



INFORMATION TECHNOLOGY FY12 STRATEGIC PLAN

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Acknowledgment: *Office of Information Technology would like to thank all of its staff members for their continued hard work and dedication. Without their commitment and excellence, past and future success would not be possible.*

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SECTION 1...INTRODUCTION

1.1 Executive Summary

The County is continually faced with many opportunities and challenges caused by greater expectations of the public and employees to utilize technology as an enabler to accomplish daily tasks and meet their needs. This expectation and *citizen-centric* approach occurs within an environment of rapid change, finite resources, as well as a *challenging* economic environment. To be successful, the County's Office of Information Technology (OIT) needs to continuously operate more effectively and efficiently to provide better customer services as well as business solutions at less cost and more convenience.

To ensure that the County continues to meet this challenge, emphasis is placed on projects that keep the technical infrastructure a strong foundation for OIT applications and services, allow the County to communicate easily internally and with citizens, and allow easy access to County data and services. Emphasis is also placed on OIT projects that are managed consistently, are cost effective, are aligned with County strategic goals and that there is a proper level of oversight and tracking for OIT investments.

This plan summarizes the County's underlying principles for the management of the Office of Information Technology (Section 1.5), Initiatives and Strategic Directions (Section 2), Fiscal Year 2011/2012 OIT Programs and Planned Enhancements (Section 2.2), Office of Information Technology Plan Project Summary (Section 3), Information Technology Architecture (Section 4), Management and Controls Process (Section 5). The plan identifies technology directions and initiatives required to accomplish mission-related objectives; project accomplishments for on-going efforts and resources required for successful implementation for these initiatives.

This strategic plan will be adjusted annually to reflect current 3-5 year rollout, as well as updates to the strategic County technological objectives.



1.2 EXECUTIVE LEVEL OVERVIEW OF INFORMATION TECHNOLOGY IN THE COUNTY

County Office of Information Technology (OIT) is grouped into the following core areas:

1. Public Safety
2. Finance and Administration
3. Human Services
4. Land Use
5. Corporate wide shared resources
6. Technology Infrastructure
7. Telecommunications
8. Cable Television (CATV)
9. GIS, Geographical Information Systems

In general, the County OIT architecture includes the following major components:

- Z/800 Enterprise WEB Server (WEB & Legacy applications)
- AS/400 Servers (Oracle/JD Edwards ERP applications)
- RS/6000 Servers (GIS, E911, Land Use, Infrastructure applications)
- Dell & HP NetServers (VMware, Windows Servers, Various Applications)
- Storage Area Networks in strategic locations
- 3,600+ Personal Computers
- TCP/IP Network using Cisco equipment, hybrid private fiber optic and commercial backbone, geographical locations, hubs across the county
- PC Workstations (Dell, Hewlett Packard, Misc) using Microsoft Windows XP
- ATM and Fast Ethernet WAN backbone
- Ethernet Local Area Network topology
- VOIP & Centrex voice communications systems
- 800MHz public safety radio communications system
- 4 local CATV Franchises, including Public, Education. Government (PEG) and Television facilities

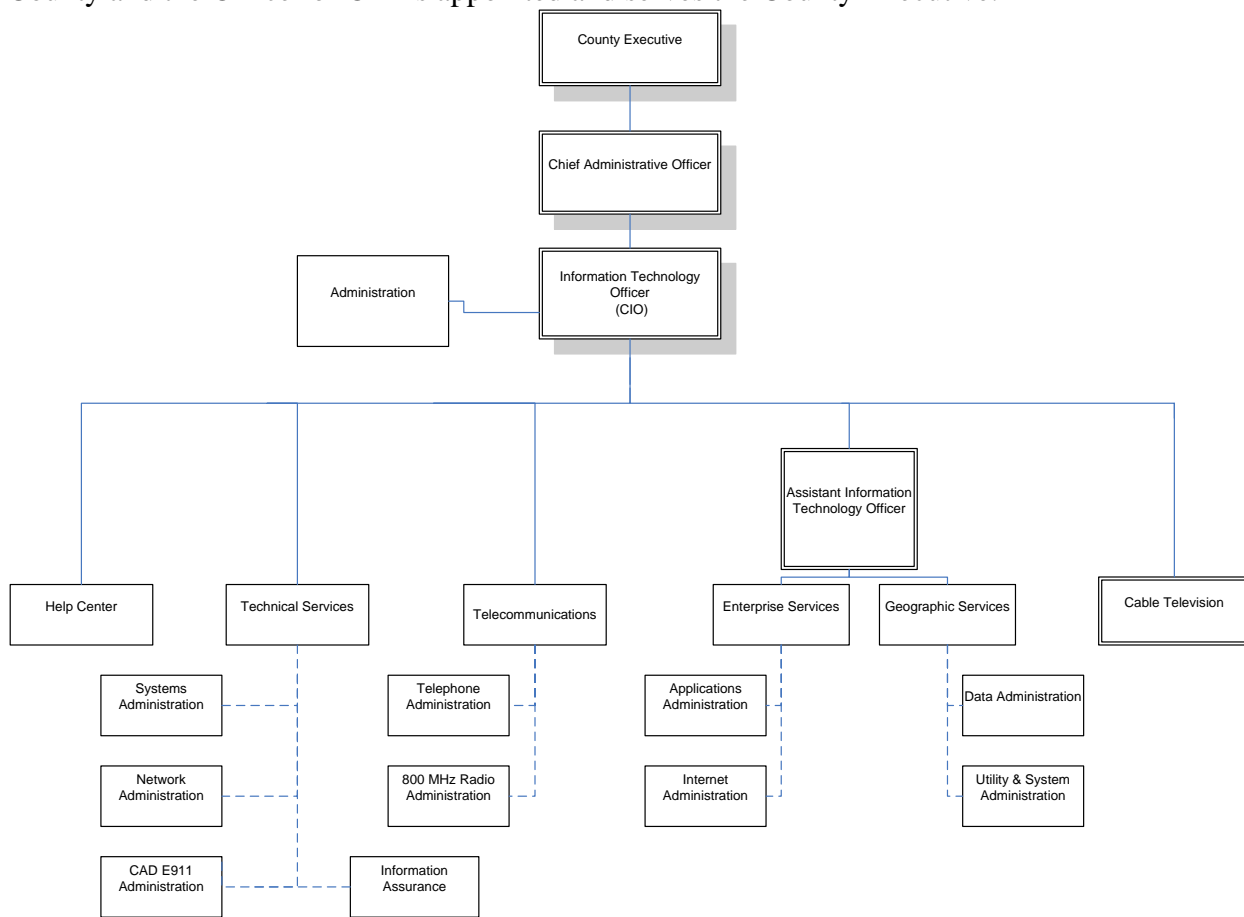
1.3 INFORMATION TECHNOLOGY ORGANIZATION

The Office of Information Technology (OIT) was formed in FY03. The creation of this department corresponds to the County Executive’s goal to consolidate information technology services into a single department to improve the delivery of technology services on an enterprise level.

The Information Technology Officer is responsible for the overall management of the Information Technology resources. Combining the forces and resources of CATV Administration, Information Services, Geographic Information Services (GIS) and Telecommunications formed OIT. This allows for true strategic technology planning, upgrade, replacement, and diminishes high costs of system duplication, reduces duplication of maintenance and resources for support and advancement of technology. It better prepares the county in a countywide infrastructure for information sharing, access, and reporting.

Office of Information Technology Organizational Structure

The Office of Information Technology reports directly to the Chief Administrative Officer of the County and the Officer of OIT is appointed and serves the County Executive.



OIT will contribute to an efficient and productive County Government and will use modern information technologies to improve citizen access to government information and services. To give focus and direction to staff within the department and to help plan for the future, an overall mission has been established together with eight goals. These reflect important issues facing the department.

Anne Arundel County continues to make the necessary investments in information technology hardware and software, which through careful planning, cooperative business and technical execution, provides citizens with a return on investment in the form of improved services. OIT is continuing its strategy to consolidate and maximize the use of technology and services – while simultaneously reducing the cost to deliver these services. A prime example of this is Server Virtualization and Thin Client Technology initiatives in progress.

These goals were established to energize the Department in performing its functions of developing and maintaining current information technology systems, providing a technology infrastructure and customer service support to *County Agencies* as well as New and Improved *Citizen Public Service* through public access, and public reports, and improved public information availability.

The organization structure is continually being updated and designed to deal with the ongoing evolution of technology and its utilization in support of the business functions within County Government. It is important to note the requirement of keeping competencies in house to maintain systems for legislative changes, deemed necessary for taxation, licensing, permitting, etc both required by state, federal, and regulatory requirements as well as technology vendor and contract management. The organization will also strive to look at a balance of competency internal to cost effective outsourcing and solutions to keep up with the County demands both as an internal and external customer service organization. This evolution has seen tremendous growth in distributed application systems, local area networks, as well as in the number of processors and distributed software applications used in support of various County functions as well as the intranet and Internet accessibility. These information systems are crucial and mission critical to the day-to-day functions of County Government. The ever-increasing complexity and sophistication of these systems require equally well-trained end-users and Information Technology staff with in house competencies to lead outsource providers both with resource and application management.

1.4 COUNTY EXECUTIVE AND ANNE ARUNDEL COUNTY KEY GOALS

Vision

Anne Arundel County will continue to be a place that values and strives to protect the natural and cultural environment, where opportunities exist to live in a variety of well designed and maintained neighborhoods and communities. It will be a place where a healthy local economy will provide jobs, and people can travel by foot, bicycle, car and transit to nearby employment areas and to a variety of educational, recreational and commercial services. Anne Arundel County will strive to provide the best educational and public safety services while maintaining a high quality of life for all of its citizens.

Long Term Goals

1. Public Education – to build a working relationship with the Board of Education to provide for the needs of the children of the County, and to support the Community College and Library in the provision of life-long learning environments and services to all citizens of Anne Arundel County.
2. Public Safety – to provide a safe and secure environment to everyone who lives, works and conducts business in Anne Arundel County.
3. Environmental Stewardship and Managing Growth – to protect and maintain the character of the various types of communities throughout the County, including the revitalization of older communities and the preservation of agricultural land.
4. Fiscal Management – to adhere to conservative financial policies and continually strive to efficiently utilize available resources.
5. Transportation – to establish and maintain a transportation plan and program that is compatible with the County’s land use, growth management, environmental and economic development priorities.
6. Economic Development – to attract and retain business investment, focusing on those companies that maintain economic balance, that respect our quality of life on the magnificent Chesapeake Bay, and that provide quality, high paying jobs to Anne Arundel County citizens.
7. Health – to educate the public about health hazards and promote programs that increase awareness, detection and early discovery of harmful diseases.
8. Recreation – to expand services to residents at low cost so as to enjoy the benefits of natural resource preservations, and to contribute to a health and active community by improving trails, parks and activities.
9. Technology Management – to provide citizens, the business community, and County employees with quality-driven, timely, convenient access to appropriate information and services through the effective and efficient use of technology.

1.5 OFFICE OF INFORMATION TECHNOLOGY MISSION

Mission Statement

It is the *mission* of the Office of Information Technology (OIT) to provide value, leadership and support the county executive and Anne Arundel County key goals by facilitating the identification, implementation and use of technology to support these goals, and the Citizens while enhancing customer service. Essential services provided will include: a high-quality, secure technology infrastructure, professional resources, business and geographic data, computing and network applications, telecommunications and video services and Cable Television Administration.

Fundamental Principles

1. Our ultimate goal is to provide citizens, the business community, and County employees with quality-driven, timely, convenient access to appropriate information and services through the effective and efficient use of technology.
2. Maintain a strategic information technology plan aligned to County business goals and objectives. Business needs drive information technology solutions. Strategic partnerships, teamwork and customer service is essential in order to maximize the productivity of County employees.
3. Develop and maintain integrated applications and a data architecture that emphasizes standardization, sharing, controlled access and quality through common relational database systems avoiding duplication.
4. Continually evaluate business practices and methods in relation to proven and open technology solutions while exploiting functional commonality and standards across government operations.
5. Manage Information Technology as an investment. Annually allocate resources to cover depreciation for replacement of systems and equipment. Include infrastructure replacement in strategic planning for effective fiscal management of technology resources.
6. Provide effective and efficient Customer Service through well-developed education and training programs in conjunction with Help Center support services.
7. Develop and maintain a technically and professionally competent staff skilled in current and emerging technologies to maximize business benefits.

SECTION 2... INITIATIVES AND STRATEGIC DIRECTIONS

2.1 STATEMENT OF TECHNICAL DIRECTION

Keeping up with the pace of technology change and using it effectively to meet end-user requirements is still the most critical challenge facing information technology providers. Advances in technology can enable the workforce to provide improved service at a reduced cost – but changes in technology can be expensive and complex.

