

# **Appendix J**

## **Health Department**





## Table of Contents

<b>1</b>	<b>Department of Health</b>	<b>1</b>
1.1	Agency Overview	1
1.2	Agency Public Access Programs	3
1.3	Agency Study Participants	5
<b>2</b>	<b>Cost/Benefit Information</b>	<b>7</b>
2.1	Annual Agency Cost	7
2.1.1	Annual Operational Costs	7
2.1.2	Annual Resources (GIS Staff)	8
2.1.3	Annual Enterprise Costs	9
2.2	Agency Benefit Assessment	9
2.2.1	Existing GIS Benefits	9
<b>3</b>	<b>GIS Utilization and Recommendations</b>	<b>13</b>
3.1	GIS Utilization Analysis	13
3.1.1	GIS Personnel	13
3.1.2	GIS Data Usage	13
3.1.3	GIS Applications Usage	14
3.1.4	GIS Database Maintenance	15
3.1.5	Assessment of Business Process with GIS	16
3.2	GIS Needs Assessment	18
3.2.1	Applications	18
3.2.2	Data	18
3.2.3	Training	20
3.2.4	Best Practices	20
3.2.5	Communication and Agency Coordination	20
3.3	Recommendations	22
3.3.1	Short-Term Recommendations and Potential Benefits	22
3.3.1.1	Quick Deployment	22
3.3.1.2	Additional Investment Opportunities	26
3.3.2	Mid-term Recommendations & Potential Benefits	26
<b>4</b>	<b>Programs and Activities</b>	<b>29</b>
4.1	Administrative Support Services	31
4.1.1	Birth Tracking for Annual Report and School Projections	33
4.1.2	Death Tracking for Annual Report	35
4.2	Media Relations	36
4.2.1	Media Relations	37
4.3	Public Health Emergency Preparedness	39
4.3.1	Outbreak Tracking and Analysis	41
4.4	Substance Abuse	43
4.4.1	Special Projects – Ad Hoc Mapping Requests	45
4.4.2	Substance Abuse Tracking and Annual Report	47
<b>5</b>	<b>Short-form Online Questionnaires</b>	<b>49</b>



## Tables

Table 1 - Public Access Information	4
Table 2 - Short Form Respondents	5
Table 3 – Interviewees	5
Table 4 – Annual Agency Cost and Benefit Summary	7
Table 5 – Annual GIS Training Costs	8
Table 6 – Health GIS Supply Costs	8
Table 7 – Annual GIS Personnel Costs	8
Table 8 – Annual Enterprise GIS Costs	9
Table 9– Existing GIS Benefits by Program	10
Table 10- Total Department of Health Annual Benefits	11
Table 11 – GIS Training	13
Table 12 - Data Usage	14
Table 13 - Agency Data Maintenance	16
Table 14 - GIS Integration with Business Processes, by Program	17
Table 15 - Datasets that Need to be Created	18
Table 16 - Datasets that Need Enhancement	19
Table 17 - Datasets That Need Spatial Representation	19

## Figures

Figure 1 – Department of Health GIS Benefits by Program	12
---	----



# 1 Department of Health

## 1.1 Agency Overview

The mission of the Baltimore County Department of Health is to promote health and prevent disease and disability for the residents of Baltimore County through leadership, services, and partnerships and to assure a health system that is accessible, coordinated, comprehensive, culturally sensitive, community based, accountable, and of high quality. The Department is divided into the following Bureaus: Child, Adolescent, and Reproductive health; Medical Social Work; Disease Control; Mental Health; Public Health Nursing; Long Term Care; and Substance Abuse.

### Bureau of Child, Adolescent, and Reproductive Health

The Bureau of Child, Adolescent, and Reproductive Health manages issues such as childhood illness, child safety, testing services for developmental disabilities and nutrition for low income mothers and children.

### Bureau of Medical Social Work

This bureau consists of three separate programs for HIV/AIDS. Through these programs, the bureau strives to keep HIV positive people and those living with AIDS in the community through counseling, education, and concrete support services. It provides a wide variety of HIV/AIDS related activities to the community in order to reduce HIV infection in the County, and to meet the needs of those already infected or affected. These activities include:

- HIV/AIDS Prevention, Education and Outreach
- HIV/AIDS Case Management Services
- HIV/AIDS Testing
- Maryland Children's Health Insurance Program

### Bureau of Disease Control

The Bureau of Disease Control is divided into seven services and programs ranging from Animal Control to Emergency Preparedness. These programs include:

- Animal Control
- Cancer prevention Program
- Public Health Emergency Preparedness
- Women's Cancer Protection Program
- Communicable Diseases
- Public Health Dentistry
- Medical Environmental Health



### Bureau of Mental Health

The Bureau's target population is Baltimore County's seriously and persistently mentally ill men and women and seriously emotionally disturbed children. Approximately 2 percent of people nationwide have a serious and persistent mental illness and about 11,700 Baltimore County residents with a serious mental illness were served by the Public Mental Health System in Fiscal Year 2005. All direct mental health services administered by the Bureau are provided by contracted providers, with the exception of a very limited amount of general case management from the adult services team. The array of services available to Baltimore County citizens has broadened significantly over the past two years to include over 400 providers. These services include rehabilitation and residential programs, outpatient clinics, mobile treatment, case management, geriatric services, after-school programs, respite services, crisis services, homeless support services, and psychiatric emergency services. The Bureau's main functions are carried out through the following programs:

- Adult Services
- Administrative Services
- Child and Adolescent Services
- Quality Assurance

### Bureau of Public Health Nursing

Public health nursing is a specialized area of practice striving to preserve the health of populations across the lifespan by emphasizing health promotion, and disease prevention and control. To accomplish this goal, public health nurses provide comprehensive health services to individuals, families and the community-at-large through a broad spectrum of targeted interventions and programs. These programs include child and adolescent health, communicable diseases, and chronic diseases. Prevention services are directed to three areas: eliminating problems/disease before they occur; early detection and prompt treatment of problems, and restoring the patient to optimal functioning despite disease or disability. Public health nursing functions include case management, multi-disciplinary collaboration, surveillance, outreach, case finding and nursing care.

### Bureau of Long Term Care

The Bureau of Long Term Care provides a continuum of services to help keep residents in their home. The services are primarily for disabled adults and senior citizens at risk of long term care placement. Services provided include:

- Home health
- Hospital discharge planning
- Case management and medical assistance personal care
- Transportation services

The Bureau of Long Term Care also oversees a small program serving the uninsured in seeking medical care.



## Bureau of Substance Abuse

The Baltimore County Department of Health, Bureau of Substance Abuse provides treatment for substance abusers and their families, implements programs and services to prevent substance abuse, and develops, coordinates, and monitors a countywide network of substance abuse prevention and treatment services. The following services are offered by this bureau:

### Treatment Services for Adolescents

The Adolescent Services Division of the Bureau of Substance Abuse provides specialized services for Baltimore County adolescents and their families. Services include assessment, referral, early intervention, and treatment.

### Treatment Services for Adults

A variety of treatment services are provided either directly by the Bureau or through contracted vendors. Placement into treatment requires a thorough assessment to determine the most effective treatment program needed. Services are provided to County residents based on their ability to pay. Service is not refused to those who cannot afford treatment.

### Criminal Justice Services

The Bureau provides alcohol and drug assessments for defendants in Circuit and District Court. Education, assessment, and referral services are provided for inmates in the Detention Center.

### Prevention Services

The Bureau's Prevention programs provide services to individuals, families, schools, and communities throughout Baltimore County. These programs are designed to prevent or delay the onset of alcohol, tobacco, and other drugs of abuse.

The following programs fall under the Department of Health as they pertain to this study:

- Administrative Support Services
- Media Relations
- Public Health Emergency Preparedness
- Substance Abuse

## **1.2 Agency Public Access Programs**

Each bureau within the Department of Health makes a variety of static information about its programs and several forms available on the County's web site. A summary of this information is provided in the table below. There is currently no MyNeighborhood application supporting residents interested in health related information. However, the information provided by several of the programs could benefit from being displayed spatially in an application such as MyNeighborhood (e.g., locations of



animal control services, health centers, HIV/AIDS testing sites, family planning services, STD clinics, Healthy Start, and substance abuse treatment providers). The following is a list of publications created by the Health Department.

Bureau/Program	Publication
Animal Control	<ul style="list-style-type: none"> <li>• Program rules, descriptions, and locations</li> <li>• Pet Owning Tips</li> </ul>
Cancer Prevention	<ul style="list-style-type: none"> <li>• Pamphlet promoting services</li> <li>• Colon Cancer Screening Pamphlet</li> <li>• Breast and Cervical Cancer Info Pamphlet</li> </ul>
Disease Control	<ul style="list-style-type: none"> <li>• TB Info Sheet</li> </ul>
Health Department	<ul style="list-style-type: none"> <li>• Listing of Centers and Services</li> <li>• HIV/AIDS Testing Services</li> <li>• HIV/AIDS Testing Sites</li> <li>• Health Services for Older Adults-Directory</li> <li>• Health Profile (Published every 3 years)</li> <li>• Family Planning Service locations</li> </ul>
Home Health Services	<ul style="list-style-type: none"> <li>• Home Health Services Description</li> </ul>
Infants and Toddlers program	<ul style="list-style-type: none"> <li>• Description of Services</li> </ul>
Long Term Care	<ul style="list-style-type: none"> <li>• Project M.E.D. description</li> </ul>
Medical Social Work	<ul style="list-style-type: none"> <li>• HIV/AIDS Case Management services flier</li> <li>• STD Clinic Locations and Services</li> </ul>
Public Health Dentistry	<ul style="list-style-type: none"> <li>• Brochure, describing services</li> </ul>
Public Health Emergency Preparedness	<ul style="list-style-type: none"> <li>• Seasonal, Pandemic, and Bird Flu Info</li> </ul>
Public Health Nursing	<ul style="list-style-type: none"> <li>• Children Immunization Services</li> <li>• Healthy Start locations and services</li> </ul>
Speech, Language, and Hearing	<ul style="list-style-type: none"> <li>• Brochure describing services</li> </ul>
Substance Abuse	<ul style="list-style-type: none"> <li>• Pathway to Progress, Annual Report</li> <li>• Brochure describing services</li> <li>• Treatment Provider Listing</li> <li>• Juvenile Drug Court Pamphlet</li> </ul>
Tobacco Prevention and Cessation	<ul style="list-style-type: none"> <li>• Flier describing services</li> <li>• Maryland's 1-800 Quit Now Flier</li> </ul>

**Table 1 - Public Access Information**



### 1.3 Agency Study Participants

Agency personnel contributed to the study by completing the short form online survey, participating in interviews, and providing miscellaneous data to support information provided throughout the report.

