • Tax Parcel • Taxmaps (Images) • TaxParcel • Tennis Courts • Trails • Trails - Walkways • Wetlands • Wetlands - NWI • Zoning • Zoning - 1999 • Zoning Overlay Districts
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery • ArcIMS 		
Associated Activities:		
<p>4.2.1 Bridge Inspections</p> <p>4.2.2 Bridge Inventory</p> <p>4.2.3 Bridge Permitting and Routing</p> <p>4.2.4 Surplus Property Reviews</p>		



4.2.1 Bridge Inspections

Activity: Bridge Inspections					
Primary Point of Contact:					
Engineering: Dan Hardisky, Jim Arford, Doug Gabbert					
Overview:					
Bridge Inspections are Federally mandated. The GIS database records locations of all bridges that can then be plotted for display purposes and joined to all respective inspection results data for each bridge.					
Interviewee(s) Providing Information:					
Dan Hardisky, Jim Arford					
Process with GIS:					
Users call up data in GIS to view locations of bridges and see inspection status and results in related tables.					
Process without GIS:					
More field visits would be required.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
GIS helps the county know more about its bridge inventory and manage the inspection process more effectively and efficiently. Studies and tables can be generated to help manage the program. More field work was done before GIS. GIS does not help with the actual field inspections, other than to help the inspectors locate the bridges.					
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)
2.5	0.5	2	75	150	\$5,092.50
Other Benefits: \$					
None noted					
Annual Benefit: \$5,092.50					
Areas for Improvement:					
None noted					
New Opportunities:					
Improved spatial accuracy of bridge points (GPS coordinates were not all taken from a common location on each bridge and must be adjusted using the orthophotos) would allow bridge layer to be added to the Enterprise SDE database instead of being kept separately.					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • More accurate GIS data • Bridge layer available to all GIS users 					



4.2.2 Bridge Inventory

Activity: Bridge Inventory					
Primary Point of Contact:					
Engineering: Dan Hardisky, Jim Arford, Doug Gabbert					
Overview:					
Maintaining an inventory of County owned bridges is Federally mandated. The GIS database used for this activity records locations of all bridges that can then be plotted for display purposes.					
Interviewee(s) Providing Information:					
Dan Hardisky, Jim Arford, Doug Gabbert					
Process with GIS:					
Bridges are added to the GIS layer throughout the year as construction occurs. Bridge attributes are updated every two years as inspections occur. Additionally, the bridge ratings can change daily depending on deterioration, reconstruction, average daily traffic, and precipitation (both rain and ice). A one-time GIS analysis of all road and stream crossings also helped identify some previously unidentified bridges.					
Process without GIS:					
Bridges were added to the inventory through internal processes, after projects were completed. This was not 100% reliable.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • High 					
Benefits to Using GIS for this Activity:					
Better information about the county owned bridges.					
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)
N/A	0.08	N/A	250	N/A	\$0
Other Benefits: \$					
None noted					
Annual Benefit: \$0					
Areas for Improvement:					
None noted					
New Opportunities:					
Add bridge ownership attributes to the planimetrics data layer (road polygons).					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • More information available to GIS users 					



4.2.3 Bridge Permitting and Routing

Activity: Bridge Permitting and Routing					
Primary Point of Contact:					
Engineering: Dan Hardisky, Jim Arford, Doug Gabbert					
Overview:					
Information is needed about bridge locations, their carrying capacity, any proposed closures, etc. for routing of school buses, trash trucks, and fire trucks. This information is needed for safety, travel time, and mileage purposes.					
Interviewee(s) Providing Information:					
Dan Hardisky					
Process with GIS:					
Users call up data in GIS to view locations of bridges, review their ownership and load bearing capacity, and view alternative bridge locations and transportation routes for overload permit reviews.					
Process without GIS:					
Somewhat more time consuming.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
Better routing of county vehicles results in savings in both time and money. Higher gas prices have increased the demand for route reviews for county vehicles.					
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)
364	87	277	1	277	\$9,404.15
Other Benefits: \$					
None noted					
Annual Benefit: \$9,404.15					
Areas for Improvement:					
None noted					
New Opportunities:					
Posting the bridge information on the web could save time answering inquiries. It also could save time answering complaints about bridges.					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • Better customer service • Decreased customer calls 					



4.2.4 Surplus Property Reviews

Activity: Surplus Property Reviews					
Primary Point of Contact:					
Engineering: Dan Hardisky, Jim Arford, Doug Gabbert					
Overview:					
Each department in the county must sign off on county-owned properties that are proposed for release. If a property is too close to a bridge or is needed for an easement, it will not be released.					
Interviewee(s) Providing Information:					
Wayne Shorb					
Process with GIS:					
GIS is used to call up the location of the property and see what's around it. They get 2-5 requests per week. With GIS, it takes 15-20 min each.					
Process without GIS:					
Might have required a field visit.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
More efficient, fewer field visits.					
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)
2.5	0.25	2.25	104	234	\$7,944.30
Other Benefits: \$					
None noted					
Annual Benefit: \$7,944.30					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.3 Building and Equipment Services Management

Program: Building and Equipment Services Management		
Primary Point of Contact:		
Engineering: Doug Gabbert, Buildings: Hal Southern		
Overview:		
Maintain and repair all County government owned and leased facilities; provide custodial services; deaccession surplus equipment; provide county equipment maintenance and repair.		
Funding:		
There is no external funding for this program.		
Mandates:		
The County must maintain the property and equipment it owns. Additionally, there are requirements to interface with the Bureau of Highways regarding the status of snow plows so that if one is down, they know that its route is in need of additional support.		
Political Benefits:		
Citizens expect county facilities to be well maintained and for county-owned equipment (e.g., snow plows) to be functioning when needed		
Social Benefits:		
Citizens are assured that county facilities will be well maintained and that county-owned equipment (e.g., snow plows) will be functioning when needed.		
Products/Services:		
GIS is used to prepare maps for mechanics and to verify property lines. In the future, maintenance work orders could be generated.		
Customers:		
<ul style="list-style-type: none"> • Mechanics who maintain buildings and equipment • Highways and other departments that depend on county equipment to perform their activities • County employees and any citizens who use county buildings, facilities, etc., or benefit from the use of county equipment 		
Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Athletic Fields • Buildings • County Boundary • County Facilities • County Historic Districts • Facilities • Fire Stations • Golf Courses • Government Lands 	<ul style="list-style-type: none"> • Historic Districts • Index Grid - 600 Scale • Index Grid - ADC Map • Key Sheets • Landfills • Orthophoto (2002) • Orthophoto (2005) • Parcel Based Landuse • Parks and Recreation • Publicly Owned Land 	<ul style="list-style-type: none"> • Pumping Stations • Roads • Schools—Point Location • Solid Waste Facilities • Street Centerlines • Street Centerlines (View) • Tax Parcel • Taxmaps (Images) • TaxParcel • Traffic Analysis Zones



Applications Used:

- | |
|---|
| <ul style="list-style-type: none">• ArcGIS (Standard)• ArcGIS DataQuery• ArcIMS |
|---|

Associated Activities:

4.3.1 County Owned Buildings Analysis



4.3.1 County Owned Buildings Analysis

Activity: County Owned Buildings Analysis					
Primary Point of Contact:					
Engineering: Doug Gabbert, Buildings: Hal Southern					
Overview:					
Currently the GIS is used to investigate county owned properties to verify the location of any existing county owned buildings on the properties. If buildings exist, they are assigned attributes, displayed, and printed to be used for resource allocations.					
Interviewee(s) Providing Information:					
Dale Volz, Hal Southern					
Process with GIS:					
They use GIS intermittently now, and mostly maintain their data in Access databases. GIS is sometimes used to help identify property lines and to see the buildings on the orthophotos. Printouts are provided to the mechanics' supervisors.					
Process without GIS:					
They use Access databases to track county assets including building information, occupants, maintenance schedules, types of systems, BGE account numbers, underground storage tanks, etc. The work orders are kept on paper currently.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Maintenance crews see an overview of properties and which building(s) to service 					
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)
	N/A			N/A	\$0
Other Benefits: \$					
None noted					
Total Annual Benefit: \$					
Areas for Improvement:					
GIS could help them identify which building to service, etc. and to improve communication and customer service. Another future vision would be to have electronic work orders tied to the GIS. Point locations of county-owned buildings are coming with the facilities layer, which could be useful. GIS could be used to show snowplow routes that are down, also. This would be useful since they maintain the county snowplow equipment.					
New Opportunities:					
Scan the building floor plans and link them to the GIS building features so they could be viewed on-line.					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • Emergency and rescue workers could call up building floor plans before entering a building 					



4.4 Building Permit Review (Residential)

Program: Building Permit Review (Residential)
Primary Point of Contact:
Director's Office: David Thomas
Overview:
Infill Lot review is part of the Development Process Review and DPW verifies floodplain determinations, water and sewer availability, ingress/egress, and approves water and sewer hook ups for the infill lots.
Funding:
There is no external funding for this program.
Mandates:
The mandates that apply to this program include the following: <ul style="list-style-type: none"> • County permitting requirements; • NFIP requirements for mitigation of all new or substantially improved structures including in/out determination and elevation review; • County zoning ordinances; and • Requirements for review of sewer capacity imposed by the Consent Decree.
Political Benefits:
Reviewing permits in a timely fashion is important to both homeowners and developers.
Social Benefits:
Public safety is ensured through the permitting process. Coordination is facilitated between all County agencies regarding upcoming development projects, infill, etc. Knowing when new development is proposed ensures that the County can adequately monitor its infrastructure status (e.g., Basic Services Maps).
Products/Services:
<ul style="list-style-type: none"> • Approved permits • Perc test approvals
Customers:
<ul style="list-style-type: none"> • Citizens • Homeowners • Developers



Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Basic Services • Basic Services - Transportation (Intersections) • Basic Services - Water • Basic Services -Sewer • Buildings • Census Block Groups (2000) • Census Blocks (1990) • Census Blocks (2000) • Census Designated Place (1990) • Census Designated Place (2000) • Census Tracts (1990) • Census Tracts (2000) • Chesapeake Bay Critical Area • Contours • County Boundary • County Facilities • County Historic Districts 	<ul style="list-style-type: none"> • Development Plans • Discharge Permits • Election Districts • Facilities • Fire Hydrants • Flood Insurance Maps (FEMA) • Historic Districts • Hydrologic Facilities • Hydrology • Index Grid - 600 Scale • Key Sheets • Landuse • Master Plan - Sewer • Master Plan - Water • Metro Railroad • Metropolitan District Line • Orthophoto (2002) • Orthophoto (2005) • Parcel Based Landuse • Proposed Land Use • Publicly Owned Land • Railroads 	<ul style="list-style-type: none"> • Refuse Collection Routes • Right of Way (LACQ) • Rights-of-Way Inception Instances • Roads • Schools—Point Location • Sewer • Sewer Relief Points • Streams and Ponds • Street Centerlines • Street Centerlines (View) • Subwatersheds • Tax Parcel • Taxmaps (Images) • TaxParcel • Traffic Analysis Zones • Transmission Lines • Urban Rural Demarcation Line (URDL) • Wetlands • Wetlands - NWI • Zoning • Zoning – 1999 • Zoning Overlay Districts
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery 		
Associated Activities:		
4.4.1 Building Permit Review (Residential)		
4.4.2 Perc Test Approvals		



4.4.1 Building Permit Review (Residential)

Activity: Building Permit Review (Residential)					
Primary Point of Contact:					
Director's Office: Robin Hurley					
Overview:					
Infill Lot review is part of the Development Process Review and DPW verifies floodplain determinations, water and sewer availability, ingress/egress, and approves water and sewer hook ups for the infill lots. Making one GIS map allows the individual to accurately locate the lot and have all necessary planimetric data to efficiently and accurately do their analysis.					
Interviewee(s) Providing Information:					
Robin Hurley, David Thomas					
Process with GIS:					
PDM sends a hardcopy of the permit and site plan. The review involves calling up the location in GIS, viewing the property lines, existing water and sewer lines, and floodplains, and reviewing the proposed grading and road improvements. There is also an Access database that is used to determine the status of the permits.					
Process without GIS:					
Reviews were done using paper and/or mylar sheets showing property lines, floodplains, and utilities. Each set of maps was filed and stored separately and required using multiple index sheets to locate.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information. 					
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)
3	1	2	385	770	\$26,141.50
Other Benefits: \$					
None noted					
Total Annual Benefit: \$26,141.50					
Areas for Improvement:					
Completed sanitary sewer, effective DFIRM, and water main layers will improve the process.					
New Opportunities:					
<ul style="list-style-type: none"> • Completed sanitary sewer layer • Effective DFIRM layer • Water main layer with similar accuracy to the sanitary sewer layer • The address points layer could save some additional time in locating the properties. 					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information. 					



4.4.2 Perc Test Approvals

Activity: Perc Test Approvals					
Primary Point of Contact:					
Director's Office: Robin Hurley					
Overview:					
Infill Lot review is part of the Development Process Review and DPW reviews perc test approvals for the infill lots. Making one GIS map allows the individual to accurately locate the lot and have all necessary planimetric data to efficiently and accurately do their analysis.					
Interviewee(s) Providing Information:					
Robin Hurley, Ann Briggeman					
Process with GIS:					
These reviews are triggered by walk-ins as part of the building permit process. People bring the plat number. DPW staff locate the address and look at the water and sewer master plan layer, hydro, and floodplains. MDE also does checks using the soils layer. No perc tests have been done yet at the time of this review. The utilities must be extended if the new structure is within 500' of an existing line. With GIS, this activity takes 5-10 minutes.					
Process without GIS:					
Reviews were done using paper and/or mylar sheets showing property lines, floodplains, and utilities. Each set of maps was filed and stored separately and required using multiple index sheets to locate.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information. 					
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)
2	0.08	1.92	250	480	\$16,296.00
Other Benefits: \$					
None noted					
Total Annual Benefit: \$16,296.00					
Areas for Improvement:					
Completed sanitary sewer, effective DFIRM, and water main layers will improve the process.					
New Opportunities:					
<ul style="list-style-type: none"> • Completed sanitary sewer layer • Effective DFIRM layer • Water main layer with similar accuracy to the sanitary sewer layer • The address points layer could save some additional time in locating the properties. 					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information 					



4.5 Complaint Tracking and Response (Research)

Program: Complaint Tracking and Response (Research)		
Primary Point of Contact:		
Engineering: Doug Gabbert		
Overview:		
The GIS planimetric/topographic data is used to perform the research needed to respond to drainage complaints, thus reducing the fieldwork necessary to respond to a complaint.		
Funding:		
There is no external funding for this program.		
Mandates:		
None noted		
Political Benefits:		
Citizens expect the county to be responsive to their complaints, to provide basic services, and to keep the county infrastructure safe and well maintained.		
Social Benefits:		
Public safety. Citizens expect the county to be responsive to their complaints, to provide basic services, and to keep the county infrastructure safe and well maintained.		
Products/Services:		
<ul style="list-style-type: none"> • Maps for use in investigation of complaints • GIS is used to analyze complaints 		
Customers:		
<ul style="list-style-type: none"> • Citizens 		
Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Athletic Fields • Bridges • Buildings • Bulkheads • Contours • Councilmanic Districts (2002) • County Boundary • County Facilities • County Historic Districts • Discharge Permits • Easement • Election Districts • Facilities • Fire Hydrants • Fire Stations • Flood Insurance Maps (FEMA) • Floodwalls • Floodwalls 	<ul style="list-style-type: none"> • Highway Districts • Hydrologic Facilities • Index Grid - 600 Scale • Index Grid - ADC Map • Key Sheets • Landfills • Landuse • Orthophoto (2002) • Orthophoto (2005) • Parcel Based Landuse • Publicly Owned Land • Pumping Stations • Refuse Collection Routes • Right of Way (LACQ) • Rights-of-Way Inception Instances • Roads • Sanitary Sewer Overflow • Schools—Point Location • Sewer • Sewer Relief Points 	<ul style="list-style-type: none"> • Sewer Service Areas • Sewer Subsheds Sewer Treatment Plants • Snow Plow Routes • State Legislative District • Storm Water Management Facilities • Stormwater (Geodatabase) • Streams and Ponds • Street Centerlines • Street Centerlines (View) • Subwatersheds • Tax Parcel • Taxmaps (Images) • TaxParcel • Tennis Courts • Traffic Analysis Zones • Traffic Signals • Transmission Lines • Urban Rural Demarcation Line (URDL)



Applications Used:

- | |
|--|
| <ul style="list-style-type: none">• ArcGIS (Standard)• ArcGIS DataQuery• ArcIMS• CASSView |
|--|

Associated Activities:

4.5.1 Complaint Tracking and Response (Research)
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4.5.1 Complaint Tracking and Response (Research)

Activity: Complaint Tracking and Response (Research)					
Primary Point of Contact:					
Engineering: Doug Gabbert					
Overview:					
The GIS planimetric/topographic data is used to perform the research needed to respond to drainage complaints, thus reducing the fieldwork necessary to respond to a complaint.					
Interviewee(s) Providing Information:					
Ed Tress, Terry Curtis, Jim Ford, David Beutelspacher, Jim Ekeh, Jos Venturina					
Process with GIS:					
CASS WORKS is used to manage the complaint process. There are several inspectors whose role is to contact the person who initiated the complaint and then do research. They look up a location by owner and/or address. They use orthophotos, contours, streams, property lines, etc. They may also compare older and newer orthophotos and use field pictures stored in CASS WORKS to see before and after conditions and historic complaints. They may also visit the site. They typically do drainage area calculations as part of the research. Then they write up the report that notes how the complaint should be addressed – with maintenance initiated by a work order or if design work is needed.					
Process without GIS:					
Research was done using paper and/or mylar sheets showing property lines, contours, streams, and utilities. Each set of maps was filed and stored separately and required using multiple index sheets to locate. Field visits were also more routine.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster response • Fewer field visits • Historic orthophotos can be viewed • Historic complaints can be reviewed in CASS WORKS 					
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)
6	3	3	439	1,317	\$44,712.15
Other Benefits: \$					
None noted					
Total Annual Benefit: \$44,712.15					
Areas for Improvement:					
Drainage area calculations could be automated in GIS.					
New Opportunities:					
<ul style="list-style-type: none"> • The completed storm drainage layer will be helpful • Effective DFIRM layer may be useful 					



Benefits of Pursuing New Opportunities:

- Faster research
- More accurate information



4.6 Engineering Management

Program: Engineering Management
Primary Point of Contact: Engineering: Doug Gabbert
Overview: Engineering Management is a part of the overall infrastructure maintenance and repair process of the county facilities.
Funding: Funding comes from various sources, including the annual Capital and Operating Budgets, Metropolitan District funds, along with additional funding coming from bond sales. Baltimore County also receives EPA grant funding for its share of the major wastewater treatment plants at Back River and Patapsco. They also receive one to two loans per year from MDE. The two-year sewer and water Capital budget is usually about \$150 million; however, the Consent Decree increased it to \$189 million for 2008-9. Howard and Anne Arundel Counties are also billed for their share of capital projects.
Mandates: The Consent Decree is mandated by EPA, the State of Maryland, and the Department of Justice. The Consent Decree requires the use of GIS. However, it should be noted that GIS is not applicable on all design projects. The Clean Drinking Water Act also has requirements for the elimination of water pollution by increasing the treatment levels at wastewater treatment plants and by eliminating overflows in the collection systems. EPA grants and MDE loans have requirements that include competitive bidding for projects, MDE approval of project documentation, MDE review of construction for compliance, etc.
Political Benefits: <ul style="list-style-type: none"> • Information for public meetings, public outreach • Better planning and management of county assets • Improved prioritization of projects • More joint funding across departments • Better communication • Better customer service • Better evaluation of environmental impacts of projects
Social Benefits: <ul style="list-style-type: none"> • Better informed public regarding upcoming county projects • Orthophotos allow citizens to visualize proposed projects or changes much better • Better customer service • Better evaluation of environmental impacts



Products/Services:

- Maps for preliminary studies
- GIS data are used as base map for CADD drawings/design work
- Maps for engineers to take to field to investigate complaints
- Maps in lieu of field visits
- Maps for survey crews
- Maps to support other departments
- Maps for contractors
- Locations of existing utilities
- GIS helps DPW develop its capital budget

Customers:

- County engineers
- Survey crews
- Other county agencies
- Citizens through information provided at public meetings
- County contractors
- Consulting engineers



Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Athletic Fields • Basic Services • Basic Services - Transportation (Intersections) • Basic Services - Water • Basic Services -Sewer • BCMD Grid • Bridges • Buildings • Bulkheads • Business Parks • Capital Projects • Cell Towers • Cemetery • Census Block Groups (1990) • Chesapeake Bay Critical Area • Commercial Pools • Communication Towers • Community Associations • Conservation Easements • Contours • Councilmanic Districts (2002) • County Boundary • County Facilities • County Historic Districts • Dams • Development Plans • Digital Elevation Models • Easement • Election Districts • Facilities • Fire Hydrants 	<ul style="list-style-type: none"> • Flood Insurance Maps (FEMA) • Forest – 1996 Image Polys • Forest Conservation Management Areas • Forest Corridors • Forest Cover – 1996 & 2000 • Forest Harvest • Government Lands • Highway Districts • Hydrologic Facilities • Hydrology • Impervious Polygons • Index Grid - 600 Scale • Index Grid - ADC Map • Key Sheets • Landfills • Landuse • Legislative Districts (2002) • Light Rail • Metro Railroad • Metropolitan District Line • Orthophoto (2002) • Orthophoto (2005) • Out Fall—Major Drainage Areas • Out Fall—Minor • Parcel Based Landuse • Pipelines • Position Sheet Grid • Publicly Owned Land • Pumping Stations • Railroads • Right of Way (LACQ) • Rights-of-Way Inception Instances 	<ul style="list-style-type: none"> • Roads • Sanitary Sewer Overflow • Sewer • Sewer Relief Points • Sewer Service Areas • Sewer Subsheds • Sewer Treatment Plants • Soil Map Index • Soil Type • Soils • Soils—Natural Soil Groups • Solid Waste Facilities • Spot Elevations • State Legislative District • Storm Water Management Facilities • Stormwater (Geodatabase) • Streams and Ponds • Street Centerlines • Street Centerlines (View) • Subwatersheds • Tax Parcel • Taxmaps (Images) • TaxParcel • Traffic Calming • Traffic Signal and Calming Layers • Urban Rural Demarcation Line (URDL) • Water Plats • Watersheds - Major • Wetlands • Wetlands - NWI • Zoning • Zoning - 1999 • Zoning Overlay Districts
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery • ArcIMS • CASSView 		



Associated Activities:

- 4.6.1 Alley Reconstruction
- 4.6.2 Grinder Pump Locations
- 4.6.3 Pump Stations
- 4.6.4 Curb and Gutter – Conditions/Repair/Permits/Petitions
- 4.6.5 Hydrologic Modeling (HSPF and SWMM)
- 4.6.6 Preliminary Alignment and Engineering Studies
- 4.6.7 Rehab Projects
- 4.6.8 Road/stream Intersections for Bridge Inspection
- 4.6.9 Sidewalk Ramp Design
- 4.6.10 Storm Drain Culvert Studies



4.6.1 Alley Reconstruction

Activity: Alley Reconstruction					
Primary Point of Contact:					
Engineering: Doug Gabbert					
Overview:					
Alley reconstructions are part of the overall infrastructure maintenance and repair of the county facilities. GIS data is used to analyze alley reconstruction projects. The GIS data is more accurate, current, and complete compared to previously existing data, which allows for easier and more efficient analysis of project areas without more costly field surveys.					
Interviewee(s) Providing Information:					
Bob Lidard, Abed Bssisso					
Process with GIS:					
GIS is used to get an overview of the area instead of a field visit to determine ownership and pavement type. A map is created showing the orthophotos, contours, planimetrics, and property lines. The GIS data are also used as the base map to begin the design process. The GIS data are imported into CADD as DXF files. Orthophotos can be a substitute for as-builts if they are not available. The as-builts are in DocQuest and can be searched by coordinates, position sheet number, or street name. Cost estimates can be prepared from the orthophotos. There is also a database that includes data from a 1995 county-wide survey of the alleys, including their estimated condition, etc. Planimetrics plus field measurements can sometimes (5% of the time) be used instead of a survey, since they are simple and could use the less accurate data.					
Process without GIS:					
Research was done using paper and/or mylar sheets showing planimetrics, property lines, contours, transportation, streams, and utilities. Each set of maps was filed and stored separately and required using multiple index sheets to locate. Field visits were also more routine.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Less time to research properties and project site • GIS serves as base map for CADD design • Less digitizing • Fewer field visits • Site surveys, which cost approximately \$1,000, can be saved on approximately 5% of the projects 					
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)
7	1.5	5.5	22	121	\$4,107.95
Other Benefits: \$1,000					
<ul style="list-style-type: none"> • One site survey at \$1,000 each saved per year 					
Total Annual Benefit: \$5,107.95					
Areas for Improvement:					
None noted					



New Opportunities:
More accurate GIS layers that could be used for design.
Benefits of Pursuing New Opportunities:
<ul style="list-style-type: none">• More accurate GIS data• Site surveys could be reduced even further



4.6.2 Grinder Pump Locations

Activity: Grinder Pump Locations					
Primary Point of Contact:					
Engineering: Doug Gabbert					
Overview:					
Grinder pump locations are part of the overall infrastructure improvement of the county facilities. There are currently approximately 2,300 grinder pumps throughout the County. The installation of grinder pumps and associated sewer lines reduces sewer waste flowing into rivers and the Chesapeake Bay. GIS data is used to analyze locations. The GIS data is more accurate, current, and complete compared to previously existing data, which allows for easier and more efficient location design without costly field surveys.					
Interviewee(s) Providing Information:					
Don Wuest, Glenn Keller					
Process with GIS:					
ArcIMS helps locate the project site by address, lets them see the site on the orthophotos so they don't have to look up the location manually. GIS is not used for the actual design drawings. They may use ArcIMS to add maps to their project reports. GIS is used to do the preliminary alignment and cost estimate. Field surveys are still needed. They have fewer surprises in the field using GIS, as the data are more up-to-date than the old paper maps. Thus their designs need less tweaking based on surprises in the field. With GIS, preliminary work takes 4 hours. Without GIS, it took 2 days. Average 15 – 20 projects per year. Design modification savings are 15-20% per project. A project averages 22 days, thus GIS saves 5 days.					
Process without GIS:					
Research was done using paper and/or mylar sheets showing planimetrics, property lines, contours, transportation, streams, and utilities. Each set of maps was filed and stored separately and required using multiple index sheets to locate. Field visits were also more routine.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Less time to research project sites • GIS serves as base map for CADD design • Less digitizing • Fewer field visits • Fewer surprises in the field • Fewer design modifications 					
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)
40	2.5	37.5	18	675	\$22,916.25
Other Benefits: \$					
None noted					



Total Annual Benefit: \$22,916.25
Areas for Improvement:
None noted
New Opportunities:
More accurate GIS layers that could be used for design.
Benefits of Pursuing New Opportunities:
<ul style="list-style-type: none">• More accurate GIS data• Site surveys could be reduced• Less CADD drawing time



4.6.3 Pump Stations

Activity: Pump Stations					
Primary Point of Contact:					
Engineering: Doug Gabbert					
Overview:					
Pump station locations are part of the overall infrastructure improvement of the county facilities. There are currently 112 pumping stations throughout the County. GIS data is used to analyze locations. The GIS data is more accurate, current, and complete compared to previously existing data, which allows for easier and more efficient location design without costly field surveys.					
Interviewee(s) Providing Information:					
Glenn Keller					
Process with GIS:					
GIS is used to review environmental impacts, and to assist with siting of retention ponds. GIS data are also used to calculate impervious area and drainage to the Chesapeake Bay. They must evaluate 100 pump stations in five years for the Consent Decree. They do about 20 pump stations per year. It takes an average of two to three months to do the study, identify items that require maintenance or upgrade. Then it takes one year to design a project and one to two years to rehabilitate an existing pump station, all the while keeping the station operating. One or two new stations per year are needed to support new development within the county. They may review a developer's plans or do the design in-house. If a developer puts at pump station in, the county takes it over and maintains it. Maintenance of pumps is required by the Consent Decree every three years					
Process without GIS:					
Research was done using paper and/or mylar sheets showing planimetrics, property lines, contours, transportation, streams, and utilities. Each set of maps was filed and stored separately and required using multiple index sheets to locate. Field visits were also more routine.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Less time to research properties and project site • GIS serves as base map for CADD design • Less digitizing • Fewer field visits • Calculate drainage area and runoff more quickly 					
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)
1.5	0.5	1	20	20	\$679.00
Other Benefits: \$					
None noted					
Total Annual Benefit: \$679.00					



Areas for Improvement:

None noted

New Opportunities:

More accurate GIS layers that could be used for design.