To maximize the benefits of new technology in a cost-effective manner, adoption into the existing technology infrastructure of an organization must be done wisely. Recognition of the expense, complexity, and end-user expectations for easily accessed and readily available information challenges information technology providers to find new cost effective ways to deliver information and services when and where it is needed.

The challenges noted above require a strategic direction that identifies a life cycle replacement plan that blends new and old technologies and ensures that the County business applications and technical infrastructure support both today's mission critical and tomorrow's evolving business needs. Key aspects of this strategy include:

- ***Easy public information and services access*** are currently provided to the public through the County Web site. This allows our customers to conduct business whenever and wherever it is convenient. This service will continue to be expanded through our technology program. Internet technologies will command increased attention as more information and services are delivered to the customer electronically.
- ***Easy County agency information access*** is provided by newer systems employing client-server computing architectures that allow users access to information easily at the desktop and to manage data in local databases. While client-server systems unleash the power and flexibility of networked microcomputers, the cost of operating and managing these complex systems is currently higher than traditional non client-server systems. Industry analysis indicates client-server systems can have a total cost of ownership as much as 70 percent higher than an enterprise warehoused based system. Because of this, we are employing additional methods to provide easy access to information primarily through Web based applications structure and graphical database query tools and formats.
- ***Standard hardware, software and development methodologies*** are adhered to by County employees and vendors on all projects and continue to be refined. Technology that allows us to leverage legacy applications/data to achieve new capabilities and benefits will be adopted.

Included are applicable areas of Telecommunications and Cable Television. Commercial-Off-The-Shelf (COTS) software packages offer great promise for rapid implementation and

reduced life cycle costs – where appropriate to fit the business requirements. Financial Management, Procurement, Tax/Utility Billing, Public Safety, Human Resources are COTS systems. COTS systems have four major downsides: (1) COTS often employ proprietary rather than “open” systems; (2) COTS packages by nature force the County to become very dependent upon the vendor; (3) COTS packages possess less capabilities than many present legacy systems and often require significant customization; (4) COTS packages often force business practice changes on the County workforce (this has its advantages also).

Therefore, the correct mix and integration of COTS and using high level WEB tools to access, browse, and utilize current data without massive and expensive changes by data “warehousing” and countywide access, will be the priority where at all possible. The model of warehousing can be used both with in house and outsource networks. The utilization of old data by county wide access by public and county workers through new tools such as Browser, web based interfaces, internet, and e commerce and data warehoused based technologies will be the County strategy. Management of “risk” is also a factor due to the fact that the business life cycle and replacement plan must be considered in all cases.

Technology Life Cycle management is also paramount in managing various aspects of hardware replacement, our present direction in virtualization of the complex Server environment is reaping many benefits to reduce overall costs in administration and energy consumption. Thin Client technology will allow savings in life cycle management verses personal computer replacements – while still providing necessary functionality for County staff.

- **Network capacity** is continuously evaluated and expanded as necessary. Ethernet (switched) is the cost-effective scalable technology capable of satisfying these bandwidth requirements. Recent advances in Ethernet technology have made it possible to provide guaranteed levels of service for applications, including the most bandwidth intensive applications such as multimedia. TCP/IP is the most widely accepted industry standard network protocol. It is the foundation upon which modern computing systems and architectures are built. TCP/IP is also the backbone of the Internet; the world’s largest data network, and is the network protocol capable of delivering the next generation of applications to include electronic commerce and multi-media-enabled applications.

Phase III of its institutional network expansion is underway. This effort (once completed) will incorporate additional Library sites, Elementary schools, and additional County locations into an already robust fiber optic network environment for the County Public School System and Community College. A combination of data and multi-media traffic is currently operational. Standardized network electronics are installed in all new sites enabling consistent high-speed connectivity.

- **A mix of technical skills and competencies** are required to accomplish the successful integration of new technologies, older technologies and legacy systems. Proper **training** must be provided to County technical staff, including **retraining and cross training** in order to maintain a proficiency in both the new and old technologies. Knowledge transfer

from our development partners is an essential requirement of all contracts. Hiring specialized skills from the private sector is also required to infuse new skills and to deliver system solutions more quickly. The *cost effectiveness of contract development* and *outsourcing of various IT operations* is continually being evaluated and employed as appropriate. However, **the core competency base must be maintained and continued within the County in order to manage proper decision-making, especially vendor & technical competency management as well as overall knowledge.**

OIT will continue to grow and enhance staff skills in the Internet/Intranet WEB technologies. This strategy is extremely vital for the County's foundation of systems that utilize browser based; data warehoused applications for government and public access – and ease of use.

These strategies are intended to provide cost-effective information technology operations that will efficiently deliver County information and services to its citizens. Existing systems will be enhanced with new technologies and our network infrastructure is constantly being improved as we move forward with the County's IT modernization program.



2.2 FISCAL YEAR 2011 ACCOMPLISHMENTS

ADMINISTRATION:

- Technology Inventory Program Enhancements
- Primary and General Election Technology Operations
- Department Technology Planning Enhancements
- Federal BTOP awarded to County for Broadband Enhancements
- Revised Electronic Document Discovery Process

HELP CENTER:

- Realigned and improved Support Services coverage areas and consolidated staff in strategic locations
- Negotiated 2 price reductions for Dell PC's and Laptops
- Replaced over 100 County PC's, 50 Laptops and 20 printers
- Civilianization of Police IT personnel
- GroupWise archive changes
- Transition from Xerox to Ricoh copier/scanners
- ADP upgrades and training
- Reorganization of ORCC inventory and Computer Room
- Began configuring imaging servers to Zen Imaging
- Selected KAVIZA as our Thin Client vendor. Starting configuration and testing
- Received, distributed and assisted with the installation of the Tiburon CAD training room
- The IPCM module of HEAT Call Logging is in production. Much better management reporting capabilities
- Received, documented and resolved more than 15,000 calls from County Users
- RFP for new Help Center Technical staff completed

CABLE TELEVISION:

I-NET

- 7 Elementary Schools, 2 Fire Stations, 2 Libraries, 10 traffic intersections, Senior Center and Maryland Hall connected in Annapolis Area Fiber project
- 3 Elementary Schools and Library connected in Brooklyn Park Fiber project
- Southern Ring Redundancy project
- Convert I-NET to DWDM, Dense Wave Division Multiplexing, giving each location, schools libraries etc. multiple gigabit per second bandwidth

Educational Access Television

- Install new Cable Channel Playback Server System at Anne Arundel Community College

Government Access Television

- Install new video transport system for Public Education and Government access channels. The system will be HD capable and replaces an old system no longer supported.
- Install Video Camera System to televise baseball games at Joe Cannon Stadium

Cable Television

- 154,000 cable subscribers in Anne Arundel County with 3 cable companies, Broadstripe, Comcast and Verizon, competing in most areas of the county

Broadband Technology Opportunities Program (BTOP)

- Build telecommunications system with partner Broadstripe to serve 850 households in Southern Anne Arundel County to bring broadband, telephone and cable TV services to the unnerved areas
- Expand the Anne Arundel County I-NET to include Anchor Institutions such as schools, libraries, senior centers etc. for broadband internet and other services
- Interconnect the Anne Arundel County I-NET to new and existing networks to form Inter-County Broadband Network, ICBN, a system consisting of Anne Arundel, Baltimore, Carroll, Frederick, Harford, Howard, Montgomery and PG Counties, the Cities of Annapolis and Baltimore

APPLICATION SERVICES:

Personnel Benefits

- Implemented ADP Reporter software tool for creating ADP reports
 - Converted all scripts formerly created in ReportSmith to new ADP Reporter software tool
- Developed database application to efficiently track and upkeep information on Employee Savings Bonds
- Rewrote Discipline database application; moved from Access to SQL Server
- Designed application to upload data from outside agencies into Benefits Database
- **Munis**
- Upgraded Munis from rel 7.3 to Windows based SQL Server rel 8.1
- Archiving – began testing with planned implementation second quarter of 2011
- Implemented mainframe interface modifications for Utility Deferment functionality

Finance

- Developed automated Email notification for Tax Recordation Application
- Electronic Lockbox – implemented 2 vendors and working with 2 additional vendors for implementation in 2011
- Implement the AT&T Mobility and Sprint/Nextel interface payment processes first quarter of 2011
- Implement required changes to every interface process due to the Enterprise One rel 9.0 upgrade

- Prepare for 1099 processing for calendar year 2010

Administration

- Implement database hosting of AIM in STATS for Department of Aging & Disabilities
- GIS Applications:
 - Modified the MyAnneArundel application to improve loading times and allow for the creation of themes in the future.
 - Develop a template to enable streamlined development of future MyAnneArundel Themes. (Spring 2011)
 - Create a new MyAnneArundel theme enabling citizens to view County Facilities on a map regardless of a starting location and the ability to obtain directions. (Spring 2011)
- Application Development Infrastructure
 - Established a methodology for integrating WebSphere and MS Active Directory for internal user authentication as a step toward single sign on. This method will be utilized with new application development and existing Intranet applications will be converted over time.
- SharePoint:
 - An evaluation of SharePoint 2010 as a more widespread document management/collaborative solution to be undertaken by OIT in the early part of 2011.
 - Established a SharePoint site for the Police Departments PROTECT team and provided guidance support for the development of content.
 - Updated and improved the site that supports the Legislative Review process for 2011.

Public Safety

- **Fire**
 - Prepared a Strategic Planning document and organize Steering Committee for project planning and increased use of Fire Records
 - Implement data transfer of Heathware Solutions ambulance data to ACS
- **Police**
 - Create various QMF reports for Animal Control
 - Implement new version of enhancements to the Animal Control Web Application

Recreation and Parks

- Complete multiple maintenance requests on recreation and parks system
- Correct problem with multiple parents printing on aquatics registration reports
- Complete development of Parks Inventory system (Spring 2011)

Inspection and Permits

- Complete increase of inspectors comment area on inspection results
- Complete change to allow new license type of second hand dealer
- Complete creation of new mass permit update program
- Changed permit archive program to begin archiving permits again per state law
- Complete Major subdivision fee upgrade (Spring 2011)
- Complete addition of new pre-submittal phase for site plans
- Added new structure types for storm water management per state requirements
- Complete development of Internet license trade renewals (Spring 2010)
- Complete rewrite of the current Compliance system using Hibernate and STRUTS

Utilities

- Complete Utility Allocation billing system to allow payments to be made over a five year period (Spring 2011)

DPW Right of Way

- Complete final phase of Right of Way Permit System

Public Works

- Complete changes due to data field changes in CASWORKS
- Consolidated Property File
- Research impact of new state assessment system

Aging and Disabilities

- Implement database hosting of AIM in STATS for Department of Aging & Disabilities

GIS Data Development

- Street Centerline - completed enhancements including incorporating speed and one-way information, commonly used alias names, and developing a network that passes topology rules. These enhancements were necessary to meet the requirements for the new Tiburon E9-1-1 computer aided dispatch system.
- Structure Addressing – enhancements to the field verified structure address points completed and implemented under a grant received from the Emergency Services Number Board (ESNB) for \$724,000. Data set successfully imported into the Maverick Map and Tiburon Command CAD E9-1-1 system for testing. Contract lead, Axis GeoSpatial, LLC, will assist with the implementation in the existing E9-1-1 mapping application estimated to be completed in January 2010.
- Pictometry Winter 2009 oblique and ortho imagery. Delivered in the spring 2010 and successfully implemented within the GIS Enterprise Tools, Tiburon Command CAD, and MyAnneArundel.

GIS Applications

- Completed desktop upgrades to ArcGIS 10 and server upgrades to ArcServer 10.
- Assisted with the implementation of a new SharePoint site designed to track and document official street name and structure address issues. Multi-agency coordination effort between Planning & Zoning, IT, Fire, Police and Public Works.
- Assisted with the implementation of a Comprehensive Zoning internet webpage. The ArcServer map service enables citizens to view zoning change requests, both locations and property owner applications submitted as part of the Zoning process.

- Implemented photo viewer enhancement to the Watershed, Ecosystem, and Restoration Services (WERS) Mapping Application. Links within the application allow Stewards of the Environment and citizens to view photos taken in the field associated with Stream Assessments and Stream Restoration capital projects.

GIS Products and Analysis

- Completed development and implementation of a new base imagery cache service with the Winter 2009/2010 Pictometry Ortho product used in various ArcServer applications.

GIS Training, Coordination, and Outreach

- Provided in-house training for MapOptix and CountyView.
- Continued participation in statewide GIS coordination efforts:
 - Maryland State Geographic Information Committee (MSGIC) efforts
 - Maryland Addressing Initiative
 - Street Centerlines with Maryland State Highways Administration
 - FEMA Floodplain Map Modernization Program with FEMA and Maryland Department of Environment (MDE)
 - WebEOC
 - Baltimore Metropolitan Council (BMC) GIS Committee – formed in January 2010.