Thirteen people completed the online short form survey, which was used to determine each person’s role within the department and determine if these individuals were using GIS to support their activities. Each of the short form responses has been included in the appendix of this document. The following personnel completed the online short form survey:

<b>Short Form Respondents</b>
Bonnie Coleman
Dave Taylor
Della J. Leister
Eric M. Fine MD, MPH
Karen Bratton
Kathleen Rebbert-Franklin
Latonya Adams-Smith
Lois Fegan
Olorunwa Asiru
Ruth Thompson
Shawn Kelly
Stephanie House
Thomas Petza

**Table 2 - Short Form Respondents**

There were a total of five individuals that participated in interviews conducted on November 13, 2006. These individuals are:

<b>Interviewees</b>
Dave Taylor
Latonya Adams-Smith
Lois Fegan
Olorunwa Asiru
Shawn Kelly

**Table 3 – Interviewees**



**THIS PAGE INTENTIONALLY LEFT BLANK**



## 2 Cost/Benefit Information

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

<b>Summary – Total Annual GIS Benefits</b>	
<b>Time Benefits:</b>	\$75,097.40
<b>Other Benefits:</b>	\$0
<b>Total Annual Benefits:</b>	\$75,097.40
<b>Summary - Total Annual GIS Costs</b>	
<b>Total Annual Costs:</b>	<b>\$12,039.83</b>
<b>Summary - Total GIS Cost/Benefit</b>	
<b>Total GIS Cost/Benefit:</b>	<b>+\$63,057.57</b>

**Table 4 – Annual Agency 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

The Department of Health does not contribute significantly to the cost of supporting the Enterprise GIS for Baltimore County. This agency maintains relatively few GIS datasets, holds almost no related operational costs, and carries less than one fulltime employee equivalent. The total annual agency cost to support each of these elements is \$12,039.83.

<b>Total Agency GIS Cost: \$12,039.83</b>
---

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

#### 2.1.1 Annual Operational Costs

The Department of Health supports the cost of several GIS-related training activities per year. Lois Fegan maintains membership in URISA and attends the Towson GIS Conference each year. Several staff members have attended external training courses in the past and the agency has budgeted for one



external training course per year at a cost of \$150.00. All other training is performed in-house at no additional cost to the agency.

Type of Training	Estimated Cost	# of Staff Attending	Total Annual Cost
URISA Membership Dues	\$150.00	1	\$150.00
Towson GIS Conference	\$200.00	1	\$200.00
External GIS Training	\$150.00	1	\$150.00
<b>Total Cost</b>			<b>\$500.00</b>

Table 5 – Annual GIS Training Costs

The Department of Health has database expenses for purchasing base maps for the entire Baltimore metropolitan region as well as school boundaries in MapInfo format each year. This cost totals \$2,000.00 annually.

Hardware, Software, and Database Items	Annual Costs
Base maps - Baltimore Metropolitan Council and MapInfo school boundaries	\$2,000.00
<b>Total Cost</b>	<b>\$2,000.00</b>

Table 6 – Health GIS Supply Costs

### 2.1.2 Annual Resources (GIS Staff)

The agency contains two staff members that perform some activity that supports GIS for the agency. This assistance includes GIS database development efforts, as well as GIS application installation, configuration, and support. All of this support is a fraction of one (1) full time employee equivalent. \$4,442 is spent annually to support the personnel associated with GIS maintenance activities (these data layers are listed in section 3.1.4), which is based the salary and overhead of each 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
Lois Fegan	2%
Olorunwa Asiru	5%
<b>Total GIS Personnel Cost:</b>	<b>\$4,442.00</b>

Table 7 – Annual 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 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. The Department of Health has only one full time equivalent GIS user (or 0.45% of the total users in the county). Annual enterprise costs have been proportionately distributed to the Department of Health based on this 0.45% factor. These costs are calculated to be \$3,872.60 in operating costs and \$1,225.23 in capital costs, totaling \$5,097.83. Each of these figures has been 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 Annual Enterprise Cost Applied to Agency
1	0.45%	\$3,872.60	\$1,225.23	\$5,097.83

Table 8 – Annual Enterprise GIS Costs

**2.2 Agency Benefit Assessment**

The Department of Health has seen relatively few benefits from GIS usage in relation to the size of the department and in comparison to other agencies within the county of similar magnitude. The limited use of GIS, both in terms of the number of activities taking advantage of the system and the level of usage for each activity, has impacted the benefits realized within each of the programs in the agency. However, GIS appears to be used efficiently, providing expected benefits in areas where applications and data are being used.

Since the Department of Health is involved with a number of issues that lend themselves to spatial analysis, there are many potential ways that benefits can be gained from using GIS within the agency. Almost every activity that is involved with spatial phenomena can increase GIS usage and improve benefits that are realized. The Department of Health could be an important agency for the county to focus GIS expansion efforts, thereby further taking advantage of the GIS system supported by this and other agencies.

**2.2.1 Existing GIS Benefits**

The existing benefits realized by the Department of Health 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 time, which has been then recomputed to dollars that are realized annually. Each of the existing benefits that is currently being realized has been summarized by program below and has been aggregated to give an annual dollar figure. These benefits are discussed in more detail in section 4. All dollar amounts are based on a flat rate of \$33.95 per hour.



<b>Program</b>	<b>Administrative Support Services</b>
Description	This program provides oversight to activities including annual birth reports, annual death tracking, and other special projects.
Activities	<ul style="list-style-type: none"> <li>• Birth Tracking for Annual Report and School Projections</li> <li>• Death Tracking for Annual Report</li> </ul>
Time Benefits (Annual)	\$37,073.40 (1,092 hours)
Other Benefits (Annual)	N/A
<b>Total Benefits</b>	<b>\$37,073.40</b>
<b>Program</b>	<b>Media Relations</b>
Description	This program provides media relations support to all agency bureaus and activities.
Activities	<ul style="list-style-type: none"> <li>• Media Relations</li> </ul>
Time Benefits (Annual)	N/A; GIS not currently used
Other Benefits (Annual)	None
<b>Total Benefits</b>	<b>\$0</b>
<b>Program</b>	<b>Public Health Emergency Preparedness</b>
Description	This program provides oversight to activities that include preparedness for public health emergencies, disaster planning and response, and outbreak analysis.
Activities	<ul style="list-style-type: none"> <li>• Outbreak Tracking and Analysis</li> </ul>
Time Benefits (Annual)	\$1,629.60 (48 hours)
Other Benefits (Annual)	N/A
<b>Total Benefits</b>	<b>\$1,629.60</b>
<b>Program</b>	<b>Substance Abuse</b>
Description	This program provides oversight to activities including prevention programs, and substance abuse tracking.
Activities	<ul style="list-style-type: none"> <li>• Special Projects – Ad Hoc Mapping Requests</li> <li>• Substance Abuse Tracking and Annual Report</li> </ul>
Time Benefits (Annual)	\$36,394.40 (1,072 hours)
Other Benefits (Annual)	N/A
<b>Total Benefits</b>	<b>\$36,394.40</b>

Table 9– Existing GIS Benefits by Program



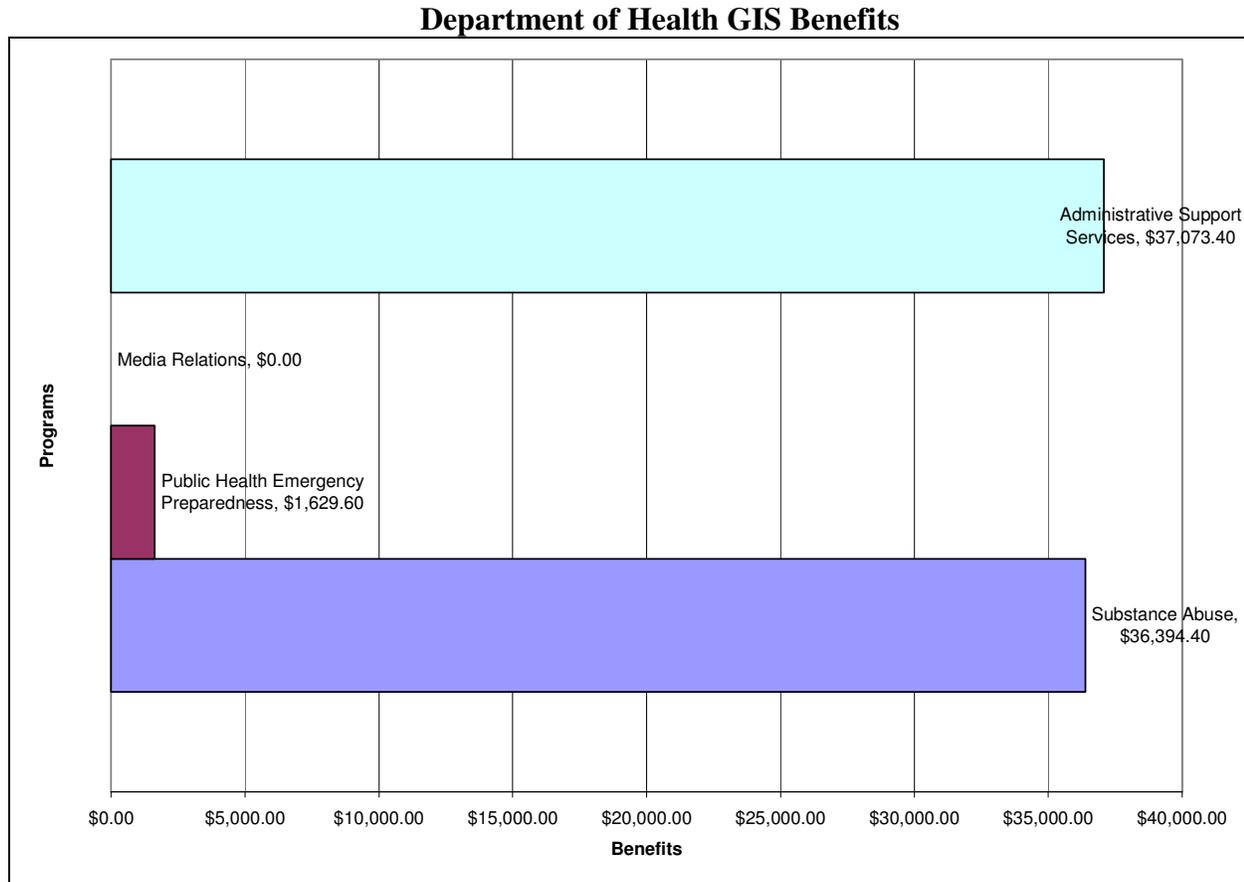
The table below summarizes the benefits realized from each of the programs presented above. These numbers represent the total hours and dollars that have been saved by the agency as a result of utilizing GIS.

