Fairfax County, Virginia
Department of Information Technology

# FY 2010 Information Technology Plan

# Fairfax County Board of Supervisors

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## Fairfax County, Virginia
## Department of Information Technology

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# FY 2010
# Information Technology Plan


Fairfax County
VIRGINIA

# Table of Contents

## SECTION 4 MANAGEMENT CONTROLS AND PROCESSES



## SECTION 5 INFORMATION TECHNOLOGY ARCHITECTURE



## FAIRFAX COUNTY INFORMATION TECHNOLOGY STANDARDS

# Section 1

## IT GOVERNANCE

# IT GOVERNANCE

## FEATURED IN THIS SECTION

# SECTION 1

## IT GOVERNANCE

### PLAN OVERVIEW

Like many governments faced with growth in demand for services while confronting a strained economy, the County is faced with major challenges and opportunities where technology innovation is essential. These challenges and opportunities are fueled by heightened expectations from the County's constituents and business community to interact and conduct business with the County utilizing modern automation and web-based capabilities. An environment of rapid change and the need for responsiveness together with finite resources highlights the importance of nimble IT enabled service. The County's Information Technology (IT) capabilities must be contemporary, flexible, scalable, secure and environmentally conscious with the ability to respond to new goals and dynamically changing service and operational requirements by various agencies. The County's IT environment builds on an enterprise architecture that includes industry standards, open systems, and tools that support a variety of needs and diverse portfolio of systems. The supporting infrastructure foundation is designed to ensure the integrity of transactions, data and optimum system performance. Strategic planning, governance and program management assures inclusion in decision making and implementation of solid products, and effective solution delivery at a fully leverage cost.

To enable Fairfax County's technology program to meet the challenges, continued emphasis is placed on determining solutions that provide enhanced on-line capabilities, promote cross agency business processes, enable data mining and sharing for more effective decision making, promote greater transparency by making information more publicly accessible, enable key County priorities such as mobility and Telework, green initiatives, Public Safety, Land Development initiatives, enable self-service opportunities, ensure data privacy, and maintain low cost, supportable and secure infrastructure. The projects enable more effective communication, workflow and use of information within the County data and services. Emphasis is also placed on processes to ensure that IT projects are managed consistently through proper levels of oversight and tracking, and ensure that IT investments are leveraged, deliver a return on the investment and are aligned with the County's strategic goals.

This plan summarizes the County's underlying principles for IT Investments and Governance (Section 1): Initiatives and Strategic Directions (Section 2): Current IT Projects and Planned Enhancements (Section 3): Management Controls and Processes for Projects (Section 4): and the foundation Information Technology Architecture (Section 5). The plan describes adopted technology investments that accomplish identified goals and objectives; provides status of ongoing project accomplishments; identifies resources required for implementation; and states the return on investment benefits projected by the sponsors of the projects. Projects are linked to agency sponsor strategic plans and the Board of Supervisor's goals and Vision Elements.

The modernization efforts described in this plan are funded in the Information Technology Fund-Fund 104 and Fund 120 (E-911). Sometimes projects included in the IT Plan are funded from other sources such as sponsor agency income funds or other monies to take advantage of total available County dollars, augment investment funding capacity, and provide additional opportunities to meet IT investment goals. Governance, architecture, and infrastructure for supporting IT projects are described within this plan, however, ongoing Department of Information Technology (DIT) operating and personnel costs which are funded in the General Fund – Fund 001 and the Technology infrastructure Fund – Fund 505, and the routine operational activities, on-going support efforts, and normal upgrades and maintenance work supported by these funds is not reflected in this plan. Together, the four funds support the comprehensive Information Technology delivery for nearly all agencies, lines of business and services. Additional details of each fund can be found in the Fairfax County Fiscal Year 2010 Adopted Budget Plan.

# Information Technology Goals

In recognition of the need to link the County's Information Technology efforts more closely to its business goals the executive management of the County established the County-wide Information Technology (IT) goals, determining priorities within the context of Board of Supervisor goals and priorities, sustainability and the service demands that must be met within County resource availability and opportunities. The formulation of the goals provides a framework by which the allocation of critical resources are directed, categorized and aligned with County goals. The goals are reviewed annually for applicability and relevance against new demands on County business requirements and IT industry trends.