TECHNICAL SERVICES:

911/CAD

- Set up PCs for Police Training
- Upgraded Tiburon CAD to version 2.5

Administration

- Replaced OIT telephone system
- Replaced Police HQ telephone system
- Upgraded electrical distribution in Arundel Center computer room
- Upgraded electrical service in Heritage server room

Business Servers

- Upgraded GroupWise servers to version 8
- Implemented VMWare at the EOC
- Implemented new SAN at Heritage - 200% increase in data storage
- Implemented new SAN at Arundel Center - 200% increase in data storage
- Upgraded BlackBerry Enterprise server
- Upgraded Symantec Antivirus to Endpoint Protection version 11
- Upgraded VMware to version 4i
- Implemented Windows patch management deployment
- Upgraded email archive system to M+Archive
- Expand the use of group policies for PC configuration and administration
- Upgraded Scalehouse server
- Upgraded Time Matters server
- Upgraded www.aacounty.org servers
- Implemented FDIMS servers

Countyview/Cassworks

- Implemented dedicated data storage for DPW
- Deployed failover Cassworks server
- Implemented Document Imaging server for DPW
- Upgraded servers for wireless water meter reading system
- Upgraded UPS for Cassworks server

Data Network

- Installed wifi in several Heritage conference rooms, Police HQ, CSSC
- Implement centralized wifi administration
- Upgraded data circuit to State Public Safety
- Upgraded network hardware at Landfill, Police HQ, Arundel Center
- Upgraded network hardware at Detention and Police districts to support video surveillance systems
- Increased Internet bandwidth from 20MB to 200MB
- Implemented redundant Internet connections
- Implement redundant network trunk circuits
- Provided Annapolis City Police with data connection to the RCC
- Implemented network hardware for traffic cameras
- Add several Library locations to the central County data network
- Implemented data connection to State CHART system

EnterpriseOne

- Deployed browser client
- Upgraded to version 9

Enterprise Servers

- Implemented legacy environment emulation for Police and Detention systems
- Upgraded Websphere servers
- Removed obsolete mainframe hardware
- Upgraded Munis to version 7.3
- Upgraded z/OS to version 1.12
- Implemented dedicated UPS for EnterpriseOne server
- Migrated Munis to Windows/SQL Server environment

Information Assurance

- Completed annual user recertification process
- Printed semi-annual and annual tax bills
- Performed IT security assessment

Public Safety

- Installed CHART system at RCC and Police HQ
- Provided Dialogics (reverse 911) resources and training to Detention Center
- Provided WebEOC resources and support to DPW
- Replaced Telestaff server, implement failover server
- Provide IT support for Health Department H1N1 call center at EOC
- Implemented Pictometry OnLine
- Deployed 175 new replacement MDCs for Police

TELECOMMUNICATIONS:

Capital Projects:

- Working on Phase III of the Central Water Facility in Millersville

Radio system:

- Working with Central Maryland Area Radio Communications (CMARC) to reband the 800MHz radio system as part of the FCC mandated program
- Implemented a system to enhance radio coverage in South County
- Installed BDAs in Southern & Western District Police Stations to enhance the in-building radio coverage

Telephone system:

- Assist Police in set-up of sub-station at Arundel Mills Mall including voice and Data connectivity
- Establish Telephone Service at new Jonas Green Park Ranger Station.
- Replace County Council North Phone System
- Completed the Pasadena Senior Center renovation with voice and data cabling and relocation of existing services due to reconfiguration of space by landlord

Cellular system:

- Completed the Blackberry Enterprise Server (BES) SOP and End-user Troubleshooting Guide.
- Completed the migration of all General County Cell phones and Blackberry's to Government Pool plans
- Completed Dept of Aging Route Match MDT & AVL system implementation
- Completed the rollout of AVL/GPS software and hardware for all County Mail Trucks
- Completed migration of all Sprint and Nextel Blackberry's to the WSCA Blackberry Bundled plan in order to provide unlimited services and save \$25,000+ a year in access fees

Telecommunications:

- Completed numerous office renovations and reconfigurations county-wide in cooperation with Real Estate Office and Facilities Management Personnel
- Completed technical review and demonstration of Inventory Control software and hardware
- Coordinate removal of all Verizon Payphones from county facilities to avoid \$75/month fee
- Completed migration of all AT&T calling plan users to the WSCA Pooled plans to provide quality service and save \$12,000+ a year on access fees
- Worked with Police to secure a \$97,000 grant from the ENSB for the purchase of new UPS

PEG Television Studio:

- Continued weekly production of "Week In Review"
- Continued monthly production of "Anne Arundel's Most Wanted"
- Continued monthly production of "Minority Business Report"
- Continued monthly production of "Pet Court"
- Completed numerous single episode productions for various County departments:

2.3 FISCAL YEAR 2012 INITIATIVES

Office of Information Technology – Fiscal Year 2012 Initiatives

Public Safety CAD/RMS Replacement

GIS Land Use Enhancements

Document Management

Inter-County Broadband Network

Infrastructure Replacement:

 Email Platform Evaluation

 Public Safety Mobile Data Computer Replacement

 Countywide Telephone System

 Replace Personal Computers

 Countywide Network Equipment

 Countywide Server Virtualization and Storage Redundancy

 Enterprise Systems & Security Enhancements

 Expand Thin Client PC Replacement Initiative

 Courthouse Technology

 Pager Technology Replacement

 800MHz Radio Replacement Planning

Public Safety CAD/RMS

A comprehensive RFP has been developed, advertised and awarded. This mission critical Public Safety System includes Computer Aided Dispatch, Records management, a comprehensive and specialized Detention Center inmate management services system and, integration of a new Mobile Data system. A core team of staff has been assigned to this project from the Sheriff's Office, Detention Center, Police, Fire and OIT Departments.

GIS Land Use Enhancements

Efforts will continue in the Land Use area to enhance GIS data layers for: Street Center Line, Structure Addressing, Pictometry and other miscellaneous layers. MyAnneArundel Phase III and Phase IV projects to include a County facility explorer and Sub-Division and Zoning information into this application to enhance the benefits to the residents. Implementation of a replacement product for the MapOptix GIS data Viewer is also planned.

Document Management

Business Overview

- OIT continues plans to enhance our Intranet environment that better supports information management, exchange, and collaboration.
- The goal is to have an environment that is easily accessed and managed, works within the existing Intranet, supports document sharing, versioning, and archiving for both inter-departmental and intra-departmental purposes.
- The environment is flexible enough to handle numerous sizes and types of documents as well as historical and legacy items. The system will also store non-traditional information such as web links, html, sound and video.

- Each individual business unit will control content viewable internally to their own team, and externally to other county employees. Organization of content is also controlled locally within each unit.
- This investment in our Intranet will include new additions on both the infrastructure and the applications sides.
- The system will be organized and indexed so that information can easily be searched and queried.
- This new Intranet capability will also eventually support more efficient workflow automation.

Technology Overview

- There are several major technology components that will need to be installed and integrated including application servers, storage servers, a database server, web applications, integration applications, and permissions management services.
- We want the environment to be extensible so it can continue to grow along with the needs of the County.
- OIT plans to put this infrastructure into place, provide overall management, standards, and templates.
- Newly available technologies use web portal collaboration tools to improve information accessibility. OIT plans to leverage current investment in the Intranet to jumpstart project which will be broken into phases that can be designed, tested, and implemented in a year or less.
- The business requirements for document management, knowledge management, content management, and legacy document scanning will be gathered.

Inter-County Broadband Network

Anne Arundel is part a central Maryland consortium of County's awarded a federal BTOP grant to expand broadband and fiber optic services in the State. The Anne Arundel effort will be concentrated on improving broadband and fiber optics to residents of South County as well as other anchor institutions. The project also has a component to link all central Maryland County's with fiber optic for public safety as well as other opportunities to share resources.

Infrastructure Replacement

This multi-year project began efforts in FY05 and will continue in order to replace obsolete and unsupported computer and network system infrastructure Countywide.

Email Platform Evaluation

The Office of Information Technology will evaluate its current email platform and environment to ascertain its continued use and evaluate applicable current technologies pertinent to email operations. Enhancements may be implemented as a result of this process.

Public Safety Mobile Data Computer Replacements

The Police and Fire Departments currently utilize Mobile Data Computers (MDC) in daily operations for a variety of mission-critical tasks. A portion of these devices are six years old. Additional capability and functionality is required.

Countywide Telephone System Replacement

This multi-year project replaces obsolete and unsupported telephone (voice) system infrastructure Countywide. The goal is to have a single Countywide phone system instead of several disparate systems, implemented with a more cost-effective recurring cost model. Additional departments will be scheduled for replacement as funding is available.

Replace Obsolete Personal Computers

With a County PC inventory of over 3500, 500-660 devices are 6+ years old and need to be replaced. These devices fall outside of the category for thin client replacements altogether.

Countywide Network Infrastructure Replacement

This project provides for continuous annual network equipment upgrades to the countywide network that operates over County-owned fiber optic cable. Providing essential and, mission critical services to the County, Board of Education and the Community College. Increased use of video surveillance and planned VOIP technology has adding increasing demands to network services.

Countywide Server Virtualization and Storage Redundancy

Server consolidation and Storage redundancy continues to be a cost effective means increase computing services to County employees as well as improving availability and reliability of these functions and features.

Enterprise System & Security Enhancements

This project provides for the replacement of the enhancements of Enterprise (county-wide) Server Infrastructure and Data Storage equipment as well as the continuous security enhancements necessary.

Thin Client Deployment

This project provides for the expansion and replacement of the PC equipment (where appropriate) with Thin Client technology. Reducing associated expenses with hardware, software, energy consumption and technical support. A pilot program began in FY10.

Courthouse Technology

Replacement of Courthouse audio visual technology is a priority for FY12. Current technology is mission critical to Court operation and trial proceedings. A comprehensive and detailed replacement analysis plan has been developed.

Pager Technology

The Office of Information technology will discontinue use of county-wide pagers June

30, 2011. The Telecommunications division is currently working with departments to migrate users to cellular devices where required.

800 MHz Radio Replacement

Public Safety mobile radios are nearing the end of their 8-10 year life expectancy. Interoperable communications with adjacent jurisdictions is also of paramount importance. Replacement planning will be conducted in early FY12 to devise a plan.

2.4 OFFICE OF INFORMATION TECHNOLOGY SHORT AND LONG TERM GOALS December 2010

Administration:

6 months

1. Tactical Departmental Technology Planning (In Progress)
2. Regional Inter County Broadband Network Governance and Admin Efforts (In Progress)
3. On Going Security Assessment (In Progress)
4. Fire Dept Medical Transport Billing (Partially Complete)
5. FY12 Budget: (In Progress)
6. Inter County Broadband Network Administration and Governance

1 year

1. Proficiency Advancement for Technical staff (Draft Completed)

Help Center:

6 months

1. Improve time to implement equipment received to – three weeks. (On Going, working well)
2. Provide four PC's at ORCC which enable inmates to job search to a specific set of URL's. (Complete).
3. Thin Client pilot and small rollout (Vendor established for Pilot).
4. Convert from Ghost to Zen PC and Laptop imaging. (Expect to start the process in October).
5. Update PC 's to Windows Service Pack 3 (Ongoing).
6. Ensuring all PC's and laptops have the current level of Symantec installed. (Ongoing).

1 year

1. Reduction of PC and laptop setup and installation time through improved standardization of desktop and laptop image process and naming conventions for all department and locations. (In Progress)
2. Provision of training for technical staff in current and emerging information technology (On Going)
3. Achieve Help Center satisfaction rate of 92% (via end-user survey techniques). (In Progress)
4. Continued rollout of Thin Client configuration for PC's.