<b>Total Annual GIS Benefits Summary</b>			
<b>Time Benefits Summary (By Program):</b>	<b>Hours Saved</b>	<b>Labor Rate (Avg)</b>	<b>Annual Time Benefits</b>
Administrative Support Services	1092	\$33.95	37,073.40
Media Relations	N/A	\$33.95	N/A
Public Health Emergency Preparedness	48	\$33.95	\$1,629.60
Substance Abuse	1072	\$33.95	\$36,394.40
<b>Total Time Benefits:</b>	<b>2212</b>	<b>\$33.95</b>	<b>\$75,097.40</b>
<b>Other Benefits Summary (By Program):</b>			
			<b>Annual Other Benefits</b>
None			
<b>Total Other Benefits:</b>			<b>\$0</b>
<b>Grand Total Annual Benefits:</b>		<b>\$75,097.40</b>	

Table 10- Total Department of Health Annual Benefits



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



**Figure 1 – Department of Health GIS Benefits by Program**

The Administrative Support Services and Substance Abuse activities have incorporated GIS more than any other area in the Department of Health and thus receive more benefits than other areas within the agency. The Public Health Emergency Preparedness program has the potential for significant benefits through use of GIS, but has not fully incorporated GIS into its business processes, and therefore has not seen as much benefit from GIS. The remaining bureaus within the agency are not using GIS to any appreciable degree, but also could realize benefits through its use in the future.



### 3 GIS Utilization and Recommendations

#### 3.1 GIS Utilization Analysis

GIS has a relatively limited use with the Department of Health and has only recently begun to be incorporated into some of the programs within the agency. Although GIS is being used often within several programs, there are still huge gaps in usage, leaving several programs without GIS support or knowledge. There has been an increase in GIS activities, but there does not appear to be a formal plan for rolling out the system to users, training personnel, or incorporating GIS into business processes.

##### 3.1.1 GIS Personnel

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

Basic Training (DataQuery, ArcView)	Mid-Level (ArcGIS Intro)	Advanced (ArcGIS 8x or higher)
2		1

Table 11 – GIS Training

More of the training provided to date has been basic GIS usage. Any further investment in training should be followed through with skill reinforcement and usage of the system to ensure the skills are transferred from the classroom to the business activity performed.

In addition to the training provided internally through the county, the Department of Health has invested in external training through the State of Maryland for several of its staff. Five staff members attended the State’s Intro to ArcGIS Level 1 GIS training in FY2004 and one additional staff member attended this training in 2006.

The Department of Health could benefit from identifying a “GIS Champion” who could help promote GIS use further within the agency by prioritizing GIS skills in agency hiring practices at all levels, promoting GIS training among the bureaus, and identifying ways that GIS could be used throughout the agency.

##### 3.1.2 GIS Data Usage

The Department of Health uses a number of the GIS datasets provided by OIT’s ArcSDE services via the County WAN. These datasets are used in a variety of ways. The most important datasets used by the department are summarized below. GIS data usage is discussed in more detail in section 4.



<b>Data Layer</b>
<b>AddressPoints (View)</b>
<b>Buildings</b>
<b>Census Block Groups (1990)</b>
<b>Census Block Groups (2000)</b>
<b>Census Blocks (1990)</b>
<b>Census Blocks (2000)</b>
<b>Census Designated Place (1990)</b>
<b>Census Designated Place (2000)</b>
<b>Census Tracts (1990)</b>
<b>Census Tracts (2000)</b>
Congressional Districts (2002)
Councilmanic Districts (2002)
County Boundary
County Facilities
Election Districts
Emergency Service Area
<b>Facilities</b>
Fire Battalion Boundary
Health Centers
<b>Hydrology</b>
Legislative Districts (2002)
<b>Orthophoto (2005)</b>
Police Precincts
Reservoir
<b>Roads</b>
Streams and Ponds
<b>Street Centerlines</b>
<b>Street Centerlines (View)</b>
Urban Rural Demarcation Line (URDL)
Zip Codes

Table 12 - Data Usage

### 3.1.3 GIS Applications Usage

The key GIS application in use at the Health Department is ArcGIS. ArcGIS version 9.0, service pack 3 (SP3) is the current County standard that is deployed throughout the various agencies. The Department of Health has only recently taken advantage of the applications provided by OIT. Until recently, the agency had purchased its own license of ArcGIS and had invested in external training for



several of its personnel. Since then, they have sold their ArcGIS license to the County and are attending OIT training classes. They still appear to have network connectivity issues that need to be resolved before they can make full use of the applications provided by OIT. They primarily use ArcGIS, which provides an ample GIS toolset for conducting the most complex analysis and editing available within the county.

Additionally, the agency has a need for regional base map data sets that go well beyond the county boundaries in order to perform disease tracking. They have purchased data from the Baltimore Metropolitan Council in MapInfo format and are also maintaining a license to MapInfo software in order to make use of their purchased data. The Department of Health is not currently using any other custom applications.

### 3.1.4 GIS Database Maintenance

The Department of Health does not maintain any of the enterprise GIS data layers. This agency has created a few data layers for internal use and has a need for data extending beyond the county boundaries for disease tracking. The agency has purchased several regional data sets from external sources (Baltimore Metropolitan Council) in MapInfo format. The Fire Department also requires regional data and has purchased similar data in an ESRI format from the BMC. Other agencies (Aging, OSS, Corrections) could also make use of regional data. It is recommended the County investigate a way to make this regional data available across the enterprise for use by multiple agencies. Additionally, the Department of Health needs additional support to obtain access to the available enterprise data and to clearly understand the available data layers. This will greatly reduce any redundancy in data creation and minimize the need to purchase data from external data sources.

The Department of Health is privy to sensitive information about patients and other clients that must be safeguarded by law, specifically under the provisions of the Health Insurance Portability and Accountability Act (HIPAA) of 1996 as well as confidentiality agreements with the State. The agency is aware of these requirements and understands that much of their data must not be placed on the County’s servers. Any plan to share Health Department data with others must take these restrictions into account.

The Department of Health has purchased or created the following GIS data layers to support its programs and activities:

Dataset	Description	Update Frequency	Location	Complete	Programs Using Data
Health Centers	Locations of health centers created by the Department of Health. OIT also maintains a Health Centers data layer.	As needed	Local	Yes	<ul style="list-style-type: none"> <li>Administrative Support Services</li> <li>Public Health Emergency Preparedness</li> </ul>



Dataset	Description	Update Frequency	Location	Complete	Programs Using Data
School districts	Purchased; in MapInfo format. OP also maintains school district data layers.	Annually	Local	Yes	<ul style="list-style-type: none"> <li>Administrative Support Services</li> </ul>
Regional base maps (extend beyond county boundary)	Purchased; in MapInfo format. FD has similar data in ESRI format. Other agencies could make use of the data if it was available to the enterprise.	Annually	Local	Yes	<ul style="list-style-type: none"> <li>Administrative Support Services</li> <li>Public Health Emergency Preparedness</li> </ul>
Hospital Emergency Center Boundaries	Boundaries of the four hospital emergency center service areas (Northwest, Franklin Square, GBMC, Saint Joseph)	As needed	Local	Yes	<ul style="list-style-type: none"> <li>Public Health Emergency Preparedness</li> </ul>

Table 13 - Agency Data Maintenance

The costs of maintaining each of these data layers are discussed in section 2.1.2.

### 3.1.5 Assessment of Business Process with GIS

The Department of Health has implemented a minimal usage of GIS within several business processes, but not to the extent GIS can provide. GIS can be more fully integrated into activities within the agency, providing additional benefits to users and customers. There are two major generalizations that can be given for the Department of Health providing some insight into the GIS integration with the agency's business processes:

- The Department of Health has introduced GIS into few business processes*** – The Department of Health has incorporated GIS into some of its business processes, but the system and associated applications have touched few activities within a number of the agency's bureaus. Only Administrative Support Services and the Bureau of Substance Abuse appear to have introduced GIS into their business processes, taking advantage of the mapping and geographic analysis capabilities provided by the applications and data. Other bureaus within the agency have added GIS capability to only a few or no business processes, even though their activities involve locating where patients or services are needed and what services or treatment centers are nearby. These additional bureaus could gain future benefits from the use of GIS.
- GIS has been used as a tool, not as a system*** - Although there are a few programs that have included GIS in their business processes, these activities have only been supported in a superficial manner. GIS has been introduced to handle ancillary issues of a small number of business processes, such as creating maps to show to customers or to answer simple geographic



questions such as geocoding. However, GIS has not been fully incorporated into any business processes to handle more complex issues including providing spatial components to existing databases and offering solutions to unique spatial problems that cannot be met with Commercial Off The Shelf (COTS) GIS applications. Although some individuals within the department recognize the benefits GIS could provide them, the Department of Health lacks a GIS champion who can develop a comprehensive plan for incorporating GIS into more of its business processes.

GIS involvement in each of these programs' business processes are discussed in the table below.

Program	Business Process Assessment
Administrative Support Services	GIS is used to: <ul style="list-style-type: none"> <li>• Geocode births;</li> <li>• Perform analysis on impacts of births to school districts; and</li> <li>• Geocode deaths and perform analysis on cancer clusters.</li> </ul> GIS could be used to support additional bureaus within the agency.
Media Relations	GIS is not currently used to support the Department of Health's media relations activities. GIS could be used to better target and disseminate information published by the Department of Health.
Public Health Emergency Preparedness	GIS is used for: <ul style="list-style-type: none"> <li>• Disaster planning and response;</li> <li>• Mapping health care facilities; and</li> <li>• Outbreak analysis including tracking data (e.g., standing pools of water, dead birds, etc.) and modeling mosquito spray swaths.</li> </ul> GIS use has only touched the tip of the iceberg of emergency health management and preparedness activities that could benefit from its use.
Substance Abuse	GIS is used to: <ul style="list-style-type: none"> <li>• Make maps to support various bureaus within the department as requested;</li> <li>• for Grant Applications and Annual Reports</li> <li>• Track and trend substance abuse patient data.</li> </ul>

**Table 14 - GIS Integration with Business Processes, by Program**

The involvement of GIS in specific programs is discussed more thoroughly in section 4, which includes workflow diagrams for several business processes within the agency. There are several ways GIS could be used to integrate the system more fully into business processes, which are discussed in detail in section 3.3.