Benefits of Pursuing New Opportunities:
--

- | |
|--|
| <ul style="list-style-type: none">• More accurate GIS data• Site surveys could be reduced |
|--|



4.6.4 Curb and Gutter – Conditions/Repair/Permits/Petitions

Activity: Curb and Gutter – Conditions/Repair/Permits/Petitions					
Primary Point of Contact:					
Engineering: Doug Gabbert, Metro Finance: Linda Leake					
Overview:					
Curb and Gutter construction and/or reconstruction are part of the overall infrastructure maintenance and repair of the county facilities. GIS data is used to analyze Curb and Gutter conditions for repair, permits, and, petitions. The GIS data is more accurate, current, and complete compared to previously existing data, which allows for easier and more efficient analysis of project areas without more costly field surveys.					
Interviewee(s) Providing Information:					
Bob Lidard, Keith Link, John Ruke					
Process with GIS:					
GIS is used to make quick measurements, to see existing conditions, sidewalks, etc. It is used for sidewalk reviews initiated by petitions and inquiries. Site surveys, which cost \$1,000 per day, can sometimes be avoided (maybe 5 per year). GIS saves on the need for field measurements. It also provides better visualization of projects for public presentations and can save weeks on putting this information together. GIS also allows more work to be done in-house, thus saving contractors' fees.					
Process without GIS:					
Research was done using paper and/or mylar sheets showing planimetrics, property lines, contours, transportation, streams, and utilities. Each set of maps was filed and stored separately and required using multiple index sheets to locate. Site visits were also more routine to capture field measurements. Contractors would be used more frequently without GIS. Without GIS, preparing information to present to the public takes much longer, and would not be as useful.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Less time to research properties and project site • GIS serves as base map for CADD design • Less digitizing • Fewer field visits • Site surveys saved (5 per year) • Better communication to the public • More work done in-house, saving contractors' fees 					
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)
30	0.5	29.5	8	236	\$8,012.20
Other Benefits: \$5,000					
Site surveys, at \$1,000 each saved five times per year					
Total Annual Benefit: \$13,012.20					



Areas for Improvement:

None noted

New Opportunities:

More accurate GIS layers that could be used for design.

Benefits of Pursuing New Opportunities:
--

- | |
|--|
| <ul style="list-style-type: none">• More accurate GIS data• Site surveys could be reduced |
|--|



4.6.5 Hydrologic Modeling (HSPF and SWMM)

Activity: Hydrologic Modeling (HSPF and SWMM)					
Primary Point of Contact:					
Engineering: Doug Gabbert					
Overview:					
The modeling of water flowing through storm drains is a factor in studying present systems and gauging the needs for the future. The GIS planimetric/topographic layers can be used to determine the drainage area based on available contour data in the office, thus saving costly field surveys to determine elevations.					
Interviewee(s) Providing Information:					
Lisa Eicholtz					
Process with GIS:					
For hydrologic modeling of sewersheds, they use InfoWorks modeling software (\$7000 annual license fee) to create 3D dynamic models of each sewershed. The county GIS data are the model inputs. Running a model on a sewershed takes hours instead of years. It would not be possible to meet the Consent Decree requirements without InfoWorks (and hence without GIS).					
Process without GIS:					
It took them 8 to 10 weeks to manually model the entire county before GIS. The old modeling also would not meet the Consent Decree requirements.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster modeling • More accurate data • Consent Decree requirements met 					
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)
245	112.5	132.5	1	132.5	\$4,498.38
Other Benefits: \$					
None noted					
Total Annual Benefit: \$4,498,38					
Areas for Improvement:					
None noted					
New Opportunities:					
Completed sanitary sewer layer					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • All sewersheds within the county can be modeled 					



4.6.6 Preliminary Alignment and Engineering Studies

Activity: Preliminary Alignment and Engineering Studies
Primary Point of Contact:
Engineering: Doug Gabbert
Overview:
Roadway reconstruction and newly planned roadways are part of the overall infrastructure maintenance, repair, and improvement of county facilities. The GIS planimetric data can be used as a preliminary design tool that replaces more costly field surveys. This activity includes preliminary alignment and engineering studies for highway, bridge, sanitary sewer, water, and storm drain projects.
Interviewee(s) Providing Information:
Don Wuest, Pat Semone, Ron Houck, Terry Curtis, John Ruke, Wayne Shorb, Bob Lidard, Donna Selander, Carl Broyles
Process with GIS:
Sanitary Sewer (3 projects per year): Preliminary alignment studies are only done for large projects, a few times per year. Sanitary sewers follow streams. Trunk line routes (interceptors) are placed using GIS data, including the topography and streams layers, before doing field surveys. Then they'll make a field visit, walk the site, refine the preliminary study, and choose a corridor. Then the field survey is done (strip mapping) along the corridor. An average preliminary study takes 1 week. They also can re-use the GIS data for submittal to regulatory agencies.
Water (0 projects per year): Most water projects are extensions of existing systems. GIS can be used as a base to get started. The water plats are scanned and georeferenced. Water and sewer main designs are done in CADD using field survey data, not GIS data.
Storm Drains (50 projects per year): GIS is used as a base map, for planning, for vicinity maps, and site maps. It is not used for design. They also use GIS to calculate drainage areas and flow, and to size culvert pipes. They use land use and zoning information. It also helps identify building locations.
Highways and Bridges (3 highways and 15 bridge projects per year): In addition to the items listed above, GIS is used to pull property information. GIS data are provided to consultants and the GIS data are used to prepare notifications to the public when road or bridge closures are required.
Process without GIS:
Without GIS, they would have had to find the maps they need (old paper topographic maps), change scale as needed, and piece them together. It took 3-4 days. For highway projects, they needed to pull deeds as well, which could take even longer (up to several weeks for a large project).
Benefits Assessment: (H, M, L) Identify confidence level
<ul style="list-style-type: none"> • Medium
Benefits to Using GIS for this Activity:
<ul style="list-style-type: none"> • Less time to research properties and project sites • GIS serves as base map for CADD design • Less digitizing • More tightly focused site surveys, thus saving survey costs • Better communication to the public



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)
25	4	21	71	1,491	\$50,619.45
Other Benefits: \$					
None noted					
Total Annual Benefit: \$50,619.45					
Areas for Improvement:					
None noted					
New Opportunities:					
<ul style="list-style-type: none"> • More accurate GIS layers that could be used for design. • More utility layers (e.g., water mains, storm drain, gas mains) • Completed sanitary sewer layer • Retention ponds 					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • More accurate GIS data • Site surveys could be reduced 					



4.6.7 Rehab Projects

Activity: Rehab Projects					
Primary Point of Contact:					
Engineering: Doug Gabbert					
Overview:					
Roadway rehabilitation projects are part of the overall infrastructure maintenance, repair, and improvement of county facilities. The GIS planimetric data can be used as a preliminary design tool that replaces more costly field surveys.					
Interviewee(s) Providing Information:					
Paul Bollard					
Process with GIS:					
GIS data is copied into DXF format, showing existing roads, buildings, bridges, etc. for use in CADD. Existing manholes and proposed changes are drafted and sent out for bid. GIS data are used as base data instead of getting a field survey. With GIS, one week per job is saved. The Consent Decree will increase the workload and introduce fines if deadlines are not met.					
Process without GIS:					
Without GIS, research was done using paper and/or mylar sheets showing planimetrics, property lines, contours, transportation, streams, and utilities. Each set of maps was filed and stored separately and required using multiple index sheets to locate. Field visits were also more routine.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Less time to research properties and project sites • GIS serves as base map for CADD design • Less digitizing • Saves field visits 					
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)
39	4	35	50	1,750	\$59,412.50
Other Benefits: \$					
None noted					
Total Annual Benefit: \$59,412.50					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.6.8 Road / Stream Intersections for Bridge Inspection

Activity: Road / Stream Intersections for Bridge Inspection					
Primary Point of Contact:					
Engineering: Dan Hardisky, Doug Gabbert					
Overview:					
The amount of water flowing through a large culvert or under a bridge is determined by the drainage area for the bridge. GIS was used to locate intersections of streams with roads to determine the locations of bridges. The GIS planimetric/topographic layers are used to determine the drainage area based on available contour data in the office thus saving costly field surveys to determine elevations.					
Interviewee(s) Providing Information:					
Dan Hardisky, Jim Arford, Doug Gabbert					
Process with GIS:					
Doug Gabbert did an analysis and map of all of the 5,500 road/stream crossings in the county. This map helps them find unknown culverts and bridges. They can also calculate the drainage area for each crossing using the topo. The road and stream crossing analysis will be done again after new LiDAR data are complete in 2007.					
Process without GIS:					
Would not have been done.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • High 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Previously unidentified bridges can be easily found 					
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)
N/A	60	N/A	1	N/A	\$0
Other Benefits: \$					
None noted					
Total Annual Benefit: \$0					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.6.9 Sidewalk Ramp Design

Activity: Sidewalk Ramp Design					
Primary Point of Contact:					
Engineering: Doug Gabbert					
Overview:					
Sidewalk ramps are required by ADA. GIS data is used to determine, locate, and plot the best location for the ramps.					
Interviewee(s) Providing Information:					
John Ruke					
Process with GIS:					
Sidewalk ramps are built to a standard specification. GIS does not provide significant benefits for this activity.					
Process without GIS:					
Sidewalk ramp specifications are standard and the contractors just need to know where to put them in.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
GIS is not used in any significant way for this activity.					
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)
N/A	N/A	N/A		N/A	\$0
Other Benefits: \$					
None noted					
Total Annual Benefit: \$0					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.6.10 Storm Drain Culvert Studies

Activity: Storm Drain Culvert Studies
Primary Point of Contact:
Engineering: Doug Gabbert
Overview:
Constructing new Storm Drain Culverts and facilities is a part of the overall infrastructure maintenance, repair, and improvement of the county facilities. GIS data is used to analyze future site locations for all of these. The GIS data is more accurate, current, and complete compared to previously existing data, which allows for easier and more efficient analysis of possible project areas without more costly field surveys.
Interviewee(s) Providing Information:
Ron Houck, Ed Tress, Sheldon Epstein, Carl Broyles
Process with GIS:
<p>Culvert Design: For sizing culverts, GIS is used to extract data into a CADD format and the contour layer is used to calculate drainage areas. The road polygons and buildings are used to calculate impervious surfaces. A P.E. must sign off on all culvert studies at each stage (20/40/60/80/100). Doug Gabbert extracts GIS data for use by the CADD design group. With GIS, this activity takes 2 hours, without GIS it would take 8 hours, 12-15 times per year for research. Doing the drainage area calculations without GIS using a planimeter would take 3-4 hours; with GIS it takes one tenth of that (20 minutes).</p> <p>Hydrology and Hydraulics: For hydrologic studies, they use TR20, and for this model they need drainage area calculations, land use, ground cover, run-off curve numbers (RCNs), and zoning. They do not yet use GIS to its fullest to perform these tasks, although their contractors do. GIS would save them additional time on performing the drainage area and RCN calculations if they were trained. Currently they use GIS to draw the basin polygon and calculate its area and they get impervious surface polygons from zoning to help with RCNs. They may also use the rational method for simpler storm drain design studies. This is simpler, but still requires the same basic input of drainage area, RCN, etc. For hydraulic modeling, they use HEC-RAS and use GIS. They have one full-time engineer who does floodplain modeling and others who do it part time. They do 10-20 models per year by sub-watershed for bridges. One model takes about 2 weeks to perform (elapsed time is 3-6 months). If they needed to model an entire stream, they would subcontract it out. They review about 50 models per year done by developers. And they get hundreds of inquiries per year about existing models. After the modeling is complete, they use CADD to delineate the floodplains. They need plan and profile views. The hardcopy output is the copy of record.</p>
Process without GIS:
Drainage areas would be calculated using a planimeter and paper topographic sheets. Hydraulic model input would have been much slower.
Benefits Assessment: (H, M, L) Identify confidence level
<ul style="list-style-type: none"> • Medium
Benefits to Using GIS for this Activity:
<ul style="list-style-type: none"> • GIS serves as base map for CADD design • Faster calculations • More accurate data



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)
8	2	6	400	2,400	\$81,480.00
Other Benefits: \$					
None noted					
Total Annual Benefit: \$81,480.00					
Areas for Improvement:					
Drainage area calculations could be automated in GIS.					
New Opportunities:					
<ul style="list-style-type: none"> • More utility layers (e.g., water mains, storm drains, gas mains) • Effective DFIRM layer • GIS training on drainage area calculations 					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • Additional efficiencies 					



4.7 Floodplain Management

Program: Floodplain Management
Primary Point of Contact: Director's Office: David Thomas
Overview: Floodplain management is a FEMA required process. Baltimore County must provide information to individuals verifying if a property is in a 100-year floodplain.
Funding: <ul style="list-style-type: none"> • \$35,000 grant from FEMA to inventory flood resources (e.g., studies, models, etc.) • \$340,000 from FEMA for DFIRM under the Cooperating Technical Partner (CTP) program • Some state funding for Coastal Zone Management Program (CZMP) • Once the county applies for FEMA's Community Rating System (CRS) program, citizens could realize savings on their flood insurance premiums, but the county needs to apply and submit documentation.
Mandates: National Flood Insurance Program (NFIP) requirements: <ul style="list-style-type: none"> • Appropriate flood ordinances must be passed by County Council • Flood mitigation is required for all new or substantially improved structures via the building permit process, to include elevation reviews • County LOMR review, approval, and submittal to FEMA • Pre-disaster mitigation plan (underway)
Political Benefits: Homeowners save \$300 - \$400 on field surveys since FEMA accepts the county's GIS topographic data in lieu of an Elevation Certificate requiring a survey.
Social Benefits: <ul style="list-style-type: none"> • Hazard awareness (people know their locations vs. floodplains) • County prepares LOMAs for homeowners • County reviews LOMRs for developers • Beneficial use of floodplains is preserved
Products/Services: <ul style="list-style-type: none"> • DFIRMs • LOMAs for homeowners • LOMR reviews for developers
Customers: <ul style="list-style-type: none"> • Citizens • Developers • FEMA • USACE



Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Athletic Fields • Bridges • Buildings • Bulkheads • Business Parks • Chesapeake Bay Critical Area • Contours • Councilmanic Districts (2002) • County Boundary • County Facilities • Dams • Development Plans • Digital Elevation Models • Election Districts • Flood Insurance Maps (FEMA) • Floodwalls • Highway Districts • Hydrologic Facilities • Hydrology 	<ul style="list-style-type: none"> • Impervious Polygons • Index Grid - 200 Scale (BCMD) • Index Grid - 200 Scale (MCS) • Index Grid - 600 Scale • Index Grid - ADC Map • Key Sheets • Land Use 1994 • Land Use 1997 • Land Use 1998 • Land Use 2002 • Landfills • Landuse • Legislative Districts (2002) • Orthophoto (2002) • Orthophoto (2005) • Out Fall—Major Drainage Areas • Out Fall—Minor • Position Sheet Grid • Proposed Land Use • Railroads 	<ul style="list-style-type: none"> • Reservoir • Roads • Soil Map Index • Soil Type • Soils • Soils—Natural Soil Groups • Spot Elevations • Storm Water Management Facilities • Stormwater (Geodatabase) • Streams and Ponds • Street Centerlines • Street Centerlines (View) • Subwatersheds • Tennis Courts • Urban Rural Demarcation Line (URDL) • Watersheds - Major • Wetlands • Wetlands - NWI • Zoning • Zoning – 1999 • Zoning Overlay Districts
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery 		
Associated Activities:		
<p>4.7.1 Floodplain Analysis and Investigations, Flood Control, Inspections</p> <p>4.7.2 Flood Studies</p> <p>4.7.3 Letters of Map Amendment</p> <p>4.7.4 Letters of Map Revision</p> <p>4.7.5 Map Modernization</p>		



4.7.1 Floodplain Analysis and Investigations, Flood Control, Inspections

Activity: Floodplain Analysis and Investigations, Flood Control, Inspections					
Primary Point of Contact:					
Director's Office: David Thomas					
Overview:					
Investigate properties which may be within floodplain areas. Requests to build upon or remodel existing structures are received. Using GIS contours, road layer, building locations, and the property layer, flood elevations can be calculated, viewed, and/or plotted in the office in minutes as opposed to days of research, field checks, and drawing creation. All properties in a 100-year tidal floodplain and riverine floodplain must have flood insurance as required by FEMA. The County's GIS planimetric and orthophoto layers allow Baltimore County DPW to make accurate floodplain determinations.					
Interviewee(s) Providing Information:					
David Thomas, Robin Hurley					
Process with GIS:					
Requests for floodplain determinations are received via the building permit process. GIS is used to find the location of the address, call up the GIS data layers, review the location of the structure relative to the floodplain, if the structure is "In", calculate the elevation using the county's topo, check the Elevation Certificate database, and prepare a LOMA if necessary. The homeowner then submits the LOMA to FEMA. There is no charge to the owner for doing a LOMA if it is part of the building permit process. The effective DFIRM will speed things up even more.					
Process without GIS:					
Reviews were done using paper and/or mylar sheets showing topo, property lines, and floodplains. Each set of maps was filed and stored separately and required using multiple index sheets to locate. It also would have required an engineer to make the in/out determinations.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information. 					
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)
2	1	1	205	205	\$6,959.75
Other Benefits: \$					
Homeowners save \$300 - \$400 on field surveys since FEMA accepts the county's GIS topographic data in lieu of an Elevation Certificate requiring a survey.					
Total Annual Benefit: \$6,959.75					
Areas for Improvement:					
Effective DFIRM layer will improve the process.					



New Opportunities:

- Effective DFIRM layer
- The address points layer could save some additional time in locating the properties.

Benefits of Pursuing New Opportunities:

- Faster reviews
- More accurate information.



4.7.2 Flood Studies

Activity: Flood Studies					
Primary Point of Contact:					
Director's Office: David Thomas					
Overview:					
FEMA awarded a grant to DPW to inventory all floodplain studies based on the accuracy of the county's GIS.					
Interviewee(s) Providing Information:					
David Thomas					
Process with GIS:					
A FEMA grant of \$35,000 funded this activity. All previously prepared flood studies were inventoried, located using GIS, and the models (where available) were catalogued. The storm drain design group reviewed the studies to determine ones that had been superseded or were no longer valid. This inventory then was used when the DFIRM for Baltimore County was prepared.					
Process without GIS:					
Would not have been done.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Location of flood studies was determined using GIS • County's topography assisted in inventory and determination of superseded models • Inventory of future studies can be maintained more easily 					
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)
	N/A		One time activity	N/A	\$0
Other Benefits: \$					
None noted					
Total Annual Benefit: \$0					
Areas for Improvement:					
Effective DFIRM layer will incorporate all previously completed studies.					
New Opportunities:					
<ul style="list-style-type: none"> • Effective DFIRM layer 					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • More accurate information. 					



4.7.3 Letters of Map Amendment

Activity: Letters of Map Amendment					
Primary Point of Contact:					
Director's Office: David Thomas					
Overview:					
Letters of Map Amendment (LOMAs) are requests for FEMA to review the county's flood study and elevation data and make a determination if a dwelling should be removed from the 100-year floodplain. Since having GIS data available, the LOMAs have increased from an average of 5 per year to 27 per year.					
Interviewee(s) Providing Information:					
David Thomas, Robin Hurley, Ann Briggeman					
Process with GIS:					
Infill permits require floodplain determinations. GIS is used to find the location of the address, call up GIS data layers, review the location of the structure relative to the floodplain, if the structure is "In", calculate the elevation using the county's topo, check the Elevation Certificate database, and prepare the LOMA. The homeowner then submits the LOMA to FEMA. There is no charge to the owner for doing a LOMA if it is part of the building permit process. The effective DFIRM will speed things up even more.					
Process without GIS:					
Reviews were done using paper and/or mylar sheets showing topo, property lines, building locations, and floodplains. Each set of maps was filed and stored separately and required using multiple index sheets to locate. It also would have required an engineer to make the in/out determinations.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information. 					
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)
2	1	1	27	27	\$916.65
Other Benefits: \$					
Homeowners save \$300 - \$400 on field surveys since FEMA accepts the county's GIS topographic data in lieu of an Elevation Certificate requiring a survey.					
Total Annual Benefit: \$					
Areas for Improvement:					
Effective DFIRM layer will improve the process.					
New Opportunities:					
<ul style="list-style-type: none"> • Effective DFIRM layer • The address points layer could save some additional time in locating the properties. 					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information. 					



4.7.4 Letters of Map Revision

Activity: Letters of Map Revision					
Primary Point of Contact:					
Director's Office: David Thomas					
Overview:					
Letters of Map Revision are requests for FEMA to revise an area on a Flood Insurance Rate Map based on updated flood studies and GIS data when they conflict with the FEMA maps.					
Interviewee(s) Providing Information:					
David Thomas					
Process with GIS:					
Letters of Map Revision (LOMRs) are less common than LOMAs. They usually occur where there is a development project underway. The GIS contours and BFEs are used to delineate coastal floodplains. To date, developers are not required to submit LOMRs. The National Flood Insurance Program (NFIP) requires LOMRs to be submitted for substantial changes in floodplains. The county should sign the LOMRs, however there is some liability. About six per year are done. The hydraulic modeling is reviewed in-house by the engineering group.					
Process without GIS:					
Reviews were done using paper and/or mylar sheets showing topo, property lines, and existing floodplains. Each set of maps was filed and stored separately and required using multiple index sheets to locate. The modeling would have been reviewed by the engineering group.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information. 					
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)
4	4	0	6	0	\$0
Other Benefits: \$					
Property owner does not have to hire a surveyor to provide the information required for submittal with a LOMR application.					
Total Annual Benefit: \$0					
Areas for Improvement:					
Effective DFIRM layer will improve the process.					
New Opportunities:					
<ul style="list-style-type: none"> • Effective DFIRM layer 					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information. 					



4.7.5 Map Modernization

Activity: Map Modernization					
Primary Point of Contact:					
Director's Office: David Thomas					
Overview:					
Baltimore County's orthophotos and planimetric data, along with the Baltimore County Bureau of Engineering flood studies have allowed the county to update several flood areas, most notably, Herbert Run. Additional updates are in progress.					
Interviewee(s) Providing Information:					
David Thomas					
Process with GIS:					
FEMA has provided the County approximately \$350,000 in funding since 2001 as a CTP. The funding was for the completion of flood studies that are being incorporated into the new Baltimore County DFIRM. The studies were performed by contractors using the county's GIS data layers. The county's GIS data layers are also being used as the base map for the new DFIRM.					
Process without GIS:					
The county would not have been a CTP without GIS and would not have initiated these flood studies.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • FEMA prioritized the DFIRM for Baltimore County based on its GIS data availability. Other counties have had to wait longer for new maps. • Detailed flood studies were prepared for areas that needed update • More accurate information • Flood studies were prepared using county's GIS data, thus ensuring an exact fit to the county's other data layers • The DFIRM is currently being used in the County's GIS and once the effective data are provided by FEMA, they can also be used directly in the county's GIS • Future LOMAs, LOMRs, PMRs, etc. are facilitated • Flood determinations will be more accurate and faster 					
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)
N/A	N/A	N/A	N/A	N/A	\$0
Other Benefits: \$					
None noted					
Total Annual Benefit: \$0					
Areas for Improvement:					
Effective DFIRM layer will improve all floodplain processes.					