2 year

1. Provide comprehensive reporting of all desktop and laptop assets in the county (Server Team has written code to report HW/SW – reviewing results)
2. Continued Thin Client Rollout for eligible County PC's

Application Services:

6 months

1. Implement the Inmate Sentence Diminution application (Complete, awaiting business unit acceptance)
2. Public Safety CAD/RMS Upgrade: Implementation in progress (data migration, system tailoring and configuration, test, Training in-progress).
3. Export Police incidents to SpotCrime Web site (Complete & in Production)
4. Open access for Warrants Inquiry in current RMS to Annapolis Police (awaiting MOU from Office of Law)
5. Develop redundancy for County Internet Servers (www.aacounty.org) (Phase 1 complete. Phase 2 – New servers purchased and in the process of being loaded with system applications. Systems Alliance will upgrade Site Executive to version 4.2)
6. Convert the Dept of Aging's STATS application to access the AIM database hosted by the Vendor in South Carolina (In progress - 1st Quarter of 2011)
7. Implement Munis Archiving (1st Quarter of 2011)
8. Support Police Pro-QA enhancement and interface with Records (on hold by Police)
09. Gather Requirements for Public Safety System interfaces to Courts Systems (on hold by Detention Center)
10. Complete the 1099 process for calendar year 2010. (On Going – plan to e-file by start of 2nd quarter 2011)
11. Provide ability to better track payments to affiliates/dependents (i.e. QDROs, survivor benefits) (in progress – 70% complete)

12. Electronic Lock Box Process (On Hold –only implemented 2 vendors)
13. Upgrade Munis to MS-sql Server & Windows and include converting to Release 8.1 (Implemented Sept 2010 however, still correcting known errors)
14. Implement transfer of Police data to NRC LInX Front Porch Server (Complete and in Production)
15. Rewrite Utility Allocation Billing System Application (in Progress)
16. Begin developing additional themes in MyAnneArundel with assistance from a cross department GIS development team (Enhancements to be reviewed and prioritized)
17. De-activate data transfer to CrimeSolve application (Complete – approved by Police)
18. Implement update to aaccounty.org (working with depts. to implement by 1/1/2011).
19. Develop RSS feed for county news story (Completed and ready for production)
20. Develop new tracking system for land use modification web posts. (in dept review)
21. Map viewer for Road Construction updates to aaccounty.org. (initial phase started)
22. Lost and Found pets report (completed and in production)
23. aaccounty.org mobile support phase I (in progress 5% complete)
24. Update fire training website (met with client)
25. Develop an application to facilitate the SDLC process and provide visibility to project documentation/overall status (Phase 1 in Development)
26. Implement trade license renewals on the Internet (in progress)

1 year

1. Review and analyze potential Enterprise Development Environment integration solutions
2. Upgrade Xerox forms software. (On Hold)
3. Update training plan for developers (On Hold)
4. Develop a plan to convert the County's existing Java applications that utilize the CAS Framework to the newly developed Hibernate Framework and the new AACounty.org theme (INP Complaints conversion completed, MBE and STATS conversion underway)
5. Business License Module for Sales Tax Collection (1st quarter 2011)
6. Implement Customer Information System, a rewrite of Utility Billing System (On Hold)
7. Plan strategy and resource requirements for the next generation of the Benefits Database Lifecycle (business unit delayed until 1st half of 2010 – still on hold)
8. FDIMS for Fire Dept. - (1st Quarter of 2011)
9. Master File Name Cleanup- Project to clean up police, detention, and Sheriff Master Name File in preparation for migration to new platform (in progress)
10. Convert Focus reports for Police, Detention Center, and Sheriff to Crystal Reports (in progress)
11. Data migration testing from current Tiburon database to new Tiburon database (in testing phase for Police, in programming phase by vendor for Detention Center, waiting for migration plan for Civil Process from vendor)
12. Explore options to consolidate various Fire Department Personnel files (in progress)
13. Provide improved ability for users to run yearly Benefit reports and data extractions (in progress 90% complete)
14. Finalize Benefits database system documentation (in Progress)
15. Medicare Secondary Payer Mandatory Reporting (1st Quarter of 2011)
16. Reformat reforestation screens and fees within PIPS and MST systems to meet new state regulations (in Progress)
17. ADP Grant Account Number Employer Cost Journal Entry Correction (Complete)
18. Retiree Health Tracking in Benefits Database - (1st Quarter of 2011)
19. MUNIS – Implement New release 8.x (Possibly 3rd quarter 2011)
20. Enterprise One upgrade & conversion of all interfaces to Rel 9 (1st quarter 2011)
21. Convert remaining Telecommunications bill outs (Cell Phones, Blackberries) to an interface process (2nd quarter 2011)
22. Evaluate various competing products for Commissary Management and Inmate Accounting to be coordinated with the new IMS system for the Detention Center (Evaluation Phase)
23. Animal Control pet browser. (3rd quarter of 2011)
24. View county facilities map on MyAnneArundel/aaccounty.org. (3rd quarter of 2011)
25. aaccounty.org dynamic message calendar. (3rd quarter of 2011)

GIS:

6-month

1. Street Centerline Maintenance
 - a. Overlapping addresses – In progress (95%)

- b. Alias checks from Structure Address street name mismatches – **In progress (95%)**
 - c. PW and UA back-log
 - 2. GIS Open End Agreement
 - a. SOQ advertised – **Complete**
 - b. Technical Review – **In progress**
 - c. Consultant Selection
 - 3. Structure Address Maintenance
 - a. Address mismatches to street names resolve inconsistent records – **In progress (30%)**
 - b. No Structure and Duplicate address review – **In progress (15%)**
 - c. RFP advertised – awaiting Purchasing
 - d. Vendor Selection
 - e. Implement Synchronization and disconnected editing environment
 - 4. ArcServer10 and ArcGIS10 Migration
 - a. Desktop Licenses – 4 out of 65 Installed
 - b. ArcServer Licenses – 0 out of 5 Installed
 - c. Departmental Tools tested and migrated – **In Progress**
 - d. VBA tools re-programmed in .NET before version 10.1
 - 5. [gis-cloud](#) and [gis-sky](#) server replacement
 - a. Server specifications – **Complete**
 - b. Web server purchase – Ordered, Received, In Development
 - c. Software Upgrades Purchased - **Complete**
 - d. VMWare OS and SQLServer 2008 configured – **In Progress**
 - e. Data Loaded (Early January)
 - f. Application Testing (Late January)
 - g. Web Server configured (End January)
 - h. Implementation (February)
 - 6. MyAnneArundel Phase III
 - a. Planning Phase
 - 7. Pictometry 2010 Ortho Imagery deployed
 - a. MapOptix – **Complete**
 - b. ArcServer Applications WERS, DPW, AACO Streets, MyAnneArundel – **Complete**
 - c. CountyView – (data provided awaiting Technical Services deployment)
 - 8. Continue to provide Technical Assistance for CAD\RMS mapping needs
 - a. Map Layers
 - City Code Areas - **Complete**
 - Common Places - **Police Testing \ Updates In progress**
 - Fire Hydrants and water sources - **Complete**
 - Police Response Areas - Police
 - Fire Response Areas - Fire
 - Alias Street Name Table – **Complete**
 - Mileposts – Final Delivery awaiting Police acceptance
 - Streams with Names – **Complete**
 - Rail lines with Names – **Complete**
 - Complex with Name and Address - Police
 - Neighborhoods with Names – Police
 - Towers - Final Delivery awaiting Police acceptance
 - b. MobileComm Map Configuration – **Complete**
 - c. FireRecords hydrant and fire flow data
 - Data provided 9/8/2010
 - Data deployed by Tiburon
 - Fire Testing
 - d. CAD Map Configuration – Completed by Police
- 1-year
- 1. MyAnneArundel Phase III Development and Implementation
 - a. County facilities and services

- b. Development Information
 - Permit Activity
 - Subdivision Activity
 - Zoning
 - c. Health Dept Well and Septic Information
2. CAD and RMS Go Live
 3. MapOptix replacement
 - a. Needs Assessment
 - b. Software Selection and Purchase
 - c. Configuration

CABLE Television

6 months

1. Monitor State and Federal Legislative initiatives regarding CATV Franchising (In progress)
2. Severna Park Fiber Project, Build the County I-NET to include the 5 Severna Park Elementary Schools and the Severna Park Library (Completed)
3. Crofton Fiber Project, Build the County I-NET to include the 5 Crofton Elementary Schools. (Completed)
4. School System Media Center (Completed)
5. 3 Traffic Intersections and the PG County Hub Connection (February 2011)
- 6 Annapolis Fiber Project, 7 Elementary Schools, 2 Fire Stations, Maryland Hall, Bates Senior Center, ---2 Libraries(May 2011)
7. Upgrade County Council Video Production capability (Completed)
8. Gambrills/Odenton/Severn/Glen Burnie Fiber Project, 12 Elementary Schools, 11 Traffic Intersections, Redundant Core Ring. (April 2011)
9. AACo Libraries (5) connected to County I-NET (Completed)
10. Submitted Federal Broadband Grant Application (Completed)
11. East West Blvd. Fiber Project, 2 Elementary Schools, Traffic Intersection, Police Station Site (October 2010)
12. Automated Traffic Control Fiber Project (Riva Rd) (Completed)
13. Television Production System to broadcast games at Joe Cannon Stadium (April 2011)
14. High Definition IP Based Video Transport System (March 2011)
15. Brooklyn Park Fiber Project, 3 Elementary Schools, Library (May 2011)

1 year

1. Management of PEG capital improvements
2. Management of Broadband Technology Opportunities Program (To be completed August 2013)
3. South County fiber optic ring
4. Upgrade Video Bail Review to IP based system
5. Automated Traffic Control Fiber Project (Forest Drive)

Technical Services:

6 months

1. Upgrade Oracle Reports hardware and software
2. Devise support plan for Tiburon systems
3. Implement Windows password security enhancements
4. Implement Telestaff redundancy
5. Upgrade Ethernet switches for Police servers
6. Replace SAN hardware at Arundel Center - COMPLETED
7. Upgrade Arundel Center Intel Server Tape Backup – PENDING FUNDING
8. Distribute GroupWise v8 client to all users
9. Move Scalehouse application to VMWare – COMPLETED
10. Implement backup Cassworks server
11. Develop a plan for zSeries mainframe server replacement
12. Upgrade EOC Wireless for improved management
13. Migrate Arundel Center Novell file server from Netware to Linux - COMPLETED

14. Implement next version of EnterpriseOne
15. Transition CAD operations to new Tiburon system
16. Enhance GroupWise integration with smart phones to include Android and iPhone
17. Increase Internet connection speed from 30MB to 200MB
18. Implement FireEye network security system
19. upgrade VMWare server hardware at Heritage – PENDING FUNDING
20. Implement Cisco AnyConnect VPN for Public Safety mobile users

1 year

1. Develop a plan for inventory and consolidation of user-managed servers at DPW
2. Standardize the structure of Active Directory and eDirectory
3. Replace tape backup hardware for EOC servers – PENDING FUNDING
4. Enhance redundancy for www.aacounty.org – PENDING FUNDING
5. Replace SAN hardware at EOC – PENDING FUNDING
6. Migrate EOC Novell file server from Netware to Linux – PENDING FUNDING
7. Add VMWare servers at EOC – PENDING FUNDING
8. Upgrade iSeries server hardware
9. Redesign Operations staff coverage to eliminate midnight shift
10. Develop a plan for VoIP implementation for Fire HQ
11. Upgrade WebEOC server hardware

Telecommunications & PEG Studio:

6 months

1. Preliminary meetings with Sprint/Nextel to find a solution to replace existing outdated scanning equipment and software for Non-Capital Fixed Assets as well as meet the daily needs of agencies such as the Detention Center, Fire, Police, etc. (On Hold until Purchasing makes a decision to proceed with purchase and implementation)
2. Rewire existing Master Control room (July/August 2010)
3. Addition of display monitors in studio waiting area. (In progress)
4. Develop and refresh PEG channel content. (On-going)
5. Upgrade all qualified Sprint/Nextel Blackberry and regular Cell Phone Users to latest technology devices for FREE. (To be completed as required by qualified users)
6. Working to issue an RFP for the purchase of in-building solution for Western and Southern District Police Stations. (An award has been made, installation and testing is scheduled for December)
7. Kinder Park Visitor's Center. (Voice completed 10/10—Fiber Optic underway est. comp. 12/10)
8. Pasadena Senior Center Expansion/Renovation. (underway est. comp 1/11)
9. Replaced Phones at Glen Burnie Garage 10/10
10. Board of Elections ...Election Support—temporary phone lines and system programming 11/10
11. Library Branch ADA renovations 12/10
12. County Council North Telephone System Replacement 10/10
13. Health Department WIC expansion at HSB 10/10
14. Health Department Langley Road---System Integration 11/10
15. Working with the Server team to find and Beta Test GroupWise email solutions for non-blackberry devices such as Android devices. Have Identified NotifyLink as possible solution. (Beta Testing to start shortly).