### 3.2 GIS Needs Assessment

#### 3.2.1 Applications

There are several custom applications that could be developed to support the business processes of the Department of Health. They are discussed below.

- **Disease Tracking and Reporting Tools** – A process could be developed whereby hospital emergency centers could provide their daily report on diseases in an electronic format and a tool could be created to automatically geocode the locations of the affected patients so spatial and epidemiological analyses would be easier, trends would be more evident, and any required reports would be easier to prepare. Additionally, storage of this information could populate an Outbreak Locations data layer that could be mined later for historical information and trends.
- **Emergency Management Tools** – An emergency management toolset could be developed to show the locations of flood prone areas, topography, hospitals, other facilities, critical infrastructure, and evacuation routes and help users to locate the best sites for temporary shelters based on selected criteria, allow users to identify areas affected by an event, note locations of blocked or impassable roads, and identify areas in need of emergency water, ice, and other critical supplies.

#### 3.2.2 Data

There are several datasets that could be developed to support the needs of various programs in the Department of Health. Some of these datasets are listed in the table below. Some of these data layers would also benefit other agencies. For instance, the disabled persons layer and the regional base map data would also potentially benefit The 911 Center as well as other county agencies.

Dataset	Programs That Could Benefit From Data
Daytime workforce population density layer	<ul style="list-style-type: none"> <li>• Public Health Emergency Preparedness</li> </ul>
Disabled persons	<ul style="list-style-type: none"> <li>• Administrative Support Services</li> <li>• Public Health Emergency Preparedness</li> </ul>
Outbreak locations	<ul style="list-style-type: none"> <li>• Public Health Emergency Preparedness</li> </ul>

**Table 15 - Datasets that Need to be Created**

Many datasets are already being created and maintained by OIT, but are not complete or do not contain the information needed by users within the agency. The layers below could be enhanced or completed to provide benefits to the Department of Health:



<b>Dataset</b>	<b>Current Data Limitation</b>	<b>Programs That Could Benefit From Data</b>
Treatment Facilities	Ensure that information collected by the Department of Health in its standalone version of the Treatment Facilities data layer (e.g., level of care, food service information, etc.) is included in or linked to the enterprise data layer.	<ul style="list-style-type: none"> <li>• Administrative Support Services</li> <li>• Public Health Emergency Preparedness</li> <li>• Substance Abuse</li> </ul>
Regional base map data in ESRI format	Department of Health has purchased data in MapInfo format; FD has purchased data in ESRI format. Need to consolidate and make data available to other agencies (OCC, Aging, etc.) that may need it.	<ul style="list-style-type: none"> <li>• Administrative Support Services</li> <li>• Public Health Emergency Preparedness</li> </ul>

**Table 16 - Datasets that Need Enhancement**

Some other datasets would benefit from a link to address points or facilities, giving these datasets a spatial representation. These include the following. It should be noted that other bureaus within the agency may also maintain databases not identified during this study that could benefit from spatial representation.

<b>Dataset</b>	<b>Programs That Could Benefit From Data</b>
Physicians	<ul style="list-style-type: none"> <li>• Administrative Support Services</li> <li>• Public Health Emergency Preparedness</li> </ul>
Pharmacy sales data	<ul style="list-style-type: none"> <li>• Administrative Support Services</li> <li>• Public Health Emergency Preparedness</li> </ul>
Health Department Facilities (e.g., locations of animal control services, health centers, HIV/AIDS testing sites, family planning services, STD clinics, Healthy Start, and substance abuse treatment providers) – Link any externally held data of public benefit to the Address Point features in the Facilities Geodatabase	<ul style="list-style-type: none"> <li>• Administrative Support Services</li> <li>• Public Health Emergency Preparedness</li> <li>• Animal Control</li> <li>• Health Department</li> <li>• Medical Social Work</li> <li>• Public Health Nursing</li> <li>• Substance Abuse</li> </ul>

**Table 17 - Datasets That Need Spatial Representation**



### 3.2.3 Training

As part of a rollout strategy, most personnel would benefit from training on GIS data and applications specific to each program. This training would include an overview of how applications can be used to support business processes and how data could be useful to activities. This training would have to be preceded with a business process analysis, in order to determine how data and applications could be used and what gaps exist in GIS knowledge.

### 3.2.4 Best Practices

The Department of Health could benefit from implementing the following best practices implemented by other agencies or counties with similar business processes.

- **Provide additional web-based information** – The Department of Health could provide additional information in the County’s web site through MyNeighborhood and/or other mechanisms about the locations of Health Department facilities and the best transportation options for getting to these facilities. Providing information about the locations of the following types of services or facilities could provide additional benefits to the public:
  - Animal control services locations
  - Health centers
  - HIV/AIDS testing sites
  - Family planning services centers
  - STD clinics
  - Healthy Start locations
  - Substance abuse treatment providers
  
- **Address sensitive data security issues** – The Department of Health is privy to sensitive information about patients and other clients that must be safeguarded by law, specifically under the provisions of the Health Insurance Portability and Accountability Act (HIPAA) of 1996 as well as confidentiality agreements with the State. The agency is aware of these requirements and understands that much of their data must not be placed on the County’s servers. In conjunction with OIT, the agency should develop a long-term plan for safeguarding their sensitive data holdings. In light of recent losses of sensitive personal data from Federal Government laptops, any sensitive data stored on laptop computers must be protected. Additionally, before linking any externally stored data about Health Department facilities (e.g., locations of treatment centers, etc.) to GIS point features, the data must be examined to ensure that no sensitive data are compromised and if necessary, the databases should be redesigned to protect sensitive data.

### 3.2.5 Communication and Agency Coordination

By expanding the number of GIS users within the agency, the Department of Health could make better use of GIS. Currently, GIS requests are funneled through a limited number of staff. These users know how GIS could further benefit the agency. 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.

The Department of Health should also look across bureaus and across county agencies for ways to refine its business processes. The following items are noted based on the first few series of interviews. Additional items may be added to this list as this study progresses further.

**OIT** – The agency could benefit from additional detailed information about OIT’s GIS support services, training opportunities, and the County’s GIS datasets.

**Police** – The agency already coordinates with the Police Department regarding substance abuse issues, but could benefit from additional data sharing.

**DPW** – DPW helps to support the EOC with maps and data as well as providing oversight of the County’s floodplain mapping. Since the Department of Health is responsible for EOC and emergency management functions, coordination with DPW should be increased.

**DEPRM** – Areas for increased coordination include locations of food service facilities, water quality issues, health permits, and mosquito control.

**The 911 Center** – Areas for increased coordination with The 911 Center include the facilities geodatabase, including locations of treatment and care facilities, and where disabled persons reside. Additionally, The 911 Center has years’ of experience with geocoding and could potentially provide this agency with some tips on streamlining this activity.

**PDM** – Areas for increased coordination include animal permits. A spatial component to the locations of permitted animals could benefit animal control and evacuation.

**OCC** – Areas for increased coordination include where disabled persons reside, the Homeless Management Information System, and locations of recipients of grant programs that serve persons in need.

**Fire** – The area for increased coordination is the regional data sets purchased from the Baltimore Metropolitan Council (BMC). Both agencies appear to have purchased similar data, but in different data formats. Other agencies (Aging, OSS, Corrections) could also make use of regional data. Additional coordination could reduce expenditures for the purchase of data from external data sources.

**Aging** – Areas for increased coordination include locations of senior health services, including senior centers, screening and wellness programs, nutrition sites, and adult day centers.



### 3.3 Recommendations

The Department of Health could further benefit from GIS in many ways. This section outlines recommendations that can be implemented in the short-term and mid-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 the Department of Health and increase the level of service provided to customers.

#### 3.3.1 Short-Term Recommendations and Potential Benefits

There are several undertakings that should be implemented in the short term to improve GIS usage 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 by activities 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:

##### **Opportunity 1: Identify a "GIS Champion" and perform an internal GIS needs assessment**

The Department of Health could benefit from identifying a "GIS Champion," who could help the agency look for GIS opportunities within all of the agency's bureaus. Many of the activities performed by the bureaus not using GIS to an appreciable degree could benefit from an internal GIS needs assessment that would help identify ways that GIS could be used throughout the agency. Additionally, identifying hidden GIS resources with the bureaus and placing an emphasis on GIS and other new technology skills in the hiring practices of each bureau would go a long way to increasing the capabilities of the agency. Making this skill an element of key job descriptions (e.g., Management Analyst) and requiring county training in GIS for these positions would be an effective way to get GIS introduced into each bureau.

##### **Opportunity 2: Develop a Plan for Regional Data in ESRI Format**

Currently, the Department of Health purchases regional data from the Baltimore Metropolitan Council (BMC) in MapInfo format for surrounding jurisdictions. A variety of data layers are available from BMC. These data meet accuracy requirements of data at a scale of 1:24,000 and support geocoding operations. The Fire Department also requires regional data and has purchased similar data in an ESRI format from the BMC. Other agencies (e.g., The 911 Center, Aging, OSS, Corrections) could also make use of regional data. The Department of Health, in conjunction with Fire and OIT, should investigate which data layers are required, whether any currently being purchased are no longer needed, and develop a plan for making these data available for use by additional agencies having a need for data beyond the County boundary. One option to explore is multi-user licensing, which is available from BMC.



Another option to explore would be whether data sharing agreements could be made individually with adjoining counties for data of higher spatial accuracy. This will reduce data redundancy and minimize the need to purchase data from external data sources.

### **Opportunity 3: Introduce GIS to Each Bureau within the Agency**

The Health Department appears to have a vast potential for further use of GIS throughout its bureaus. Currently only a few bureaus have taken advantage of the benefits GIS could provide them. The agency depends on a few centralized resources for GIS support and filling their mapping requests. It is likely that many activities that could be spatially enabled are not, due to lack of resources and training. Through a controlled process of implementation, the agency should introduce GIS to each of its bureaus. It should be noted that the Health Department has several constraints, including the need for easy to use GIS applications for non-technical staff, data security and restrictions, and the need for a champion and management support. This controlled implementation process should include the following steps:

- Identify the “GIS Champion” within the agency as noted above
- Evaluate the business processes and security concerns (bureau by bureau)
- Document a roll-out plan with agency management and OIT
- Implement the business process, with mentoring and skill development, monitoring success and adoption of the technology.