New Opportunities:

- | |
|---|
| <ul style="list-style-type: none">• Effective DFIRM layer |
|---|

Benefits of Pursuing New Opportunities:
--

- | |
|--|
| <ul style="list-style-type: none">• More accurate information. |
|--|



4.8 Highways (Roads) Management

Program: Highways (Roads) Management
Primary Point of Contact: Highways: Doug Gabbert
Overview: Highways management is a portion of the overall infrastructure maintenance and improvement of the county facilities. GIS data is used to analyze activities.
Funding: Funding from the State gas tax is based on length of roads and is provided by the State to the County for roadway maintenance and snow removal. This funding is on the order of \$1500 per mile
Mandates: The Maryland State Highway Administration (MSHA) requires an annual report on all county roads (additions, deletions) on December 1 each year in order to determine annual funding levels. This year, for the first time, the State is requesting this information in GIS format. Additionally, salt dome runoff investigations, done in conjunction with DEPRM are required under EPA's National Pollutant Discharge Elimination System (NPDES) program.
Political Benefits: Road paving, snow removal, response to citizen complaints are all improved through the use of GIS to manage the county's highways.
Social Benefits: Road paving, snow removal, response to citizen complaints are all improved through the use of GIS to manage the county's highways.
Products/Services: <ul style="list-style-type: none"> • Maps for field crews • Maps for snow plowing contractors • Maps to help investigate complaints • Annual map required by MSHA
Customers: <ul style="list-style-type: none"> • Citizens



Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Basic Services • Basic Services - Transportation (Intersections) • Bridges • Buildings • Business Parks • Capital Projects • Contours • Councilmanic Districts (2002) • County Boundary • County Facilities • County Historic Districts • Development Plans • Election Districts • Facilities • Fire Hydrants • Fire Stations • Highway Districts • Hydrologic Facilities • Index Grid - 600 Scale 	<ul style="list-style-type: none"> • Index Grid - ADC Map • Key Sheets • Landfills • Legislative Districts (2002) • Light Rail • Master Plan - Sewer • Master Plan - Water • Metro Railroad • Parcel Based Landuse • Pipelines • Proposed Land Use • Publicly Owned Land • Pumping Stations • Railroads • Refuse Collection Routes • Regional Planning Districts • Reservoir • Right of Way (LACQ) • Rights-of-Way Inception Instances • Roads • Sewer 	<ul style="list-style-type: none"> • Sewer Relief Points • Sewer Subsheds • Sewer Treatment Plants • Snow Plow Routes • Solid Waste Facilities • Spot Elevations • State Legislative District • Storm Water Management Facilities • Stormwater (Geodatabase) • Streams and Ponds • Street Centerlines • Street Centerlines (View) • Tax Parcel • Taxmaps (Images) • TaxParcel • Tennis Courts • Traffic Analysis Zones • Traffic Calming • Traffic Signal and Calming Layers • Traffic Signals
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery • ArcIMS • ArcIMS MyNeighborhood 		
Associated Activities:		
<p>4.8.1 Master Roads Inventory / Street Segment Integration</p> <p>4.8.2 Responding to Citizen Complaints</p> <p>4.8.3 Right of Way Investigations</p> <p>4.8.4 Repaving Support</p> <p>4.8.5 Salt Dome Runoff Investigation</p> <p>4.8.6 Snow Removal / Routing Issues</p> <p>4.8.7 Street Sweeping Program – Street Sweeping Schedule Maps</p>		



4.8.1 Master Roads Inventory / Street Segment Integration

Activity: Master Roads Inventory / Street Segment Integration					
Primary Point of Contact:					
Highways: Doug Gabbert					
Overview:					
The Bureau of Highways maintains a database of all County road segments with a segment number assigned to each. The GIS functionality will be used to join the database with the GIS roads layer to enable plotting of roads with the master roads inventory segment number attached.					
Interviewee(s) Providing Information:					
Sharon Dziwulski					
Process with GIS:					
This has not yet been done using GIS.					
Process without GIS:					
The Bureau of Highways relies largely on manual map products (ADC maps, as-built drawings, etc.) and databases to manage its assets and respond to customer complaints. There are disconnects between how data are stored (by street names, by street segment number, etc.) that make it more difficult to retrieve information quickly. Effectively using the GIS data and linking it to their existing database records will provide major improvements in efficiency throughout the Bureau's activities. Additionally, the field (maintenance) offices presently rely on slow modem connections; faster network connectivity would allow more use of GIS at those locations. The county must provide the state with an annual map and list of street segments that have changed in the past year. This is important, as the county's share of the gas tax revenues (in the millions of dollars per year) is calculated based on this information. The county receives funding on the order of \$1500 per mile. The State funding covers road maintenance, snow plowing, etc. In the past, this annual map and list has been done manually by tracing from other sources and calculating distances from as-built drawings. This year the State is asking for a SHP file to be submitted as part of the annual report instead of maps on paper.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster preparation of MSHA report and accompanying maps • More accurate calculation of street segment lengths • Better management of highway inventory • Better customer service 					
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)
2	0.06	1.94	130	252	\$8,555.40
Other Benefits: \$					
None noted					
Total Annual Benefit: \$8,555.40					



Areas for Improvement:

Linking the GIS data to their existing database records will provide improvements in efficiency throughout the Bureau's activities. Additionally, the field (maintenance) offices presently rely on slow modem connections; faster network connectivity would allow more use of GIS at those locations.

New Opportunities:

- Link Bureau of Highways databases to GIS data layers
- Additional GIS training
- Better network connections to field maintenance offices

Benefits of Pursuing New Opportunities:

- More accurate GIS data
- Faster response to customer calls



4.8.2 Responding to Citizen Complaints

Activity: Responding to Citizen Complaints					
Primary Point of Contact:					
Highways: Doug Gabbert					
Overview:					
Highways management is a portion of the overall infrastructure maintenance and improvement of the county facilities. GIS data is used to analyze activities. The GIS data is more accurate, current, and complete compared to previously existing data, which allows for easier and more efficient studies.					
Interviewee(s) Providing Information:					
Sharon Dziwulski, Carolyn Bellusci, Bonnie Jasinski, Gloria Simpson					
Process with GIS:					
The Bureau of Highways receives at a minimum 10,000 customer complaints per year. The complaints come by phone, fax, and email, and are recorded in the AS400 database. There are 27 types of complaints (e.g., mowing, storm drain, ice, salting, snow removal, debris clearance, bridges, tree removal, trash, flooding, curb and gutter repair, etc.). Highways will eventually get CASS WORKS. Complaints are not recorded by segment number but by street name. GIS, especially the orthophotos, help the customer service representatives see existing conditions and find the right location. Further research is often needed to determine Right-of-Ways, property ownership, etc. Field visits are often required. GIS maps save shop time in the field. The total time to respond to complaints using GIS is usually 5 minutes per call.					
Process without GIS:					
Addresses of complaints would have been looked up on ADC maps or other paper documents. Not having the orthophotos available made it more difficult to see existing conditions. Responses to complaints took longer and required more field visits. Total time without GIS was 20 minutes per call.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Better management of highway inventory • Better customer service • Fewer field visits 					
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)
0.3	0.08	0.22	300	66	\$2,240.70
Other Benefits: \$					
None noted					
Total Annual Benefit: \$2,240.70					
Areas for Improvement:					
Linking the GIS data to their existing database records will provide improvements in efficiency throughout the Bureau's activities. Additionally, the field (maintenance) offices presently rely on slow modem connections; faster network connectivity would allow more use of GIS at those locations.					



New Opportunities:

- | |
|--|
| <ul style="list-style-type: none">• Link Bureau of Highways databases to GIS data layers• Additional GIS training• Better network connections to field maintenance offices |
|--|

Benefits of Pursuing New Opportunities:
--

- | |
|--|
| <ul style="list-style-type: none">• More accurate GIS data• Faster response to customer calls |
|--|



4.8.3 Right-of-Way Investigations

Activity: Right-of-Way Investigations					
Primary Point of Contact:					
Highways: Doug Gabbert					
Overview:					
Highways management is a portion of the overall infrastructure maintenance and improvement of the county facilities. GIS data is used to analyze activities. The GIS data is more accurate, current, and complete compared to previously existing data, which allows for easier and more efficient studies.					
Interviewee(s) Providing Information:					
Sharon Dziwulski					
Process with GIS:					
GIS is used to verify county ownership of Right-of-Ways before any work is performed in the Right-of-Way. The Street Segment number must be verified along with researching the address using the real property system. Measurements are taken on-screen as necessary. Additionally, the tax maps are used, and sometimes a visit to Land Acquisition is required to verify ownership.					
Process without GIS:					
Addresses would have been looked up on ADC maps or other paper documents. Not having the orthophotos available made it impossible to do any on-screen measurements or to see existing conditions. More field visits were required.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Better management of highway inventory • Better customer service • Fewer field visits 					
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)
6	0.75	5.25	300	1,575	\$53,471.25
Other Benefits: \$					
None noted					
Total Annual Benefit: \$53,471.25					
Areas for Improvement:					
Linking the GIS data to their existing database records will provide improvements in efficiency throughout the Bureau's activities. Additionally, the field (maintenance) offices presently rely on slow modem connections; faster network connectivity would allow more use of GIS at those locations.					
New Opportunities:					
<ul style="list-style-type: none"> • Easements layer • Link Bureau of Highways databases to GIS data layers • Better network connections to field maintenance offices 					



Benefits of Pursuing New Opportunities:

- More accurate GIS data
- Faster response



4.8.4 Repaving Support

Activity: Repaving Support					
Primary Point of Contact:					
Highways: Doug Gabbert					
Overview:					
Repaving existing roads greatly improves the quality of life in Baltimore County by smoothing out traffic flow and easing snow removal operations. GIS allows roads to be coded as to condition.					
Interviewee(s) Providing Information:					
Mark Benner					
Process with GIS:					
GIS is not used very much for this activity.					
Process without GIS:					
Once a year, all 8,600 county roads are reviewed for pavement condition (good, fair, poor) through field visits. The Highways group currently uses spreadsheets to record information by street segment number, using the State segment numbering scheme. They would like to see this information added to the GIS centerlines. They repave 200 -300 roads per year. Roads are prioritized based on available funding and pavement condition.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Better management of highway inventory • Others could view the condition of the road segments in the GIS layer 					
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)
	N/A		8,600	N/A	\$0
Other Benefits: \$					
None noted					
Total Annual Benefit: \$0					
Areas for Improvement:					
Linking the GIS data to their existing database records will allow them to track the condition of the road pavement within a GIS layer that will be available to the entire county. This information could benefit other departments in addition to benefiting Highways. Additionally, the field (maintenance) offices presently rely on slow modem connections; faster network connectivity would allow more use of GIS at those locations where the repaving evaluations are made.					
New Opportunities:					
<ul style="list-style-type: none"> • Link Bureau of Highways databases to GIS data layers • Better network connections to field maintenance offices 					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • More accurate GIS data • Better maintenance of county roads 					



4.8.5 Salt Dome Runoff Investigation

Activity: Salt Dome Runoff Investigation					
Primary Point of Contact:					
Highways: Doug Gabbert					
Overview:					
The runoff effect from County owned salt domes is studied using GIS topographic data to review grades and location of storm drain facilities.					
Interviewee(s) Providing Information:					
Bonnie Jasinski, Doug Gabbert					
Process with GIS:					
This activity is required for NPDES. It is done in conjunction with DEPRM; DEPRM does the stream sampling. The Maryland Stormwater Runoff Permit process requires maps along with the submitted reports. They have not yet done these maps yet. However, they will use GIS to show the locations of the salt domes, roads, buildings, storm drain facilities, and contours. DEPRM will provide the drainage areas.					
Process without GIS:					
Without GIS, they would be using old paper maps or surveys and drafting new maps.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • High 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Better accuracy • Faster 					
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)
80	33	47	1	47	\$1,595.65
Other Benefits: \$					
None noted					
Total Annual Benefit: \$1,595.65					
Areas for Improvement:					
Getting drainage areas from DEPRM has been a hold-up. Perhaps this activity should be done by DEPRM in the future.					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.8.6 Snow Removal / Routing Issues

Activity: Snow Removal / Routing Issues					
Primary Point of Contact:					
Highways: Doug Gabbert					
Overview:					
Snow removal is a necessary function of a local government. Planning and plotting the boundaries of snow routes insures all areas of the County are addressed during a snow event in a timely manner. A GIS database allows this planning to be accomplished and/or adjusted quickly, as needed.					
Interviewee(s) Providing Information:					
Sharon Dziwulski					
Process with GIS:					
GIS is not being used very much for this activity. Spreadsheets are currently used to keep snow route street segment lists. Maps are maintained as hand colored copies of the ADC maps. Adjustments to routes are done periodically. A GIS layer of the snow routes was made using the spreadsheets about three years ago, but it has not been maintained. There are almost daily updates to the 8,600 road segments that would need to be maintained in this layer.					
Process without GIS:					
Spreadsheets are used to keep snow route street segment lists. Maps are maintained as hand colored copies of the ADC maps. Adjustments to routes are done periodically.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Better management of snow removal routes • Better customer service 					
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)
2	N/A		52	N/A	\$0
Other Benefits: \$					
None noted					
Total Annual Benefit: \$0					
Areas for Improvement:					
Linking the GIS data to their existing database records will provide improvements in efficiency throughout the Bureau's activities, including managing snow removal routes. Better maps of the routes would aid the snow removal contractors as well.					
New Opportunities:					
<ul style="list-style-type: none"> • Link Bureau of Highways databases to GIS data layers • Snow removal route layer or attributes on road centerline layer 					



Benefits of Pursuing New Opportunities:

- More accurate GIS data
- Faster response to customer calls
- More useful information for snow removal contractors



4.8.7 Street Sweeping Program – Street Sweeping Schedule Maps

Activity: Street Sweeping Program – Street Sweeping Schedule Maps					
Primary Point of Contact:					
Highways: Doug Gabbert					
Overview:					
Street sweeping is a necessary function of a local government. A GIS database allows homeowners along the routes to be notified of upcoming sweeping so they can clear the roads of parked cars.					
Interviewee(s) Providing Information:					
Doug Gabbert					
Process with GIS:					
Street sweeping is done two to three times per year per neighborhood at no fixed schedule. GIS is used to prepare a map of a neighborhood that is going to be swept, with all included streets and affected properties highlighted. A spreadsheet of addresses and owners names is exported for use in preparing the mailing requesting the homeowners to move their cars and keep the streets clear for the sweeping.					
Process without GIS:					
Without GIS, they would go out to get the addresses, search property plats for house numbers, search property databases for owners’ names, create a spreadsheet for mail merge, and manually draft a map showing the affected area.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • High 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Better accuracy • Faster 					
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)
21	0.25	20.75	14	290.5	\$9,862.48
Other Benefits: \$					
None noted					
Total Annual Benefit: \$9,862.48					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.9 Inquiries - Citizens

Program: Inquiries - Citizens
Primary Point of Contact:
All: Doug Gabbert
Overview:
Response to citizen inquiries must be made as quickly as possible. Having GIS functionality available greatly improves response time since most inquiries involve data that can be viewed/investigated at the responder's desk.
Funding:
There is no external funding for this program.
Mandates:
None noted
Political Benefits:
Citizens expect the county to be responsive, to provide basic services, and to keep the county infrastructure safe and well maintained.
Social Benefits:
Public safety - citizens expect the county to be responsive, to provide basic services, and to keep the county infrastructure safe and well maintained.
Products/Services:
<ul style="list-style-type: none"> • Maps for use in investigation of inquiries • GIS is used to analyze inquiries
Customers:
<ul style="list-style-type: none"> • Citizens



Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Basic Services • Basic Services - Transportation (Intersections) • Basic Services - Water • Basic Services -Sewer • Bridges • Buildings • Bulkheads • Business Parks • Cell Towers • Chesapeake Bay Critical Area • Communication Towers • Community Plans • Contours • Councilmanic Districts (2002) • Councilmanic Districts (2002) • County Boundary • County Facilities • County Historic Districts • Discharge Permits • Election Districts • Facilities 	<ul style="list-style-type: none"> • Fire Hydrants • Fire Stations • Flood Insurance Maps (FEMA) • Highway Districts • Hydrologic Facilities • Index Grid - 600 Scale • Key Sheets • Landfills • Landfills • Landuse • Legislative Districts (2002) • Master Plan - Sewer • Master Plan - Water • Metropolitan District Line • Orthophoto (2002) • Orthophoto (2005) • Parcel Based Landuse • Publicly Owned Land • Pumping Stations • Refuse Collection Routes • Regional Planning Districts • Reservoir • Right of Way (LACQ) • Rights-of-Way Inception Instances 	<ul style="list-style-type: none"> • Roads • Sanitary Sewer Overflow • Schools—Point Location • Sewer • Sewer Relief Points • Sewer Service Areas • Sewer Subsheds • Sewer Treatment Plants • Soil Map Index • Soil Type • Soils • Soils—Natural Soil Groups • Spot Elevations • Storm Water Management Facilities • Streams and Ponds • Street Centerlines • Street Centerlines (View) • Subwatersheds • Tax Parcel • Taxmaps (Images) • TaxParcel • Traffic Analysis Zones • Urban Rural Demarcation Line (URDL) • Water Plats
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery 		
Associated Activities:		
4.9.1 Fire Hydrant – Pool Filling		



4.9.1 Fire Hydrant – Pool Filling

Activity: Fire Hydrant – Pool Filling					
Primary Point of Contact:					
Utilities: Mark Tabisz					
Overview:					
Contractors who fill swimming pools request the locations of fire hydrants with the availability of water for their trucks. GIS can provide locations of properties, and eventually locations of utilities. An analysis can also be performed using the planimetrics/topography as related to truck access.					
Interviewee(s) Providing Information:					
Mark Tabisz					
Process with GIS:					
GIS is used to create maps for permitted users showing locations of fire hydrants.					
Process without GIS:					
Maps for permitted users showing locations of fire hydrants would be created by hand.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Better customer service • Increased Productivity 					
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)
0.25	0.05	0.2	600	120	\$4,074.00
Other Benefits: \$					
None noted					
Total Annual Benefit: \$4,074.00					
Areas for Improvement:					
None noted					
New Opportunities:					
Updated water main layer will improve the process					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • More accurate GIS data 					



4.10 Master Plan Development – Water and Sewer Master Plan Development

Program: Master Plan Development – Water and Sewer Master Plan Development
Primary Point of Contact:
Director's Office: David Thomas
Overview:
The Baltimore County master plan development is a required function for planning, allowing, and controlling development in the County. It is required by the Code of Maryland Regulations (COMAR) Title 26 Department of Environment. Maps are prepared entirely through GIS. The water and sewer master plan consists of maps of areas planned, conditionally planned, and not planned for public water and sewer utility service with associated attributes.
Funding:
There is no external funding for this program.
Mandates:
This program is required by the Code of Maryland Regulations (COMAR) Title 26 Department of Environment, which requires the planning, funding, and regulation of water and sewer systems. The executive Order of April 11, 1990, specifies the annual process whereby property owners and developers can request amendments to the Water and Sewer Plan to accommodate their needs.
Political Benefits:
Property owners petition for changes and to be made eligible for county services.
Social Benefits:
Property owners petition for changes and to be made eligible for county services.
Products/Services:
Master Plan Maps
Customers:
<ul style="list-style-type: none"> • County Council • Citizens



Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Basic Services • Basic Services - Transportation (Intersections) • Basic Services - Water • Basic Services -Sewer • BCMD Grid • Bridges • Buildings • Census Block Groups (2000) • Census Blocks (1990) • Census Blocks (2000) • Census Designated Place (1990) • Census Designated Place (1990) • Census Designated Place (2000) • Census Tracts (1990) • Census Tracts (2000) • Chesapeake Bay Critical Area • Contours • Councilmanic Districts (2002) 	<ul style="list-style-type: none"> • County Boundary • County Facilities • Cycle Amends Sewer • Cycle Amends Water • CZMP Zoning Issues (1996) • CZMP Zoning Issues (2000) • Development Plans • Election Districts • FEMA Maps • Highway Districts • Hydrology • Index Grid - 200 Scale (BCMD) • Index Grid - 200 Scale (MCS) • Index Grid - 600 Scale • Key Sheets • Landfills • Landuse • Legislative Districts (2002) • Master Plan - Sewer • Master Plan - Water • Metropolitan District Line • Orthophoto (2002) • Orthophoto (2005) • Parcel Based Landuse 	<ul style="list-style-type: none"> • Proposed Land Use • Publicly Owned Land • Pumping Stations • Railroads • Regional Planning Districts • Roads • Sanitary Sewer Overflow • SCADA Sensors • Sewer • Sewer Relief Points • Sewer Service Areas • Sewer Subsheds • Sewer Treatment Plants • Spot Elevations • Stormwater (Geodatabase) • Streams and Ponds • Street Centerlines • Street Centerlines (View) • TaxParcel • Urban Rural Demarcation Line (URDL) • Water Plats • Zoning • Zoning - 1999 • Zoning Overlay Districts
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery 		
Associated Activities:		
4.10.1 Water and Sewer Amendment Process		



4.10.1 Water and Sewer Amendment Process

Activity: Water and Sewer Amendment Process					
Primary Point of Contact:					
Director's Office: David Thomas					
Overview:					
Property owners and developers request the County to amend the Water and Sewer Plan to accommodate their needs. The executive Order of April 11, 1990, specifies this annual process. The GIS functions as the tool to create, modify, display, map, and archive the amendments.					
Interviewee(s) Providing Information:					
David Thomas					
Process with GIS:					
Property owners petition for changes – to be added to eligibility for water/sewer public services, or if they need greater than 15,000 gal per day of service (e.g., churches, colleges). The county receives approximately three petitions per year. In the future they would like developers to submit their requests on disk for easy import into the GIS.					
Process without GIS:					
Maps were made by hand on paper or mylar and sent out for printing.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster map updates. • Changes can be stored in GIS and reviewed for trends. 					
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)
280	32	248	1	248	\$8,419.60
Other Benefits: \$					
Saves on printing costs as well.					
Total Annual Benefit: \$8,419.60					
Areas for Improvement:					
Request developers to submit data electronically for easy import into GIS.					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.11 MDE/EPA Consent Decree Requirements / Deliverables

Program: MDE/EPA Consent Decree Requirements / Deliverables
Primary Point of Contact:
Engineering: Doug Gabbert
Overview:
<p>Baltimore County is under a Consent Decree required by MDE/EPA. Most phases of the decree necessitate using a GIS and associated databases to accomplish the requirements. Not meeting the numerous deadlines and requirements within the decree will result in substantial financial penalties levied upon the County.</p> <p>A portion of the Consent Decree requirements are summarized as follows. See section 1.3 for details about the Consent Decree penalties associated with these requirements.</p> <p>Paragraph 7B.1 Sanitary Sewer Overflow (SSO) Characterization Report: Baltimore County shall submit a Sanitary Sewer Overflow (SSO) Characterization Report that includes the following:</p> <ol style="list-style-type: none"> 1. A map of the Collection System and all Appurtenances; 2. Identification of the Sewersheds; and 3. Identification, including mapping, of the location, frequency, date, duration, and volume of SSOs. <p>Paragraph 10 Sewershed Repair, Replacement, and Rehabilitation (SRRR) Plan: Baltimore County shall prepare an SRRR Plan for each Sewershed that includes the following:</p> <ol style="list-style-type: none"> 1. A report that describes the deficiencies identified through the Collection System Inspection (closed circuit television or CCTV); and 2. Inflow/Infiltration (I/I) rainfall flow meter information. <p>Paragraph 11 D.III Database and GIS Mapping of Grease Generating Facilities: Within one (1) year of the Effective Date, Baltimore County shall use its GIS to develop a map that identifies the following:</p> <ol style="list-style-type: none"> 1. SSOs caused by or contributed to by grease blockages since June 30, 2000; 2. The locations of all known Grease Generating Facilities; and 3. The locations of any Grease Generating Facilities that have been the subject of enforcement actions by the County due to Fats, Oils, and Grease (FOG)-related blockages since June 30, 2000. <p>Paragraph 14 E Model Certification: Baltimore County shall complete implementation of the InfoWorks CS Collection and Transmission System Model for each Sewershed and certify completion of each Sewershed Model.</p>



Paragraph 16 B.I and II

Geographic Information System (GIS):

Baltimore County shall use a computerized GIS to map the Collection System.

The GIS shall be able to:

- A. Display all Collection System Components and Pump Stations;
- B. Use embedded objects to link schematic diagrams and attribute data for Collection System components;
- C. Display by color coding the portions of the Collection System that have been inspected and rehabilitated; and
- D. Display the location(s) at which samples from flow meters and rain gauges have been collected for development of the model required under Paragraph 14.

Baltimore County shall install all hardware and software necessary for the GIS System and ensure the system is operational and that the County has beneficial use of the specified features by no later than one year from the Effective date. Following completion of the requirements, Baltimore County shall certify in the applicable Quarterly Report, and, if requested, demonstrate to EPA and MDE, that the GIS is fully functioning and capable of displaying information described in paragraph 16 B.i, above.

Paragraph 16 D.I and II

Inventory of Collection System Components:

Within two (2) years of the Effective Date, the Utilities Management Application shall include an inventory database of the Collection System components. Following completion of this requirement, Baltimore County shall certify in the applicable Quarterly Report, and if requested demonstrate to the EPA and MDE, that the Utilities Management Application is functioning and capable of displaying the information as required.

The inventory requires each pipe segment and asset to have the following attributes:

Identification #, Capacity (diameter or flow rate), Installation Date, X,Y location, construction material, invert elevations, etc.. These attributes are also necessary for the Flow Model.

Funding:

There is no external funding for this program.

Mandates:

The Consent Decree is mandated by the EPA and MDE, and requires the use of GIS.