Based on global changes in social and economic paradigm shifts, the following priorities have been validated and are adopted for funding:

- Mandated Requirements
- Leveraging of Prior Investments
- Enhancing County Security
- Improving Service Quality and Efficiency
- Ensuring a Current and Supportable Technology Infrastructure

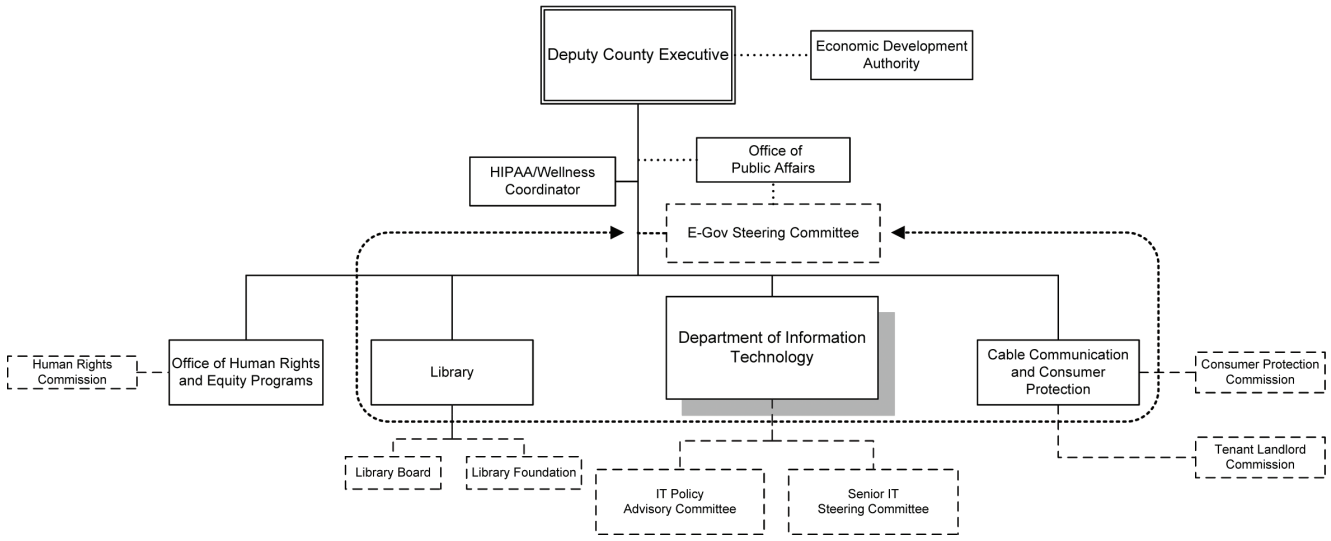

## 1. Technology Organization and Governance

Technology is managed as an enterprise asset in Fairfax County. The Department of Information Technology (DIT) is responsible for direction and execution of information technology and communications systems and support services on an enterprise-wide infrastructure, architecture framework and standards for most systems. County agencies have a limited number of technology staff that support small scale agency business specific point solutions or industrial systems and matrix to DIT. The County's Chief Technology Officer is the Director of the County's Department of Information Technology.

The Deputy County Executive for Information Departments (DCE) is responsible for the overall direction for innovation and enterprise information policy. The DCE directs a broad range of information related departments and related agency functions, leading efforts that integrate with or enhance the mission of delivering strategic technology initiatives. This model groups the County's information programs and services under a single authority to provide efficient and effective constituent services.

Collaboration among the departments which include Department of Information Technology (DIT), Fairfax County Library / Archives (FCPL), Department of Cable Communications and Consumer Protection (DCCCP) and the Office of Public Affairs (OPA) deliver programs that make up the County's e-government channels, public access capabilities, enterprise infrastructure architecture, document management, interoperability and county-

## Deputy County Executive Organization




wide communications strategy. The DCE also oversees the Health Insurance Portability Accountability Act (HIPAA) Compliance Office that works directly with DIT's Information Security Office to ensure that an appropriate IT security architecture, standards and enforcement mechanism are in place to protect HIPAA and other privacy laws for covered systems and data.