As part of the roll-out process, each bureau within the agency should obtain at least one copy of the DataQuery application and associated personnel should receive training on the use of this software. Additionally, each bureau should have a formal introduction to data layers that could be of relevance to their activities. There is evidence from interviews conducted that personnel are not fully aware of all of the data layers that are provided by the enterprise GIS. This should be conducted as a training session, with summary documentation (which has already been developed by OIT) to reference in daily GIS use.

These training sessions should be specific to each bureau’s programs, focusing on data layers that could be of value to the associated activities. This would allow the agency to better utilize existing datasets, producing more benefits from existing resources. Redundancy of data compilation efforts would also be reduced, saving the County time and money. Overall, introduction of GIS throughout the agency will decentralize GIS support, alleviating the dependency on the few resources currently available within the agency. This will also increase the general awareness of GIS potential and reveal additional ways that GIS can support business processes throughout the agency.

Use of GIS and improved processes within bureaus that are not currently using it and that were not interviewed is somewhat difficult to predict. An example of the resources needed to introduce GIS further into the Public Health Emergency Preparedness program has been included in the table below. The benefits that could be realized from the introduction of GIS have been 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



enhancing activities with GIS. The costs were not calculated for this rollout, since most requirements are readily available and would be of minimal cost to implement.

<b>Introduce GIS to Each Bureau</b>						
Software Requirements:	ArcGIS Enterprise License Installation of the DataQuery application					
Hardware Requirements:	Upgrade to GIS Computer for affected user(s) as necessary					
Data Requirements:	Available in ArcSDE databases					
Training Requirements:	Need introduction to DataQuery application Develop a workflow for the use of GIS to support the activities					
Additional Costs:	None					
Rolled Up Potential Benefits:	\$9,506.00					
<b>Benefits By Activity:</b>						
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)
Public Health Emergency Preparedness	350	70	280	1	280	\$9,506.00
As-Is Process Without GIS	Maps are made when a trend is suspected from tabular data results.					
To-Be Process With GIS	More frequent use of mapping to identify trends could reveal additional relationships between outbreaks and environmental issues.					
Projected Process Savings	In addition to providing additional resources the Department of Health can draw on for day to day activities, providing additional training should allow the agency to expand its services to County residents and better prepare for public health emergencies.					

This is just one example of how the introduction of GIS to the various bureaus could further benefit the agency. Many other programs would be likely to realize benefits that could be documented in this way, once the business processes have been identified and implemented. Some of the other agency bureaus or programs most likely to benefit from the introduction of GIS include the following:

- The agency could provide additional public access information, including maps of locations of Animal Shelters, Health Centers, WIC Clinics, Family Planning Clinics, and Mental Health Centers, HIV/AIDS Testing Sites, STD Clinics, Substance Abuse treatment programs and providers, and transportation routes that serve these facilities.



- Animal Control could map incidents to which they respond and in conjunction with PDM, map locations of permitted animals.
- The agency could use GIS to add maps to its Health Profile, which is published every three years and lays out health statistics and trends for the county.
- The Bureau of Long Term Care could use GIS to help manage its home health services and transportation services.
- The Bureau of Disease Control could perform additional epidemiological studies to identify spatial relationships between diseases and environmental and other factors.

**Opportunity 4: Consolidate Data Holdings**

It appears there is some redundancy of data within the Department of Health that could be consolidated with enterprise resources. Examples include purchased MapInfo school district boundaries that may duplicate enterprise data maintained by OP, treatment facilities that are included in the facilities geodatabase maintained by The 911 Center, and hospital emergency center boundaries that could potentially benefit other agencies if made available as part of the enterprise SDE data.

Each of the resources needed to consolidate the data holdings between the Department of Health and the enterprise has been included in the table below. The benefits that should be realized from the consolidation of data have been also been summarized in the table below, including the estimate of cost savings. The activity-based time savings as illustrated below are general estimates based on enhancing activities with GIS. The costs were not calculated for this rollout, since most requirements are readily available and would be of minimal cost to implement.

<b>Consolidate Data Holdings</b>	
Software Requirements:	ArcGIS Enterprise License
Hardware Requirements:	GIS Computers
Data Requirements:	Available in ArcSDE databases
Training Requirements:	In-house training
Additional Costs:	None
Rolled Up Potential Benefits:	\$1,018.50



<b>Benefits By Activity:</b>						
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)
Administrative Support Services	30	0	30	1	30	\$1,018.50
As-Is Process Without GIS	Data redundancy should be consolidated with enterprise resources.					
To-Be Process With GIS	Use enterprise school district boundaries. Use Facilities Geodatabase for locations of health facilities and add additional attributes or link to external databases for additional Department of Health attributes as needed. Use AddressPoints file for geocoding activities.					
Projected Process Savings	Use of enterprise data sets, including Facilities and School Boundaries will result in reduced cost for purchase of data that already exist in the county's enterprise layers, reduced cost of maintaining duplicate data layers, and elimination of possible discrepancies between data layers. Other agencies could also benefit from hospital emergency center boundaries. Additional benefits could include reduced time for geocoding activities using the county AddressPoints files.					

### 3.3.1.2 Additional Investment Opportunities

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

#### **Opportunity 1: Develop Daytime Workforce Population Density Layer**

A workforce population density data layer was identified as being critical to preparing for emergencies. There is a clear discrepancy between the daytime and evening populations of downtown areas of the County, such as Towson. Using available resources containing information about the number of employees at locations, a daytime workforce density layer could be developed. Available resources may include the Reference USA database that resides with OIT and contains information on the number of employees in an area, other county data layers that contain information on employees such as the facilities geodatabase, or business data residing with DED.

### 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 a Disabled Persons Data Layer**

Using information currently available from the various bureaus within the Department of Health as well as information from OCC on ADA requests and data maintained by The 911 Center, Police, and Fire, a disabled persons data layer could be developed serving the needs of multiple agencies.

**Opportunity 2: Automate Disease Tracking and Reporting**

A process should be developed whereby hospital emergency centers would provide their daily report on diseases in an electronic format. A tool could be created to automatically geocode the locations of the affected patients so that spatial and epidemiological analyses would be easier, trends would be more evident, and any required reports would be easier to prepare. Additionally, storage of this information could populate an Outbreak Locations data layer that could be mined later for historical information and trends.

**Opportunity 3: Develop Emergency Management Tools**

An emergency management toolset could be developed to show the locations of flood prone areas, topography, hospitals, other facilities, critical infrastructure, and evacuation routes and help users to locate the best sites for temporary shelters based on selected criteria, allow users to identify areas affected by an event, note locations of blocked or impassable roads, and identify areas in need of emergency water, ice, and other critical supplies.



**THIS PAGE INTENTIONALLY LEFT BLANK**



## 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.



**THIS PAGE INTENTIONALLY LEFT BLANK**



## 4.1 Administrative Support Services

<b>Program: Administrative Support Services</b>
<b>Primary Point of Contact:</b>
Dave Taylor
<b>Overview:</b>
This program provides oversight to activities including annual birth reports, annual death tracking, and other special projects.
<b>Funding:</b>
There is no external funding for this program.
<b>Mandates:</b>
None noted.
<b>Political Benefits:</b>
Increased potential for funding of programs, increased public and political recognition of programs and services, better planning for school enrollment and school capital expenditure needs.
<b>Social Benefits:</b>
Schools can accurately plan for class sizes, staff hiring, and provide higher quality educational programs.
<b>Products/Services:</b>
<ul style="list-style-type: none"> <li>• Annual reports</li> <li>• Maps</li> <li>• Grant proposals</li> <li>• Listing of births by school district</li> <li>• Listing of teen births by Census place</li> </ul>
<b>Customers:</b>
<ul style="list-style-type: none"> <li>• County officials</li> <li>• State and Federal agencies that supply grants</li> <li>• Board of Education</li> <li>• Health department program directors</li> <li>• County budget office</li> </ul>



<b>Data (Enterprise Layers are Listed in Bold):</b>		
<ul style="list-style-type: none"> <li>• <b>AddressPoints (View)</b></li> <li>• <b>Buildings</b></li> <li>• <b>Census Block Groups (1990)</b></li> <li>• <b>Census Block Groups (2000)</b></li> <li>• <b>Census Blocks (1990)</b></li> <li>• <b>Census Blocks (2000)</b></li> <li>• <b>Census Designated Place (1990)</b></li> <li>• <b>Census Designated Place (2000)</b></li> <li>• <b>Census Tracts (1990)</b></li> <li>• <b>Census Tracts (2000)</b></li> <li>• Congressional Districts (2002)</li> <li>• Councilmanic Districts (2002)</li> </ul>	<ul style="list-style-type: none"> <li>• County Boundary</li> <li>• County Facilities</li> <li>• Election Districts</li> <li>• Emergency Service Area</li> <li>• <b>Facilities</b></li> <li>• Fire Battalion Boundary</li> <li>• Health Centers</li> <li>• <b>Hydrology</b></li> <li>• Legislative Districts (2002)</li> <li>• Light Rail</li> <li>• Metro Railroad</li> <li>• <b>Orthophoto (2005)</b></li> <li>• Police Precincts</li> </ul>	<ul style="list-style-type: none"> <li>• Railroads</li> <li>• Regional Planning Districts</li> <li>• Reservoir</li> <li>• <b>Roads</b></li> <li>• School Districts - Elementary</li> <li>• School Districts - High</li> <li>• School Districts - Middle</li> <li>• Streams and Ponds</li> <li>• <b>Street Centerlines</b></li> <li>• <b>Street Centerlines (View)</b></li> <li>• Urban Rural Demarcation Line (URDL)</li> <li>• Zip Codes</li> </ul>
<b>Applications Used:</b>		
<ul style="list-style-type: none"> <li>• MapInfo</li> </ul>		
<b>Associated Activities:</b>		
<p>4.1.1 Birth Tracking for Annual Report and School Projections</p> <p>4.1.2 Death Tracking for Annual Report</p>		