Political Benefits:

- Avoidance of Consent Decree penalties
- Maintenance of the county’s sanitary sewer system
- Environmental benefits

Social Benefits:

- Avoidance of Consent Decree penalties
- Maintenance of the county’s sanitary sewer system
- Environmental benefits



Products/Services:		
MDE/EPA Consent Decree Requirements / Deliverables - Map Deliverables:		
<ol style="list-style-type: none"> 1. Maps of the location of all Fats, Oils, and/or Grease caused stoppages 2. Maps of the location of all Sewer Appurtenances 3. Maps of the location of all Sewer Line backups into Buildings 4. Maps of the location of all Sewer System Overflows 5. Reports identifying pipe lengths by 23 Sewersheds and by 1,700 Sewer Service Areas 6. Maps of the location of Sewer Overflow / Relief points 7. Maps defining the location of Sewersheds 8. Map defining the Sanitary Sewer System Characterization 9. Map of color coding for Cleaning, CCTV, and Rehabilitation by Structure 10. Map of the locations of Flow Monitors and Rain Gauges 		
Customers:		
<ul style="list-style-type: none"> • MDE • EPA 		
Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Basic Services • Buildings • Contours • County Boundary • County Facilities • Facilities 	<ul style="list-style-type: none"> • Index Grid - 600 Scale • Key Sheets • Pumping Stations • Roads • Sanitary Sewer Overflow • SCADA Sensors • Sewer 	<ul style="list-style-type: none"> • Sewer Relief Points • Sewer Service Areas • Sewer Subsheds • Sewer Treatment Plants • Subwatersheds • TaxParcel
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery • ArcIMS • ArcIMS MyNeighborhood • CASSView • InfoWorks 		
Associated Activities:		
<ol style="list-style-type: none"> 4.11.1 MDE/EPA Consent Decree Map Deliverables 4.11.2 Placement of Sewer Flow Monitors 4.11.3 Placement of Rain Gauges 4.11.4 Sanitary Sewer – Large Line Cleaning 		



4.11.1 MDE/EPA Consent Decree Map Deliverables

Activity: MDE/EPA Consent Decree Map Deliverables					
Primary Point of Contact:					
Engineering and Utilities: Doug Gabbert					
Overview:					
<p>Baltimore County is under a Consent Decree required by MDE/EPA. Most phases of the decree necessitate using a GIS and associated databases to accomplish the requirements. Not meeting the numerous deadlines and requirements within the decree will result in substantial financial penalties levied upon the County.</p> <p>The MDE/EPA Consent Decree map deliverables include the following:</p> <ol style="list-style-type: none"> 1. Maps of the location of all Fats, Oils, and/or Grease caused stoppages 2. Maps of the location of all Sewer Appurtenances 3. Maps of the location of all Sewer Line backups into Buildings 4. Maps of the location of all Sewer System Overflows 5. Reports identifying pipe lengths by 23 Sewersheds and by 1,700 Sewer Service Areas 6. Maps of the location of Sewer Overflow / Relief points 7. Maps defining the location of Sewersheds 8. Map defining the Sanitary Sewer System Characterization 9. Map of color coding for Cleaning, CCTV, and Rehabilitation by Structure 10. Map of the locations of Flow Monitors and Rain Gauges 					
Interviewee(s) Providing Information:					
Doug Gabbert					
Process with GIS:					
The county's GIS database is used to prepare all of the Consent Decree map deliverables.					
Process without GIS:					
Consent Decree requirements could not be met without GIS.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • High 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Required by the Consent Decree • Data can be used by all of DPW and other county agencies when completed • Time savings • Cost avoidance of \$5,452,500.00 in fines (see section 1.3 for further details) 					
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)
Would not be done				N/A	\$0
Other Benefits: \$5,452,500.00					
<ul style="list-style-type: none"> • Avoidance of Consent Decree fines (see section 1.3 for further details) 					
Total Annual Benefit: \$5,452,500.00					



Areas for Improvement:
None noted
New Opportunities:
<ul style="list-style-type: none">• Completed sanitary sewer GIS layer
Benefits of Pursuing New Opportunities:
<ul style="list-style-type: none">• More accurate GIS data



4.11.2 Placement of Sewer Flow Monitors

Activity: Placement of Sewer Flow Monitors					
Primary Point of Contact:					
Engineering: Lisa Eicholtz, Scott Miller, Doug Gabbert					
Overview:					
<p>Baltimore County is under a Consent Decree required by MDE/EPA. Most phases of the decree necessitate using a GIS and associated databases to accomplish the requirements. Not meeting the numerous deadlines and requirements within the decree will result in substantial financial penalties levied upon the County.</p> <p>Placement locations are being determined, mapped, and displayed through GIS. GIS data is used for the placement designs in lieu of numerous and costly field investigations.</p>					
Interviewee(s) Providing Information:					
Lisa Eicholtz, Scott Miller, Doug Gabbert					
Process with GIS:					
Using orthophotos and other base layers, GIS is used to see the locations of manholes. Evaluations are done by sewershed to determine flow monitor locations. Once a sewershed is completed, there will be monthly reviews to monitor capacity and determine if new houses can be added to the system.					
Process without GIS:					
Paper construction drawings at 50-scale were used. Key sheets and position sheets were used to find the right drawing. The construction drawings were only useful if they were less than 20 years old.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Required by the Consent Decree • Data can be used by all of DPW and other county agencies when completed • Time Savings 					
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)
1	0.08	0.92	36	33.12	\$1,124.42
Other Benefits: \$					
None noted					
Total Annual Benefit: \$1,124.42					
Areas for Improvement:					
None noted					
New Opportunities:					
<ul style="list-style-type: none"> • Completed sanitary sewer GIS layer 					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • More accurate GIS data 					



4.11.3 Placement of Rain Gauges

Activity: Placement of Rain Gauges					
Primary Point of Contact:					
Engineering: David Bayer, Doug Gabbert					
Overview:					
<p>Baltimore County is under a Consent Decree required by MDE/EPA. Most phases of the decree necessitate using a GIS and associated databases to accomplish the requirements. Not meeting the numerous deadlines and requirements within the decree will result in substantial financial penalties levied upon the County.</p> <p>Rain gauge locations are being determined, mapped, and displayed through GIS. GIS data is used for the placement designs in lieu of numerous and costly field investigations.</p>					
Interviewee(s) Providing Information:					
David Bayer, Doug Gabbert					
Process with GIS:					
<p>Fifty-one rain gauges were placed on public buildings. A minimum coverage of the county was required. GIS was used to give the public buildings and property layers to the consultant. Intersecting building and property owner, the consultant chose sites every 10 KM. They geocoded the resulting addresses and placed points on tops of buildings. A site visit was made to each building. The consultant used GIS to eliminate some sites before making the site visits. The Consent Decree required the preliminary location maps to be in digital format. This was a one-time analysis, but a map of the locations will be required annually. There could be reasons to update the gauge locations in the future if the tree canopy changes, or a few are on private property and could need to be moved. Using GIS saved on consultant's fees.</p>					
Process without GIS:					
<p>Without GIS, they would have had to get a list of all public buildings, locate them by hand, drive around more, etc. The Consent Decree required the preliminary location maps to be in digital format. Without GIS, they would have had to use CADD.</p>					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Required by the Consent Decree • Time Savings • Saved on consultant's fees 					
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)
N/A	Done by consultant using county data			N/A	N/A



Other Benefits: \$2,716.00
Approximately 80 hours in consultants' fees were saved. At the average hourly rate of \$33.95, this benefit is approximately \$2,716.00.
Total Annual Benefit: \$2,716.00
Areas for Improvement:
None noted
New Opportunities:
None noted
Benefits of Pursuing New Opportunities:
None noted



4.11.4 Large Line Cleaning

Activity: Large Line Cleaning
Primary Point of Contact:
Engineering: Doug Gabbert
Overview:
Baltimore County is under a Consent Decree required by MDE/EPA. Most phases of the decree necessitate using a GIS and associated databases to accomplish the requirements. Not meeting the numerous deadlines and requirements within the decree will result in substantial financial penalties levied upon the County.
Interviewee(s) Providing Information:
Doug Gabbert
Process with GIS:
This activity is a Consent Decree requirement. It involves locating, selecting, and plotting (mapping) of specific segments of large sanitary sewer mains that, based on inspections, need to be cleaned. The maps are used to assist with the vendor contracts to help them identify where the lines are that they need to clean. This will replace the construction drawing that would be in a typical contract. Time estimates below are for one Sewershed. All 25 Sewersheds will have segments to be cleaned. The estimates below are based on a mid-size Sanitary Sewershed. Iterations#: Assume two per year, for the 15 year duration of the Consent Decree One sewershed with 114,000 linear feet of pipe to be cleaned Time with GIS: Create map for meeting and project planning, including segments and additional data - 2.5 hours
Process without GIS:
Would have used construction drawings and DocQuest: 13 hours - as follows 1. Researching through DocQuest, ordering and printing drawings = 6 hours (114,000 lf of pipe / 1400 max lf per dwg = minimum of 80 drawings - better estimate would be 100) Sketching selected segments and labeling manholes on map for meeting with all required background data - 7 hours 2. Using Key Sheets to obtain data: 9 hours Pulling and printing key sheets - 2 hours Sketching selected segments and labeling manholes for meeting with all required background data - 7 hours 3. Using Key Sheets but no additional data: 4 hours Pulling and printing key sheets - 2 hours Highlighting selected segments and labeling manholes only for meeting - 2 hours
Benefits Assessment: (H, M, L) Identify confidence level
• High



Benefits to Using GIS for this Activity:

- Required by the Consent Decree
- Time Savings
- Saved on consultant's fees

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)
9	2.5	6.5	2	13	\$441.35

Other Benefits: \$

None noted

Total Annual Benefit: \$441.35

Areas for Improvement:

None noted

New Opportunities:

None noted

Benefits of Pursuing New Opportunities:

None noted



4.12 MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS)

Program: MDE/EPA Utilities Maintenance Applications/Program Management (CASS WORKS)
Primary Point of Contact:
Utilities: Mark Tabisz
Overview:
Baltimore County performs pipeline maintenance activities to repair and replace sanitary sewer and storm pipes, as well as responding to citizen requests for emergency service problems or inspection requests. The CASS WORKS application tracks the maintenance activities performed on a work order and associates the work order with the specific infrastructure assets of the sewer and storm systems. Baltimore County is under a Consent Decree required by MDE/EPA. Numerous phases of the decree necessitate using the CASS WORKS application and associated databases to accomplish the requirements. Not meeting the numerous deadlines and requirements within the decree will result in substantial financial penalties levied upon the County.
Funding:
External funding is provided by Metropolitan District funds.
Mandates:
The Consent Decree is mandated by EPA and MDE. The Consent Decree requires the inventory and management of sanitary sewers using GIS, including tracking of all service problems, reporting of blockages, maintenance of sanitary sewer infrastructure, cleaning and repairs, placement of rain gauges, etc.
Political Benefits:
<ul style="list-style-type: none"> • Faster response to maintenance problems • Better maintenance of infrastructure • Avoidance of Consent Decree fines that would affect homeowners' utility bills • Environmental benefits • More proactive maintenance in known "problem" areas • Better productivity and efficiency
Social Benefits:
<ul style="list-style-type: none"> • Faster response to maintenance problems • Better maintenance of infrastructure • Avoidance of Consent Decree fines that would affect homeowners utility bills • Environmental benefits • More proactive maintenance in known "problem" areas
Products/Services:
<ul style="list-style-type: none"> • Maps for field crews (data on laptops coming) • Analyses of problems • Work orders • Updates to database layers as noted by field crews



Customers:		
<ul style="list-style-type: none"> • Citizens • Field crews • Maintenance contractors • Engineering groups that investigate complaints • Insurance division 		
Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Athletic Fields • Basic Services • Buildings • County Boundary • County Facilities • Discharge Permits • Facilities • Index Grid - 600 Scale 	<ul style="list-style-type: none"> • Key Sheets • Master Plan - Water • Orthophoto (2002) • Orthophoto (2005) • Pipelines • Pumping Stations • Roads • Sanitary Sewer Overflow 	<ul style="list-style-type: none"> • SCADA Sensors • Sewer • Sewer Relief Points • Sewer Service Areas • Sewer Subsheds • Sewer Treatment Plants • Subwatersheds • TaxParcel
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery • ArcIMS • ArcIMS MyNeighborhood • CASSView • InfoWorks 		
Associated Activities:		
<p>4.12.1 Geographic Analysis of Sewer Study Area</p> <p>4.12.2 Responding and Tracking Citizen Inquiries and Complaints</p> <p>4.12.3 Identification of Infrastructure Drawing Numbers</p> <p>4.12.4 Tracking, Cleaning, and Television Inspections of Utility Lines</p> <p>4.12.5 Assigning New Connections to Sewer Service Areas</p>		



4.12.1 Geographic Analysis of Sewer Study Area

Activity: Geographic Analysis of Sewer Study Area					
Primary Point of Contact:					
Utilities: Mark Tabisz					
Overview:					
Baltimore County responds to citizen inquiries about problems related to storm drains and sanitary sewer service. CASS WORKS is a work order management system that is integrated with the CASSView map interface. Together they provide access to GIS layers and spatial query / proximity and geocoding functionality for analysis, and will keep historical records as well. Additionally, several years of historical records have been entered into the system.					
Interviewee(s) Providing Information:					
Mark Tabisz					
Process with GIS:					
GIS enabled process: Use GIS to pull up all information automatically, including the streets, historical work information (from CASS WORKS), TV defect information by segment on the map interface, pipe infrastructure and construction information. Compile findings Estimate: About 2 hrs 5 times per year **Frequency could increase now that the process is quick					
Process without GIS:					
Pre GIS process includes: <ul style="list-style-type: none"> Go to ADC map book Research Index Cards - look up by street and block numbers Go to TV reports – analyze them Review storm drain complaint database (by address) Review construction backlog and records Review Keysheets (for pipelines) Compile findings Estimate: 20 hrs to complete the study (average sized study area)					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> High 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> Faster responses Historic changes can be stored in GIS and reviewed for trends Time Savings Avoidance of Consent Decree penalties Increased productivity 					
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)
20	2	18	5	90	\$3,055.50



Other Benefits: \$
None noted
Total Annual Benefit: \$3,055.50
Areas for Improvement:
None noted
New Opportunities:
Completed sanitary sewer layer
Benefits of Pursuing New Opportunities:
<ul style="list-style-type: none">• More accurate GIS data



4.12.2 Responding and Tracking Citizen Inquiries and Complaints

Activity: Responding and Tracking Citizen Inquiries and Complaints					
Primary Point of Contact:					
Utilities: Mark Tabisz					
Overview:					
Baltimore County responds to citizen inquiries about problems related to storm drains and sanitary sewer service. When a citizen calls to report a potential problem for investigation, the staff will log a Service Request into the CASS WORKS system with an address that can be geocoded for reference. The issue is prioritized and dispatched to an available crew for inspection and review in the field. CASS WORKS is a work order management system that is integrated with the CASSView map interface. Together they provide access to GIS layers and spatial query / proximity and geocoding functionality for analysis.					
Interviewee(s) Providing Information:					
Mark Tabisz					
Process with GIS:					
GIS Enabled Process:					
<ul style="list-style-type: none"> • Customer calls in and provides address • Map the address / zoom • Map the work order history 					
Estimate: 1 minute per address					
5,500 time per year					
**Based on 2005 metrics on how many sewer house connections were processed					
Process without GIS:					
Pre GIS Process includes:					
<ul style="list-style-type: none"> • Customer calls in and provides address • Go to the index card file • Search for the index card, pull out the index card 					
Estimate: 5 minutes per address					
Benefits Assessment: (H, M, L) Identify confidence level					
• High					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster responses • Ability to see work orders • Time savings • Increased productivity 					
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)
0.08	0.02	0.06	5,500	330	\$11,203.50
Other Benefits: \$					
None noted					
Total Annual Benefit: \$11,203.50					



Areas for Improvement:
None noted
New Opportunities:
Completed sanitary sewer layer
Benefits of Pursuing New Opportunities:
<ul style="list-style-type: none">• More accurate GIS data



4.12.3 Identification of Infrastructure Drawing Numbers

Activity: Identification of Infrastructure Drawing Numbers					
Primary Point of Contact:					
Utilities: Mark Tabisz					
Overview:					
Baltimore County is responsible for performing maintenance on the sanitary sewer infrastructure, along with fixing problems with the system. In order to understand the details of the system, it is helpful for the maintenance staff to access the as-built design drawings. These drawings are used to supplement the GIS data for the infrastructure.					
Interviewee(s) Providing Information:					
Mark Tabisz, Sharon Ganzler					
Process with GIS:					
GIS enabled process: <ul style="list-style-type: none"> • Search address or structure • Use Map Tips on segment • Search the drawing number in DocQuest to pull out the as-built. Estimate: 3 mins 80 times per week x 52 weeks = 4,160 times per year					
Process without GIS:					
Pre GIS process includes: <ul style="list-style-type: none"> • Go to the outdated Keysheet maps (10-20 yrs out of date) • Find the approximate grid area • If multi-page (typical), flip and write down all Keysheet grids • Pull notebook, look up the grid numbers • Review the list of drawing numbers / names by grid - guess at best options • Once the drawings have been identified, query using DocQuest or pull microfilm • Review all drawing options Estimates: 15 mins					
Benefits Assessment: (H, M, L) Identify confidence level					
• High					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster responses • Time savings • Increased productivity 					
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)
0.25	0.05	0.2	4,160	832	\$28,246.40
Other Benefits: \$					
None noted					
Total Annual Benefit: \$28,246.40					



Areas for Improvement:
None noted
New Opportunities:
Completed sanitary sewer layer
Benefits of Pursuing New Opportunities:
<ul style="list-style-type: none">• More accurate GIS data



4.12.4 Tracking, Cleaning, and Television Inspections of Utility Lines

Activity: Tracking, Cleaning, and Television Inspections of Utility Lines					
Primary Point of Contact:					
Utilities: Mark Tabisz					
Overview:					
<p>Baltimore County is responsible for performing Television (TV) inspections of all sanitary sewer pipes within the County limits. During an inspection, a TV operator will document problems and issues that are present along the pipe segment, including blockages, roots, cracks, and other classifications of defects. The TV operator will also capture video or still photo images of the defect. The data and images from the inspection are then uploaded into the CASS WORKS application for display in the Physical Inspection screens. The TV inspection records are interactive with the CASSView map interface, allowing users to access and review the inspection results using a graphical interface.</p>					
Interviewee(s) Providing Information:					
Mark Tabisz					
Process with GIS:					
<p>GIS enabled process:</p> <ul style="list-style-type: none"> • Identify the area to work on, specifically if it is a cleaning or TV for blockage or preventative maintenance, etc. • Zoom to the area and print maps in CASSView of each area (10 segments of work) - with segments uniquely identified. <p>Estimate: 15 mins x 7 crews = 1.75 hrs per day 5 days x 52 weeks = 260 days per year</p>					
Process without GIS:					
<p>Pre GIS process includes:</p> <p>To prepare to send crews out in the morning with a workload, if the workload is coordinated, the staff would have to research drawings in specific areas to provide information about which segments to clean (1 hr of research on average for 10 segments of work). Based on 3 TV crews and 4 cleaning crews, there would need to be 7 hrs of manual research per day.</p> <p>Estimate: 1 hrs x 7 crew = 7 hrs per day</p>					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • High 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster responses • Time savings • Increased productivity 					
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)
7	1.75	5.25	260	1,365	\$46,341.75
Other Benefits: \$					
None noted					



Total Annual Benefit: \$46,341.75
Areas for Improvement:
None noted
New Opportunities:
Completed sanitary sewer layer
Benefits of Pursuing New Opportunities:
<ul style="list-style-type: none">• More accurate GIS data



4.12.5 Assigning New Connections to Sewer Service Areas

Activity: Assigning New Connections to Sewer Service Areas					
Primary Point of Contact:					
Utilities: Mark Tabisz					
Overview:					
Baltimore County adds new customers to its CASS WORKS system. CASS WORKS is a work order management system that is integrated with the CASSView map interface. Together they provide access to GIS layers and spatial query / proximity and geocoding functionality for analysis.					
Interviewee(s) Providing Information:					
Lisa Eicholtz					
Process with GIS:					
Once a month, all new connections are assigned to sewer service areas so new customers can be charged, so they are in the CASS WORKS system, etc. New developments can be hard to find. ArcIMS is used to help find the address and locate and find the service area. This process takes an average of 2 days per month.					
Process without GIS:					
Without GIS, the construction drawings were needed. It would take 4 days per month.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Time savings • Increased productivity 					
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)
28	14	14	12	168	\$5,703.60
Other Benefits: \$					
None noted					
Total Annual Benefit: \$5,703.60					
Areas for Improvement:					
None noted					
New Opportunities:					
Completed sanitary sewer layer					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • More accurate GIS data 					



4.13 Metropolitan District Financing and Petitions

Program: Metropolitan District Financing and Petitions
Primary Point of Contact: Metro Finance: Linda Leake
Overview: This program includes administration of the petition process for sewer and water extensions and connections, and alley improvements. Also included is the assessment and maintenance of files for all Metropolitan Charges, such as Water and Sewer Benefit Charges, Sewer Service Charges, and Water Distribution Charges. This program also includes responsibility for billing Food Service Class and Industrial Wastewater surcharges. Requests are received for extensions of public sewer and water lines, alley repairs, and construction of roadways, curbs and gutters, and private road takeovers. Design and construction are coordinated with other County agencies, methods of funding and repayment are secured, and the necessary public meetings are conducted.
Funding: Funding is through the Metropolitan District. Usage fees are collected via Baltimore City water bills, a portion of which comes to the county, and County property taxes, which include a sewer service charge. Additionally, property owners are assessed separately for improvements such as sidewalks, alleys, etc. Chesapeake Bay Restoration Fees are also collected based on a property's proximity to streams that drain into the Chesapeake Bay.
Mandates: Changes to the Metropolitan District boundary must be petitioned and approved by both the County Council and the City of Baltimore. The book of additions to the Metropolitan District Boundary is required to be kept in DPW. Citizens requesting county improvements must submit petitions for alley reconstruction, sidewalk addition, water/sewer extensions (in existing service areas) with signatures of certain percentages of affected property owners (required percentages vary depending on the request).
Political Benefits: <ul style="list-style-type: none"> • Responsiveness to citizen petitions • Public information • Correct assessments
Social Benefits: <ul style="list-style-type: none"> • Responsiveness to citizen petitions • Public information • Correct assessments
Products/Services: <ul style="list-style-type: none"> • Maps and GIS data for engineering design groups • Maps for public meetings • Assessments for county improvements • Assessment of Chesapeake Bay Restoration Fees
Customers: <ul style="list-style-type: none"> • Property owners • Engineering design groups



Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Basic Services • Basic Services - Transportation (Intersections) • Basic Services - Water • Basic Services -Sewer • BCMD Grid • Buildings • Business Parks • Chesapeake Bay Critical Area • Contours • Councilmanic Districts (2002) • County Boundary • County Facilities • County Historic Districts • Cycle Amends Sewer • Cycle Amends Water • CZMP Zoning Issues (1996) • CZMP Zoning Issues (2000) • Development Plans • Discharge Permits 	<ul style="list-style-type: none"> • Election Districts • Facilities • Fire Hydrants • Fire Stations • Flood Insurance Maps (FEMA) • Hydrologic Facilities • Index Grid - 600 Scale • Key Sheets • Landfills • Legislative Districts (2002) • Master Plan - Sewer • Master Plan - Water • Metropolitan District Line • Orthophoto (2001) • Orthophoto (2002) • Orthophoto (2005) • Parcel Based Landuse • Position Sheet Grid • Proposed Land Use • Publicly Owned Land 	<ul style="list-style-type: none"> • Pumping Stations • Regional Planning Districts • Right of Way (LACQ) • Rights-of-Way Inception Instances • Roads • Sewer • Sewer Relief Points • Solid Waste Facilities • Spot Elevations • Streams and Ponds • Street Centerlines • Street Centerlines (View) • Subwatersheds • Tax Parcel • Taxmaps (Images) • TaxParcel • Water Plats • Zoning • Zoning – 1999 • Zoning Overlay Districts
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery 		
Associated Activities:		
<p>4.13.1 Alley Petitions</p> <p>4.13.2 Sanitary Sewer Extensions</p> <p>4.13.3 Sidewalks</p> <p>4.13.4 Assessments (Citizens and Developers)</p>		



4.13.1 Alley Petitions

Activity: Alley Petitions					
Primary Point of Contact:					
Metro Finance: Linda Leake, Deb Delahanty					
Overview:					
Requests for alley replacement projects are submitted as petitions. The GIS and associated data are used to check the validity of the petition by verifying that all properties and property owners adjoining the alley in question are included in the petition.					
Interviewee(s) Providing Information:					
Deb Delahanty					
Process with GIS:					
Once the petition is received, they locate the street by name, then they locate all of the properties that abut the alley. They validate the signatures on the petition to the owners of record. They also validate that all of the required properties are included in the petition. A total of 51% of the affected owners must agree to the petition. They use the on-line state assessment records to validate current ownership. They also print out a copy of the GIS map to give to the engineering design group that will contract for the actual work to be done. The entire process could be digital if the petitions were scanned. They do this research more than once – after the alley has been reconstructed, they verify that the ownership is the same as at the beginning of the project. The affected property owners are billed \$750 per property for the reconstruction. It takes 3 hours with GIS. They get 25-30 petitions per year, do the verification 50-60 times per year. Maybe 3 times per year they have to go to the courthouse to pull and copy the deeds.					
Process without GIS:					
Without GIS, they would use the plat books and it would take up to 16 hours.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information 					
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)
14	3	11	30	330	\$11,203.50
Other Benefits: \$					
None noted					
Total Annual Benefit: \$11,203.50					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					



Benefits of Pursuing New Opportunities:
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None noted



4.13.2 Sanitary Sewer Extensions

Activity: Sanitary Sewer Extensions					
Primary Point of Contact:					
Metro Finance: Linda Leake, Deb Delahanty					
Overview:					
Requests for sewer extensions are submitted as petitions. The GIS and associated data are used to check the validity of the petition by checking the location of existing sewer mains and verifying that all properties affected by the extension are included in the petition and are assessed accordingly.					
Interviewee(s) Providing Information:					
Deb Delahanty					
Process with GIS:					
This activity is done in existing service areas only. They look at the affected properties, the existing sewer and water lines, and measure the distance to do the assessment. They send the GIS map to the design group and get back a CADD drawing with a cost estimate. Then they validate the ownership of the properties (same as alley reconstruction), and ask the owners if they are for or against the extension. Then when they get a response, they validate ownership again. Once the project is initiated, Suzanne Hale picks it up as a capital improvement project. The entire process could take 3 years from start to finish (petition to construction). The group does about 20 per year. Start to finish the process takes 2-3 days at the beginning, is variable in the middle, and another 2-3 days at the end.					
Process without GIS:					
Without GIS, they would go to the courthouse and spend a couple of weeks to look up all of the records they need.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information 					
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	42	28	20	560	\$19,012.00
Other Benefits: \$					
None noted					
Total Annual Benefit: \$19,012.00					
Areas for Improvement:					
None noted					
New Opportunities:					
<ul style="list-style-type: none"> • Completed sewer layer • Completed water main layer 					



Benefits of Pursuing New Opportunities:

- More accurate GIS data
- Faster responses



4.13.3 Sidewalks

Activity: Sidewalks					
Primary Point of Contact:					
Metro Finance: Linda Leake, Deb Delahanty, Engineering: Doug Gabbert					
Overview:					
Requests for sidewalks are submitted as petitions. The GIS and associated data are used to check the validity of the petition by checking the location of existing sidewalks and verifying that all properties affected by the extension are included in the petition and are assessed accordingly.					
Interviewee(s) Providing Information:					
Deb Delahanty, Linda Leake, Doug Gabbert					
Process with GIS:					
Once the petition is received, they locate the street by name, then they locate all of the properties that abut the sidewalk. They validate the signatures on the petition to the owners of record. They also validate that all of the required properties are included in the petition. Approval of the petition is required from property owners along 67% of the linear footage of the sidewalk. They use the orthophotos to look for existing sidewalks and to see if they are on the side or the frontage of the properties. The property owner is only assessed for sidewalks along the frontage. They also look for curbs and gutters and driveways, as they affect the costing. They do measurements in GIS and use the state assessor records for ownership. They did 5-6 in the last 4 ½ years that were built. They do a lot of preliminary work that takes a few minutes each.					
Process without GIS:					
Without GIS they would use CrissCross.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information 					
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)
14	3	11	3	33	\$1,120.35
Other Benefits: \$					
None noted					
Total Annual Benefit: \$1,120.35					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.13.4 Assessments (Citizens and Developers)

Activity: Assessments (Citizens and Developers)					
Primary Point of Contact:					
Metro Finance: Linda Leake, Engineering: Doug Gabbert					
Overview:					
Assessment determinations for developers or individual property owners are processed and/or reviewed using the GIS and the associated databases. Assessments can be from water and sewer petitions, alley petitions, or the billing process for Chesapeake Bay Restoration fees. The property layer is used along with other DPW layers to complete this.					
Interviewee(s) Providing Information:					
Linda Leake, Doug Gabbert					
Process with GIS:					
The cadastral layer is used to verify property owners to make sure they are assessed correctly. If there are buildings on the property, they make sure that they are assessed properly. They also make sure that all affected properties are assessed. A field visit is made to determine whether any out-buildings are being used as residences. GIS is used to determine where these out-buildings are and whether they are big enough for residences. GIS is also used to determine if a property is out/in of the URDL. Chesapeake Bay Restoration fees are determined by the property's proximity to a stream. They also work on health department projects to verify that property accounts on the construction drawings are correct. They also assess Food Service Class establishments for water and wastewater use.					
Process without GIS:					
Without GIS they would rely on paper records and databases.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Faster reviews • More accurate information 					
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)
14	3	11	26	286	\$9,709.70
Other Benefits: \$					
None noted					
Total Annual Benefit: \$9,709.70					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.14 Miscellaneous Map and Display Creation – Department Wide