The information and web content function in the Office of Public Affairs works closely with the DCE to develop a comprehensive communications message strategy and to ensure the integrity of content for published information served through the County's e-government programs. The DCE also serves as the liaison to the Economic Development Authority in conveying the County's best technology practices and assists with marketing the County to prospective businesses. Additionally, the DCE is responsible for the Office of Human Rights and Equity Programs which assists the IT strategy for ADA, compliance and related regulatory consultation. Furthermore, related DCE initiatives such as energy initiatives, arts and special needs includes involvement in IT strategy and support. The DCE's broad responsibility for information spans policy, information content strategy, books, television, enterprise technology architecture, management of documents, and compliance.

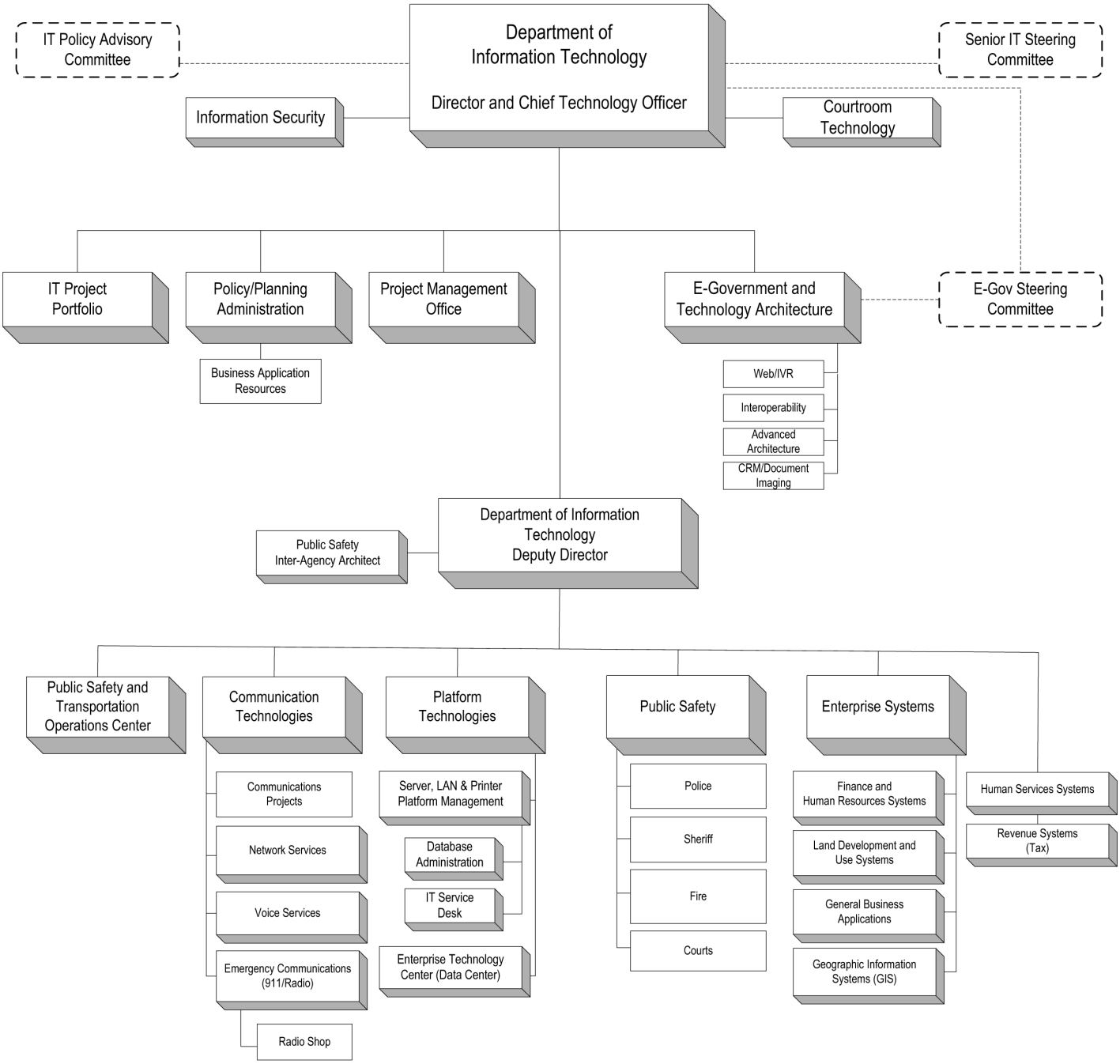
In 1998 the Board of Supervisors created a private sector group of county residents called the Information Technology Policy Advisory Committee (ITPAC) to assist the Chief Technology Officer (CTO) with technology direction and validation of trends. ITPAC meets on a regulars schedule to review the County's technology posture, key projects, and the annual technology investment plan recommendation. ITPAC serves as advisor to the CTO, providing counsel, experience and support for the County's IT program.