1 year

1. Develop RFP for County-wide telephone system. (Developing needs assessment and specification.)
2. Vendor selection complete for county-wide telephone system replacement. (In Progress – we are looking at a technology migration from analog Centrex to IP Centrex (An IP Centrex trial is underway).
3. Police Impound Lot Re-location. (Construction and relocation complete, awaiting specs for security system and voice and data requirements if any. (2Q11)
4. Continue review of Telephone database for unused circuits and telephone numbers. (Ongoing)
5. Purchase of new production equipment for televising County Council Meetings. (Complete)
6. Purchase of new ENG cameras to replace the Panasonic AJ-D700s. (Complete)
7. Purchase virtual set software for County produced productions. (On Hold)
8. Water Operations Addition. (Under construction)

2.5 SPECIFIC STRATEGIC TECHNOLOGY PLAN GOALS

2.5.1 TACTICAL GOALS AND DIRECTIONS

2.5.1.1 Information Technology Governance

1. Re-focus mission to prioritize all departmental technology requests (on-going)
 - Decision Authority
 - Cost/Benefit Analysis (appendix 2)
2. Enforce technology standards (on-going)

2.5.1.2 Information Technology Organizational Structure

1. Implement Proficiency Advancement Program (-ongoing)
2. Review salary/compensation levels for OIT staff (on-going)
3. Implemented Competency/skill Plan (ongoing)

2.5.1.3 Infrastructure Improvements/ Lifecycle plan

1. Upgrade 800 MHz Radio System (Complete)
2. 800MHx Mobile Radio Replacement (FY12-FY13)
3. Continue & support Countywide area network access
 - Plan/Utilize new fiber optic network (ongoing)
4. Enhance County building data cabling network (ongoing)
5. Security Enhancements (ongoing)
6. Mobile/Wireless communications
 - DPW Infrastructure (ongoing)
 - Inspection & Permits (ongoing)
 - Mobile Data computing (Public Safety) (ongoing)
7. Server upgrades (on-going)
8. Voice Communications Infrastructure Enhancements (planned FY09-FY13)
9. Document Management (on going)
10. Detention Center Inmate IVR (Complete)
11. Courthouse Technology Upgrade (FY10-FY14)
12. PC Replacement Program (on going)

2.5.1.4 Enhance Information Technology Management and Control

1. Continue identifying and implementing OIT standards (Desktop HW/SW, Network, Database, Integration) (ongoing)
2. Continue identifying and Implementing Administrative Procedures and Standard Operating Procedures at departmental levels, track and train.
3. Help Center enhancements
 - Problem and Change management
 - 1 stop help (ongoing)
 - Internet/Intranet countywide administrative network tools (ongoing)

- Knowledge base for user and technician reference (Heat), Web (ongoing)
- Computer inventory integrate as county asset management (ongoing)

2.5.1.5 Enhance Technology Training

1. Information Technology staff (on-going)
2. All County staff (ongoing)

2.5.1.6 Geographic Information Systems (GIS)

1. Implement usage, distribution and maintenance plan (ongoing)
2. Desktop GIS software tools countywide, training (ongoing)
3. Define & implement GIS Master Plan (complete FY07)

2.5.1.7 Implement Application Technology Initiatives

Office Automation

1. Internal/External Email capability (ongoing)
2. Interactive voice response system replacement (ongoing)
3. Office, scanning, bar codes, fax, business system integration (ongoing)

Administration

1. Countywide Citizen Contact Web System(311 System) (Complete)
2. Purchasing - Internet e-commerce based procurement (ongoing)
3. Elections Office – New State mandate voting machine system
And Statewide Voter Registration system (complete FY05/FY06)
4. Asset Management/Inventory/Bar Code (Complete)

Human Services

1. Aging – Internet based service payment processing, Transportation Fleet management system (Completed FY09)
2. Recreation & Parks – Park Asset/Inventory (FY11)

Human Resources

1. Benefits, analysis tool and interfaces (complete FY10)
2. Employment Applications – Receive/process from Internet (new) (complete FY06)
3. ADP EV5 Upgrade (complete FY10)
4. Time & Attendance Upgrade (complete FY10)
5. Implement Employee self-serve and other ADP modules (ongoing)
6. Succession Planning, Training & Performance Mgmt (RFP) (FY11)

Land Use

1. LURE Initiative Projects (5) (ongoing)
2. OIT Lure Programs, Consolidated Property Geodata Layer (Complete)
3. Enhancements to Snow Removal Web Applications (ongoing)

Public Safety

1. Integrated Detention Center/Police/Fire/Sheriff records management (replacement) *(FY10-FY12)*
2. Computer Aided Dispatch (replacement) *(FY10 - FY12)*
3. Mobile Data Computing Police/Fire (new) *(Upgrade FY10-FY14)*
4. Fire/– Shift Scheduling (new) *(Complete FY10)*
5. Detention Center – Inmate management (new) *(FY12)*
6. Fire – Building Plans (new)
7. Police – Live Finger Print Scan (new) *(complete FY06)*
8. Police – Crime Analysis (new)
9. Courts – Jury System (replacement) *(Complete FY05)*
10. *Reverse 911* *(Complete FY08)*

2.5.1.8 Data Architecture

1. Develop business and geographic schemes and data views *(Complete FY06)*
2. Implement standard query utility *(ongoing)*
3. Software *(ongoing)*

SECTION 3 - INFORMATION TECHNOLOGY PLAN SUMMARY

3.1 Technology Overview

The County's technological improvement strategy is focused on the following elements:

3.1.1 Management Controls and Processes

The focus here is on improvements in overall technology planning for the County with greater emphasis on participation by County Departments, decision-making authority and cost/benefit analysis.

Another key element of this strategy is focused on developing and enforcing technology standards, quality assurance, service level agreements, training, and Help Center enhancements.

3.1.2 Organizational Structure and Staffing

The emphasis here is providing adequate IT staffing, staff compensation and professional studies and Cabinet level representation in order to facilitate business process improvements COUNTYWIDE via technology.

3.1.3 Infrastructure Enhancements

The emphasis here is to provide and enhance the technological infrastructure (as well as contingencies) for agencies to utilize in making quality operational improvements, including enhancements to data access.

3.1.4 Business Process Improvements through Applications Software

The emphasis here is on applications in major business process groups, identified as: Office Automation, Administration, Human Services, Land Use and Public Safety.

3.2 SUMMARY OF SPECIFIC TACTICAL GOALS AND DIRECTIONS

3.2.1 Information Technology Governance Enhancements

The focus here is to implement and improve the County-wide Information Technology governance structure. In order to improve the integration of technology and County business goals.

- Re-focus mission to prioritize all departmental technology requests
 - Decision Authority
 - Cost/Benefit analysis
- Enforce technology standards

With implementation of these changes, it is anticipated that overall County planning can be improved and be integrated into strategic technology planning for the County.

3.2.2 Information Technology Organizational Structure

- Cabinet level authority/responsibility (CIO)

The CIO is strategically organized to advance County business goals through enterprise-wide technology projects and enhance cost/benefit analysis.

- Identify Competency levels

As the staff attritions, each vacancy is reviewed in order to optimize staff competency resource requirements, adjustments are made accordingly for present and future technological knowledge.

- Re engineering OIT organization

This objective is to continue the internal reorganization of the Information and Technology Office, to meet technological changes and competencies required and continue as a service organization that meets countywide objectives and administrative goals. The organization structure will be continually reviewed in order to ensure efficiency and effectiveness given changing County and technological, goals and objectives.

- Continue Proficiency Advancement Program

A detailed implementation plan was submitted with the FY2002 IS budget request in order to implement the Proficiency Advancement Program for Information Technology positions. Proficiency Advancement is a County program implemented in other Departments. OIT has lost several experienced staff members during the past year due to the low salaries available and lack of career growth opportunities with the County. The Proficiency

Advancement Program begins to address these two major issues for Information Technology staff.

OIT position salaries should be studied and raised to be comparable with industry averages. We are even losing staff to other local governments as well as the federal government. The Program will implement six new class structures or groupings for employees with three position classifications contained in each structure. This will give staff the opportunity for career growth and rewards based on job performance.

The County continues to be at significant risk of losing experienced Information Technology staff members due to low salaries available (as compared to the technology industry) and nonexistent career growth opportunities. We will also find it difficult to attract new staff members to replace those lost if we do not have compensation levels and programs to retain staff based on performance rewards.

Status: Implementation of this program is now in progress by the Office of Personnel.

- Salary and compensation levels for Information Technology staff

The County continues to be at significant risk in losing experienced Information Technology staff members due the reduction of head count, forcing internal training and constant re-engineering of technical staff. Due to the competency levels expanding by the county needs the staff become valuable for they're gained competency level and go elsewhere due to low salaries available (as compared to the technology industry) and nonexistent career growth opportunities. During the next 2-5 years, Information Technology will experience a projected 20 – 30% retirement rate of existing staff. We will also find it difficult to attract new staff members to replace those lost if we do not have compensation levels and programs to retain staff based on performance rewards. The County needs to compensate Technology Staff based comparatively to industry offerings. ***The county cannot afford the high price of outsource alone, loss of controls of price increases, and incompetence of delivery, and “risk of constant industry turnover in companies”*** with off the shelf unsupported products. The core competencies are always required to support inside and outside sources for OIT infrastructure, support, maintenance, and advancement. The “combination” of inside competency and outsourcing must be crucially balanced.

3.2.3 Infrastructure Improvements-Life Cycle Replacement Program

Priority is given to the replacement of current mission critical systems due to technology obsolescence. Refer to Appendix 3 for a complete list of technology infrastructure and associated life cycle obsolescence and replacement plan.

- Life Cycle Replacements:
 - Upgrade 800 MHz Radio System

Capital Project #C504400 was approved for this purpose and this project is complete. It was managed by OIT/ Telecommunications Office. The RFP was issued in June of 2002 and an award was made in December 2002. Project was completed in 2008. Mobile radios for public safety at their life expectancy. Surrounding jurisdictions have upgraded to the new P25 standard mobile radios. These 2 factors make it a necessity to replace our mobile radios during FY12 & FY13 for normal and interoperable communications and mutual aid.

- GIS countywide Master System
Implement GIS Network to accomplish centralized GIS standards, data sharing, network and server sharing, reduce duplication, and further expand usage and easy access through training, GIS tools, and desktop usage. This project is complete.

- Land Core Initiatives
Implement Land Core upgrades for easy access, better collaboration, reduce duplication and stovepipe operations usage of all land core data. Implement data warehouse strategy for better tools, reporting, tracking, viewing, and collaborative data exchange.

- Improve home access and secured remote capability for wired and wireless access.
Complete.

This technology utilizes a series of complex file servers to “serve” applications to PC workstations securely connected into the County network. The actual software application is loaded on the web-based servers – and not the individual PC workstation. This provides increased flexibility in application enhancements and support. Many County departments, as well as OneWorld users would benefit from this technology. This enables County staff access into the County network (applications), such as EnterpriseOne, Munis, Land Use and Office Automation Applications.

- Video Conferencing

This technology is used in conjunction with existing County infrastructure.

- Continue PC replacement program as part of infrastructure planning

This project will continue in operating funds have been allocated in the OIT budget to annually replace approximately one-third of all County PC's. This provides for a predictable and fixed equipment replacement cycle. This also includes utilizing thin client technology where appropriate. Incorporating Thin Client technology where appropriate.

- Expand Countywide area network access
 - Plan/Utilize new fiber optic network

As a result of approved CATV franchise agreements and Federal BTOP Grant awards, the County is proceeding with Phases IV and V of the fiber optic network.

- Identify through study new and enhanced County requirements. Review with Countywide Infrastructure Planning considerations.
- Security

This project will provide additional firewall and network intrusion security devices to various County locations, upgrade of the Internet monitoring software, and provide professional consulting and engineering support services for various security functions. Without adequate Security, the County is vulnerable to penetration and unauthorized access by intruders. We must also monitor appropriate Internet site access for County employees and we must continuously monitor and expand security capabilities to respond to ever increasing threats from outside sources.

- Mobile/Wireless communications

This project provides for continued mobile/wireless communications and infrastructure. Implementation is countywide. This has become a standard infrastructure component in the county plan.

- Server upgrades

An obsolescence/replacement cycle for all County file servers is also essential in order to maintain technical currency, reduce hardware obsolescence and provide increased application functionality as well as timely service and availability across the county for internal and external customers and users. We have implemented Server Virtualization Technology.

- Fire Suppression

This project upgraded fire suppression services in the Arundel Center Data Center(s) and Emergency 911 Data Center and is part of the infrastructure plan. Complete.

- Disaster Recovery Hot Site (Business Continuity)

This project provides professional, standard disaster recovery and avoidance hot site services. A hot site provides full computer and network services restoration from a remote facility for major data center equipment under contract in the event of an activated emergency, such as fire or other damage to the Arundel Center data center. These hot sites can often be activated in a day's notice. County services could be restored extremely fast as opposed to the estimated 2 weeks that the current disaster recovery plan outlines.

The County has a significant investment in mission critical computer and network equipment, such as its Tax/Utility Billing, Finance and Administration, Land Use and Public Safety records management systems and major revenue streams. This has become part of our infrastructure plan. All Business Continuity priorities are identified in the OIT Continuity of Operations Emergency Plans (COOP).

- Voice Communication Infrastructure Enhancements

This project comprises: (1) Completion of Bringing the Greenbury Point radio towers online (to be available for both public and private use), (2) Implementing Wireless applications across the public safety and land use and business departments and (3) thirdly identifying and creating a voice life cycle replacement plan for current countywide phone systems.