Program: Miscellaneous Map and Display Creation – Department Wide
Primary Point of Contact: Engineering: Doug Gabbert
Overview: The GIS data allows maps to be created for: public presentations/meetings, quick studies of County features, proposed projects, problem areas, informational print-outs, etc. All increase the speed of responding to our citizens. Additionally, maps of all DPW Facilities, including pumping stations, highway/utility shops, highway districts, and snow routes, along with maps of all County owned bridges, and numerous other features are prepared and forwarded to the Emergency Operations Center (EOC) periodically for their use in emergency preparations and response.
Funding: There is no external funding for this program.
Mandates: None noted
Political Benefits: Maps and displays provide information to the public regarding county projects in a format that is easy to read and understand. EOC operations are improved through use of up-to-date and accurate data.
Social Benefits: Maps and displays provide information to the public regarding county projects in a format that is easy to read and understand. EOC operations are improved through use of up-to-date and accurate data.
Products/Services: <ul style="list-style-type: none"> • Maps and displays for public meetings, other departments, managers, bureau chiefs, bid packages, etc. • EOC maps
Customers: <ul style="list-style-type: none"> • Citizens • Other departments and agencies • EOC



Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • Abandoned Railroads • AddressPoints (View) • Athletic Fields • BCMD Grid • Buildings • Bulkheads • Capital Projects • Census Blocks (2000) • Communication Towers • Congressional Districts (2002) • Contours • Councilmanic Districts (2002) • County Boundary • Dams • Easement • Election Districts • Facilities • Fire Boxes • Floodwalls • Geology • Hydrologic Facilities • Hydrology • Index Grid - 200 Scale (BCMD) • Index Grid - 200 Scale (MCS) • Index Grid - 600 Scale 	<ul style="list-style-type: none"> • Index Grid - ADC Map • Index Grid - MrSID Tiles • Index Grid - Phase I • Index Grid - Phase II • Index Grid - Phase III • Index Grid - VARGIS Orthophoto (1998) • Index Grid - VARGIS Orthophoto (2000) • Landfills • Legislative Districts (2002) • Light Rail • Metro Railroad • Orthophoto (2002) • Orthophoto (2005) • Parcel Based Landuse • Parks and Recreation • Pipelines • Playgrounds • Position Sheet Grid • Pumping Stations • Quarries • Railroads • Roads • Sand & Gravel Pits 	<ul style="list-style-type: none"> • SCADA Sensors • School Districts - Elementary • School Districts - High • School Districts - Middle • Sewer • Sewer Service Areas • Sewer Subsheds • Sewer Treatment Plants • Soil Map Index • Soil Type • Soils • Spot Elevations • Stormwater (Geodatabase) • Street Centerlines • Street Centerlines (View) • TaxParcel • Transmission Lines • Tree Cover • Urban Rural Demarcation Line (URDL) • Wetlands • Wooded • Zip Codes • Zoning • Zoning Overlay Districts
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery 		
Associated Activities:		
4.14.1 Miscellaneous Map and Display Creation – Department Wide		
4.14.2 EOC Maps		



4.14.1 Miscellaneous Map and Display Creation – Department Wide

Activity: Miscellaneous Map and Display Creation – Department Wide					
Primary Point of Contact:					
Engineering: Doug Gabbert					
Overview:					
The GIS data allows maps to be created for: public presentations/meetings, quick studies of County features, proposed projects, problem areas, informational print-outs, etc. All increase the speed of responding to our citizens.					
Interviewee(s) Providing Information:					
Robin Hurley, Donna Selander, Lisa Eicholtz, Suzanne Hale, Carl Broyles, Doug Gabbert, Bill Fox, Steve Makowski					
Process with GIS:					
Maps are made to support DPW, other departments, managers, bureau chiefs, bid packages, public meetings, etc. Requesters tell them what they need to see on the maps - what layers, what symbology, etc. Also includes filling requests for GIS data in DXF format for use by DPW CADD users. With GIS, most take 20 minutes, can take up to 5 hours.					
Process without GIS:					
Without GIS, some would not be made, others would take 2.5-3 weeks using manual cartographic processes.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • High 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Better information to the public • Time savings • Increased productivity 					
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)
17.5	0.33	17.17	90	1,545.3	\$52,462.94
Other Benefits: \$					
None noted					
Total Annual Benefit: \$52,462.94					
Areas for Improvement:					
Each department should have a GIS point of contact that is proficient with ArcMap.					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.14.2 Emergency Operations Center Maps

Activity: Emergency Center Maps					
Primary Point of Contact:					
Engineering: Doug Gabbert					
Overview:					
Maps of all DPW Facilities, including pumping stations, highway/utility shops, highway districts, and snow routes, along with maps of all County owned bridges, and numerous other features are prepared and forwarded to the Emergency Operations Center periodically for their use in emergency preparations and response.					
Interviewee(s) Providing Information:					
Doug Gabbert					
Process with GIS:					
Maps are made before disasters. They are pre-made, hardcopy, countywide maps that show bridges, pumping stations, highway districts, utility districts, manholes, snow routes, DPW facilities, fueling locations, etc. Updates are provided when there are changes to the infrastructure. OIT also provides live GIS support to disaster operations.					
Process without GIS:					
Without GIS it would take much longer. Basic maps would be highlighted with markers, zip-a-tone, etc. to show areas of interest or concern.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • High 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • The most up-to-date data are always used • Faster map updates. • EOC operations can be supported with live GIS data 					
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)
11	1	10	4	40	\$1,358.00
Other Benefits: \$					
None noted					
Total Annual Benefit: \$1,358.00					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.15 Solid Waste Management

Program: Solid Waste Management
Primary Point of Contact: Solid Waste Management: Steve Makowski
Overview: Program function is to provide a safe, environmentally sound integrated solid waste management program to promote waste prevention, increase recycling and resource recovery, and decrease the quantity of solid waste requiring land filling, in accordance with the Ten Year Solid Waste Management Plan.
Funding: There is no external funding for this program. However, commercial users of landfill pay \$80 per ton.
Mandates: Landfill authorization for commercial use is required by the county. Full audits of collection routes are required every five years; partial audits are required periodically as addresses are added or deleted.
Political Benefits: <ul style="list-style-type: none"> • Better customer service • Community clean ups • Recycling • Better management of landfill and monitoring of its use • Balancing of collection routes • Trash collection contracts • Landfill or transfer station placement • Better delivery of calendars to citizens
Social Benefits: <ul style="list-style-type: none"> • Better customer service • Community clean ups • Recycling • Better management of landfill and monitoring of its use • Fewer hauler accidents through use of turnarounds • Better delivery of calendars to citizens
Products/Services: <ul style="list-style-type: none"> • Maps for trash collectors • Maps of collection routes • Mail merge to send calendars
Customers: <ul style="list-style-type: none"> • Citizens • Trash haulers



Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Athletic Fields • Basic Services • Basic Services - Transportation (Intersections) • Bridges • Buildings • Business Parks • Capital Projects • Commercial Pools • Community Plans • Councilmanic Districts (2002) • County Boundary • County Facilities • Development Plans • Election Districts • Facilities • Fire Hydrants • Fire Stations Boundary • Health Centers • Highway Districts • Historic Districts 	<ul style="list-style-type: none"> • Index Grid - 600 Scale • Key Sheets • Landfills • Landuse • Legislative Districts (2002) • Light Rail • Metro Railroad • Orthophoto (2001) • Orthophoto (2002) • Orthophoto (2005) • Parcel Based Landuse • Parks and Recreation • Playgrounds • Proposed Land Use • Publicly Owned Land • Railroads • Refuse Collection Routes • Regional Planning Districts • Reservoir • Right of Way (LACQ) • Rights-of-Way Inception Instances 	<ul style="list-style-type: none"> • Roads • Snow Plow Routes • Solid Waste Facilities • Spot Elevations • State Legislative District • Stormwater (Geodatabase) • Streams and Ponds • Street Centerlines • Street Centerlines (View) • Taxmaps (Images) • TaxParcel • Traffic Analysis Zones • Traffic Calming • Traffic Signal and Calming Layers • Traffic Signals • Trails • Trails - Walkways • Zip Codes • Zoning • Zoning - 1999 • Zoning Overlay Districts
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery • ArcIMS 		
Associated Activities:		
<p>4.15.1 Community Clean-ups</p> <p>4.15.2 Collection Routes and House Counts</p> <p>4.15.3 Collection Routes – Truck Turnarounds</p> <p>4.15.4 Recycling Route Studies</p>		



4.15.1 Community Clean-ups

Activity: Community Clean-ups					
Primary Point of Contact:					
Solid Waste Management: Steve Makowski					
Overview:					
GIS data and functionality are used to plan and map community clean-ups.					
Interviewee(s) Providing Information:					
Steve Makowski, John Vlach					
Process with GIS:					
GIS is used to site the dumpster in a suitable school parking lot, etc. This takes about a half hour.					
Process without GIS:					
Without GIS, a field visit was required. It took a few hours.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Fewer field visits 					
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)
2.5	0.5	2	232	464	\$15,752.80
Other Benefits: \$					
None noted					
Total Annual Benefit: \$15,752.80					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.15.2 Collection Routes and House Counts

Activity: Collection Routes and House Counts
Primary Point of Contact:
Solid Waste Management: Steve Makowski
Overview:
Presently there are 50 solid waste collection routes. Maps are created for the 50 collection routes and also for the 229 different pick-up day plans. Maps are also created to adjust routes when conditions necessitate due to bridge closures, bridge weight restriction changes, roadway construction, etc. The data layers available from GIS make these mapping projects possible. Also, GIS is used to calculate mileage for payment to haulers. With a budget of \$24,000,000 for solid waste removal, payment to haulers is based partially on the number of houses on a given collection route. The GIS is used to assist in auditing the number of houses on the 54 collection routes and edit databases for new addresses allowing the most cost effective results.
Interviewee(s) Providing Information:
Steve Makowski, John Vlach
Process with GIS:
Collection routes are maintained as shape files. From the enterprise roads layer, collection routes are extracted and then the L/R addresses along the route are extracted into a spreadsheet. They get a list of tear downs, new residences, and occupancy changes each week that are used to maintain this spreadsheet. GIS and tax records are used to maintain the routes; they no longer need to go out on routes. They spend 5-6 hours per week maintaining the routes and address lists. Rebalancing routes takes 3 days; this is done twice a year. Every five years, addresses collected by each contractor must be counted. The routes must also be audited after a certain amount of change. A full manual audit takes from 1 day to 2.5 weeks full time, depending on the size of the route. The last full audit was done to finish the address database. Now, with the spreadsheet of addresses, no manual audits are required. They do 30 partial audits per year using GIS. Managing the routes is most of Steve's full time job. He saves half of his time using GIS on partial audits. They will do a manual audit of apartments next. This may require knocking on doors. This should be of interest to the 911 Center as well as OIT and OCC. GIS eliminates: <ul style="list-style-type: none"> • Full audit every five years, 10 routes per year, average 5 days each • Partial audits as changes occur and haulers want fee increases, average 20 per year, half a day to 3 days of 2 people plus the hauler each. • Calendars are now mailed to serviced addresses instead of hand delivered. They also use GIS to keep track of 230 county dumpsters, over 600 pitch-in cans, but could do more. They have a Shapefile of the pitch-in can locations but it has not been maintained recently. They keep records on the county dumpsters. They get complaints about trash cans at bus stops and need to know who owns the can (e.g., county, WMTA, etc).
Process without GIS:
Without GIS, house counts were done manually by riding around in the truck with a clicker. Collection route audits were also done by riding in the trucks.
Benefits Assessment: (H, M, L) Identify confidence level
<ul style="list-style-type: none"> • Medium



Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • No more manual house counts • No more full audits – only partial audits are now required • Time savings 					
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)
1040	375	665	1	665	\$22,576.75
Other Benefits: \$0					
Save on mailing calendars using mail merge instead of hand delivery					
Total Annual Benefit: \$22,576.75					
Areas for Improvement:					
House counts of apartments should be integrated with 911 Center activities as well as with those of Metropolitan District Financing and Petitions, OCC, and OIT.					
New Opportunities:					
<ul style="list-style-type: none"> • Integrate the trash routes with the road centerlines (911 Center) • Integrate the trash collection house points with the address points database • Maintain the data layer with the point locations of county dumpsters, pitch-in cans, etc., including ownership 					
Benefits of Pursuing New Opportunities:					
None noted					



4.15.3 Collection Routes – Truck Turnarounds

Activity: Collection Routes – Truck Turnarounds					
Primary Point of Contact:					
Solid Waste Management: Steve Makowski					
Overview:					
To avoid a dangerous situation, truck turnarounds are constructed to avoid having trucks backing up on a residential street. The road layer, building layer, property layer, and the orthophotos are used for both the proposed layout of the turnaround, and property search required to acquire turnaround area.					
Interviewee(s) Providing Information:					
Steve Makowski, John Vlach					
Process with GIS:					
Trucks need to turn around in cul-de-sacs without having to back up. The need is driven by hauler accidents. GIS is used to identify possible locations and owners to contact if they need to negotiate use of property. They maintain a list of turnarounds to be investigated. GIS is used to identify property owners, right-of-ways, street width, contours, water, and sewer. They create 4-6 per year and move 3-4 per year. With GIS, it takes 0.5 hour.					
Process without GIS:					
Without GIS, field visits were required. It took 3-5 hours each.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Fewer field visits 					
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)
4	0.5	3.5	4	14	\$475.30
Other Benefits: \$					
None noted					
Total Annual Benefit: \$475.30					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.15.4 Recycling Route Studies

Activity: Recycling Route Studies					
Primary Point of Contact:					
Solid Waste Management: Steve Makowski					
Overview:					
Users are planning to apply GIS functionality to create recycling reports on the 50 collection routes when CASS WORKS is put into operations in the Bureau by recording recycling route issues, weights of refuse of collection routes, etc.					
Interviewee(s) Providing Information:					
Steve Makowski, John Vlach					
Process with GIS:					
This is a future activity that would use the same routes and address database as collection routes. With GIS they will be able to plot tonnage by route, schedule area adjustments better, and send information to homeowners if recycling falls off.					
Process without GIS:					
N/A					
Benefits Assessment: (H, M, L) Identify confidence level					
• Medium					
Benefits to Using GIS for this Activity:					
None noted					
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)
N/A	N/A			N/A	\$0
Other Benefits: \$					
None noted					
Total Annual Benefit: \$0					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.16 Surveys

Program: Surveys
Primary Point of Contact:
Engineering: Patrick Simon, Joann Pearson
Overview:
This program includes maintenance of the County’s approximately 27,000 benchmarks that have been established using GIS and GPS. Additionally, this program includes field surveys of existing topographic features that support engineering design projects. Survey crews are sent out with GIS location maps showing existing GIS generated topography. The survey crews use the GIS data as a base layer and then refine areas that need more detail or a higher degree of accuracy.
Funding:
There is no external funding for this program.
Mandates:
None noted
Political Benefits:
Land surveyors doing work within the county need information about existing benchmarks. Providing this information on the county’s web site will reduce the number of queries received for this data. In-house projects are supported by field surveys that show highly accurate existing topography.
Social Benefits:
Land surveyors doing work within the county need information about existing benchmarks. In-house projects are supported by field surveys that show highly accurate existing topography.
Products/Services:
<ul style="list-style-type: none"> • Survey control monuments • Field surveys for in-house projects
Customers:
<ul style="list-style-type: none"> • Land surveyors • Other county departments and agencies



Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • AddressPoints (View) • Athletic Fields • BCMD Grid • Bridges • Buildings • Bulkheads • Business Parks • Cell Towers • Communication Towers • Contours • Councilmanic Districts (2002) • County Boundary • County Facilities • County Historic Districts • Digital Elevation Models • Easement • Election Districts • Facilities • FEMA Maps 	<ul style="list-style-type: none"> • Floodwalls • Hydrologic Facilities • Hydrology • Index Grid - 200 Scale (BCMD) • Index Grid - 200 Scale (MCS) • Index Grid - 600 Scale • Index Grid - ADC Map • Key Sheets • Master Plan - Sewer • Master Plan - Water • Orthophoto (2002) • Orthophoto (2005) • Parcel Based Landuse • Position Sheet Grid • Railroads • Roads • Solid Waste Facilities • Spot Elevations 	<ul style="list-style-type: none"> • Storm Water Management Facilities • Stormwater (Geodatabase) • Street Centerlines • Street Centerlines (View) • Subwatersheds • Tax Parcel • Taxmaps (Images) • TaxParcel • Traffic Signals • Trails - Walkways • Transmission Lines • Urban Rural Demarcation Line (URDL) • Water Plats • Watersheds - Major • Zoning • Zoning - 1999 • Zoning Overlay Districts
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery • ArcIMS 		
Associated Activities:		
<p>4.16.1 Project Site Survey Base</p> <p>4.16.2 Survey Control Management</p>		



4.16.1 Project Site Survey Base

Activity: Project Site Survey Base					
Primary Point of Contact:					
Engineering: Patrick Simon, Joann Pearson, Doug Gabbert					
Overview:					
Field surveys of existing topographic features support engineering design projects. Survey crews are sent out with GIS location maps showing existing GIS generated topography. The survey crews use the GIS data as a base layer and then refine areas that need more detail or a higher degree of accuracy.					
Interviewee(s) Providing Information:					
Patrick Simon, Joann Pearson					
Process with GIS:					
GIS is used to look up the property data for the surveyors. GIS is used to see orthophotos, property lines, and streets. Then they get the plats and look up the deeds and owner information. GIS maps help surveyors find the property line pipes. It takes 0.5 hours to make each map using GIS. Engineering groups provide GIS maps showing alignments to surveys prior to field work. The GIS maps save extra field work, there are fewer errors, the surveyors get better descriptions of what is required, and there is less confusion over what to capture. Now, 90% of the jobs don't require re-dos. Additionally, 10-15% of the time preliminary site visits are saved by using GIS maps.					
Process without GIS:					
Without GIS, took 30-90 minutes using key sheets, position sheets, plats, etc. Additionally, without GIS, there were more re-dos that could take a 2-3 person crew 2 days per job.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Less confusion in the field over what to survey • Finding property corners is faster in the field • Fewer re-dos • Increased productivity 					
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)
1	0.5	0.5	152	76	\$2,580.20
Other Benefits: \$17,823.75					
<ul style="list-style-type: none"> • Re-dos are saved on 10% of jobs. This saves a 2-3 person crew 2 days per job. It saves 525 hours per year. 					
Total Annual Benefit: \$20,403.95					
Areas for Improvement:					
None noted					



New Opportunities:

They would like an Access database to recover the old data on the index cards. They would like to see old projects in the same area – point locations of older projects would save field work. Joann is plotting points from the index cards.

Benefits of Pursuing New Opportunities:

- Would save field work



4.16.2 Survey Control Management

Activity: Survey Control Management					
Primary Point of Contact:					
Engineering: Patrick Simon, Doug Gabbert					
Overview:					
Survey Control Monuments have been established via GIS and GPS within the county.					
Interviewee(s) Providing Information:					
Patrick Simon, Joann Pearson					
Process with GIS:					
GIS helps plan projects and estimate their duration using the orthophotos. Surveys maintains a database of the control monuments. There are 27,000 benchmarks maintained by the county. Information is provided to consultants and via the web site. Before 1999, they used the city datum. In 1999 they converted to NAD83. Before GIS, they stored the information about the benchmarks on index cards. They scanned and did OCR to get the cards into the GIS layer. Field sketches are done using AutoCAD now. They add 6-8 points per week. GPS field work is done on Thursdays. Entering a new point requires 4-man days of field work, plus half a day to process the GPS data for 6 points, 1 day to make sketches for 6 points, and 0.5 hours to put 6 points in the geodatabase. They also create PDFs to post on the web.					
Process without GIS:					
Before GIS, they stored the information about the benchmarks on index cards. Field work took about the same amount of time, as did field drawings which are still done in CADD.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • No time savings in placing the points. However, data can be posted on the web, saving answering requests for information from land surveyors who will be able to just look up the information on the web. 					
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)
179	179	0	52	0	\$0
Other Benefits: \$					
Data will be posted on the web, saving on answering requests for information from land surveyors who will be able to just look up the information on the web.					
Total Annual Benefit: \$0					
Areas for Improvement:					
Readjustments in 2007 will require x,y changes which will be read into the GIS after the changes are made.					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.17 Traffic Management

Program: Traffic Management
Primary Point of Contact: Traffic: Thomas Stehr, Doug Gabbert
Overview: Traffic Management is a portion of the overall infrastructure maintenance and improvement of the county facilities. GIS data is used to analyze activities.
Funding: There is no external funding for this program.
Mandates: <ul style="list-style-type: none"> • The Federal Highway classification project requires classification of all major roads and an inventory of all intersections as well as upgrading street signs from 6" to 9". • All signs have legislation; there are approximately 40,000 on the books. Signs need to comply with the legislation whenever they are moved, replaced, etc. They must ensure that the signs are correct. • A minimum amount of traffic at an intersection is required before the state will approve addition of a new signal. • For traffic calming projects to be installed, 75% of affected citizens must approve the project. • Additionally, there are ADA requirements for sidewalk ramps that specify dimensions and slope.
Political Benefits: <ul style="list-style-type: none"> • Traffic safety • Traffic calming is a hot topic with the public right now - requests for traffic calming devices have increased significantly in recent years • Traffic studies are required to assess if existing roads can handle planned development • Better information to the public, better understanding of projects by the public
Social Benefits: <ul style="list-style-type: none"> • Traffic safety • Citizen approval of projects • Access by disabled citizens • Traffic management • Signal timing
Products/Services: <ul style="list-style-type: none"> • Maps for field crews, maintenance crews, contractors, traffic engineers • Maps to help investigate traffic complaints
Customers: <ul style="list-style-type: none"> • Citizens • Field crews • Various county agencies



Data (Enterprise Layers are Listed in Bold):		
<ul style="list-style-type: none"> • Abandoned Railroads • AddressPoints (View) • Athletic Fields • Basic Services • Basic Services - Transportation (Intersections) • Basic Services - Water • Basic Services -Sewer • Bridges • Buildings • Business Parks • Capital Projects • Cell Towers • Cemetery • Census Block Groups (1990) • Census Block Groups (2000) • Census Blocks (1990) • Census Blocks (2000) • Census Designated Place (1990) • Census Designated Place (2000) • Census Tracts (1990) • Census Tracts (2000) • Commercial Pools • Commercial Revitalization Districts • Communication Towers • Community Associations • Community Plans • Councilmanic Districts (2002) • County Boundary • County Facilities • County Historic Districts • Development Plans 	<ul style="list-style-type: none"> • Easement • Election Districts • Emergency Service Area • Enterprise Zones • Facilities • FEMA Maps • Fire Boxes • Fire Hydrants • Fire Stations • Fire Stations Boundary • Golf Courses • Greenways • Highway Districts • Historic Districts • Index Grid - 600 Scale • Index Grid - ADC Map • Index Grid - MrSID Tiles • Key Sheets • Landfills • Landuse • Legislative Districts (2002) • Light Rail • Metro Railroad • Metropolitan District Line • Movie Theaters • National Register Historic Districts • Orthophoto (1995) • Orthophoto (1996) • Orthophoto (1997) • Orthophoto (1998) • Orthophoto (2000) • Orthophoto (2001) • Orthophoto (2002) • Orthophoto (2005) • Parcel Based Landuse • Parks and Recreation • Playgrounds 	<ul style="list-style-type: none"> • Position Sheet Grid • Proposed Land Use • Publicly Owned Land • Railroads • Refuse Collection Routes • Regional Planning Districts • Reservoir • Right of Way (LACQ) • Rights-of-Way Inception Instances • Roads • Snow Plow Routes • Solid Waste Facilities • Spot Elevations • State Legislative District • Storm Water Management Facilities • Stormwater (Geodatabase) • Streams and Ponds • Street Centerlines • Street Centerlines (View) • Subwatersheds • Taxmaps (Images) • TaxParcel • Tennis Courts • Traffic Analysis Zones • Traffic Calming • Traffic Signal and Calming Layers • Traffic Signals • Trails • Trails - Walkways • Urban Rural Demarcation Line (URDL) • Zip Codes • Zoning • Zoning - 1999 • Zoning Overlay Districts
Applications Used:		
<ul style="list-style-type: none"> • ArcGIS (Standard) • ArcGIS DataQuery • ArcIMS • ArcIMS MyNeighborhood 		



Associated Activities:

- 4.17.1 Detour Plans
- 4.17.2 Install Roundabouts
- 4.17.3 Pavement Marking Inventory (Restriping) Activities
- 4.17.4 Road Closures Permanent / Temporary
- 4.17.5 Street Signs – Maintenance
- 4.17.6 Street Sign Inventory
- 4.17.7 Traffic Calming
- 4.17.8 Traffic Signals – Maintenance
- 4.17.9 Sidewalk Ramp Maintenance
- 4.17.10 Traffic Signals – Design, Inventory
- 4.17.11 Traffic Studies



4.17.1 Detour Plans

Activity: Detour Plans					
Primary Point of Contact:					
Traffic: Thomas Stehr, Engineering: Doug Gabbert					
Overview:					
Requests from citizens and elected officials about speeding and cut through traffic in neighborhoods are evaluated. If the community meets certain requirements with enough community support, speed deterrents (speed humps) are installed. Activities involve working with contractors to maintain traffic flow while work is being done. This sometimes requires closing the street and designing detours to assist motorists around the closure. Using available GIS planimetrics and aerials allows this to be accomplished quickly without numerous field visits.					
Interviewee(s) Providing Information:					
Keith Link					
Process with GIS:					
GIS is used for the project overview and base map, and then is imported into MicroStation for plan development. They do 15 per year; it takes 3 hours with GIS and without GIS, so there is no time savings, but the maps are much better quality now. With GIS they can be used to better inform the public.					
Process without GIS:					
They made stick drawings without benefit of orthophotos.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • High 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • GIS serves as base map for CADD design • Public is better informed 					
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)
3	3	0	15	0	\$0
Other Benefits: \$					
None noted					
Total Annual Benefit: \$0					
Areas for Improvement:					
None noted					
New Opportunities:					
<ul style="list-style-type: none"> • Add traffic counts to road centerlines • Add info on painting – sometimes it is hard to see on the orthophotos • Store traffic calming studies in the database – they get multiple requests to restudy, this would help to see previous studies (sometimes it is hard to find the CADD drawings) • Traffic calming layer (what’s actually built) 					



Benefits of Pursuing New Opportunities:

- More accurate GIS data
- Time savings



4.17.2 Install Roundabouts

Activity: Install Roundabouts					
Primary Point of Contact:					
Traffic: Thomas Stehr, Engineering: Doug Gabbert					
Overview:					
Roundabouts are designed and installed. Using the available GIS data provides a means of studying various design scenarios to find the best solution to location and size issues.					
Interviewee(s) Providing Information:					
Keith Link					
Process with GIS:					
GIS is used as the base map for design work. No surveying is needed. They import the GIS data to MicroStation via DXF and do the design using MicroStation. A plan takes 1.5 days and they can build off the plan. They get 40-50 special projects per year, including roundabouts. With GIS, the design takes 2 days total.					
Process without GIS:					
Without GIS, they would have gone to the field with tape and wheel, made field notes, come back, and drafted the design. It would have taken 2 days in the field plus drafting time. Without GIS, a project would take 1 month total and would not have the benefit of the aerial images.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • GIS serves as base map for CADD design • Field measurements are saved • Public is better informed 					
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
Other Benefits: \$					
None noted					
Total Annual Benefit: \$3,327.10					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.17.3 Pavement Marking Inventory (Restriping) Activities

Activity: Pavement Marking Inventory (Restriping) Activities					
Primary Point of Contact:					
Traffic: Keith Summers, Engineering: Doug Gabbert					
Overview:					
GIS is used to view a roadway's previous striping after repaving operations to ensure correct re-striping.					
Interviewee(s) Providing Information:					
Keith Summers, Doug Gabbert					
Process with GIS:					
GIS is used to see as-is conditions. A map is given to the striping crew.					
Process without GIS:					
Without GIS, they would have sketched the striping plan based on inspectors' notes and/or memory. If no notes existed, traffic engineering would have had to study the roadway systems in the area to determine the striping required.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Field visits are saved 					
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)
8	0.33	7.67	120	920.4	\$31,247.58
Other Benefits: \$					
None noted					
Total Annual Benefit: \$31,247.58					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.17.4 Road Closures Permanent / Temporary

Activity: Road Closures Permanent / Temporary					
Primary Point of Contact:					
Traffic: Thomas Stehr, Keith Link					
Overview:					
Road closures, both temporary and permanent, are necessary to maintain safe conditions for traffic flow. The GIS data are more accurate, current, and complete compared to previously existing data, which allows these closures to be accomplished more efficiently. Road closures are necessary for events such as town or local festivals or gatherings that use the roadway as part of the festival area. Temporary closures are also needed for extended construction operations such as bridge reconstruction. Permanent closures result from new construction.					
Interviewee(s) Providing Information:					
Thomas Stehr, Keith Link					
Process with GIS:					
Detour maps are created.					
Process without GIS:					
Detour maps would be made manually.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Better detour maps 					
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)
5	3	2	60	120	\$4,074.00
Other Benefits: \$					
None noted					
Total Annual Benefit: \$4,074.00					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.17.5 Street Sign - Maintenance

Activity: Street Sign - Maintenance					
Primary Point of Contact:					
Traffic: Thomas Stehr, Bill Fox					
Overview:					
There are 8,425 roadway segments in Baltimore County with existing signs that are evaluated every seven years as to their condition (e.g., faded or damaged). Additional maintenance is performed as needed when complaints are received about their condition or visibility. Using the GIS database will allow plotting signs and displaying their condition at correct locations.					
Interviewee(s) Providing Information:					
James Gullivan, Mark Gonce					
Process with GIS:					
They investigate complaints about traffic signs, road markings, signals, handicap parking spaces, sight obstructions, and parking restrictions. They use GIS for the following: <ul style="list-style-type: none"> • Determine property ownership in cases of obstructions. The property owner must trim bushes or trees if they are causing an obstruction. • Measure roadways for no-parking restrictions, show where signs should be placed. • Find true addresses. GIS saves time on research, saves field visits, is more convenient, and makes the job easier. Inspectors use ArcIMS. Assume with GIS it takes 0.5 hours to call up with property ownership info; without GIS it would take a 2.5 hour field visit.					
Process without GIS:					
Would require a field visit.					
Benefits Assessment: (H, M, L) Identify confidence level					
• Medium					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Saves time on research • Fewer field visits • Increased productivity 					
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)
2.5	0.5	2	700	1400	\$47,530.00
Other Benefits: \$					
None noted					
Total Annual Benefit: \$47,530.00					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					



Benefits of Pursuing New Opportunities:
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None noted



4.17.6 Street Sign Inventory

Activity: Street Sign Inventory					
Primary Point of Contact:					
Traffic: Thomas Stehr, Bill Fox					
Overview:					
In 1997 the sign inventory program was developed so that existing signs along every roadway segment (8,425) in Baltimore County were evaluated over a seven year period. All signs are evaluated as to their condition (e.g., faded or damaged). Using the GIS database allows plotting signs and displaying their condition at correct locations.					
Interviewee(s) Providing Information:					
Bill Fox					
Process with GIS:					
GIS is used to view the orthophotos for planning and an overview of intersections. They perform an inventory of what's there and sketch what should be there. Field visits are used to verify results, but they are usually shorter with GIS.					
Process without GIS:					
Would use the ADC maps for orientation.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Shorter field visits 					
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)
2.5	2	0.5	62	31	\$1,052.45
Other Benefits: \$					
None noted					
Total Annual Benefit: \$1,052.45					
Areas for Improvement:					
None noted					
New Opportunities:					
<ul style="list-style-type: none"> • Add Right-of-Ways to the cadastral layer 					
Benefits of Pursuing New Opportunities:					
<ul style="list-style-type: none"> • Ownership would be easier to determine 					



4.17.7 Traffic Calming

Activity: Traffic Calming					
Primary Point of Contact:					
Traffic: Keith Link, Bill Fox, Maurice White					
Overview:					
Requests from citizens and elected officials about speeding and cut through traffic in neighborhoods are evaluated. If the community meets certain requirements with enough community support, speed deterrents like Traffic Calming are implemented as required. Using available GIS planimetrics and aerials for base data allows this to be accomplished quickly without numerous field visits.					
Interviewee(s) Providing Information:					
Keith Link					
Process with GIS:					
Traffic calming devices include speed bumps, narrowing devices, islands, and circles. GIS is used to pull up the data, convert to DXF, import to CADD, and do the design in CADD. Plans must get 75% community support; signatures are required. They need a list of all addresses along the route. They use GIS to get those addresses. A plan takes 1.5 days, averages 3 redesigns per project at 1-2 hours each. With GIS, the average project is \$23,000. They did 26 projects in 2006. They actually got 230 requests for traffic calming projects in 2006, but not all qualified or have the necessary community support to move to the design stage.					
Process without GIS:					
Without GIS, they would use consultants more. The average project would cost \$100,000. Without GIS, they would pull plan sheets to get road widths, re-draft from plans, and it would take 2 weeks. Additionally, the community would not understand the plan as well without being able to see the orthophotos.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • GIS is used as base map for CADD design • Less drafting • Less use of consultants • Better understanding of the plan by the public 					
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)
50	15	35	26	910	\$30,894.50
Other Benefits: \$					
None noted					
Total Annual Benefit: \$30,894.50					
Areas for Improvement:					
None noted					



New Opportunities:

None noted

Benefits of Pursuing New Opportunities:
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None noted



4.17.8 Traffic Signals - Maintenance

Activity: Traffic Signals - Maintenance					
Primary Point of Contact:					
Traffic: Thomas Stehr					
Overview:					
<p>Baltimore County designs, constructs, and maintains traffic signals. Maintenance of the signals range from minor tasks (bulb replacement) to implementing signal system timing plans with many varied tasks in between. Due to the enormous quantity of work involved, services of consultants / contractors have been acquired to meet the needs. Using a GIS geodatabase for keeping maintenance records and mapping will greatly facilitate this process and reduce dependence on outside forces.</p> <p>This activity consists of designing, constructing, and maintaining traffic signals. The GIS data is more accurate, current, and complete compared to previously existing data, which allows for easier and more efficient analysis and design.</p>					
Interviewee(s) Providing Information:					
Mike Lorenzo, Tom Smith					
Process with GIS:					
<p>All 335 county-owned and 100 state-owned but county maintained intersections are visited each year. Per year, they do 10-16 rebuilds, 4 new, 6-8 modifications for an average total of 20 per year. GIS saves 2-3 hours per field visit to each new/rebuild/modification. GIS also helps with communication, design, reduces errors, and increases productivity. They still use blueprints (from Towson) for approval, although they can use GIS instead if necessary. If there is no blueprint, they get a new as-built from the contractor and that becomes the new blueprint.</p>					
Process without GIS:					
Without GIS, they would send plans around for mark-up and send them back.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Better communication • Fewer errors • Increased productivity 					
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)
2.5	0.25	2.25	20	45	\$1,527.75
Other Benefits: \$					
None noted					
Total Annual Benefit: \$1,527.75					
Areas for Improvement:					
None noted					



New Opportunities:

- | |
|--|
| <ul style="list-style-type: none">• Add Right-of-Ways layer• They would like access to traffic data layers and sewers when completed• ArcIMS connection for Mike Lorenzo |
|--|

Benefits of Pursuing New Opportunities:
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- | |
|--|
| <ul style="list-style-type: none">• Increased efficiency |
|--|



4.17.9 Sidewalk Ramp Maintenance

Activity: Sidewalk Ramp Maintenance					
Primary Point of Contact:					
Traffic: Thomas Stehr					
Overview:					
Sidewalk ramps are required by ADA. GIS data is used to determine, locate, and plot the best location for the ramps.					
Interviewee(s) Providing Information:					
Mike Lorenzo, Tom Smith					
Process with GIS:					
GIS helps show which wheelchair ramps have domes and which ones don't. GIS also shows where curb and gutter cuts for ramps are needed. They also install whistles and chirps at large intersections. GIS supports inventory and needs identification, is used to add maps to reports. The county-wide inventory of ramps is a multi-year project and is approximately half done. With GIS, assume 0.25 hours to call up in GIS. Use of GIS saves 2 hours per intersection. Each intersection has at least 4, and up to 6 ramps. They rebuilt 13 intersections in 2006.					
Process without GIS:					
Paper maps would be used.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • Better communication • Fewer errors • Increased productivity 					
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)
2.25	0.25	2	13	26	\$882.70
Other Benefits: \$0					
None noted					
Total Annual Benefit: \$882.70					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



4.17.10 Traffic Signals – Design, Inventory

Activity: Traffic Signals – Design, Inventory					
Primary Point of Contact:					
Traffic: Thomas Stehr, Bill Fox					
Overview:					
This activity consists of designing, constructing, and maintaining traffic signals. The GIS data is more accurate, current, and complete compared to previously existing data, which allows for easier and more efficient analysis and design.					
Interviewee(s) Providing Information:					
Bill Fox, Thomas Stehr					
Process with GIS:					
The traffic signals inventory is done in the field using GPS. They received some funding for this from the 911 Center. They are mapping each intersection to show what is there. They put in approximately 5-10 new signals per year, and rebuild around ten per year. The inventory takes eight hours of field work plus some database entry per intersection; the county has 600 intersections. While they are in the field, they take four-way photos of the intersection and note the timing of signal. Will link the database to a copy of the drawing for the intersection, also. The inventory will save field visits for customer service, knock-downs, etc. Light bulbs – two per day need replacement. They plan to use CASS WORKS to track work orders in the future. This inventory is a database creation activity.					
Process without GIS:					
Would not be done without GIS.					
Benefits Assessment: (H, M, L) Identify confidence level					
<ul style="list-style-type: none"> • Medium 					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • GIS is used as base map for CADD design • Less drafting • Less use of consultants • Better understanding of the plan by the public 					
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)
N/A	4800	N/A	One time activity	N/A	\$0
Other Benefits: \$					
None noted					
Total Annual Benefit: \$0					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					



Benefits of Pursuing New Opportunities:
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None noted



4.17.11 Traffic Studies

Activity: Traffic Studies					
Primary Point of Contact:					
Traffic: E. Hines					
Overview:					
Traffic studies must be completed on all roadways within Baltimore County to maintain records of traffic counts, traffic volume, intersection ratings, etc. Using available GIS planimetrics and aerials allows this to be accomplished as quickly as possible.					
Interviewee(s) Providing Information:					
Thomas Stehr, Keith Link					
Process with GIS:					
Traffic studies are needed for the following: <ul style="list-style-type: none"> • Installing signals (the intersection must meet minimum requirements) • Traffic impact studies (can the roads handle proposed development) • Pedestrian safety studies They use GIS for base graphics, not for the actual study.					
Process without GIS:					
More digitizing, more field visits.					
Benefits Assessment: (H, M, L) Identify confidence level					
• Medium					
Benefits to Using GIS for this Activity:					
<ul style="list-style-type: none"> • GIS is used as base map for CADD design • Less drafting • Fewer field visits 					
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)
0.5	0.25	0.25	20	5	\$169.75
Other Benefits: \$					
None noted					
Total Annual Benefit: \$169.75					
Areas for Improvement:					
None noted					
New Opportunities:					
None noted					
Benefits of Pursuing New Opportunities:					
None noted					



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5 Short-form Online Questionnaires

Agency DPW

Name Abdul

Job Title Engineer 3

Briefly, what activity(s) do you perform within your department?

PROJECT ENGINEER DESIGN AND MANAGE PROJECTS

Approximately what percentage of your work week do you spend for each activity identified in question #8?

ALL MY TIME

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

GIS IS USED IN STUDYS AND PRELIMINARY DESIGN AND IS A USEFUL TOOL THAT SAVES MONEY

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

IN DESIGN

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

NO

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

YES, ARE USED FOR FIELD INSPECTION AND REVIEWS

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

PUBLIC, TO HELP EXPLAIN A PROBLEM

Do you perform any GIS data maintenance activities? If yes, please provide an example.

NO

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

DESIGN, MAPS, RESSOLVE QUESTIONS

What activities do you think could benefit from use of (or increased use of) GIS?

SPEED DESIGN PROCESS, SAVE MONEY ON SURVEY IF DATA CAN BE INCORPORATED WITH CADD

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Ann Briggeman

Job Title Engineering Associate

Briefly, what activity(s) do you perform within your department?

Metropolitan District Extensions Water and sewer availability Permit Reviews/Utility Tracking
Sheets Perc Test Approvals Floodplain Determinations Assist walkins File Maintenance

Approximately what percentage of your work week do you spend for each activity identified in question #9?

5% 25% 25% 5% 25% 5% 5%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

I use GIS to assist in locating the sewer mains for utility connections, getting sewer drawing numbers. I use it to make a plat to assist in our permit review and to apply for LOMA's also to determine if the property is in the BCMD and URDL.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

I use geocoding to locate properties with the property tax number search.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes, see No. 11

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Yes, prepare plans that are used by PDM to assist with their review and plans that are used submitted to FIRM for LOMA determinations

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Create plans to be used for LOMA determinations and building permit reviews. Locate utilities lines and drawing numbers. Check the water and sewer master plans, URDL and BCMD. Create location maps for Metro Dist. Ext. Co. Council Submittals. Locate floodplains.

What activities do you think could benefit from use of (or increased use of) GIS?

Completed water and sewer main layers.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

Hard to find data layers that you wish to add by names they are assigned.



Agency DPW

Name Bob Moore

Job Title Collection Superintendent

Briefly, what activity(s) do you perform within your department?

Oversee refuse & recycling collection provided by 47 haulers servicing 322,000 homes.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

10%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes My Staff uses it daily to verify addresses, locations and perform GIS assisted route counts

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

My EA III performs this function

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

My EA III performs this function

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

My EA III performs this function

Do you perform any GIS data maintenance activities? If yes, please provide an example.

None

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Create maps; look up addresses

What activities do you think could benefit from use of (or increased use of) GIS?

Improve accuracy of route mapping and GIS assisted calculation of compensation for haulers

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

GIS is an essential tool to the performance of refuse & recycling collection and in the calculation of compensation for the haulers that provide this service. It has enabled us to map all of our 54 collections and to show the 230 different collection schedules.



Agency DPW

Name Bonny Jasinski

Job Title Office Assistant

Briefly, what activity(s) do you perform within your department?

1. Work in the Customer Service Section - fielding constituent calls/complaints, inquiries to applicable shop or agency. 2. Process utility cut permits. 3. Various other administrative duties that do not require GIS.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

1. 70% 2. 20% 3. 10%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Not daily, the need arose when I was assigned a project that required orthophotos and topography maps of all our shop facilities.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Again, not daily, occasionally I use MyNeighborhood.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

No

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Project is required by MDE to grant NPDES Industrial Stormwater Discharge Permits (as stated in #11).

What activities do you think could benefit from use of (or increased use of) GIS?

When taking constituent complaints/inquiries - GIS can be used to better describe/understand location/situation (ex: location of stream or tree with relation to constituent's home).

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Carl Broyles

Job Title Clerk

Briefly, what activity(s) do you perform within your department?

Generated Field Maps, Topographical Maps to Asses Drainage issues, to locate properties for Engineering plan reviews

Approximately what percentage of your work week do you spend for each activity identified in question #9?

60% to 90%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Same as Answer 9

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No I create my own projects

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

spatial analysis not provided to all agencies

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Drainage area maps, Fiel maps.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Yes, Plotting maps gor Bureau of Highways fo use in field

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

identify drainage problems, in addition to property information

What activities do you think could benefit from use of (or increased use of) GIS?

To accurately locate & identify more precisely (Properties) then currant physical (out dated) maps

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

data Bases (Tables) that individual may add fields to.



Agency DPW

Name Connie Crews

Job Title Public Service Estimator

Briefly, what activity(s) do you perform within your department?

Process Transfers for existing properties & Break Downs which get broken down into individual lots for subdivisions

Approximately what percentage of your work week do you spend for each activity identified in question #8?

I use on a daily basis.

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

I use orthophotos in processing my transfers and breakdowns when the deeds do not provide metes and bounds. GIS makes my job easier then going to the court house and pulling deeds.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

I use for address search, road location and property ID.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

I use geocoding for ID an address and various locations of lots.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

I do produce a hardcopy for plat books used in the office and by other county agencies and general public.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

SEE # 14

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

I use GIS for all of the above mentioned.

What activities do you think could benefit from use of (or increased use of) GIS?

GIS is a lot easier to use then going to the court house and scoping for deeds. But I am told by my supervisor that GIS is not up to date.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

I would like to see GIS more updated it is a lot easier to access and a lot more precise in actual picture. then descriptions of a deed. Deeds are not always precise enough therefore I end up plotting my property in order to get correct metes and bounds.



Agency DPW

Name Dale Volz

Job Title Customer Service Manager

Briefly, what activity(s) do you perform within your department?

Customer Service

Approximately what percentage of your work week do you spend for each activity identified in question #9?

N/A

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Not on a daily basis. We are trying to integrate GIS technology into our database.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

No

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

I don't think so?

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Will be integrating GIS information into our database

What activities do you think could benefit from use of (or increased use of) GIS?

Better awareness of property locations in our database through out the County

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Daniel J. Hardisky

Job Title Engineer III

Briefly, what activity(s) do you perform within your department?

1. Design of Bridges 2. Manage Bridge Inspection Program 3. Postings, ratings & permits for bridges 4. Misc. design of other Structures for Bureau

Approximately what percentage of your work week do you spend for each activity identified in question #9?

1. 50% 2. 30% 3. 10% 4. 10%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

ArcIMS is used to locate various bridges culverts and other structures prior or even after field inspections. Coordinates in NAD83 are obtained and cross referenced with old County Data and as-builts. Topo & cadastral layer plots are important to get preliminary designs without a survey, which takes months to order.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

MyNeighborhood is used to locate constituent complaints and obtain locations of culverts or other structures.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

A study was done for road stream intersections that was very important in the bridge inspection program. Plotting various bridge lists: private, posted, SHA, etc. is important in

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Not on daily basis

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Possible bridge maps for Internet, but not yet.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

same as #11

What activities do you think could benefit from use of (or increased use of) GIS?

Better reference maps for in-house & public for various types of bridges.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

We would like to see county bridges as a layer on both ArcIMS and Myneighborhood (for public access).



Agency DPW

Name Darrell Wiles

Job Title Bureau Chief

Briefly, what activity(s) do you perform within your department?

Manage traffic engineering and transportation planning functions

Approximately what percentage of your work week do you spend for each activity identified in question #9?

90%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

primarily use orthophotos to better understand context of transportation problems and as a tool at meetings to ensure a common view of current conditions

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

MyNeighborhood as described

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

occasionally use maps developed by staff

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

see #11

What activities do you think could benefit from use of (or increased use of) GIS?

integration of traffic data -counts, accidents, and traffic devices inventory (signs, signals, regulations, and lighting) with GIS

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

continue expansion



Agency DPW

Name Dave Snook

Job Title Engineer 3

Briefly, what activity(s) do you perform within your department?

Design & Review of Storm drainage facilities, manage on-call contractors, develop standard details and specifications for contracts

Approximately what percentage of your work week do you spend for each activity identified in question #9?

50%, 15% and 25%, respectively.

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

GIS data is used as the basis for drainage area maps used to determine the amount of runoff draining to a particular point. It is also used (to a more limited extent) to supplement surveyed flood plain contours, and in some cases that aren't survey critical, the topo is used as the basis for plan views, particularly for larger projects such as regional ponds.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

I've used GIS hardcopy to locate problem areas on (1)Ivy League Drive in south Catonsville, (2)locate features, including access for construction, for a Gwynn Oak Park repair project, (3)assist with locating utilities on Woodlawn Drive, (4) develop drainage area maps, including Bens Run Watershed for a watershed hydrology project.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Not normally. In cases where a project, such as the Bens Run watershed study, is passed on to a consultant, the GIS hardcopy map would be passed on as a part of our information to the consultant. The consultant would be responsible for obtaining electronic GIS data from OIT.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Generally work with hardcopy maps prepared to specification by Engineering Associates.

What activities do you think could benefit from use of (or increased use of) GIS?

Drainage area maps for studies. We would like to substitute updated GIS hardcopy maps for hardcopy maps from the 1950's, using the Position Sheet coordination used on the 1950's maps. Some of this has been done; the project needs to be completed. The 50 year old maps no longer accurately reflect the current state of development in the County and are based on the old City/County datum.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

Am interested in seeing use of GIS database and mapping used more widely to justify keeping both as up-to-date as possible. Working from old maps can be a problem. Unfortunately, hydrologic applications using GIS do not yet seem to be totally in compliance with TR-55/TR-20 methods approved for use here in the County and by reviewing agencies.



Agency DPW

Name David A. Bayer

Job Title Engineer III

Briefly, what activity(s) do you perform within your department?

Design of wastewater collection and distribution systems.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes, I need to search property maps and topographic maps daily to provide sewer service to County property owners.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes, frequently I produce hardcopy or digital maps of utility systems including water and wastewater.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

I am involved in providing data products to the Dept. of Justice, Environmental Protection Agency and the Maryland Dept. of the Environment to meet the federally mandated Consent Decree requirements.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Creating maps to determine the best method to provide sewer service to County customers. Creating maps to evaluate wastewater collection system components and pumping stations. I need to link to attribute data of the wastewater collection system components to create a computer model of our collection system. Track locations of flow monitoring meters and rain gages to evaluate how the wastewater collection system functions. Track the portions of the collection system that have been inspected and rehabilitated.

What activities do you think could benefit from use of (or increased use of) GIS?

Computer modeling of the wastewater collection system to evaluate and analyze how the system functions to decrease failures, malfunctions and eliminate system overflows, better evaluate proposed system modifications, upgrades and expansions to the collection and transmission system capacity and enhance system performance.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

It is critical to Balt. County's efforts to meet the Consent Decree and also to provide for enhanced customer service to protect the health, safety and welfare of residents that all portions and attributes of the wastewater collection and pumping systems be able to be identified and characterized digitally by the use of GIS technology. This will ensure that Balt. County competently and professionally operates its sanitary sewer collection system.



Agency DPW

Name David Freeman

Job Title Cadd Manager

Briefly, what activity(s) do you perform within your department?

Manage and assist in Computer Aided design process for various Design sections within the Bureau of Construction and Engineering within the Department of Public Works. Also perform LAN administration duties within the Bureau as well.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

60

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes. Extract data from various data database and other sources to create AutoCad drawings

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No. Autodesk applications are used to use to manipulate the data and construction Cad drawings

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

Occasionally...within Autodesk products

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

No

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

None

What activities do you think could benefit from use of (or increased use of) GIS?

N/A

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name David L. Thomas

Job Title Engineer IV

Briefly, what activity(s) do you perform within your department?

Assistant to the Director. I manage the 1) Water & Sewer Plan, 2) Metropolitan District boundary and annexations, 3)Basic Services Maps, 4) Floodplain map repository & inquiries and 5) infill building permit advisory reviews 6) utility service inquiries, and 7)special projects on behalf of the Director.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

1)10%; 2)5%; 3)5%; 4)25%; 5)25%; 6)20% 7)10%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes. Almost everything I do in my job involves geographic data. A typical example involves using orthophotos, topo contours, cadastral property lines and other features to evaluate whether a property is within a floodplain area, whether public utility service is available, and whether new building permits should be issued.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

I use GIS in a more specialized way than Data Query can easily support. The same applies to MyNeighborhood, but even more so. The various tools built into ArcMap software give me most of what I need without a separate application. I find it easier to save customized projects for my various tasks.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

Not usually. I use the results of other people's geocoding. If the spatial analyst-type floodplain preprocessors got easy enough I could use them for day-to-day inquiries, but that is probably a

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes. We use a 10x17 color Printer. A small custom map to keep in files is very useful when called into meetings on short notice, as well as to review and mark up for various tasks. The need for site visits is vastly reduced from pre-GIS days. Large hardcopy maps for presentations are infrequent but very useful when I need them.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Yes, We provide some support to related offices in other departments that do not have GIS well-developed yet. We also provide to the public. A good example is in floodplain inquiries where we assist customers (for a \$20 fee if maps are provided) in applying to FEMA for 'Letters of Map Amendment' to correct Federal flood map errors. FEMA accepts our GIS maps in lieu of Elevation Certificates that would cost the customers several hundred dollars.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Yes. I maintain the water & sewer Plan map layers and update them as amendments are processed. My office nominally maintains the water, sewer and drains key maps, but there was

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Compile information for varieties of citizen / customer information requests. Locate water, sewer and drains from key sheet information. Prepare printed maps if needed. Prepare presentation maps for Planning Board, County Council, public meetings. Use GIS projects to review and organize W&S Plan activity, Metropolitan District activity, Basic Services Maps information. Use maps for reviewing the Comprehensive Zoning Map Process issues.

What activities do you think could benefit from use of (or increased use of) GIS?

GIS could be used more aggressively for the storage and retrieval of information that is not geographic but that can be located geographically as a 'user interface' to a database. A current



example is with a project I'm now involved in with OIT: water & sewer plan amendment files can be scanned and stored on a Geodatabase server, located by clicking on the parcel on a map, and the paper files actually could be eliminated (often promised by conventional database systems but seldom realized due to user resistance - GIS could break through that). If that works, I may try it with infill development (the small-scale building permit review service we do for P&DM) and floodplain inquiries. There's no reason this couldn't be applied to larger projects, although implementation would have to be done carefully. Clicking on a map display should be much more user-friendly than searching through (paper or computer) file cabinets, and could extend the availability of the information to a much larger user base (even being made self-serve) with suitable security applied (eg on the Web).