**4.1.1 Birth Tracking for Annual Report and School Projections**

<b>Activity: Birth Tracking for Annual Report and School Projections</b>					
<b>Primary Point of Contact:</b>					
Dave Taylor					
<b>Overview:</b>					
Birth records are geocoded and compared to elementary school districts to project trends and identify needs for news schools. This annual report is prepared for use by the County and the State.					
<b>Interviewee(s) Providing Information:</b>					
Dave Taylor					
<b>Process with GIS:</b>					
They get a list of births from the state, put it into an Access database, geocode addresses, and intersect point locations with school districts. With GIS, this activity took 2 weeks.					
<b>Process without GIS:</b>					
Maps would have been created by hand or would not have been made at all. This would have taken 26 weeks without GIS.					
<b>Benefits Assessment: (H, M, L) Identify confidence level</b>					
<ul style="list-style-type: none"> <li>• High</li> </ul>					
<b>Benefits to Using GIS for this Activity:</b>					
The School system and Budget Office rely on geo-coded birth data to project school enrollment and plan school capital expenditures. Without birth data geo-coded to the school level, officials would not have a reliable method to project enrollment, and therefore would not be able to appropriately budget for new schools. Additionally, schools can accurately plan for class sizes, staff hiring, and produce a higher quality educational program.					
<b>Annual Savings from Use of GIS:</b>					
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)
910	70	840	1	840	\$28,518.00
<b>Annual Benefit: \$28,518.00</b>					
<b>Areas for Improvement:</b>					
None noted					
<b>New Opportunities:</b>					
None noted					



<b>Benefits of Pursuing New Opportunities:</b>
--

None noted
------------



#### 4.1.2 Death Tracking for Annual Report

<b>Activity: Death Tracking for Annual Report</b>					
<b>Primary Point of Contact:</b>					
Dave Taylor					
<b>Overview:</b>					
Deaths of county residents are tracked as needed for cancer cluster investigations and other studies included in the annual report.					
<b>Interviewee(s) Providing Information:</b>					
Dave Taylor					
<b>Process with GIS:</b>					
Deaths are geocoded by address, then this information is used to track cancer clusters and to identify if proximity to environmental conditions could be significant. This activity takes four days per year.					
<b>Process without GIS:</b>					
Maps would have been created by hand or would not have been made at all. This would take 10 to 15 times longer without GIS.					
<b>Benefits Assessment: (H, M, L) Identify confidence level</b>					
<ul style="list-style-type: none"> <li>• High</li> </ul>					
<b>Benefits to Using GIS for this Activity:</b>					
GIS can help identify trends and spot correlations between environmental factors and cause of death.					
<b>Annual Savings from Use of GIS:</b>					
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	28	252	1	252	\$8,555.40
<b>Annual Benefit: \$8,555.40</b>					
<b>Areas for Improvement:</b>					
None noted					
<b>New Opportunities:</b>					
None noted					
<b>Benefits of Pursuing New Opportunities:</b>					
None noted					



## 4.2 Media Relations

<b>Program: Media Relations</b>
<b>Primary Point of Contact:</b>
Shawn Kelly
<b>Overview:</b>
This program provides media relations support to all agency bureaus and activities.
<b>Funding:</b>
No external funding. Internal funding is provided by the department's bureaus and services for public outreach activities specific to each service.
<b>Mandates:</b>
Programs that provide grant funding generally identify goals and achievements defining the number and population needing to be served by a program or service.
<b>Political Benefits:</b>
Promotion of county health programs; providing information about available resources and services to target audiences.
<b>Social Benefits:</b>
Promotion of county health programs; providing information about available resources and services to target audiences.
<b>Products/Services:</b>
<ul style="list-style-type: none"> <li>• Brochures</li> <li>• Maps</li> <li>• Advertisements in print media</li> </ul>
<b>Customers:</b>
<ul style="list-style-type: none"> <li>• County residents</li> </ul>
<b>Data (Enterprise Layers are Listed in Bold):</b>
None; GIS is not currently used for this program.
<b>Applications Used:</b>
None; GIS is not currently used for this program.
<b>Associated Activities:</b>
4.2.1 Media Relations



**4.2.1 Media Relations**

<b>Activity: Media Relations</b>					
<b>Primary Point of Contact:</b>					
Shawn Kelly					
<b>Overview:</b>					
Media relations support to all agency bureaus and activities.					
<b>Interviewee(s) Providing Information:</b>					
Lois Fegan, Shawn Kelly					
<b>Process with GIS:</b>					
GIS is not currently used for this activity. However, it could be used to identify areas that should be targeted to receive information. GIS could also help streamline the agency's outreach programs. They plan to use GIS to support Dr. Vigilance's requests.					
<b>Process without GIS:</b>					
Using statistics provided by multiple sources, advertisements are placed in print media with the widest circulation or group-specific circulation.					
<b>Benefits Assessment: (H, M, L) Identify confidence level</b>					
<ul style="list-style-type: none"> <li>• Medium</li> </ul>					
<b>Benefits to Using GIS for this Activity:</b>					
GIS could help target advertising based on the services provided by the Health Department and/or the location of recipients.					
<b>Annual Savings from Use of GIS:</b>					
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
<b>Annual Benefit: \$0</b>					
<b>Areas for Improvement:</b>					
GIS could help locate areas that would be best for distribution of handouts, to help manage the brochure distribution process, and help focus efforts and maximize resources. Outreach programs could be mapped and compared with demographics and results could be compared with goals and trends. GIS could also be used to map where flu typically occurs and distribute vaccines accordingly.					
<b>New Opportunities:</b>					
None noted					



<b>Benefits of Pursuing New Opportunities:</b>
--

None noted
------------



### 4.3 Public Health Emergency Preparedness

<b>Program: Public Health Emergency Preparedness</b>
<b>Primary Point of Contact:</b>
Ruth Thompson
<b>Overview:</b>
This program provides oversight to activities that include preparedness for public health emergencies, disaster planning and response, and outbreak analysis.
<b>Funding:</b>
Federal grants for this program are provided by the Department of Homeland Security, the Department of Health and Human Services – the Health Resources and Services Administration (HRSA), and the Centers for Disease Control (CDC).
<b>Mandates:</b>
Protection of public health; legal requirements from MOU with State to monitor and provide weekly reports to the State on disease outbreaks.
<b>Political Benefits:</b>
Emergency preparedness; disaster planning and response; outbreak analysis and identification of trends for communicable diseases and possible bioterrorism; community outreach and education; evacuation routing; locating shelters (animal and human); better (more targeted) mosquito spraying plans.
<b>Social Benefits:</b>
Emergency preparedness, public outreach, and education.
<b>Products/Services:</b>
<ul style="list-style-type: none"> <li>• Reports</li> <li>• Maps</li> <li>• Support for annual drill exercises</li> <li>• Medical supply distribution plan</li> </ul>
<b>Customers:</b>
<ul style="list-style-type: none"> <li>• State agencies</li> <li>• Four emergency centers</li> <li>• Other county agencies</li> <li>• EOC</li> <li>• County residents</li> <li>• County officials</li> </ul>



<b>Data (Enterprise Layers are Listed in Bold):</b>		
<ul style="list-style-type: none"> <li>• <b>AddressPoints (View)</b></li> <li>• <b>Buildings</b></li> <li>• Business Parks</li> <li>• Cell Towers</li> <li>• <b>Census Block Groups (1990)</b></li> <li>• <b>Census Block Groups (2000)</b></li> <li>• <b>Census Blocks (1990)</b></li> <li>• <b>Census Blocks (2000)</b></li> <li>• <b>Census Designated Place (1990)</b></li> <li>• <b>Census Designated Place (2000)</b></li> <li>• <b>Census Tracts (1990)</b></li> <li>• <b>Census Tracts (2000)</b></li> <li>• Communication Towers</li> <li>• Congressional Districts (2002)</li> <li>• <b>Contours</b></li> <li>• Councilmanic Districts (2002)</li> </ul>	<ul style="list-style-type: none"> <li>• County Boundary</li> <li>• County Facilities</li> <li>• Dams</li> <li>• Digital Elevation Models</li> <li>• Discharge Permits</li> <li>• Election Districts</li> <li>• Emergency Service Area</li> <li>• <b>Facilities</b></li> <li>• FEMA Maps</li> <li>• Fire Battalion Boundary</li> <li>• Health Centers</li> <li>• <b>Hydrology</b></li> <li>• <b>Installations</b></li> <li>• Junkyards</li> <li>• Land Use 1994</li> <li>• Land Use 1997</li> <li>• Land Use 1998</li> <li>• Land Use 2002</li> <li>• Landfills</li> </ul>	<ul style="list-style-type: none"> <li>• Landuse</li> <li>• Legislative Districts (2002)</li> <li>• Monitoring—Various Programs</li> <li>• <b>Orthophoto (2005)</b></li> <li>• Parcel Based Landuse</li> <li>• Police Precincts</li> <li>• Power Stations</li> <li>• Pumping Stations</li> <li>• Reservoir</li> <li>• <b>Roads</b></li> <li>• Sewer Treatment Plants</li> <li>• Streams and Ponds</li> <li>• <b>Street Centerlines</b></li> <li>• <b>Street Centerlines (View)</b></li> <li>• Transmission Lines</li> <li>• Urban Rural Demarcation Line (URDL)</li> <li>• Zip Codes</li> </ul>
<b>Applications Used:</b>		
<ul style="list-style-type: none"> <li>• ArcGIS (Standard)</li> <li>• MapInfo</li> </ul>		
<b>Associated Activities:</b>		
4.3.1 Outbreak Tracking and Analysis		



### 4.3.1 Outbreak Tracking and Analysis

<b>Activity: Outbreak Tracking and Analysis</b>					
<b>Primary Point of Contact:</b>					
Ruth Thompson					
<b>Overview:</b>					
GIS is used for disaster planning and response, mapping health care facilities, and outbreak analysis. Outbreak tracking is done for bio-occurrences such as West Nile Virus, bird flu, etc. GIS is used to track data (standing pools of water, dead birds, etc.) and model mosquito spray swaths.					
<b>Interviewee(s) Providing Information:</b>					
Tonya Adams-Smith, Shola Asiru					
<b>Process with GIS:</b>					
GIS is not used as effectively for this activity as it could be. GIS is used for disaster planning and response, mapping health care facilities, and outbreak analysis. The County's four hospital emergency centers provide the Department of Health daily reports of disease data (patient name, home address, age, symptoms, diagnosis). If a trend is suspected, the results are mapped by zip code and compared to the outlines of the four emergency centers (Northwest, Franklin Square, GBMC, and Saint Joseph) for further analysis. This is done 3-4 times per year for a total of approximately 5 hours per year. Under an MOU with the State, weekly summary reports are provided. Outbreak tracking is done for bio-occurrences such as West Nile Virus, bird flu, etc. GIS is used to track data (standing pools of water, dead birds, etc.) and model mosquito spray swaths.					
<b>Process without GIS:</b>					
Maps would have been created by hand or would not have been made at all.					
<b>Benefits Assessment: (H, M, L) Identify confidence level</b>					
• Medium					
<b>Benefits to Using GIS for this Activity:</b>					
<b>Annual Savings from Use of GIS:</b>					
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)
60	12	48	1	48	\$1,629.60
<b>Annual Benefit: \$1,629.60</b>					



**Areas for Improvement:**

This group needs better support because they are barely meeting the minimum requirements of their Grant funding; possibly at risk of losing the grant. There are numerous opportunities to use GIS to better meet the requirements of their grant funding.