In FY 1999 a County executive group, the Senior IT Steering Committee, was created to advise the DCE and Chief Technology Officer and provide policy governance oversight for the County's IT strategy. This group includes the County Executive, the Deputy County Executives, Director of Department of Management and Budget, and Director of the Department of Information Technology/ CTO. The committee's work is augmented by the Senior Management Team composed of County department heads for participation in key policy issues. The Senior IT Steering Committee meets on a regular basis to review specific IT initiatives, opportunities and issues; set the County's IT strategy based on the Board of Supervisors' direction; and approve the annual IT investment plan.

For strategy and governance specifically focused on the County's e-government program, the DCE hosts and chairs the e-government Steering Committee, including the directors of DIT, OPA, FCPL, and DCCCP, as well as the County's WEB and Public Access Technology Director (DIT e-government group), and the WEB Content Director in OPA. This committee collaborates with the DCE on policy and opportunities to expand the use and effectiveness of on-line capabilities through the e-government channels and new cyber services such as WEB 2.0, & Web 3.0 and Social Media capabilities. In addressing policy issues, the group is assisted by the IT Security Director and the Office of the County Attorney.

## 1.1 Department of Information Technology Organization

### Fairfax County
### Department of Information Technology
### Organization Chart

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The Department of information Technology (DIT) provides leadership, process governance, architecture resources and expertise in deploying modern information technologies to improve government efficiency. DIT designs, manages, and implements all aspects of information technology solutions and supporting infrastructure that enable County agencies to effectively deliver information and services to citizens and the community. To provide focus and direction to staff within the department and to help plan for the future, an overall mission was established together with eight goals. The mission and goals statements were developed with considerable input from staff, and the Senior IT Steering Committee regarding the important issues facing the department.

Fairfax County continues to make the necessary investments in information technology hardware and software, which through careful planning, cooperative business and technical execution provides its citizens with a return on investment in the form of improved services. The department's goals were established to energize the department in performing its functions of developing and maintaining current information technology systems, and providing a technology infrastructure and customer service support to County agencies. The Department of Information Technology is charged with establishing technology architecture, implementing and managing systems, applications, communications, and the overall management and security of the County's information assets.

The organizational structure of the Department of Information Technology (DIT) has evolved over the years to align with changing priorities, trends and expertise requirements, and to leverage technology platforms and available resources. It is designed to address the ongoing evolution of technology and its utilization in support of the business functions within County government. This evolution has seen a tremendous growth in web based systems and distributed architectures and wireless hand-held computers, as well as the number of platforms that support enterprise class solutions and software applications used in support of various County functions. These information technology systems have become crucial components in the day-to-day operations of almost all areas of County government, and the increasing complexity and sophistication of these systems require well-trained end users and support staff.