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

I know it's a tedious task, but the single most useful thing I could ask of the County's GIS is a comprehensive index to all of the data, organized in a more 'disciplined' manner. The network files and folders are (for a variety of reasons - no criticism intended, I'm guilty of it on my own PC as well) very poorly organized and named, and even with the improved technology (geodatabase) there is little organization, naming convention, documentation, etc. In other words, if I want to find something, I have to find somebody to ask, then write it down and run back to my PC before it changes. In my opinion this put an undue burden on the departmental GIS liaison people and frustrates the end user, probably limiting the acceptance and growth of the GIS 'enterprise'. Of course, this is just my opinion, but that's what a survey's for, isn't it? Thanks for the chance to give some feedback!



Agency DPW
Name Deb Delahanty
Job Title Public Service Estimator

Briefly, what activity(s) do you perform within your department?

Approximately what percentage of your work week do you spend for each activity identified in question #9?

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

What activities do you think could benefit from use of (or increased use of) GIS?

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Donald G. Wuest

Job Title Engineering Associate IV

Briefly, what activity(s) do you perform within your department?

Design and administration of sanitary sewer projects. Review of projects for conflicts with existing sanitary sewers.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

70% 30%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes, Periodically import GIS topography into AutoCadd and use that data to perform preliminary studies and designs.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Yes, Use the Arcims application to view existing conditions of areas.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

no

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

I mainly use the GIS data.

What activities do you think could benefit from use of (or increased use of) GIS?

The ability to obtain deed references and tax account numbers.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Donna Selander

Job Title Engineering Associate II

Briefly, what activity(s) do you perform within your department?

Utility Cut Permits Development, subdivision reviews Surplus property & Surplus Property Releases Investigations for road & sidewalk improvements Allotments for sidewalk construction and GIS.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

Amount of time varies according to work load and priority.

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes, I need GIS to identify roads, sidewalks, property lines, contours, streams, railroads, etc. Also, I make a variety of maps for other personnel in my department. GIS is used on a daily basis.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes, I produce a hardcopy maps. I use GIS in many aspects of my job. For sidewalk projects, I can draw on the GIS map to show a proposed sidewalk. The GIS dwg. will show a lot of other pertinent information that is needed. For example, roads, ex. sidewalks, telephone poles, bldgs., RW lines, property lines, contours, etc. GIS is also used to identify roads and parcels when processing minor subdivision reviews and surplus property releases. I create a hardcopy maps for my supervisor and coworkers to take to meetings.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

State Hwys., BGE, Comcast for sidewalk projects. Water, Sewer and Storm Drains for sidewalk projects.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Use GIS to create maps for: Departments within the county to show a proposed project. Utility companies to show a proposed project. Identification of parcels, roads and sidewalks for completion of development reviews and Surplus Property releases. Field work for investigations into complaints from citizens about substandard roads, inadequate sidewalks, etc.

What activities do you think could benefit from use of (or increased use of) GIS?

Not sure

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Doug Gabbert

Job Title GIS Program Manager

Briefly, what activity(s) do you perform within your department?

Manage all aspects of GIS use in the Department of Public Works

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes -

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Yes -

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

yes

Do you perform any GIS data maintenance activities? If yes, please provide an example.

yes

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

yes

What activities do you think could benefit from use of (or increased use of) GIS?

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Edward Tress

Job Title EAIII

Briefly, what activity(s) do you perform within your department?

I handle Complaint calls, Do the inspections at the complaint site within Balto Co. I do the research within IDOCS, Cassview and other Depts to figure out if this complaint can be handles by some interagency help or if this may turn into a project which then I will do the design and drafting for this on CADD.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

All are related to each other and most of my times is spent handling complaints and returning responses and doing the proper research to find out a possible cure for these issues.

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes I do use GIS info to establish grade to properties, Prop lines and building locations, utility locations also.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Very little use on this feature.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No I do not use this feature.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

I produce small 8 1/2' x 11' plots to show prop owners and other county employees for reference. I also import the GIS info into CADD drawings for use of CADD design of projects.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Public citizens only get to look at the sketches that I do on CADD and do not get the plots I make.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

See previous survey questions

What activities do you think could benefit from use of (or increased use of) GIS?

Teaching more designers the ARCIMS and Cassview functions so they can use GIS features.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

Why so many sign ons, Can't there be just the main log on and just point and click and it pops up?



Agency DPW

Name Emery J. Hines

Job Title Manager, Transportation Planning

Briefly, what activity(s) do you perform within your department?

Regional transportation coordination Small area transportation plans Traffic forecasting
Conduct and maintain the County's Traffic Count Program Review of transportation policy and
legislation for the Executive Office

Approximately what percentage of your work week do you spend for each activity identified in question #9?

50 10 10 20 10

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

No

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

No

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No However, I am in the process of working with our GIS specialists to develop a data layer for
traffic count information.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

I have not been trained to use any of the GIS products. Generally speaking I am only
interesting in producing aerial photography. I have discovered its easier to use Google Earth
than ask someone to produce a GIS map for me--unless its a large scale map for a public

What activities do you think could benefit from use of (or increased use of) GIS?

I don't think there's enough staff available to help develop extra uses.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

I know I'm a low-level user but at least 75-80% of my GIS requirements can be handled by
Google Earth.



Agency DPW

Name Gene Miller

Job Title Utilities Supervisor I

Briefly, what activity(s) do you perform within your department?

a) Plan and assign work to Crew Chiefs who in turn supervise pipeline cleaning and CCTV crews. b) Review CCTV reports and video. c) Plan and assign work, and supervise the inspection of work related to pipeline maintenance performed by contractors. d) Perform onsite

Approximately what percentage of your work week do you spend for each activity identified in question #9?

a) 40% b) 30% c) 20% d) 10%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

YES. We are pretty much crippled without the use of Arcview and Cassview. Maps that show us the sewer layer, (manhole ID#s, line segments,) roads, waterways, buildings etc. are taken by field personnel to the job site. They use them to perform and document their work. We track their progress on identical maps here at the office. We use structure based logging in Cassview to enter the work from cleaning operations into Cassworks.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes, see #11.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Yes. Maps we make are given to contractors who will perform maintenance to the sewer system. They are utilized much the same way as our own personnel.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Only to supervise the employees who report inaccuracies in maps they utilize.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Create maps for use in the field operations of the maintaining the sanitary sewer system. Resolve discrepancies between the maps and as built drawings. Identify structures and features, and support field personnel.

What activities do you think could benefit from use of (or increased use of) GIS?

Pretty much any one where maps and directions make up a part of that activity.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

In my department it has made communicating easier and record keeping more accurate. Just having a map with sanitary sewer manhole numbers gets everyone here on the same page. Instead of documenting where work was performed as 'the third manhole behind the shopping center etc.' we have a map that shows it, and that manholes' unique identification number too. Great!



Agency DPW

Name Gerald R. McHenry

Job Title Engineer III

Briefly, what activity(s) do you perform within your department?

Project manager and engineer in the Water Design Section dealing with the design and operation of water pumping stations, tanks, reservoirs, chlorination facilities, and large water mains. Also deals with assisting Baltimore City and constituent concerns regarding the Metropolitan Water System.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

80 % of time as project manager/ engineer. 10 % of time assisting Baltimore City. 10 % of time assisting constituents.

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

No.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Yes, but very infrequently (maybe once a month). I have used MyNeighborhood to access current zoning information for a project I am managing (Lower Back River Neck Peninsula Public Water Extension).

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

No.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

I frequently provide prints from iDOCS for use by Baltimore City or consultants working for the City.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

None.

What activities do you think could benefit from use of (or increased use of) GIS?

No suggestions.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

No suggestions.



Agency DPW

Name Glen A. Keller

Job Title Chief of Sewer Design

Briefly, what activity(s) do you perform within your department?

Design of sanitary sewers. Design of Pumping Stations and Force Mains. Design of Pipeline rehabilitation projects. Coordination of City/County projects. Review of consultants' work. Providing technical support to Construction Inspection. Providing technical support to the Bureau of Utilities. Answering requests for information from the public and councilmen.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

Fluctuates greatly day to day and sometimes hour to hour.

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Gravity sewers depend upon topography to function. Pumping station pump in relation to elevation differences. Sometimes, various groups will ask if a particular area has sewer.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

If I need the data, I delegate someone to get it for me.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

See #12.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Once again, I delegate the actual generation of the GIS document. Once again, maps are used for various reasons as was previously discussed.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Yes. We needed all kinds of mapping for the various Consent Decree projects.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Not personally.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Maps for sewer studies, locations of sewers, pumping station locations, force main alignments, and to answer various inquiries from inter County agencies and the public.

What activities do you think could benefit from use of (or increased use of) GIS?

A reliable GIS sewer layer will help us in all facets of my job.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

We rely on GIS information all the time.



Agency DPW

Name Gloria Simpson

Job Title Office Assistant/PT

Briefly, what activity(s) do you perform within your department?

Customer service, ROW Checks

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Property maps to find out who owns the property and if the county has any right of way.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes to find out exactly what areas belong to baltimore county.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Locate homeowner tax number so that they can be billed for sidewalk, driveway apron repair

What activities do you think could benefit from use of (or increased use of) GIS?

For my department it would be knowing what baltimore county is responsible for as far as maintenance is concerned.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Gunesh K. Patel

Job Title E III

Briefly, what activity(s) do you perform within your department?

Project Administration Coordination with BGE Review Construction Documents In house design Technical review/research Non Productive/Misc.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

40% 15% 25% 10% 5% 5%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

No

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Yes. Look up MyNeighborhood for dealing with BGE

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

No

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

None at the moment

What activities do you think could benefit from use of (or increased use of) GIS?

Coordination with BGE

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Hal Southern

Job Title Office Automation Analyst

Briefly, what activity(s) do you perform within your department?

Support for computers and applications

Approximately what percentage of your work week do you spend for each activity identified in question #9?

95%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

no, not daily but maybe weekly

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No I don't use the web applications

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

We produce maps with property bounties and building location for the county own properties that Building Services provides maintenance and or services for.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

We produce maps with property bounties and building location for the county own properties that Building Services provides maintenance and or services for.

What activities do you think could benefit from use of (or increased use of) GIS?

NA

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name J. Daniel

Job Title Utilities Superintendent

Briefly, what activity(s) do you perform within your department?

Manage the daily activity & personnel needed to repair the existing sanitary sewer and storm drain system throughout Baltimore County.

Approximately what percentage of your work week do you spend for each activity identified in question #8?

50% - sanitary sewer 50% - storm drain

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes, Access drawings, through DocQuest related to the sewer and storm drain systems.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Yes, Retrieve & enter data, through CASSWORKS, related to the repair & maintenance of the sewer and storm drain system.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

Yes, Enter & refer data obtained, through CASSWORKS, to our Maintenance Division and Pumping Division when they go online (they are in the process)

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

No, Print off DocQuest only

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Retrieve data information, through DocQuest & CASSWORKS to properly repair the sanitary and storm drain systems throughout Baltimore County. Communication of data retrieved is mostly between Baltimore County agencies.

What activities do you think could benefit from use of (or increased use of) GIS?

Having access to GIS data enables me to manage my division more effectively in the repair of the sanitary sewer and storm drain system. It allows me to see the whole system without leaving my desk.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

Having access to GIS has allowed my division to meet it's responsibilities in a more timely matter.



Agency DPW

Name James Gullivan

Job Title Traffic Inspector II

Briefly, what activity(s) do you perform within your department?

Respond to traffic related concerns/complaints/ requests relating to traffic signs, road markings, Reserved HCP parking spaces, vision obstructions, etc.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

Varies with time of year (vision obstructions) and weather (road markings)

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes; When investigating a vision obstruction, I use the GIS database to identify the property owner(s) and find plat information in order to verify if the vision obstruction is or is not in a right-of-way.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes; I routinely print out aerial photos in order to show a given street or road network to better visualize a given complaint.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Find property owners, plat information, parcels, view road markings, make measurements, print out overviews of streets/road networks, identify addresses

What activities do you think could benefit from use of (or increased use of) GIS?

Provide plat information for the entire county.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name James W. Arford

Job Title Engineer IV

Briefly, what activity(s) do you perform within your department?

Chief, Structural Design Section 1. Supervise structural design engineers 2. Supervise bridge inspection program 3. Work with on call consultants and contractors 4. Prepare Capital Budget 5. Administrative Work

Approximately what percentage of your work week do you spend for each activity identified in question #9?

1. 30% 2. 10% 3. 20% 4. 10% 5. 30%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes, but not every day. Used orthophotos to describe area to be excluded from Conservation Easement around structures at Lintz property on Gore Mill Rd.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Yes, but not every day. Use My Neighborhood website to get aerial photo and/or rough right of way when looking in to questions on private structures.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

no

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Not as a rule. Example in 11. was prepared for DEPRM

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

1.areas to be exempted from conservation easements 2.preliminary design on structural projects where we would get idea of structure location, contours, and property lines.

What activities do you think could benefit from use of (or increased use of) GIS?

preliminary engineering of structural projects

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

As with any new technology, the more we use it the more things we find it can do for us. Training in what GIS can do for us might be useful.



Agency DPW

Name Jim Ford

Job Title EAIII

Briefly, what activity(s) do you perform within your department?

Storm drain complaints, drainage improvement projects

Approximately what percentage of your work week do you spend for each activity identified in question #9?

95

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

no

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

no

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

no

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

occasionally create maps with topo and property lines

What activities do you think could benefit from use of (or increased use of) GIS?

Field inspections

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

I have been using cass-view lately for my purposes.



Agency DPW

Name JoAnn Famolaro

Job Title Management Analyst II

Briefly, what activity(s) do you perform within your department?

1)Personnel administration and oversee payroll and FMLA administration. 2)Oversee pest control and utility payment for general county government. 3)Maintain building/facility

Approximately what percentage of your work week do you spend for each activity identified in question #9?

1)80% 2)10% 3)10%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

No

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

No

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Not using at this time.

What activities do you think could benefit from use of (or increased use of) GIS?

Identifying various county properties and providing GIS maps to technicians. (We actually have very limited use for GIS at this time.)

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Joann Pearson

Job Title Engineering Associate II

Briefly, what activity(s) do you perform within your department?

1. Looking up deeds, right-of-ways, and plats for property work. 2. Working on an Access Data Base program for the Survey Division. 3. Administrative activities. 4. GIS printouts to help the Survey Division Field Crews.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

1. 25% 2. 25% 3. 25% 4. 25% This varies daily. Sometimes jobs are a rush and sometimes not.

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

When the field crews go out various job sites such as alley, I do a GIS print-out showing various roads, buildings, and addresses along with contours. This gives them addition information to assist them in their job. If they are doing property work I do the above, but also add property owners names and property lines. This gives them an idea where to start looking for property pipes.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

When the field crews go out various job sites such as alley, I do a GIS print-out showing various roads, buildings, and addresses along with contours. This gives them addition information to assist them in their job. If they are doing property work I do the above, but also add property owners names and property lines. This gives them an idea where to start looking for property

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

No

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

I only do GIS for use in our department.

What activities do you think could benefit from use of (or increased use of) GIS?

A great tool for locating information.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

GIS is a GREAT TOOL. GIS should not be used to do design work, such as roads.



Agency DPW

Name John Vlach

Job Title OAA

Briefly, what activity(s) do you perform within your department?

Maintain computer systems within the Bureau and Department.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Not at this time.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Not at this time.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

Not at this time.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Not at this time.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Not at this time.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Not at this time.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

I have not been using GIS regularly. I will be more involved with GIS as soon as our customer service request has been completed.

What activities do you think could benefit from use of (or increased use of) GIS?

Adding residential and commercial property into the County's databases.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name jos venturina

Job Title e2

Briefly, what activity(s) do you perform within your department?

design

Approximately what percentage of your work week do you spend for each activity identified in question #9?

35%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

yes. I use GIS to look for existing manholes, inlets and storm drain system.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

data query

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

yes, i always make copy of the location map for storm drain study

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

create maps for storm drain system and for complainst location.

What activities do you think could benefit from use of (or increased use of) GIS?

i don't know.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

Give us more training on how to use GIS.



Agency DPW

Name Joseph Treadwell

Job Title Pollution Control Nalyst II

Briefly, what activity(s) do you perform within your department?

Regulate industrial discharge to the sanitary sewer.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

No

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes. Use of digital maps to identify industrial sites.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Obtain maps of industries. These maps are inserted into site specific permits to identify location and identify wastewater sampling locations.

What activities do you think could benefit from use of (or increased use of) GIS?

The ability to see exactly where industrial and commercial users are connected to the mainline sewer. Overlaying engineering drawings of the connection and the mainline with either a scaled street map or a scaled aerial photograph.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

If possible create a general electronic booklet on what the current capabilities of the GIS System are. Also electronic booklets on how to use the GIS System.



Agency DPW

Name Kerry Hartline

Job Title Collection Supervisor

Briefly, what activity(s) do you perform within your department?

Supervise refuse and recycling collection contractors Identify, design and arrange for the construction of turnarounds used by our contractors snow removal equip emerg equip etc.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

I personally use only arcims

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

na

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

na

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

na

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

na

Do you perform any GIS data maintenance activities? If yes, please provide an example.

na

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

na

What activities do you think could benefit from use of (or increased use of) GIS?

na

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

Steve Makowski develops most of the gis info that I need. He will provide all the information on his survey and interview.



Agency DPW

Name Kevin Summers

Job Title Traffic Sign and Roadmarking Crew Chief

Briefly, what activity(s) do you perform within your department?

Approximately what percentage of your work week do you spend for each activity identified in question #9?

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

What activities do you think could benefit from use of (or increased use of) GIS?

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW
Name Kristen
Job Title Office Assistant

Briefly, what activity(s) do you perform within your department?

Approximately what percentage of your work week do you spend for each activity identified in question #9?

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

What activities do you think could benefit from use of (or increased use of) GIS?

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Linda Leake

Job Title Engineering Program Manager

Briefly, what activity(s) do you perform within your department?

Supervise an operations involved with the assessment and levy of Metropolitan District Charges and the State's Bay Restoration Fee. Specific activities I am involved with are the computation of new charges, adjustment of charges, and computation of balances of charges for extinguishments. Computation and levy of Water and Sewer user.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

65 to 70 of my time is spent on the activities in #9.

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

YES - GIS may be used to verify property location, if property is located within the URDL, within the Metropolitan District, property account # location of nearest sewer main(s), water or sewer designation, zoning, property address, buildings on property, wetlands, etc.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

DATA Query is used to find information listed in #11.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

NO

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes, I may produce a map for use my use in the office.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

NO

Do you perform any GIS data maintenance activities? If yes, please provide an example.

NO

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

GIS may be used to verify property location, if property is located within the URDL, within the Metropolitan District, property account # location of nearest sewer main(s), water or sewer designation, zoning, property address, buildings on property, wetlands, etc. Primarily for my use in day to day activities, but also occasionally to assist the public.

What activities do you think could benefit from use of (or increased use of) GIS?

In this office, GIS could be utilized to audit the billing file for the Bay Restoration Fee if there was information as to the kinds and number of buildings on a property and how the building are being used. A layer of data showing location of water mains, sizes, and all water meters with service addresses, service sizes, meter sizes, serial numbers, etc. A layer showing the location of every septic system and every well.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Lisa Eicholtz

Job Title Engineer III

Briefly, what activity(s) do you perform within your department?

1. Flow Modeling 2. Development Plan Review 3. Capacity Evaluations 4. Other Consent Decree Work

Approximately what percentage of your work week do you spend for each activity identified in question #9?

1. 30 2. 20 3. 10 4. 40

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes, the GIS database sewer layer is used by the new County flow modeling software.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Yes, to determine the location of new properties connected to the Baltimore County sewer system.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

yes, for preliminary evaluations for providing new sewer service to sites.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Yes, during community meetings if there are areas with many sewer complaints.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

create maps for preliminary evaluation for new sewers, locate new sewer customers for identification of sewer service areas, create maps for meetings about problem sewer areas.

What activities do you think could benefit from use of (or increased use of) GIS?

infoworks flow modeling

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Mark Benner

Job Title Public Works Inspector 1

Briefly, what activity(s) do you perform within your department?

Manages contracted road resurfacing projects. Manages contracted road maintenance projects. Manages contracted oncall construction projects. Provides information and projections for management.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

60% 10% 10% 20%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes. Maps used to help in resurfacing program. To acquire information on road, or property limits and ownership.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

As previous answer.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes. Will print out hardcopy maps to give to field inspectors.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Provides some record information, or planning information to executive/council offices.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Not sure what that would be.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Property maps for lines. Maps for utility pipelines. Visual maps for conditions.

What activities do you think could benefit from use of (or increased use of) GIS?

Better use of maps for planning work. Use to show completed work.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

GIS system is very helpful and productive tool.



Agency DPW

Name Mark Gonce

Job Title Traffic Inspection Supervisor

Briefly, what activity(s) do you perform within your department?

Supervise a group of six Traffic Inspectors

Approximately what percentage of your work week do you spend for each activity identified in question #9?

75%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

ortho and property maps

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

My neighborhood

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

yes/printout

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

locate addresses/property lines/assessment info

What activities do you think could benefit from use of (or increased use of) GIS?

traffic safety/land dev

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Mark Tabisz

Job Title Management Analyst 3

Briefly, what activity(s) do you perform within your department?

Computer operations, Budgetary Purchasing Human Resources

Approximately what percentage of your work week do you spend for each activity identified in question #9?

50% Computer OP's 10% Budgetary 20% Purchasing 20% Human Resources

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Currently completing the building of our sewerlayer in GIS. Use the sewer layer to identify drawings, managing work orders. We will soon begin working on the storm drain layer.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Data Query to build the sewer layer.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

We are currently adjusting footage in the sewer layer so we can perform spatial analysis.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

My agency creates maps from the sewer layer we are updating. Hardcopies are created each day, reviewed and corrections are made when found.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Other County agencies use the data in our sewer layer. Once we build the storm drain layer, it will also be used by other agencies.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Currently updating the sewer layer. Performing daily corrections in the sewer layer.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Daily the agency relates cleaning, inspection activities to the individual sewer pipe segment. Each manhole is a pipe segment (57,000) Use of cassworks to locate addresses, sewer lines, orthophotos.

What activities do you think could benefit from use of (or increased use of) GIS?

Currently all of our sanitary sewer work activities are directly connected to GIS, via cassworks. We need to do the same to the storm drain and water systems.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

Cassworks is directly related to GIS. We must have the ability to attach all of our work to a physical structure in the sanitary sewer, storm drain or water system. Through this we can perform analysis to identify areas that need rehabilitation or total replacement. WE CANNOT LIVE WITHOUT GIS!!!



Agency DPW

Name Maurice White

Job Title Engineering Associate 1

Briefly, what activity(s) do you perform within your department?

looking up a street

Approximately what percentage of your work week do you spend for each activity identified in question #9?

10%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

no

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

no

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

no

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

locating address my computer is down that is why all my questions are 'no'

What activities do you think could benefit from use of (or increased use of) GIS?

n/a

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Michael Harner

Job Title Office Automation Analyst

Briefly, what activity(s) do you perform within your department?

Administrator for Cassworks and Cassview Trouble shooting PC problems with DPW Lan Administrators GIS Editing

Approximately what percentage of your work week do you spend for each activity identified in question #9?

Admin for Cassworks and Cassview - 20% to 40% Trouble shooting PC errors - 20% to 40% GIS editing - 5% - 10%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes. Cassworks and Cassview both run off GIS sewer data. Cassview is connected to our live sewer database so it is up to date after every compress. Cassview has layers for orthophotos, property lines, topography, sewer data, storm drain data, ...

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

I am not sure this is an application but I use reports generated from the compress of the sewer database to fix any structures that were affected by the editing of the sewer database between compressions. These SQL reports were developed by OIT to help us find the errors that have been entered into the database. We have also used a Map Book application to generate up to date maps of the sewer system.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

I do not personally use hardcopy or digital maps but I set up a project in ArcMap for our cleaning and tv crews so they can get maps of our Sewer Service Areas to take into the field with them. From there they use the maps to find lines, record which pipes have been cleaned or tv'd, and if there are any discrepancies between what is in the field and what is in our

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

When I was editing earlier in the year, we were adding pipe information to our 10' and larger lines. Currently I am not editing but I was part of the group that set up a procedure that

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Find the areas that have already been entered in to Cassworks before edits were finished in that area. I look up the area in ArcMap to find out what was changed then I enter the correct data in Cassworks. Editing of the sewer layer.

What activities do you think could benefit from use of (or increased use of) GIS?

Any kind activity that has employees going out in the field to do inspections or any other activities.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Michael Lorenzo

Job Title Traffic Signal Shop Crew Chief

Briefly, what activity(s) do you perform within your department?

Crew Chief, Traffic Signal Shop

Approximately what percentage of your work week do you spend for each activity identified in question #9?

40 Hours

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

No

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Not at this time

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Would Like to have access to be able to look up intersections. To be able to help crew better understand objectives of work orders and plans. Print out map and intersections for modifications, etc.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

none at this time

What activities do you think could benefit from use of (or increased use of) GIS?

Planning and upgrading of intersections.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name PATRICK C. SEMONE

Job Title EA IV

Briefly, what activity(s) do you perform within your department?

1)DESIGN NEW WATER MAINS 2)DO COST ESTIMATES 3)PREPARE PLANS FOR CONSTRUCTION 4)HAVE CORRESPONDENCES WITH CONTRACTORS & INSPECTORS IN REGARDS TO NEW PROJECTS UNDER CONSTRUCTION.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

1)60% 2)10% 3)30%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

ON OCCASSION IF NO CURRENT SURVEY DATA IS AVAILABLE WE WILL ACCESS GIS MAPS IN ORDER TO PREPARE DWG'S FOR CONSTRUCTION. THIS PROCEDURE IS DONE ONLY IN CASES OF EMERGENCY.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

NO

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

NO

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

NO

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

NO

Do you perform any GIS data maintenance activities? If yes, please provide an example.

NO

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

REFER TO ANSWER #11

What activities do you think could benefit from use of (or increased use of) GIS?

FOR MY BENNIFIT I WOULD USE GIS ONLY FOR HOUSE LOCATIONS AS WE NEED MORE ACCURATE INFORMATION FOR DESIGN STANDARDS

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Patrick Simon

Job Title Chief of Surveys

Briefly, what activity(s) do you perform within your department?