- Recommend developing and maintaining a database of outbreak locations. Currently they collect information on where outbreaks occur but it is not available to others.
- Data from surrounding jurisdictions is important for disease tracking; the current county database does not have this level of detail. Recommend developing an efficient methodology for making this data available. Currently they rely on an annual subscription of regional data in MapInfo format.
- GIS could be used to locate affected population during pandemic flu outbreak and identify protective measures.
- During flood events, GIS could be used in conjunction with the EOC to locate high ground for locating shelters and evacuation routes. GIS could also be used for locating animal shelters.
- GIS could be used to analyze hospital locations and capacity for use in planning surge sites for emergencies.
- GIS could support the annual public health emergency preparedness drill exercises, including the pharmaceutical drill where they plan for shortages of medications.
- GIS could be used to re-evaluate and update the county plan for distribution of medical supplies.
- GIS could help them better identify and protect vulnerable critical infrastructure such as military facilities, nuclear power facilities, and hazardous materials locations.
- GIS could be used to better monitor over-the-counter drug sales at pharmacies. (Currently PA provides the GIS component for this activity)

**New Opportunities:**

- A workforce population density data layer was identified as being critical to preparing for emergencies. There is a clear discrepancy between the daytime and evening populations of downtown areas of the county such as Towson. OIT has the Reference USA database which has the number of employees in an area.
- Also needed is a database of disabled people so that they could be helped in the case of an emergency.
- Database of physicians could be geocoded.

**Benefits of Pursuing New Opportunities:**

Better coordination of emergency preparedness activities.



## 4.4 Substance Abuse

<b>Program: Substance Abuse</b>
<b>Primary Point of Contact:</b>
Lois Fegan
<b>Overview:</b>
This program provides oversight to activities including prevention, early intervention, and treatment programs as well as, substance abuse tracking.
<b>Funding:</b>
Funding for substance abuse programs is provided through the Maryland Department of Health and Mental Hygiene (DHMH), and that money is filtered through the Alcohol and Drug Abuse Association (ADAA).
<b>Mandates:</b>
Design, implementation, and quality assurance of grant funded substance abuse prevention, early intervention, and treatment services
<b>Political Benefits:</b>
Increased potential for funding of programs and increased public and political recognition of programs and services.
<b>Social Benefits:</b>
Substance abuse programs reach more individuals in need, can be more effectively targeted to areas of greatest need, and the programs' effectiveness can be more accurately measured.
<b>Products/Services:</b>
<ul style="list-style-type: none"> <li>• Annual reports</li> <li>• Maps</li> <li>• Grant proposals</li> </ul>
<b>Customers:</b>
<ul style="list-style-type: none"> <li>• County officials</li> <li>• Treatment vendors</li> <li>• Substance abuse clinicians</li> <li>• State and Federal agencies that supply grants</li> <li>• Health department program directors</li> </ul>



<b>Data (Enterprise Layers are Listed in Bold):</b>		
<ul style="list-style-type: none"> <li>• <b>AddressPoints (View)</b></li> <li>• <b>Buildings</b></li> <li>• <b>Census Block Groups (1990)</b></li> <li>• <b>Census Block Groups (2000)</b></li> <li>• <b>Census Blocks (1990)</b></li> <li>• <b>Census Blocks (2000)</b></li> <li>• <b>Census Designated Place (1990)</b></li> <li>• <b>Census Designated Place (2000)</b></li> <li>• <b>Census Tracts (1990)</b></li> <li>• <b>Census Tracts (2000)</b></li> <li>• Congressional Districts (2002)</li> <li>• Councilmanic Districts (2002)</li> </ul>	<ul style="list-style-type: none"> <li>• County Boundary</li> <li>• County Facilities</li> <li>• Election Districts</li> <li>• Emergency Service Area</li> <li>• <b>Facilities</b></li> <li>• Fire Battalion Boundary</li> <li>• Health Centers</li> <li>• <b>Hydrology</b></li> <li>• Legislative Districts (2002)</li> <li>• Light Rail</li> <li>• Metro Railroad</li> <li>• <b>Orthophoto (2005)</b></li> <li>• Police Precincts</li> </ul>	<ul style="list-style-type: none"> <li>• Railroads</li> <li>• Regional Planning Districts</li> <li>• Reservoir</li> <li>• <b>Roads</b></li> <li>• School Districts - Elementary</li> <li>• School Districts - High</li> <li>• School Districts - Middle</li> <li>• Streams and Ponds</li> <li>• <b>Street Centerlines</b></li> <li>• <b>Street Centerlines (View)</b></li> <li>• Urban Rural Demarcation Line (URDL)</li> <li>• Zip Codes</li> </ul>
<b>Applications Used:</b>		
<ul style="list-style-type: none"> <li>• ArcGIS (Standard)</li> </ul>		
<b>Associated Activities:</b>		
<p>4.4.1 Special Projects – Ad Hoc Mapping Requests</p> <p>4.4.2 Substance Abuse Tracking and Annual Report</p>		



**4.4.1 Special Projects – Ad Hoc Mapping Requests**

<b>Activity: Special Projects – Ad Hoc Mapping Requests</b>					
<b>Primary Point of Contact:</b>					
Lois Fegan					
<b>Overview:</b>					
Ad hoc mapping requests that are supported through use of GIS include maps for grant applications, mapping elementary schools for flu mist clinics, mapping for Head Start activities, and creation of a health department carpool system.					
<b>Interviewee(s) Providing Information:</b>					
Lois Fegan, Shawn Kelly, Dave Taylor					
<b>Process with GIS:</b>					
Statistics are generated from a regional Access database. GIS is not currently used to generate the statistics, but is used to geocode them. Since the database is regional, they also need spatial data beyond the borders of Baltimore County. Currently, the Baltimore Metropolitan Council (BMC) provides regional data in MapInfo format for surrounding jurisdictions. The Department of Health is using MapInfo for some activities because the BMC provides them with data in MapInfo format. GIS is also used for project planning for Head Start program. They use it to plan routes, identify which schools to visit. Using GIS saved several weeks' time.					
<b>Process without GIS:</b>					
Maps would have been created by hand or would not have been made at all.					
<b>Benefits Assessment: (H, M, L) Identify confidence level</b>					
<ul style="list-style-type: none"> <li>• Medium</li> </ul>					
<b>Benefits to Using GIS for this Activity:</b>					
<b>Annual Savings from Use of GIS:</b>					
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	7	7	52	364	\$12,357.80
<b>Annual Benefit: \$12,357.80</b>					



**Areas for Improvement:**

This activity could benefit from a more distributed GIS capability within the Health Agency. Currently there is only one primary Go-To person for most GIS mapping requests. With a broader GIS capability, requests could be handled more efficiently. They could use GIS to create routes for house calls or clinic visits, track HIV/AIDS clients and any temporal changes. They cannot store geographic locations of patients on county servers due to confidentiality rules laid out in the Health Insurance Portability and Accountability Act (HIPAA) which protects patient privacy. Additionally, recommend the County investigate a way to make the regional GIS data received from the Baltimore Metropolitan Council in MapInfo format available for the ESRI platform.

**New Opportunities:**

- Facilities data layer

**Benefits of Pursuing New Opportunities:**

- Will provide needed information on locations of health related facilities.



**4.4.2 Substance Abuse Tracking and Annual Report**

<b>Activity: Substance Abuse Tracking and Annual Report</b>					
<b>Primary Point of Contact:</b>					
Lois Fegan					
<b>Overview:</b>					
The Bureau of Substance Abuse publishes an annual report (Pathways to Progress) to show the current status of substance abuse in Baltimore County that is GIS intensive. Baltimore County is the first county in the state to use maps in the annual report. Additionally, GIS is used to track and trend patient data and compare changes in substance abuse					
<b>Interviewee(s) Providing Information:</b>					
Lois Fegan,					
<b>Process with GIS:</b>					
State database of users and recovery rates is used; clients are tracked by zip code. Data are used to create maps and charts for the annual report. Additionally, performance factors (e.g., recovery rates, etc.) are tracked and GIS is used to support grant proposals. An example is using GIS to justify the location and travel times to a new adolescent treatment center. Also mapped bus lines against treatment centers to help route clients who do not have a car.					
<b>Process without GIS:</b>					
Maps would have been created by hand or would not have been made at all.					
<b>Benefits Assessment: (H, M, L) Identify confidence level</b>					
<ul style="list-style-type: none"> <li>• Medium</li> </ul>					
<b>Benefits to Using GIS for this Activity:</b>					
The State funding agency did not request that maps be included in the annual report, it was greatly enhanced by the inclusion of the maps and the state was impressed with the use of GIS in the report. This report is widely distributed, will catalyze attention and funding. They anticipate that the state will encourage local jurisdictions to use GIS to track their substance abuse clients in the future. Additionally, using GIS, they will be able to place substance abuse treatment facilities and direct specialized services in locations where they are most needed. Using GIS, they can determine which level of care (e.g., Detox, halfway house, outpatient, etc.) services are needed most in areas throughout Baltimore County. They can also provide treatment vendors with a geographic picture of their clients for planning purposes.					
<b>Annual Savings from Use of GIS:</b>					
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)
944	236	708	1	708	\$24,036.60



<b>Annual Benefit: \$24,036.60</b>
<b>Areas for Improvement:</b>
Baltimore County is the first to produce a report using this level of GIS sophistication. Recommend exploring other opportunities within this agency to produce a high level report that increases visibility and funding. They created their own GIS layer of treatment facilities. It needs to be integrated with the county Facilities data layer.
<b>New Opportunities:</b>
<ul style="list-style-type: none"><li>• County Facilities data layer.</li></ul>
<b>Benefits of Pursuing New Opportunities:</b>
<ul style="list-style-type: none"><li>• Will provide needed information on locations of health related facilities.</li></ul>



## 5 Short-form Online Questionnaires

**Agency** Health Department

**Name** Bonnie Coleman

**Job Title** Office Coordinator

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

Oversee Envision database. Supervise Office Assistant. Assist Program Chief in whatever is requested. Budget. Designing presentations and publications. As well as a lot of other duties.