DIT is organized into subject matter expert groups that support enterprise-wide systems including corporate applications, document management, CRM platform, and geographical information systems used by all agencies as well as agency business specific applications development and support. These include applications that support revenue systems (Tax), corporate systems, human services agencies, land development, public works, and zoning, public safety/criminal justice, and general County agencies including the Library, Parks and Facilities Maintenance. DIT also provides a multi-channel e-government program which provides architectural direction, standards and strategic innovation for on-line applications and technology programs including web, IVR, Social Media and information interoperability architecture; a specialized Courtroom Technology group to coordinate, implement and support modern courtroom technologies for Fairfax County Courts; state of the art telecommunications systems; and IT technology portfolio/project management. The Policy, Planning and Administration group provide DIT with administrative and IT policy support functions as well as compliance oversight.

Technology Infrastructure manages all hardware, communications and network platforms enterprise-wide, integration tools, enterprise messaging applications, desktops and the network based digital multi-function printing devices that support countywide distributed printing, print-on-demand, electronic transfer of printed information, and the help desk service. In addition, in FY 2005, the Public Safety group was established to focus efforts on the integrating systems in public safety, and address homeland security, and regional collaborative and interoperability initiatives and mandates. Finally the Information Security Office reports directly to the Chief Technology Officer and has authority in monitoring, investigating, and compliance activities to ensure County IT assets are safeguarded.

The Department of Information Technology is charged with delivering quality and innovative information technology solutions that provide citizens, the business community and County staff solid technical capabilities that ensure the integrity of the County's information, service efficiency and convenient access to appropriate information and services. DIT embraces the following goals:

**Goal 1:** Deliver timely and effective responses to customer requirements through teamwork.

**Goal 2:** Provide vision, leadership, and a framework for evaluating emerging technologies and implementing proven information technology solutions.

**Goal 3:** Provide citizens, the business community and County staff with convenient access to appropriate information and services through technology.

**Goal 4:** Work with County agencies to improve business operations by thoroughly understanding business needs and by planning, implementing and managing the best information technology solutions available.

**Goal 5:** Guarantee a reliable communication and computer infrastructure foundation on which to efficiently conduct County business operations today and in the future.

**Goal 6:** Effectively communicate information about plans, projects, and achievements to County staff and customers.

**Goal 7:** Develop and maintain technically skilled staff competent in current and emerging information technology and a user community that understands and can employ modern technologies to maximize business benefits.

**Goal 8:** Ensure effective technical and fiscal management of the department's operations, resources, technology projects and contracts.

In addition to the Department of Information Technology's Mission and Goals, Fairfax County Information Technology (IT) projects and processes are guided by **Ten Fundamental Principles** Adopted by the Board of Supervisors in 1996 and updated annually.

1. Our ultimate goal is the provide citizens, the business community, and County employees with timely, convenient access to appropriate information and services through the use of technology.
2. Business needs drive information technology solutions. Strategic partnerships will be established between the stakeholders and County so that the benefits of IT are leveraged to maximize the productivity of County employees and improve customer services.
3. Evaluate business processes for redesign opportunities before automating them. Use new technologies to make new business methods a reality. Exploit functional commonality across organizational boundaries.
4. Manage Information Technology as an investment.
   a. Annually allocate funds sufficient to cover depreciation to replace systems and equipment before life-cycle end. Address project and infrastructure requirements through a multi-year planning and funding strategy.
   b. Manage use of funds at the macro level in a manner that provides for optimal spending across the investment portfolio aligned to actualized project progress.
   c. Look for cost-effective approaches to improving "legacy systems". Designate systems as "classic" and plan their modernization. This approach will help extend investments and system utility.
   d. Invest in education and training to ensure the technical staffs in central IT and user agencies understand and can apply current and future technologies.
5. Implement contemporary, but proven, technologies. Fairfax County will stay abreast of emerging trends through an ongoing program of technology evaluation. New technologies will often be introduced through pilot projects where both automation and its business benefits and costs can be evaluated prior to any full-scale adoption.
6. Hardware and software shall adhere to open (vendor-independent) standards and minimize proprietary solutions. This approach will promote flexibility, inter-operability, cost effectiveness, and mitigate the risk of dependence on individual vendors.
7. Provide a solid technology infrastructure as the fundamental building block of the County's IT architecture to support reliability, performance and security of the County's information assets. Manage and maintain the enterprise network as an essential communications channel connecting people to information and processes via contemporary server platforms and workstations. It will provide access for

both internal and external connectivity; will be flexible, expandable, and maintainable; be fully integrated using open standards and capable of providing for the unimpeded movement of data, graphics, image, video, and voice.