- Document Management

Technology Overview

- There are several major technology components that will need to be installed and integrated including application servers, storage servers, a database server, web applications, integration applications, and permissions management services.
- We want the environment to be extensible so it can continue to grow along with the needs of the County.
- The Office of Information Technology plans to put this infrastructure into place, provide overall management, standards, and templates.
- There are several technologies that are being reviewed and analyzed including "COTS" options from Microsoft, IBM, and Open Source. A version of the Microsoft portal is currently being tested by OIT personnel.
- Newly available technologies use web portal collaboration tools to improve information accessibility. OIT plans to leverage current investment in the Intranet to jumpstart project which will be broken into phases that can be designed, tested, and implemented in a year or less.
- The business requirements for document management, knowledge management, content management, and legacy document scanning will be gathered.

3.2.4 Enhance Information Technology Management and Control

- Continue fine-tuning and updating and publish standards, policies and procedures form Administrative Procedures, to standard operating functional procedures for all of OIT. (Desktop HW/SW, Network, Database, Integration, GIS)

Standards for all technical areas have been published and are being strictly enforced. A major benefit of standards will improve County technology integration and compatibility.

- Help Center

The Office of Information Technology has established the Help Center as a single point of contact for problem resolution using a centralized knowledge-based database for first and second level support services.

Currently, the HC responds to approximately 1,500 calls for service a month. As technologies and applications emerge, the level of support calls will increase in direct ratio with the decrease in time available for solving problems. This is in addition to direct centralizing of all service calls to the HC. Identification of Administrative and Automation tools to assist in change and problem management technology such as Web tracking, proxy support and functions have been integrated into the HC as it continues to evolve into a “one-stop shop” for services. The growth rate of our original systems within 2 years has tripled, while reducing county staff can only be addressed with identification of core competencies, appropriate sizing and outsourcing, for this most important countywide service to keep the network and systems available to all internal and external customers countywide.

- Quality Control and Assurance, Problem and Change management and Audit Reporting

This software assists Information Technology in the management, control and reporting of hardware, network and software installation, maintenance and enhancements. Recommendations from our Strategic Technology Plan as well as an independent Quality Assurance Study highlighted a requirement to implement management controls in this important area. All hardware, network and software changes as well as problems would be channeled into this system. Benefits such as improved reporting and accountability would be derived, as well as lessons learned via a knowledge database method to be deployed. The competency of county staff and utilization of administrative QA software is the requirement for maintaining and initiating quality programs and security for our systems and user base. The reporting and controls cannot be compromised and can be detrimental to programs currently in progress.

3.2.5 Enhance Technology Training

- Information Technology staff

OIT is committed towards more formalized training in the WEB technologies and network areas, especially due to the diminishing of county positions. It is even more crucial to train to fill gaps of technical competencies due to reduced positions. OIT is committed to maintain core competency skills and training in newer technologies for all staff members, as well as to provide continued certification training. For FY11, we will continue this commitment, career and competency planning.

- All County staff

With recent OIT infrastructure and staff competency enhancements, the County has been continuing expansion into WEB technologies. The County through OIT leadership is positioned to enhance business processes for improved efficiencies and cost effectiveness. An example is the Certifications of GIS OIT core team for teaching, and Professional Classification. Consideration has been given towards consolidation of all technology training by implementing on line cost affective training through our PC replacement program to county employees as well as holding in county training service for specialized users and applications such as GIS. We will continue taking advantage of such cost effective and user needed and requested programs.

3.2.6 Geographic Information Systems (GIS)

- Implement the GIS Network, distribution and maintenance plan

OIT and the GIS Manager have identified the GIS network, applications and distribution plan. The formal execution of these systems will continue to grow, and be part of our advancement and maintenance plan. GIS standards and Administrative Procedures for countywide users have been implemented.

- GIS desktop software and application maintenance tools.

Geographic Information Systems (GIS) desktop software has been identified and started to be implemented to County staff in Departments such as: Police, Fire, Aging and Health. This software will allow access to pertinent GIS data layers. The Strategic Technology Plan that the County completed highlighted many requests from Departments to utilize these assets. Software that is being acquired is an ESRI based product as our county standard in addition to an Internet version of County View (Mapoptix) that is available. Extensive Training and implementation support is provided through the OIT office, GIS department.

SECTION 4...INFORMATION TECHNOLOGY ARCHITECTURE

4.1 Architecture

Anne Arundel County, Maryland's information technology infrastructure is dynamic and continually evolving to adapt to new business requirements and technologies. As the population of Anne Arundel County, Maryland continues to grow and the citizens demand for programs and services increases, substantial investment in information technology is unavoidable. Without it, the County is faced with the untenable choice of hiring additional staff or providing diminished levels of service.

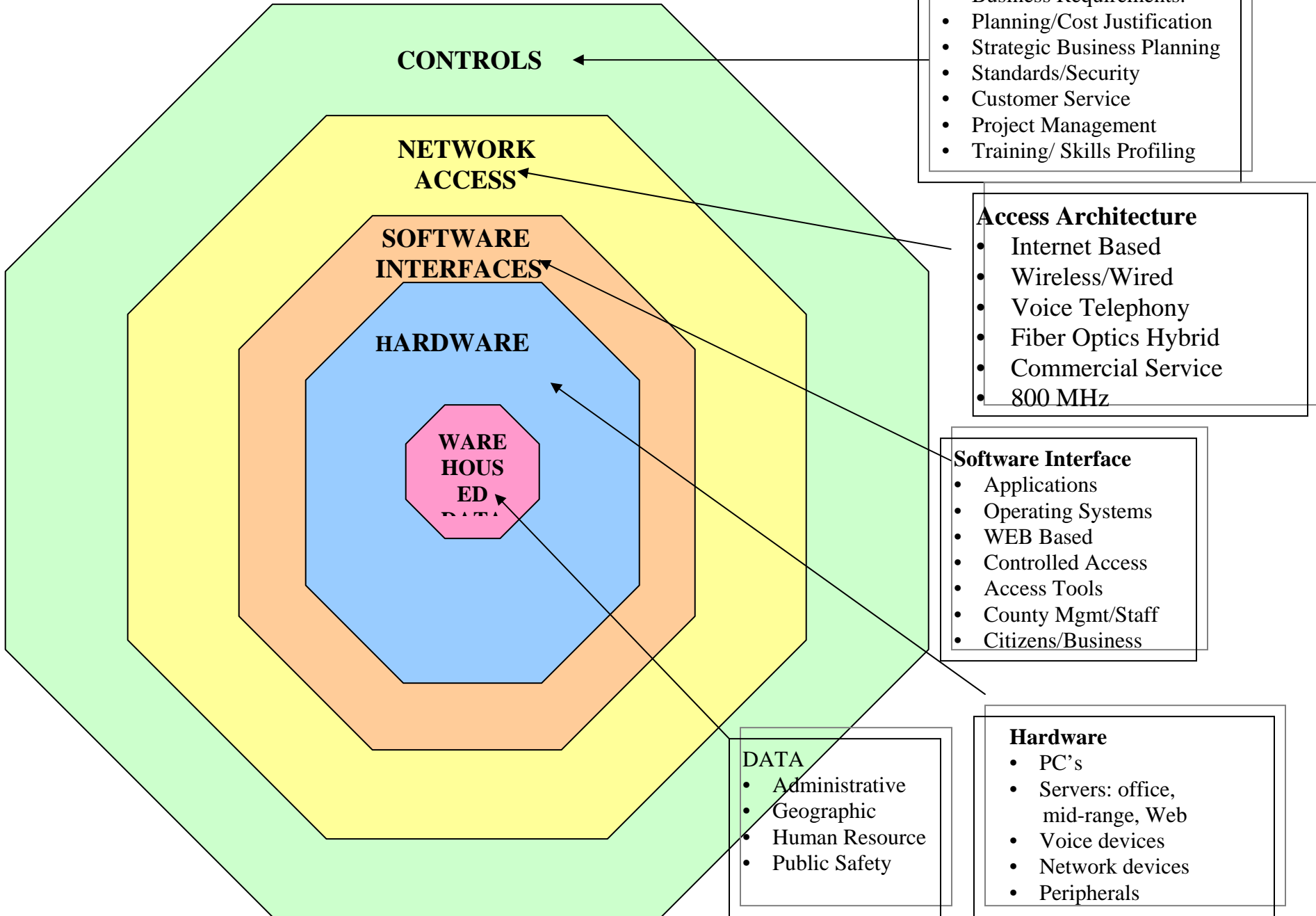
This section of Anne Arundel County Maryland's Information Technology Plan identifies the major hardware and software architecture currently utilized and defines the intended direction of future acquisitions.

4.2 Architecture/Service Model

The following illustration represents the enterprise technology Information Architecture Service Model.

See Illustration on following page – this page left intentionally blank.

OFFICE OF INFORMATION TECHNOLOGY INFORMATION ARCHITECTURE SERVICE MODEL



The table below illustrates a hierarchical subdivision of the various information technology components that support the County's mission and the associated business. These components constitute the architectural infrastructure currently in place.

- **Level 0: The mission** *The Office of Information Technology will deliver quality and innovative information technology solutions for agencies and those doing business with Anne Arundel County Maryland*

4.3 The Business Process Enterprise Access (INTEGRATED/WAREHOUSED DATA)

Administration and Finance

- Electronic Mail
- Office Applications (Word-processing, Spreadsheet, Database, Presentation, Query)
- County WEB Site – Internet & Intranet
- Finance
- Budget
- Tax & Utility Billing
- Customer Service & Citizen Issues
- Vehicles

Geographic

- Land Use
- Property (Consolidate Property Information, Parcel Map)
- Map Based Infrastructure (CountyView, MapOptix, Scada, CassWorks)
- Permits Processing
- Inspection Processing
- Subdivision Review
- Modeling (Stormwater, Utility, Traffic)
- Zoning Enforcement
- License
- Small Area Planning
- Comprehensive Planning
- Traffic Management

Human Resources

- Payroll
- Personnel
- Benefits
- Leave Administration
- Employment Application/Recruitment
- Training
- Unions
- Health (GIS, Clinical, Environmental, Disaster, School Nurse)
- Recreation & Parks (Child Care, Facility, Participants, Programs)
- Aging (GIS, Client Tracking, Transportation, Senior Centers)

Public Safety

- Records (Police, Fire, Detention Centers, Sheriff)
- Manpower/Resource Planning
- E911 Dispatch (Police, Fire, Sheriff, Animal Control)
- GIS, Map Based Routing
- Vehicle Status
- Jury Selection

The illustration below represents and *integrated* Enterprise access view of all County data.

See Illustration on following page – this page left intentionally blank.

OFFICE OF INFORMATION TECHNOLOGY

INTEGRATED

ADMINISTRATIVE



GEOGRAPHIC



HUMAN RESOURCES



PUBLIC SAFETY



DATA ACCESS

4.4 Hardware

- Desktop PC's, workstations, handheld PC's
- File Servers (small, mid range, large, WEB enterprise)
- Voice devices (telephones, 800MHz radios)
- Network Equipment (voice & data)
- Peripheral devices (printers, fax, digital map plotters)

Hardware Processors

Processors are the major equipment used to operate the applications and application tools. Anne Arundel County's processor architecture includes enterprise, mid-range, Local Area Network servers, as well as workstation and desktop processors. The County also utilizes State and other non-County processors as necessary.

Desktop PC's and Workstations – Increased utilization of PC technology by all Anne Arundel County departments has facilitated the streamlining of operations and improved the delivery of services to citizens. Information Technology (OIT) continues to prescribe hardware platforms and desktop applications standards and procurement vehicles as a means of controlling costs. Standard desktop configurations allow for consolidated procurement and enhance the County's ability to provide technical support to all users. For FY12, a 4-year PC replacement cycle will continue (pending funding availability). All County PC's are centrally procured from existing contracts to achieve economies of scale and consistent hardware platforms throughout all departments. Thin Client technology is also planned for expansion.

Local printing is accomplished through a large inventory of local and networked printers, primarily Multi-Function Devices that combine printing, scanning, Copying and fax capability. Centralized output is available from the Arundel Center Data Center via high volume laser print systems.

Enterprise WEB Server - Anne Arundel County supports requirements for enterprise (or mainframe) business applications with a large IBM computer utilizing IBM's Z/OS operating system. In addition, several RS/6000 (AIX operating system) and AS/400 (OS/400 operating system) mid-range servers are utilized for application specific processes.

Network Servers - Anne Arundel County currently supports two LAN operating systems: Novell NetWare (version 5.0 and above) and Windows 2000/NT/XP Server (version 4.0).

4.4 Software Interfaces (Applications)

- Business and Geographic Application Systems
- Administrative/Office Systems
- Spatial Analysis/GIS Applications
- Programming/Development Tools (WEB based)
- Database Management Systems
- Office Automation/Workflow Software
- GroupWare/Collaborative Software

- Document Management
- GIS Software
- Operational Support – Help Center Software
- Security
- Data Query Tools

Applications

All elements of the information technology architecture have been acquired to support Anne Arundel County, Maryland's overall mission and departmental processes. Applications are those elements that directly support the delivery of services and the associated administrative functions required to ensure that those services are timely, efficient and cost-effective. Anne Arundel County, Maryland has a vast inventory of PC's, mid-range, enterprise servers and communications equipment. New applications and application enhancements are constantly being evaluated, developed, acquired and implemented as older legacy applications retire. A brief example of the County's application architecture and some recent developments are described below.