1.) Plan and budget for the current and future needs of the Land Survey Division (Surveys). 2.) Supervise and schedule all tasks requested by Surveys. 3.) Guide and train all field and office personal in Surveys. 4.) Provide the professional and technical Surveying expertise to all County agencies, as well as to any consultants working within the county or private citizens. 5.) Perform the technical and professional tasks for all Boundary Surveys requested by Surveys. 6.) Manage and coordinate the surveying tasks performed by 3 private Surveying companies contracted by Baltimore County .7.) Maintain the records of Land Surveys performed by Baltimore County and distribute to consultants when requested. 8.) Other duties as necessary.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

1. 5% 2. 5% 3. 10% 4. 15% 5. 35% 6. 5% 7. 15% 8. 10%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes, I use orthophotos and topography in planning (is the site wooded, steep, etc.)and executing (where are fences, hedge and tree lines, etc.) our survey requests.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Yes, To obtain current ownership information (Deed and plat references).

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

Not sure.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes, Use for presentations and overlaying with surveying drawings during analysis of projects.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Yes, Results of our Control, Topographic and Boundary Surveys.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Yes, Update the recovery information for our 28,000 survey markers throughout the County.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Maintain and update our Survey data. Obtain site conditions for work areas. Recover land ownership information.

What activities do you think could benefit from use of (or increased use of) GIS?

Planning of land use. Distribution and maintenance of geographically based data (Surveys, Construction plans, etc.). Inventory of County infrastructure (Roads, Utilities, etc.). Maintenance of County infrastructure.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

GIS has become so intergraded into the daily activities of both the public and private sectors of Baltimore County that it is almost part of our 'infrastructure'. It is a wonderful tool that allows us to access a wealth of data, which makes us more responsive to the citizens of Baltimore County.



Agency DPW

Name Paul Bollard

Job Title EA II

Briefly, what activity(s) do you perform within your department?

Produce drawings, designs, cost estimates and some field work on a variety of sewer projects. Also deed research deed plotting.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

drawing 50% design 25% research 15% deedplotting 10%.

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

I use topography, roads, buildings, streams, trees and contours as a base for my sewer rehab plans.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

locate position sheets key sheets addresses.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

My drawings need to be printed so I can send them to other county agencies for review.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

create maps for master plan locate addresses

What activities do you think could benefit from use of (or increased use of) GIS?

none

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

none



Agency DPW

Name Praful R. Bhatt

Job Title Engineer III

Briefly, what activity(s) do you perform within your department?

Review of Development Plans, Design of New and Replacement of existing water mains

Approximately what percentage of your work week do you spend for each activity identified in question #9?

80%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

topo & Property maps

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

MyNeighborhood

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

digital maps

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

create existing property information, water customer addresses etc.

What activities do you think could benefit from use of (or increased use of) GIS?

existing utilities and property information

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

none



Agency DPW

Name Radu L. Zamfirache

Job Title Engineer III

Briefly, what activity(s) do you perform within your department?

Storm drains design Hydrology & hydraulics studies Site development projects

Approximately what percentage of your work week do you spend for each activity identified in question #9?

50% 25% 25%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes, I use topographic maps from the phase of inception of a project up until a project is promoted and a field survey is performed. I use all GIS data for 100% of the H&H studies and in all preliminary planning and analysis for site developments.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

No. I import all GIS Layers in AutoCAD

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Create base plans for site planning and H&H analysis and computations. I also use it as generic reference for property lines, existing buildings, vegetation lines, utilities location and bodies of surface water.

What activities do you think could benefit from use of (or increased use of) GIS?

Design

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

No additional comments



Agency DPW

Name RENE ' S. HENRY

Job Title PROJECT ENGINEER III

Briefly, what activity(s) do you perform within your department?

As project engineer for the sewer design section I work with outside consultants in the design of sewer systems for new and existing communities as well as evaluate and design rehabilitation of existing sewer lines/interceptors.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

75%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

In the evaluation stage of design projects I use this information to access the most current and accurate data of existing condition.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

The GIS applications allows me to see what is the latest data on file with Baltimore County. This will determine whether additional information will be needed from an outside source.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

no

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No to other agencies but to outside consultants who are contracted to do County projects.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Locate sewerlines, utilities, street addresses, communities

What activities do you think could benefit from use of (or increased use of) GIS?

I am satisfied with what GIS has to offer.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Robert C. Berner

Job Title Chief, Bur. of Engr. & Const.

Briefly, what activity(s) do you perform within your department?

Oversee the daily activities of the Bureau of Engineering and Construction

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

No

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes, use material for meetings

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Yes, Provide information to Director for his use at meetings

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

None

What activities do you think could benefit from use of (or increased use of) GIS?

Valuable tool in providing information for design work in all 6 of the Bureau's Design Sections.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

None



Agency DPW

Name ROBERT M. LIDARD

Job Title ENGINEERING ASSOCIATE III

Briefly, what activity(s) do you perform within your department?

DESIGN ROADWAY PROJECTS, REVIEW DEVELOPMENT PLANS, LOCATE UNDERGROUND UTILITIES, GIS MAPS

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

YES. LOCATE AREA FOR FUTURE ROAD CLOSING, LOCATE AREA FOR CONTOUR LINES ON A PROJECT,

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

YES, BUT NOT ON A DAILY BASIS.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

NO.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

YES, BUT NOT ON A DAILY BASIS.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

YES, BUREAU OF HIGHWAYS.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

NO.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

LOCATE ALLEYS, USE OF CONTOUR LINES IN DESIGNING A PROJECT, LOCATE ADDRESSES FOR PEOPLE WHO HAVE INQUIRIES, LOCATE TOPO FOR PROJECT OR METRO-TECH.

What activities do you think could benefit from use of (or increased use of) GIS?

MORE ACCURATE TOPO SO THAT GIS COULD BE USED AS A DESIGN TOOL.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

HAVE AT LEAST ONE PERSON IN EACH DEPARTMENT QUALIFIED AS A BASIC GIS USER.



Agency DPW

Name Robin B. Hurley

Job Title EA III

Briefly, what activity(s) do you perform within your department?

1. Review building permits
2. Determine Floodplain info
3. Process As-Builts
4. Verify water and sewer availability
5. Prepare LOMA's to be sent to FEMA
6. Prepare Basic Services Maps
7. Prepare GIS maps for other departments and developers.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

1. 70%
2. 10%
3. 3%
4. 3%
5. 5%
6. 2% (prepared once a year)
7. 7%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

YES - When I review a building permit I prepare a GIS map using the following: contours, utility, hydro, elevations, road, buildings. Orthos come in handy when there's been a lot of development in an area. It's useful to see what is actually there.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

YES - I locate various addresses when reviewing permits.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

YES - Prepared map for sidewalk project that allowed us to see which property owner was for and against the project by using symbols. Those symbols were then placed in a legend along

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

YES - every permit review requires a gis map be included in the review package.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

YES - Development Plans Review required a map when a dispute arose between two property owners and the use of a shared panhandle driveway.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

NO

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

1. Locate properties for permit review
2. Locate sewer lines
3. Verify floodplains
4. Create maps for Basic Services
5. Create maps for developers who are preparing to submit permits.

What activities do you think could benefit from use of (or increased use of) GIS?

Not sure

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

1. GIS is extremely helpful to me when performing my job. It saves me a lot of time since most of the information I need is right at my fingertips.
2. FEMA uses our maps when determining floodplain complaints/verifications.
3. I would be nice to see the water lines placed on GIS.



Agency DPW

Name Ronald E. Houck

Job Title Engineer Associate 2

Briefly, what activity(s) do you perform within your department?

Design and Draft (Auto Cadd) construction contract drawings.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

70%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

no

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

no

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

no

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Dxf in to dwg drawings.

What activities do you think could benefit from use of (or increased use of) GIS?

Location (Key) Maps for specific utilities.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Sandi Isner

Job Title Engineering Records Supervisor

Briefly, what activity(s) do you perform within your department?

Track and obtain information about utility lines and components of such.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

5%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Use to inquiry manhole numbers for location. Use that information to changed legally binding documents and drawings.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Use to inquiry manhole numbers for location. Use that information to changed legally binding documents and drawings.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes. Will be providing Key Sheets maps for sale to general public, contractors, consultants. other government agencies as well as internal. Currently sell infrastructure maps to same.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Yes. Will be providing Key Sheets maps for sale to general public, contractors, consultants. other government agencies as well as internal. Currently sell infrastructure maps to same.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Use to inquiry manhole numbers for location. Use that information to changed legally binding documents and drawings.

What activities do you think could benefit from use of (or increased use of) GIS?

Not sure.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

More County personnel should have access and training to features. Input needed from end users BEFORE projects are designed and implemented. Better communication between OIT and end users.



Agency DPW

Name Scott Miller

Job Title Engineer Associate 3

Briefly, what activity(s) do you perform within your department?

In charge of sanitary sewer flow monitoring program for consent decree.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes, orthophotos for mapping related to consent decree.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No,

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes, use hard and digital copies of maps to meet consent decree deliverables for EPA and MDE.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Mapping for consent decree.

What activities do you think could benefit from use of (or increased use of) GIS?

None.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name SERAFIN W. BUENDIA

Job Title EA-III

Briefly, what activity(s) do you perform within your department?

DRAFT AND DESIGN WATER MAINS.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

NO

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

NO

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

NO

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

NO

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

NO

Do you perform any GIS data maintenance activities? If yes, please provide an example.

NO

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

NO

What activities do you think could benefit from use of (or increased use of) GIS?

FASTER AND MORE COMPLETE INFORMATION

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

AS TECHNOLOGY ADVANCES WILL DEPEND MORE ON GIS



Agency DPW

Name Sharon Dziwulski

Job Title Engineering Asst

Briefly, what activity(s) do you perform within your department?

I maintain the road system records for highways road maintenance and snow removal. I also am check on road R-O-W's and properties owned and maintained by highways.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

90%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes, If a shop calls and explains or draws a location with a problem(tree, drainage ownership), I use the system to help in the location and identification of road R-O-W and property to determine if our crews should be working in the location. I use the system as part of the property identification. This is just one many ways i use it.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Yes, If a shop calls and explains or draws a location with a tree problem, I use the system to help in the location and identification of road R-O-W and property to determine if our crews should be working in the location. I use the system as part of the property identification. This is just one many ways i use it. The database is better w/overhead of land but this program helps w/tax info better.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes, I'll print out an overhead of the property to help the highway's crew with locations of problems

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Sometimes I do for the a Councilman's office, mostly in house

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Locate addresses, use to help find difficult locations, help identify road R-O-W & county properties

What activities do you think could benefit from use of (or increased use of) GIS?

I use the system daily for many activities already. I'm not sure how other employees could use this system, but it would probably benefit them in some way. The only thing that would be wonderful is when the entire system is completed as far mapping out properties.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Sharon Ganzler

Job Title Office Administrator

Briefly, what activity(s) do you perform within your department?

All aspects of front office/supervision of 4 clerks, data entry, correspondence, computer problems, cassworks/cassview, data/reports for compliance with consent decree

Approximately what percentage of your work week do you spend for each activity identified in question #9?

Split pretty even with all assignments-

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

after trying 4 times to install GIS on my computer, they have given up. Only access with Mike Armstrong's computer on an occasional basis

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No, but would like to have. Probably not on a daily basis, but several times per week

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no, not currently

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Occasionally. Cleaning/tv data for sewer service areas

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Since physical inventory of sewer is demanded via consent decree, unit submits changes (paper copies) to GIS layer which feeds cassview. Do not access layers to make changes ourselves

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

not that many right now.

What activities do you think could benefit from use of (or increased use of) GIS?

Several more computers having access to GIS layer for crews to take to the field. Only having 2 locations (Mike Armstrong and Gene Miller) creates havoc when trying to get crews on the road with the latest info available so reports can be accurate for entry into Cassworks/Cassview, the Utilities Management program. Since the Cass's cannot show all the data that GIS can, this is a very important tool. Would be helpful if night/weekend shifts had it, too.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

See #18.



Agency DPW

Name Stacey Tamalavicz

Job Title GIS Technician

Briefly, what activity(s) do you perform within your department?

Research and edit the sewer geodatabase.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes, when I edit the sewer database I use plantopo as a reference. Some of the layers are: roads, buildings, property lines, etc.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

No

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Yes, I have fixed errors that are found during database compression.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Research and edit the sewer geodatabase.

What activities do you think could benefit from use of (or increased use of) GIS?

More ESRI training needs to be available to GIS users in order to maximize the benefits of the software.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

Obtaining a editing license has not been an issue for the past month or so.



Agency DPW
Name Steven
Job Title Associate Engineer III

Briefly, what activity(s) do you perform within your department?

Operate computers & peripheral equipment to perform GIS work. Collects, computes and evaluates data for refuse/recycling compensation and collection countywide. Interface, maintain and update 1 & 2 listed above to create an address database to perform route counts for electronic compensation calculation and in so doing eliminate the need for field verification except for audit purposes. Review, field inspection and approves construction plans for developments and private residences for services for Bureau Of Solid Waste Mgt.. Supervise one crew chief and 6 employees who are assigned to the facilities refuse and recycling crew.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

60% Operate computers & peripheral equipment to perform GIS work. Collects, computes and evaluates data for refuse/recycling compensation and collection countywide. Interface,

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

ortho centerline elevation trans line hydro rail building zone parcel topo All are used to maintain route maps and address data base, construct truck turn arounds

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

Data Query

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

no

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

yes, anything to do with refuse and recycling collection, landfills

Do you perform any GIS data maintenance activities? If yes, please provide an example.

I created and maintain my own address data base that receives refuse & recycling collection

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Maintain 200+ collection route maps.

What activities do you think could benefit from use of (or increased use of) GIS?

our customer service personal

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

I can not take enough time to tell you how much and what I use Gis for. If you have a lot of free time come see me.



Agency DPW

Name Steven Walsh

Job Title Chief, Design Division

Briefly, what activity(s) do you perform within your department?

Management of design sections within Engineering. Design sections responsibility is initiation, design and construction of county infrastructure projects including road, bridge, storm drain, sewer, water and public building projects. Also serves as technical support for development impacts on county infrastructure.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

75

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

no

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

yes...orthophotos and plan data through ARC-IMS. Citizen questions of various types get routed through our office and I always use this tool to get a quick aerial view of the area.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

no

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

none

What activities do you think could benefit from use of (or increased use of) GIS?

Asset management for the various pieces of county owned infrastructure we manage

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

I believe we are just scratching the surface of what GIS can do for us as a Bureau/Department.



Agency DPW

Name Suzanne E. Hale

Job Title Engineering Associate III

Briefly, what activity(s) do you perform within your department?

1. Manage and maintain the GIS Utility database. Train personnel to edit utility database.
2. Fill GIS data requests for employees in Engineering and outside Consultants.
3. Prepare GIS maps for Managers in the Department of Public Works.
4. Answer general GIS questions for employees in Bureau of Engineering & Construction.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

1. 95%
2. 2%
3. 2%
4. 1%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

I review, reconcile and post edits to the utility geodatabase. When reviewing edits, I use many of the plantopo layers, for example roads, property lines, hydrology layers, buildings, etc..

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

I do not use Dataquery or MyNeighborhood. However I do answer questions regarding the applications to employees that use these them.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

I use geo-coding, address matching. One Example: I receive spreadsheets from the Bureau of Utilities listing overflow locations and we are required by the Consent Decree to plot these

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

I produce hardcopy and digital maps per requests from various agencies in Public Works. Generally, my work requires me to work digitally.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

1. Engineers need GIS data to import into their cad files and I retrieve the data and make it accessible to them.
2. Managers in various Public Works offices need hard copy GIS maps for making decisions or taking out to the Community for presentation.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Yes. I manage and maintain all edits performed on the sewer database. I assist in the compression of the sewer database.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Since 1999, I created the maps for the Basic Services Maps and maintained the water, sewer and transportation maps for the maps. Create maps for managers of DPW to make decisions regarding citizen complaints, community meetings, etc.

What activities do you think could benefit from use of (or increased use of) GIS?

I feel that the Permits and Development Management would greatly benefit from using GIS. Consequently, this would help the Department of Public Works, because a lot of customers are sent to the DPW Directors Office for answers, simply because Permits & Development Management do not have GIS.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

I started using our GIS data in 1999, and it is excellent data which allows me to work effectively and efficiently. When I reviewed building permits and floodplain inquiries, I was able to give very accurate information and in a lot less time than before our GIS. The software we are using today ArcGis 9.0 is excellent software for editing and I enjoy working with the databases.



Agency DPW

Name TAMMY HARRIS

Job Title ENGINEERING RECORDS TECH

Briefly, what activity(s) do you perform within your department?

Assists bureau staff, the public and other customers of the engineering records section. Identifies, locates and reproduces and documents for customers using digital records management system. calculates customer charges. receives payments and bills accounts.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

35hrs

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

no but would like too

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

no, but would like too.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

yes. key sheet and water, sewer, storm drain, and road construction drawings

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

yes, provide prints to other agencies and the public.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

none

What activities do you think could benefit from use of (or increased use of) GIS?

Don't know

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name Terry

Job Title Engineer III

Briefly, what activity(s) do you perform within your department?

I oversee engineering projects done by consultants, design engineering plans done by the county, do floodplain reports, report floodplain inquiries, drainage complaints.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

I would say I spend my weekly time equally on each subject.

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes, I use GIS to printout topography maps to see what the drainage area is to a problem address and calculate flow to the problem address. I also use them to figure out what address property lines are about.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

no.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes, I use hard copies (paper) to make a drainage area map.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

create drainage area maps create floodplain maps create land use maps create soils maps

What activities do you think could benefit from use of (or increased use of) GIS?

having a storm drain layer showing all the storm drain pipes and structures in the county. I heard that this is being worked on. Also, a master floodplain layer showing areas of floodplain delineation.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

My only comment is that I wish all file information is left in one spot. For example, One time I used the land use layer in a map. I wrote down where in file was located. Then a few weeks later I wanted to do it again but I was told it was moved because it was being worked on or updated. This is difficult and time consuming.



Agency DPW

Name Thomas C. Smith

Job Title construction inspector

Briefly, what activity(s) do you perform within your department?

Inspections of new and modification of traffic signals

Approximately what percentage of your work week do you spend for each activity identified in question #9?

80%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

to orient intersection of existing structures

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

to locate water lines

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

use print out to take to field

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

no

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

locate property lines to compare to print

What activities do you think could benefit from use of (or increased use of) GIS?

works well as is

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

show right of way lines



Agency DPW

Name Thomas Stehr

Job Title Engineer Associate I

Briefly, what activity(s) do you perform within your department?

GIS mapping Road closures Block parties/festivals Handicap Curb Ramp Requests American Disability Ass. Office representative Field Investigations

Approximately what percentage of your work week do you spend for each activity identified in question #9?

GIS 25% Road closures 10% Block Party/Festivals 10% Handicap Curb Ramps 20% Field Investigations 10%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Ortho 2005/2002 Facilities.VW_address Hydrology.Hydrology_line Smallscale.cline Landuse.Boundary Landuse.TaxParcel Landuse.SimConFirstDivision Landuse.Mapindex Landuse.Encubrance

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No. Waiting to take the DataQuery class at the end of the month.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No.

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes. Inspection members may ask to view a digital map of an area they are investigating, or use the GIS info to cut travel time or for letter writing. I produce hardcopy maps for Bureau chiefs to use at public meetings. Produce digital map for traffic signals throughout the county.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

OIT-assist with data products, QC. Highways-GIS hardcopy for ramp construction

Do you perform any GIS data maintenance activities? If yes, please provide an example.

yes, maintain Traffic Signal layer. Assist w/ Traffic Calming layer.

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Locate addresses for Inspectors. Create maps for public meetings. Create maps for construction process, map traffic signals for 911 services.

What activities do you think could benefit from use of (or increased use of) GIS?

Traffic Safety - accident reporting/mapping. 911 emergency response. Proposed Land Development. Code Enforcement - difficulty finding property ownership.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

For our department, I feel that GIS technology helps several positions in our bureau. GIS assists Inspectors, Design group and Administration with the use of ortho, r/w street centerline, property boundaries, tax info. This allows quick response for information that normally would need investigation, travel time or other delays.



Agency DPW

Name W William Korpman

Job Title Deputy Director

Briefly, what activity(s) do you perform within your department?

Assist Director in managing department with about 1150 employees and responsible for about \$450 million budget. One function is to assist department members with IT issues. Member of ITAC and ITAC Steering committee.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

I don't have access to these directly. If I need something I ask someone in our department to get it for me.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

I use My Neighborhood when dealing with citizen issues in specific locations. If I need more detailed info I ask someone in the department to get it for me. A recent example was related to property being placed in conservation. We reserve the right to enter to work within a certain distance of existing roads and bridges. We had an aerial photo with contours prepared to show the property owner the limits of this right of entry, making adjustments to preserve a historic mill and dam. Without this info the owner was hesitant to agree to have the preservation easement placed on his property.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

No

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Not Routinely

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Doug Gabbert has provided a list of activities our department performs on GIS. I do not do any of these directly.

What activities do you think could benefit from use of (or increased use of) GIS?

We are implementing CASSworks in several agencies in DPW as an infrastructure management tool. In some agencies this is not being linked to GIS at this time. Providing this link would make CASSworks more useful and effective.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

DPW was one of the agencies that helped sell the County on the idea of developing and implementing GIS. We feel we have been a leader in its usage and hope to continue to be at the forefront in developing new ways to use it to be more efficient and to serve the citizens better. We are excited about what we have done so far and what we will be doing in the future.



Agency DPW

Name W. Keith Link

Job Title Engineering Program Manager

Briefly, what activity(s) do you perform within your department?

I am the manager of the Neighborhood Traffic Management Program (Traffic Calming). I also handel construction and SPECIAL PROJECTS.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

70% Traffic Calming, 15% Construction, 15% Special Projects

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

I use the GIS data for all of my traffic calming and special project plans. I export the orthophotos to a .jpeg and insert the into MicroStation to do my designs. I also use GIS data that has been converted to .dxf format in MicroStation.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

No

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes, All of my plans are created using some part of GIS. They are printed and given to the community as a clear way to identify what we are proposing for their street.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Yes, I most recently did a re-design of core Towson using MicroStation, and GIS for the presentation.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

No

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Mostly I use orthophotos converted to a format that can be used with MicroStation. I also find the address layer to be very useful.

What activities do you think could benefit from use of (or increased use of) GIS?

All engineering designs if GIS can be easily merged with Cadd programs.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name wayne shorb

Job Title eng. associate 11

Briefly, what activity(s) do you perform within your department?

drafting, design, bridge inspections, capital tracking data entry, metroteching, running the cleaning and painting program for the county bridges.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

100

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

i will use the orthophotos to produce drawings that show the locations of bridges that are to be contracted to be cleaned and painted.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

each request for the creation of a gis map will dictate what data has to be provided. different layers of data are used to meet different project needs. at one time or another all the layers of data have been incorporated into the creation of various projects.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

when various new projects enter our office often i provide the engineers with a gis map showing the area of the project and provide them with whatever data they may request .

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

recently the directors office working in conjunction with our section chief had to meet with a concerned citizen in regards to some projected work to be done in the area of their property. they requested that a gis map be prepared so they could take it along to the meeting and present it to the property owner to better explain the scope of the proposed project.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

no

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

create maps to be used in conjunction with cleaning and painting projects, create maps for engineers to use in the creation of new projects, create maps for various agencies on an as needed basis, locate property lines, etc.

What activities do you think could benefit from use of (or increased use of) GIS?

not sure

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.



Agency DPW

Name William D. Fox

Job Title EA-II

Briefly, what activity(s) do you perform within your department?

1)Signage Inventory & Inspection @Ground Level. 2)Signage Inventory & Inspection @ signalized intersection. Along w/ ordering material from out side vendor for required signage. 3)C add work for Traffic signals. 4)Special projects. Example w/ parking, detours, lane markings, right of ways, line of sight issues, pedestrian safety, traffic flow issues and traffic calming

Approximately what percentage of your work week do you spend for each activity identified in question #9?

1)& 2)-50% 3)-25% 4)-25%

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Yes-to find addresses, property lines, right of ways & property owners .

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

yes_example_signage inventory_to show progress of work w/point locators.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

no

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

yes_to provide ortho maps to show specific areas for a presentations at meetings.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

Yes_ Traffic Claming & Signalized Intersection locations for the 911 center.

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Yes_ by helping OIT to input information in to a Geo-Data base for Items mentioned in Question # 15

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

See answers from question #1 It will be much the same .

What activities do you think could benefit from use of (or increased use of) GIS?

I truly believe that with the Dept. of Public Works, GIS has a lot to offer and the department has a lot to benefit from with the use of the GIS system.

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

Really look forward to helping out with setting up the cass_works within our department. It is long over due.



Agency DPW
Name William Frankenfield
Job Title Chief, Bureau of Utilities

Briefly, what activity(s) do you perform within your department?

Oversee operations that repair and maintain the County sewer and storm drains and assist Baltimore City with repairs to the water system in the County. Also provide 24 hour communication line for DPW to respond to DPW emergencies.

Approximately what percentage of your work week do you spend for each activity identified in question #9?

80% sewer system operations & maintenance (O & M) 10% storm drain O & M 10% water system O & M

Do you use GIS data or databases (e.g., orthophotos, topography, property maps) to perform your daily job? If yes, please provide an example.

Use GIS data to get sewer layer information in complaint investigation and to get building foot prints to relate an address to the physical location.

Do you use GIS applications (e.g., Data Query, MyNeighborhood websites) to perform your daily job? If yes, please provide an example.

I have not used these applications, however, I do see that I will benefit from their use when I get more accustomed to the site.

Do you use spatial analysis (e.g. geocoding, routing) to perform your daily job? If yes, please provide an example.

No

Do you use or produce hardcopy or digital maps to perform your daily job? If yes, please provide an example.

Yes...I produce 8 x 11 maps, occasionally, to show the building footprints and the sewer system. I have others produce, at my direction, digital maps that show locations of sewer blockages and sewer service areas.

Do you provide data products or services to other agencies or the public? If yes, please provide an example.

No

Do you perform any GIS data maintenance activities? If yes, please provide an example.

Yes...Our Bureau provides GPS coordinate information to update and verify sewer structure locations

Briefly list the activities that you perform using GIS? (create maps for master plan, locate water customer addresses for work orders, etc.)

Locate sewer and storm drain addresses that have issues to be investigated to provide needed information on where the property is connected or served by the utilities.

What activities do you think could benefit from use of (or increased use of) GIS?

Sewer and Storm Drain Asset inventory and Management

Please provide any additional comments you have regarding the use of GIS technology by your department, agency or the County as a whole.

Development of the sewer layer has been absolutely vital for our Bureau to effectively manage the sewer system. GIS has allowed us to develop full use of CASSWORKS maintenance management software which provides maintenance and inspection history for each sewer structure. We are expanding into storm drain and sewer pump station maintenance utilizing CASSWORKS. Additionally, use of GIS applications are mandated under our USEPA and MDE Consent Decree that requires inspection and upgrade to much of the County sewer system. Reporting of inspection and rehabilitation requirements will be done by digital maps with color coded line segments. Use of GIS for this purpose is an effective means to communicate this type of information.