8. Approach IT undertakings as partnership of central management and agencies providing for a combination of centralized and distributed implementation. Combine the responsibility and knowledge of central management, agency staff, as well as outside contract support, within a consistent framework of County IT architecture and standards. Establish strategic cooperative arrangements with public and private enterprises to extend limited resources.
9. Consider the purchase and integration of top quality, commercial-off-the-shelf (COTS) software requiring minimal customization as the first choice to speed the delivery of new business applications. This may require redesigning some existing work processes to be compatible with beneficial common practice capabilities inherent in many off-the-shelf software packages, while achieving business goals. In consideration of this, it is recognized that certain County agencies operate under business practices that may make the acquisition of COTS software unfeasible. Develop applications using modern, efficient methods and laborsaving tools in a collaborative application development environment following the architectural framework and standards. An information architecture supported by a repository for common information objects (e.g., databases, files, records, methods, application inventories); repeatable processes and infrastructures will be created, shared and reused.
10. Capture data once in order to avoid cost, duplication of effort and potential for error and share the data whenever possible. Establish and use common data and common databases to the fullest extend. A data administration function will be responsible for establishing and enforcing data policy, data sharing and access, data standardization, data quality, identification and consistent use of key corporate identifiers.

In working with DIT, the **Department of Cable Communications and Consumer Protection** has several major areas that fit within the overall provisioning of information services County-wide: **Communications Policy and Regulation** encourages competition and innovation in Countywide deployment of cable provider services; enforces cable communications legislation and franchise agreements; works with the Telecommunications industry to enable the development of cost effective network services for the public and ensuring a reliable means of mass communication of official information during public safety emergencies. This group works with the Department of Information Technology on a variety of initiatives and FCC regulatory activities that impact telecommunications services for County government managed by DIT.

**Communications Productions** provides award-winning broadcast productions for Fairfax County Government Channel 16, the public information channel, and the Fairfax County Training Network (FCTN). Channel 16 televises over 340 live programs that are also available by video stream, reaching an estimated 600,000 residents with information programming about County programs and services that serve the community. The division also operates an emergency messaging system for residents. This group is part of the e-government channels and works with DIT in web-based video access.

The mission of **Fairfax County Public Library System** is to provide and encourage the use of library resources and services to best meet the evolving educational, recreational, and informational needs of all the Fairfax County and Fairfax City residents. The **Library's Technology Vision** augments tradition library services with technologies that provide Fairfax County and City residents' access to electronic information resources locally, nationally and throughout the world. Library staff keeps pace with the rapidly changing environment and uses new technologies to assist patrons and improve service delivery. FCPL's goal is to remain flexible by maximizing opportunities to improve services delivery through technology and enhance individual and community life for City and County residents. Working with DIT, FCPL provides Public Access facilities in Libraries where the public can access the Internet through wired workstations and wireless services. The Library's goals for technology are:

- Provide County/City residents access to FCPL resources without constraints of time or location.
- Provide County/City residents access to worldwide electronic information sources expand access to local information through electronic means.
- Preserve and provide access to Fairfax County and Fairfax City historical documents and images.
- Ensure delivery of electronic library services to physically challenged residents.
- Manage FCPL resources to efficiently deliver library services to residents.