Application Systems - Anne Arundel County, Maryland replaced its Financial System with a commercial client-server software package from Oracle (JD Edwards). Also the County's Tax/Utility Billing systems were replaced with a commercial package from MUNIS. The legacy Payroll system was replaced with a modernized system from ADP.

Office Systems – The County has implemented Email software that enables County and Internet capability simultaneously. Also, Microsoft Office has been acquired for all PC's in the County.

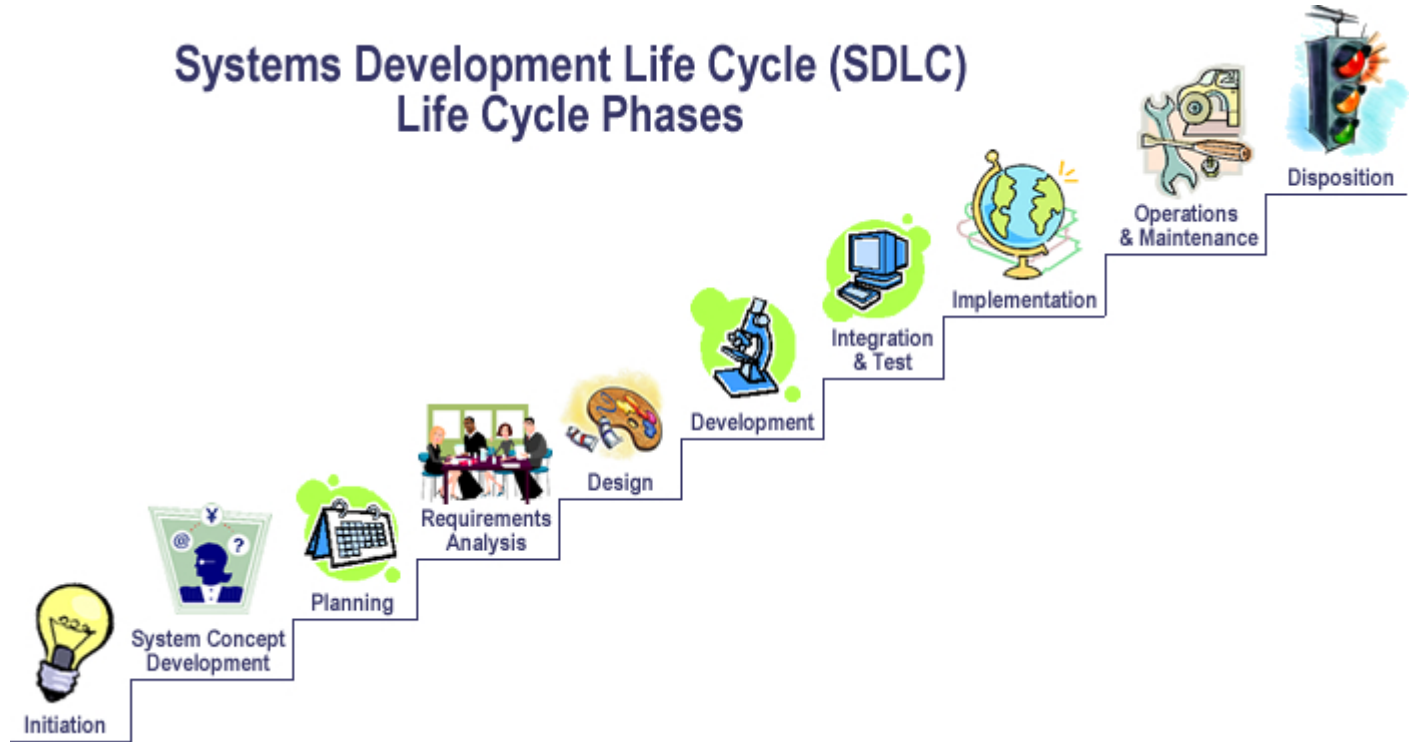
Application Tools

System Development Life Cycle Process - The Office of Information Technology's System Development Life Cycle (SDLC) is a series of detailed tasks, procedures, and documents that are used during the technical development of any information system project undertaken for Anne Arundel County Government. These include projects that are developed solely in-house, those developed solely by third parties or combinations of the two, and projects on all platforms. As all projects are not created equal, it is understood that steps that are necessary and appropriate for a full-scale development project would be an impediment, not an aid, to projects that consist of a simple change to an existing system. Additionally, some projects are the direct result of legislated changes and the findings of feasibility studies and cost benefit analyses would have no effect on the decision to proceed. To address these realities, three distinct Life Cycles Paths are defined:

- Full SDLC - Used for major projects developed either in-house or by contractors. These may be new projects or re-writes of existing legacy systems.
- Mandated SDLC - Used for projects mandated or legislated where some Full SDLC steps are unnecessary.

- Minor Change SDLC - Used when a minor change is required to an existing system. The change does not effect the structure, logic or basic functionality of the system

Each of the SDLC Paths is divided into ten phases.



Within each defined SDLC Path, it is understood that not all phases or steps are required for all projects. However, it is necessary for the Project Team to address each step, even if it is to note it as not applicable.

Each phase as described in the SDLC document is broken into five topics. These are:

- Purpose - Describes the purpose of that phase as it related to the SDLC Path
- Tasks and Activities - Details the tasks required to complete that phase
- Deliverables - Details the deliverables, be they documents or system components
- Approvals - Lists the approvals required to complete that step, and the nature of that approval (verbal or written)
- Templates - Provides links to templates for documents used during that phase of the appropriate SDLC Path

Application tools are the information technology components used to develop and support the functioning of the applications. Application tools also include the support systems used to facilitate work planning and communications.

Programming/Development Tools – New applications are currently being developed using the latest generation object oriented languages and tools, such as JAVA and WebSphere. This approach will continue as additional client-server applications are developed and as Commercial-Off-The-Shelf (COTS) system components are purchased. Older generation languages and tools are now utilized only in a few specific development or maintenance efforts.

Relational Database Management Systems (RDBMS) – The County uses several database management systems to support business applications. On the Enterprise Server, DB2, Oracle, and SWL Server are used. DB2 is also the preferred business DBMS (Informix is also utilized) on mid-range servers and client-server applications and Oracle/SQL Server are the preferred geographic DBMS to use. RDBMS design activities, such as creating entity-relationship diagrams, the data dictionary, process models, logical and physical data models, and the database definition are supported through various tools and utilities.

Office Automation/Workstation Software – County office automation standards have been updated. GroupWise for Email, MS Word for word processing (Corel WordPerfect will continue to be used where required), MS Excel for spreadsheets, MS Access for workstation database management, MS PowerPoint for presentations, MS Internet Explorer for Internet access, Norton Anti-Virus for PC virus protection, NS Elite for 3270 access, Client Access for AS/400 access, Blue Vista or ICE/TCP Emulation for RS/6000 access.

GIS Software – The ARC/INFO software provides high-end workstation tools and functionality to the GIS Analyst. MAPINFO, MAP-OPTIX and COUNTY-VIEW software are also utilized where appropriate on mid-range desktop PC's. This software integrates visual or graphic data in the form of maps with descriptive or attribute information from an organization's internal databases. These tools also are used for analysis and access to data.

Help Center (HEAT) Software – The Information Technology Help Center provides County employees a centralized point of contact for computer support. Using a combination of call routing and sophisticated knowledge management software, Level-1 Technicians will resolve support calls or route to the next level as appropriate.

4.6 Network

- Local Area Networks
- Wide Area Networks
- Internet/Intranet Connectivity
- Other External Connectivity
- Private Fiber Optic/Frame Relay
- Analog/Digital Telephone Connectivity
- Wireless/Mobile Voice/Data Connectivity
- The Physical Plant
 - Wiring (Ethernet)
 - Hybrid: Private Fiber Optics/Tariffed Frame Relay Service

Enterprise Communications Network

The Enterprise Communications Network for Anne Arundel County Government serves as the voice and data communications backbone, which provides Countywide access to information technology resources. Additionally, the Network provides Cable Television interconnect facilities for all County CATV subscribers regarding the County Public, Education and Government Television channels (PEG).

Voice Telephone: Commercial Centrex services are in use on an enterprise wide basis. A replacement program and new life cycle plan has been performed to meet countywide transition of this growing and advancing technology in the VOIP arena. Currently all County facilities are interconnected via various strategically placed Centrex switches located in the County providing the “222” exchange service. The commercial service provider acts as the County’s private branch exchange. Individual County buildings have wired telephone systems connecting the location to the service; some buildings have multiple systems depending on size and other factors.

Cellular Telephones: Commercial service is provided and contracted for on an as-needed basis. Presently, due to cellular technology, integration into the County’s “222” exchange is not possible. This will be looked at in the upcoming study and telephony digital transition countywide plan.

Pager Services: Commercial service is provided on an as-needed basis. As a result of transition of technology, pagers are being phased out.

800 MHz Radio System: The County operates a private 800 MHz radio communications system for Public Safety and General County usage, with approximately 3,000 radios connected to the system over four (4) microwave towers. The County has completed this multi phase project with Motorola Inc. The new Motorola Astro© system is a 10 Tower site, digital system utilizing current communications technology. All existing infrastructure and radio units were also replaced during the project. During FY12, planning will be conducted to replace obsolete mobile radios to allow interoperability with jurisdictions with upgraded systems.

Computer Data Network: This network connects approximately 4,100 computer devices in approximately 85 locations. These computer devices include PC’s, terminals, printers, network servers, communications equipment (routers, hubs, and switches), modems, and LAN/mid-range/enterprise servers.

The enterprise network supports equipment and systems from multiple communications protocols. All supported network systems are based upon open standards, and compliance with published standards is required for any network-connected device or system.

In order to connect varying computing environments together into a single enterprise network, routers are required to translate and route data across the network.

The Enterprise Server, as well as several mid-range servers, is the primary network resources. With the proliferation of servers and PC's, the network has expanded to support TCP/IP, the Internet protocol as the standard. A primary goal for the Enterprise Network is to support only protocols that are "routable". Routing is defined as the filtering and managing of data traffic across the network, which ensures that data arrives at its destination. Router equipment determines the correct and most efficient pathway for this routing.

The primary network architecture for workstations in the County has traditionally been token ring. The industry standard architecture has become Ethernet. All new County sites are currently being configured with Ethernet and existing sites are being converted to Ethernet, these network adapters are less expensive and provide greater potential throughput and bandwidth.

Network management is supported through various methods using Cisco and OpenView software. OIT will continue to look at network and open source solutions that help match our countywide access and resource application needs.

The enterprise network high-speed backbone utilizes a combination of ATM and 100megabit (MB) Ethernet over a hybrid of private fiber optic cable and commercial frame relay services.

The Anne Arundel County Internet architecture provides significant and wide-ranging opportunities to utilize emerging technology as a means to make information more readily available to county staff, citizens and business. The interactive nature of the technology allows residents and others to conduct business with the County from the convenience of their home without the need to call or visit the County Government.

The County's high speed Internet architecture is comprised of the following:

- High-speed, open connection to the Internet
- Public access Web server
- Intranet Web server

High-speed Connection to the Internet – The County maintains 200 megabyte (MB) connections with two-way service points. This service provides citizen access to County Web services, such as Recreation & Parks, Tax & Utility Bill Payments, Animal Control and Employment Application Processing as well as providing Internet access for County staff. Due to growth, a 200MB service was implemented in FY11.

Public Access Web server – The County's Public Access Web server provides Internet users with a vast amount of information made available by various agencies COUNTYWIDE as well as to the PUBLIC. . This could be viewed as an "on-line counter" where residents and other may obtain information related to services, recreation and so on.

Intranet Web server – "CountyWeb" Intranet Web Server provides the same type of facilities but access is limited to County staff. In the future, some internal applications will also be located on the Intranet server. This is part of the architecture decision that can be better expanded for open source and access management for collaborative data sharing across county agencies.

Further study and transition plans should be done to continue the countywide agency network and functional access solutions.

Physical Plant Equipment: At the base of Anne Arundel County's information technology infrastructure is the wiring and commercial circuits that tie the various components together and permit the flow of data around the network. Asynchronous Transfer Mode (ATM) and Ethernet wiring with transmission rates up to 155 megabytes per second are primarily utilized.

In addition to the 600 miles of private fiber optic cable utilized, connecting over 160 sites. As a result of a recent Federal BTOP Grant award, several more sites and infrastructure are being added to our robust network.

4.5 Controls

See Section 5 of this Plan for further discussion of this item.