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

That can vary, depending what is going on in our office. Normally the majority of my time is spent on the database and making sure it is working properly, but if another project takes 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.**

No

**Do you use GIS applications (e.g., DataQuery, 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.**

We were involved with DEPRM in the FOG survey and had to plot every health care facility with a high or medium food service permit.

**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.)**

Used it once for the FOG survey. We had our assisted living facilities plotted on the maps.

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

Plotting of all health care facilities.

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



**Agency** Health Department

**Name** Dave Taylor

**Job Title** Privacy Officer - Planning Coordinator - VHN Administrator

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

Oversee development, implementation, and operation of software systems. Coordinate planning and statistics activities. Oversee compliance with HIPAA and other regulations. Serve as custodian of records.

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

Software 80% Planning - 10% HIPAA - 5% Records - 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., DataQuery, 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.**

Occasional - Geocoding of birth data

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

Rare - Maps of outbreaks or disease activity

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

Occasionally - Breakdown of births by school district annually. Also use that data for Health Profile publication.

**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.)**

Only regular activity is #15

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

None at this time. As more areas become automated, we will be able to geocode client data to determine where they are located.

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

An issue still to be resolved is how we can utilize ArcGIS without having any of the data reside on county servers, since that information must comply with HIPAA regulations. The few times we attempted to log in to the ArcGIS server were met with a message that licenses were all in



**Agency** Health Department

**Name** Della J. Leister

**Job Title** Director, Bureau of Long Term Care

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

Director of the Bureau of Long Term Care. The Bureau of Long Term is responsible for multiple programs serving the vulnerable elderly, disabled adults and uninsured in Baltimore County. I am responsible for administrative oversight, personnel functions, budgeting, troubleshooting, problem solving, programming, etc.

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

I have four main divisions in the Bureau. I attempt to spend equal time with all, but not sure I can break it down by duties listed 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.**

No

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

On occasion, I will check into My Neighborhood to gather information for assignments, etc.

**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.**

On occasion, I have used maps (created by someone else in the Department) to pinpoint the locations of our patients for a presentation to the Board of Health.

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

We provide routine reports to the Department of Health and Mental Hygiene. We also provide year end reports to a consumer advisory group.

**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 actually do not use GIS personally for a number of reasons.

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

I wish I or a staff member were versed in simple GIS applications. I would like to use GIS to plot patients on the map for both staff assignments and for reporting. It would also be nice to assign an acuity level to patients in addition to geographic location to help with assignments.

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

I think GIS is a weakness in this department as a whole, although in some bureaus this is not as significant an issue. I see more use for it, but without staffing to enter, compile, etc... it can't be done.



**Agency** Health Department

**Name** Eric M. Fine MD, MPH

**Job Title** Bureau Director, CARH

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

Public Health Administration Health Planning Medical Consultation Represent Agency at meetings Budgeting, purchasing, procurement

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

Public Health Administration - 70% Health Planning - 10% Medical Consultation - 5% Represent Agency at meetings - 3% Budgeting, purchasing, procurement -12%

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

Infrequently we have plotted locations of patients by address to determine program outreach and penetration into the community

**Do you use GIS applications (e.g., DataQuery, 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.**

We have used geocoding to plot locations of school children, birth and death data

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

Only on occasion for presentation hand-outs

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

Most of our data products are statistical and progress reports to our funding agencies

**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 have not personally used it. When I need maps, I ask our statistician, David Taylor.

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

All clinical activities - to track patient visits, residences, vital events, etc. Plotting vital statistics by region. Plotting outbreaks Plotting plume of chemical/biologic contamination

**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 the time to learn more about it. I am sure I would think of other applications.



**Agency** Health Department

**Name** Karen Bratton

**Job Title** Mgmt Asst III

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

Program Director for Maryland Children's Health Program; oversee program activities - program performs Medicaid eligibility for pregnant women and children.

**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.**

Databases -- MCHP has one large database to track applications. I have two smaller Access databases to track budgetary information and personnel information. However, we do not use the specific examples sited, i.e., orthophotos, topography.

**Do you use GIS applications (e.g., DataQuery, MyNeighborhood websites) 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?**

Outreach efforts based on incomes reported on census or for specific populations.

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



**Agency** Health Department

**Name** Kathleen Rebbert-Franklin

**Job Title** Chief

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

Develop and maintain grant funded substance abuse services within Baltimore County

**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. To determine drugs of choice by zip code

**Do you use GIS applications (e.g., DataQuery, 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 A map of referrals from criminal justice system by zip code

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

Yes We recently published a document with maps and other data for 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.)**

Same as Lois Fegan's answer

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

using maps to further explain information. If a stakeholder wants to know specific information, we can map it (i.e. school location proximity to treatment programs, location of treatment programs in the county, prevention services based on breakdown of drug use in zip codes, etc) We're planning to increase the use of maps in our next annual data document.

**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 an incredibly useful tool in explaining information. It very easily depicts relevant data so that lengthy explanations are not needed. Other jurisdictions in the state are now looking at using GIS because of the maps in our annual data document.



**Agency** Health Department

**Name** Latonya Adams-Smith

**Job Title** Office Assistant

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

Clerical support, assist with emergency drills and trainings

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

90/10

**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 am not currently using GIS to perform any tasks but would like to encumber it in the emergency drills and training exercises.

**Do you use GIS applications (e.g., DataQuery, 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.)**

I would like to create maps for master plans and to pinpoint an outbreak within the county.

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

Not sure still in training

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



**Agency** Health Department

**Name** Lois Fegan

**Job Title** Statistical Analyst

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

I analyze substance abuse treatment data for all funded service providers in Baltimore County. I also track computer inventory, technical service requests, and develop internal databases.

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

Analyze data= 85% Computer Inventory= 5% Technical Service Requests= 1% Database Development= 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, I use the zip code, council/legislative district, school locations, roads, Orthophotos, facilities, and transportation layers.

**Do you use GIS applications (e.g., DataQuery, 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.**

Yes, I geocode treatment centers. We attempt to place our treatment services in the areas of the county with the most needs for the different treatment modalities (inpatient, detox, etc).

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

Yes. I make maps that show the geographic areas in the county with successful treatment completers and that show the most desistance in substance use during treatment.

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

I have provided a few maps to the Health officer and other bureau's in the department. For example, I made a map showing the locations for all of the Title 1 Elementary Schools in the county that would be receiving flu medication.

**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 maps to show geographic trends for substance abuse treatment data throughout the county for our Bureau's annual report and for smaller projects. I also provide GIS maps for grant applications and to showcase areas in the county where we have the most successful treatment patients.

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

Planning for grant awards and future treatment center locations

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

I think more money should be dedicated to training and conferences so that the Health Department can see what our counterpart agencies are doing across the country.



**Agency** Health Department

**Name** Olorunwa Asiru

**Job Title** Epidemiologist

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

Mapping of: Healthcare facilities in Baltimore County Identification of emergency evacuation routes GIS support for disease cluster identification GIS support for public health service delivery

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

Supposedly, 25% of my duty

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

Topography and property maps of Baltimore County

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

Normally

**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, identification of senior centers and other Baltimore County Healthcare facilities.

**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.)**

Maps, hospitals and health providing buildings and offices.

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

Being given access to countywide GIS data.

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

To be an efficient GIS user, data availability is very important. Being given complete and unrestricted access to the county GIS system/ data could be very useful.



**Agency** Health Department

**Name** Ruth Thompson

**Job Title** Chief, Communicable Diseases

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

Supervise the communicable disease program includes surveillance activities, investigation of reportable diseases and outbreaks of disease, case management and clinical services, public health emergency activities, consultation to the public and health care providers, public education about disease prevention and transmission

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

varies - currently about 60% administrative - program planning and management, 30% disease-related and clinical activities, 10% representing the program at meetings and

**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., DataQuery, 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.**

Occasionally use existing hardcopy maps to plot cases of specific diseases or clinic locations

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

Occasionally provide morbidity/mortality data - incidence of disease upon request

**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?**

Lots of possibilities - could map and assess clinic use by residence, look at disease incidence by residence, workplace, or venue (STDs and bars) track the progression of a disease geographically over time or relate cases to risks (West Nile human or animal cases to positive

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

Had two days of training at DHMH but no time to use to reinforce, and no readily available in-house support or guidance.



**Agency** Health Department

**Name** Shawn Kelly

**Job Title** Web Coordinator / PIO

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

Web Coordinator, Application Support, Public Information Officer-PIO(temporarily)

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

Web 20% App Supt 5% PIO 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.**

See question 17.

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

See question 17.

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

See question 17.

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

Currently - hardcopy maps

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

Yes - Department of Health Profile Book

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

Not currently.

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

Schedule to attend ArcGIS training 10/31/06

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

Provide support to Health Officer to identify and target areas to focus resources. Printed statistical media used for tracking and focusing advertising dollars.

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

Please note that many of the questions are difficult to answer since not having attending the training. Currently scheduled 10/31/06.



**Agency** Health Department

**Name** Stephanie House

**Job Title** Chief

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

Admin Support is responsible for operations including administrative, fiscal, technical and facilities management

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

administrative -60% fiscal - 20% technical-10% Facilities- 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, but there is a need for special projects e.g. to determine where sites are located, etc.

**Do you use GIS applications (e.g., DataQuery, 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.**

Yes, the Admin Support Team provides many data reports, e.g. county vehicle mileage spreadsheets are compiled monthly and distributed within the agency

**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?**

I would like to use GIS to locate all of our health centers and match to population and population use and determine the need for each location (about 20)

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

I'm sure there are many applications we could use, but not being technically advanced in the potential applications I can't project. I would like to hear how other Health Depts. use GIS or have a knowledgeable GIS person describe potential applications.



**Agency** Health Department

**Name** Thomas Petza

**Job Title** LAN Admin

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

Oversee the computers and basic network for the Health Department, including inventory management -- ordering, replacing, issuing, and surplussing equipment; managing the network -- adding users, issuing rights, server maintenance; client support/customer service -- troubleshooting client PCs; software and application management -- installing, configuring, troubleshooting third party software applications; miscellaneous paperwork and other admin

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

Network Management -- 25% Software \$ Application Management -- 20% Inventory Management -- 25% Client Support -- %15 Misc. Admin Duties -- %15

**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., DataQuery, 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.**

Minimal -- Occasionally co-coordinating with OIT for installation of GIS application.

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

See 16

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

None to think of directly within my unit, but I'm sure there are many within our department.

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

While I do not work directly with GIS, we have a small group of people who do use it for mapping and plotting data and statistics.