## Fairfax County's Regional and National Prominence in the IT Community

In carrying out its mission, the DCE and/or DIT participate on several key County Committees focused on major County initiatives and/or operational oversight agendas, for example:

- The Public Safety IT Governance Board
- Emergency Management Coordinating Committee
- Emergency Management Executive Committee
- Public Safety and Transportation Operations Center (PSTOC) Leadership and Executive Committees
- Legacy Systems Executive Committee
- Land Development Systems Steering Committee
- Court Technology Governance Board

Additionally, Fairfax County Government's CTO and IT Management provide leadership and/or participate on several federal, state, and regional committees including:

- Council of Governments CIOs Committee
- Council of Governments Emergency Preparedness Council
- Regional Working Group for interoperability (Maryland, Virginia, and DC, state and local functional and technical leadership representation)
- Commonwealth of Virginia Interoperability Council
- Federal CIO Council
- National Association of CIOs
- National Association of Telecommunications Officers
- Virginia Local Government Information Technology Executives (VALGITE)
- Northern Virginia Regional Commission
- National Association of Counties
- Public Technologies Incorporated
- CIO Executive Board

In promoting technology in Fairfax County Government, DIT hosts several key events each year including:

- GIS Day where DIT conducts competition among County agencies for new application of the use of geospatial and related technology;
- IT Security Awareness Day, an annual event designed to bring the latest intelligence in promoting employee awareness and knowledge about risks and responsibility in using technology at work and at home.

**Awards:** Over the years, Fairfax County Government's IT organization, the Deputy County Executive for information departments, and the Chief Technology Officer/Director of DIT, have earned numerous awards and recognitions, including:

1999 Governor's Technology Award
First Governor's Technology Award – COVITS

2000 eGov Award for Outstanding Service Technology – MCOG
Innovations in America (Semi Finalist)
eGov Pioneer Award – Government Solution Center
Webmaster Honor Top 50 Internet/Intranet site.

2002 Governor's Technology Award
Achievement Award – NACO
Citizens using GIS in Redistricting – NACO
Finalist County Portal Jurisdiction Population – Best of the Web
Deputy County Executive CIO named top "25 Doers, Dreamers, and Drivers of IT in US Government' Bertelsmann Foundation of Germany – County's eGov Program recognized as one of top 4 pace setters in the world
A+ Government Performance Project – Governing Magazine

2003 Achievement Award for Using Technology to Enhance Gov't – VACO
Special Achievements in GIS Award – NACO
Best of the Breed Government Sites
Third Pace top 10 Digital Counties
Center for Digital Government Best of the WEB
Deputy County Executive CIO named Computerworld 100 IT Leaders
CIO and CTO named Governing Magazine Public Officials of the Year

2005 First Place Digital County Survey Winner – Center For Digital Gov't & NACO
Second Place County Portal Jurisdiction Population – Best Of Web
Enterprise GIS Integration – FOSE Trade Show
2005 Governor's Award – e-government Program

2006 Second Place Digital County Survey Winner – Center For Digital Gov't & NACO

2007 Wanda M. Gibson named Most Influential Female CIO – Government Technology Magazine
First Place County Portal Jurisdiction Population – Best Of Web.
Fourth Place Digital County Survey Winner – Center For Digital Gov't and NACO
Computer World – Best Place to Work in IT (one of two governments out of 100 organizations)

2008 Third Place Digital County Survey Winner – Center For Digital Gov't and NaCO
NaCO Award for IT Security Awareness
NaCO Award for IT Project Management Training Program

## POLICY GOVERNANCE

### 1.2 Senior Information Technology Steering Committee

The Senior Information Technology (IT) Steering Committee was formed by the County Executive to provide oversight of IT policy and investments to ensure their alignment and support of strategic and operational business requirements. The committee monitors the entire IT project portfolio to continually assess whether the investments are providing expected benefits. This monitoring process provides a broad perspective from senior executives who independently and objectively evaluate and make decisions on the overall status, mission needs, and priorities for the County. The committee meets monthly to review on-going project status in relationship to the County's strategic business initiatives. Additionally, the committee reviews and provides budget recommendations for new initiatives.

Members of the Senior IT Steering Committee include:

- The County Executive
- Deputy County Executives
- The Director of the Department of Management and Budget
- The Director of the Department of information Technology/CTO

The Committee may activate a number of sub-committees around specific issues that report their findings back to the Senior IT Steering Committee. As part of the decision making process, the Committee presents and discusses strategic policy issues on behalf of the Senior Management Team which is comprised of all County department heads.