SECTION 5.... MANAGEMENT CONTROLS AND PROCESSES

In any large, complex enterprise such as Anne Arundel County Maryland, virtually all Information Technology (IT) projects are supported directly or indirectly by wide range of business process and practices. Although such processes are often not visible, they are integral to both the development and delivery of flexible, cost-effective and reliable information technology solutions.

The purpose of this section of the plan is to demonstrate new or existing IT Management Controls and Processes in place to illustrate cost effective and efficient technology solutions.

5.1 IT Planning Process

During the last several years, the IT Planning Process has been refined with the adoption of lessons learned and the continual coordination and information exchange between Information Technology and the County business arena. During FY2001, a master technology plan was conducted with all County Departments. Several management and technology recommendations were made that would improve the business process and use of technology in the County. Due to financial restrictions in the County, the contents and recommendations of the master plan were prioritized and spread over several fiscal years.

A technology plan is not a one-time event. To be effective, it must be constantly analyzed to ensure the proper direction is aligned with the business goals of the County. The Office of Information Technology (OIT) is committed to annual technology plan updates. *OIT will work directly with the Administration and each Department to ensure the plan is meeting the requirements of the County business functions. The OIT systems and request form will initiate consideration for OIT improvements, and with recommendation will be given to the CAO for capital and budget committee review.*

The IT planning process will be used to facilitate the future direction of the County. To this end, the ongoing involvement of managers and key employees in producing plans provides solid results for the County as well as the individual departments. The planning process provides both a clear way to carry out a defined plan and a means for ensuring understanding and commitment to it. A well-defined and executed plan is necessary to our success as is our technical staff, financial resources, services and technology. As currently constituted, the process will incorporate both a top-down and bottom-up approach in which departments and OIT staff interact to identify initiatives and projects that support the OIT request guidelines as well as County Executive' and Chief Administrative Officer's approvals based on the County Executive's Goals. (Appendix 2 provides a sample form that will be used for all new projects) to Anne Arundel County citizens and taxpayers.

Anne Arundel County, Maryland
Office of Information Technology

FY12 Departmental Technology Planning (Requests)

Aging

- Stats Enhancements

Central Services

- EnterpriseOne Support
- Document Mgmt

Community Services:

- Citizen Relationship Mgmt

Court

- Courtroom A/V Replacement

Detention Centers

- Inmate Management
- Fingerprint/Video Integration
- Expand Surveillance Systems
- File/Folder Restructuring

DPW

- WEB applications for AVL & Snow Removal – Highways
- Financial Applications
- General Engineering

Finance

- MUNIS Enhancements
- EnterpriseOne Upgrade
- Consolidated Property File State Enhancements

Fire Department

- Inventory Management
- E911 Dispatch & Records
- Mobile Radio Replacement

Government Relations

- Legislative Review Support

Health Department

- Complaint Tracking

Information Technology (Enterprise Wide)

- Network Upgrades & Server Replacements
- Telephone Systems Replacement & Modernization
- Document Mgmt
- EnterpriseOne Upgrade
- GIS Master Data Layer Enhancements
- MyAnneArundel Enhancements

Inspections and Permits

- 2001 Resolutions List

Police Department

- E911 Dispatch & Records
- Server and storage equipment replacement
- Surveillance Enhancements
- Mobile Radio Replacement

Recreation & Parks Department

- Parks Reservations Enhancements

Sheriff

- E911 Dispatch & Records, Civil Processing

States Attorney

- Case Mgmt Upgrades

5.2 IT Project Request Guidelines

In general, projects that have the best chance for approval and funding are those that significantly improve citizen access to essential services and information; cut across broad lines of business to improve efficiency and service delivery of multiple departments; offer quantifiable social or

Economic benefits well in excess of project costs, and enhance the County's overall IT infrastructure.

Priority 1 – These projects will fall into four (4) categories:

- *Mandated Enhancements* – these are improvements or alterations to existing applications, directed by the County Council via legislation, the State of Maryland directed by legislation or the Federal Government directed by legislation.
- *Public Accessibility* - these projects enhance the availability of Anne Arundel County Maryland information and services to our citizens. Examples include the Internet Home Page and Electronic Commerce.
- *Corporate and Strategic Initiatives* – these projects add demonstrable value to a broad sector of County Government or to the County as a whole. Examples include the OneWorld Financial System or Intranet applications.

- *Modernization Projects* – these are upgrades and enhancements to major County applications or infrastructure (including computer hardware or network equipment). Modernization projects also include network or server equipment upgrades.

Priority 2 – Priority 2 projects are generally narrower in scope than Priority 1 projects. They should offer significant enhancements to existing services or applications or in some way provide leverage to the County’s broader strategic objectives.

Priority 3 – Priority 3 projects are departmental specific proposals with limited applicability to service improvements or to the County as a whole. Examples may include upgrades to a department Local Area Network File Server.

5.3 IT Project Management

Managing large IT projects through to successful completion, one-time, and within budget, is extremely challenging, even for experienced professionals. Successful completion of such a project is dependent upon the assigned individuals possessing not only knowledge and understanding of the highly technical aspects of an IT project, but also the skills associated with project management in a rapidly changing environment. The importance of effective management of IT projects in the County has long been recognized.

Training of prospective or future project managers should be provided in the following areas:

- General project formulation and implementation
- Use of corporate information systems (financial, procurement) to support the project
- Procurement and contractor relationships
- Effective project communications
- Return on investment (ROI) analysis
- Use of project management software

Effective project management is the key to any successful IT project. With the County’s increased focus in general, on providing training and certifications, this important discipline should be considered.

5.4 Management Process Improvement Highlights

In addition to the projects mentioned below, OIT will continue to support the identified life cycle replacement cycle plan for all County Technology (Appendix 3).

5.4.1 Security Enhancements

A professional grade Security Assessment is now completed for the County’s Computer and Network Systems on a 1-2 year cycle.

As a result of the effort, an internal OIT Security Committee was established, a security plan was completed and we continue supporting and fine-tuning SOP's. The release of Administrative Procedures for the County that support the Security OIT plan has become part of our normal business practice. These include the following:

- Security Plan Goals established
- Dedicated Security Resources put in place
- OIT Security Policies Security Administrative Procedures have been enhanced and made available on the County Intranet
- New & existing employee security awareness and training
- Security standards developed, including video surveillance and access controls
- Enforcement of Security Policies in place
- Enhanced requirements for system access
- Annual "recertification" of all County users

5.4.2 Telecommunications Master Plan

Telecommunications has completed and is implementing the Public Safety Plan. The Business enterprise wide Telecommunications master plan was developed and incorporated into the OIT County wide Technology Strategic Plan. It is already identified in the OIT life cycle plan for replacement needs. This critical "voice" communications piece will compliment the current and future technologies provided and produce a road map for the future.

5.4.3 GIS Master Plan

In FY2007, the enterprise wide GIS master plan was further fine tuned and included as part of the OIT County wide Technology Strategic Plan. This critical piece will compliment the current and future technologies provided and produce a road map for the future.

5.4.4 P.E.G. Studio Governance and Operational Controls

The current OIT developed studios operating / policy & procedures have been strengthened as a result of the new Studio. Professional resources (as well as the County Law Office) have assisted in the governance and operational controls. These policies and procedures are reviewed and updated based upon new contractual Cable Agreement Cycles and Agreement Governance.

5.4.5 Expansion of Help Center (HC) Service Offerings.

Enhancing the "One Point of Contact" concept - For FY12 plans are being continued to expand HC service offerings to include support for all County hardware and software applications as well as online, WEB based employee training. An intuitive relational support database has been implemented to facilitate and standardize the provision of services offering callers repeatable and proven processes of problem resolution and corrective actions. Centralization of these support service offerings will give departmental staff a single point of contact for any problem and free technical staff from routine or less important service calls. Based upon the triple grown and expansion of requests of these services

5.4.6 System Development Life Cycle

Please see section 4.4 above for more details in this important area.

5.4.7 Information Technology Policy and Procedures

The Office of Information Technology is revising all associated policy and procedures and will publish revisions on our website.

5.5 Anne Arundel County IT Standards

Desktop:

- Operating system Microsoft Windows XP Pro
- Hardware Dell PC

Mobile Data Computing (Personal Computers used primarily in County Vehicles):

- Hardware - Panasonic Toughbook Models CF29, CF73, or CF19
- Operating System - Windows XP Pro
- Wireless Service - Verizon Wireless BroadBand Access EVDO Rev 0/A (most current)
- Specialty Applications - must be approved by OIT if not listed below

Productivity Applications:

- Word processor MS Word (WordPerfect where required)
- Spreadsheet MS Excel
- Database MS Access
- Presentation MS PowerPoint
- Project Management MS Project
- Email Client Novell GroupWise87
- Internet WEB Browse MS Explorer
- Special Purpose MS Visio

Specialty Applications:

- Antivirus Norton Antivirus
- 3270 Emulation NS Elite/Hummingbird
- AS/400 Emulation Client Access
- RS/6000 Emulation Blue Vista & ICE/TCP Emulation
- GIS ESRI ARC/GIS, MapOptix, County View
- Report Writer Crystal, Web Focus, QMF

Servers:

- Operating System Microsoft Windows 2000/2003
Novell Netware OES
AIX V5
OS/400 V5.4
Z/OS V1.9
- Hardware Hewlett Packard//Dell Intel Servers
IBM iSeries, pSeries, zSeries
- Backup Backup Exec & Net Backup
AIX utilities
OS/400 utilities
OS/390 utilities
- AntiVirus Norton Antivirus
- Security Security - Microsoft Active Directory, Novell eDirectory
- E-Mail GroupWise 8.0
- Databases Business - DB2 : Geographic – Oracle,
SQL Server, ESRI ARC database products
- Communications Cisco (Hubs, Routers and Switches)

- Video DVS

- Enterprise class DVS, MPEG-4, capable of streaming video images from eight camera inputs (min.) at thirty (30) frames per second (60 NTSC fields per second) under all motion conditions.
- DVS Transmitter: support up to five (5) redundant archiving streams per video input, simultaneous recording of live video at selected frame rates and/or quality from the nDVR/nDVR Pro video management and storage software. The DVS shall comply with VSIP Open Technical Framework for video services over IP via Smartsight Networks, Inc. and fully compatible with nDVR and Loronix Video Manager (LVM). The DVS shall operate over the County Local Area Network (LAN) and Wide Area Network using standard 10/100/1000 Base T connection supporting DHCP and APIPA automatic IP configuration. The unit shall also support Telnet remote software.
- Video DVR
 - IP enabled Input type: Fixed, PTZ, low-light, standard NTSC or PAL signal. Video storage: digital video and audio with immediate playback and long term storage. Date/Time capture. Alarm event information. Continuous 24/7 operation with alarm and schedule recording, and on-demand recording. Video authentication. Automatic fall-over. Activity detection. Quadplex operation: simultaneous recording and display of live video. Dry contact operation. Virtual matrix support. Fall over and redundant support. Dual stream video.

Video Cameras

- Camera Cable: Plenum Siamese RG59 coaxial 18AWG/2. Solid copper center conductor with copper braid shield 95%+ coverage or fiber optic equivalent.
- Camera Units:
 - Input type: Fixed, PTZ, low-light, standard NTSC or PAL signal. Video storage: digital video and audio

Appendix 4

RETURN ON INVESTMENT/ LIFE CYCLE COST

Example Project: CIMS

1. CURRENT SYSTEM OR PROCESS COST

2. SYSTEM DESCRIPTION
 - ASSET MANAGEMENT SYSTEM FOR DEPARTMENT OF PUBLIC WORKS. WILL BE USED BY HIGHWAYS, WASTE MANAGEMENT AND UTILITIES. TWO HUNDRED TOTAL USERS.

3. SOFTWARE COST
 - ESTIMATE \$120,000
 - MODIFICATION TO STANDARD SOFTWARE PACKAGE \$25,000

4. HARDWARE COST
 - ESTIMATE \$80,500

5. OFFICE SPACE COST
 - COMPUTER ROOM, ESTIMATE \$40,000
 - SPACE FOR 3 PEOPLE \$6,000

6. FURNITURE COST
 - 3 DESKS \$ 3,000

7. TRAINING COST
 - ESTIMATE \$70,000 OVER LIFE OF SYSTEM.

8. SOFTWARE MAINTENANCE COST

- FIRST YEAR \$25,000
- INCREASE 5% EACH YEAR

9. HARDWARE MAINTENANCE COST

- FIRST YEAR \$18,000
- INCREASE 5% EACH YEAR

10. SUPPORT PERSONNEL COST

- 2 ADDITIONAL CLERK III POSITIONS
- 1 SYSTEM ADMINISTRATOR

11. SYSTEM LIFE

- TEN YEARS

12. FIRST YEAR

- FIRST YEAR / START UP COST \$499,000

13. TOTAL LIFE CYCLE COST

- \$2,114,000