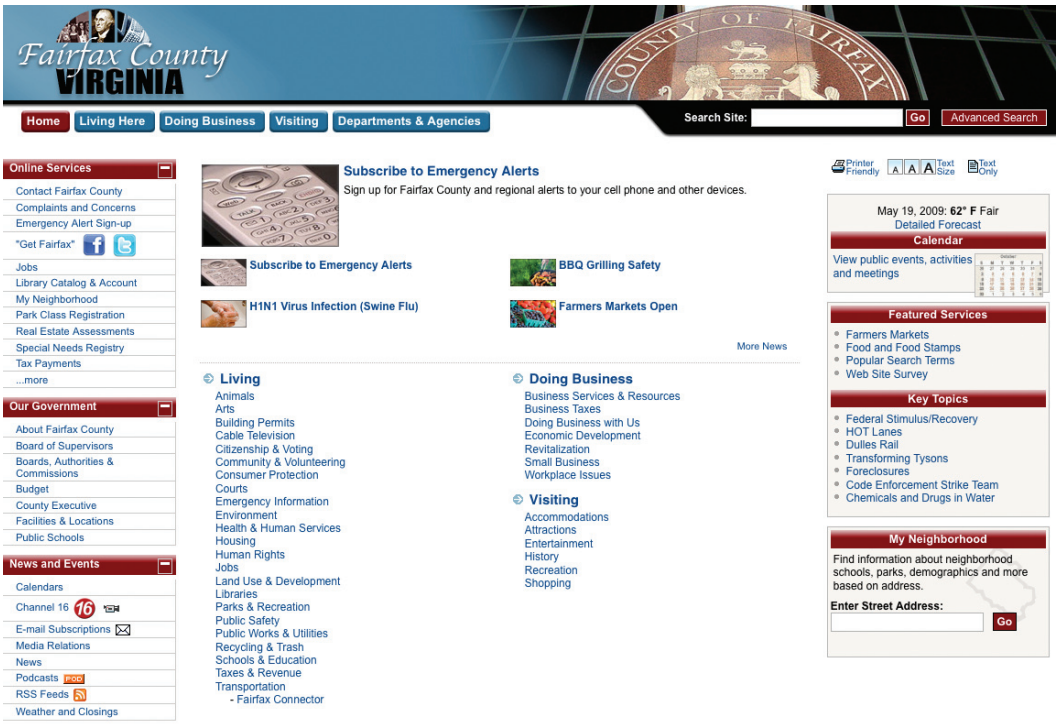
## 1.3 E-government Steering Committee

The E-government Steering Committee is a subcommittee of the Senior IT Steering Committee, and was created to assist the Deputy County Executive for Information with e-government policy, strategy decisions, and ensure enterprise consistency and standards in regards to the County's e-government Program. Members of the Committee include:

- Deputy County Executive – Chair
- Chief Technology Officer, Director of DIT
- Director, Public Access & Advanced Technologies, DIT
- Director, Office of Public Affairs
- Deputy Director, Office of Public Affairs – Communication
- Director, Web Content-OPA
- Director, Department of Cable Communications and Consumer Protection
- Director, Fairfax County Public Libraries

The Steering committee:

- Considers updates to the Public Web Site content Policy PM N0. 13-04
- Creates additional E-government policies and procedures as necessary
- Assists the Deputy County Executive in consideration of department requests for external links, exceptions to policy and the use of emerging e-channels
- Identifies e-Government related issues and ideas for discussion
- Sponsors periodic focus groups, surveys and other public or internal outreach to ensure that the e-Government program is meeting the needs of the County customers
- Investigates and adopts new e-channels such as social media- to ensure that the County's government channels and services meet the needs of the County's external and internal customers
- Initiates pilot projects and conducts after action review of the pilot projects
- Recommends changes as necessary to e-Channels or adopts new e-Channels based on customer feedback
- Sponsors projects for inclusion in the County's annual IT Plan



## 1.4 Information Technology Policy Advisory Committee

In 1998 the Board of Supervisors created a private sector citizen group called the Information Technology Policy Advisory Committee (ITPAC) to assist the Chief Technology Officer (CTO) with technology direction advice and validation of applicable industry trends for government. ITPAC meets on a regular schedule to review the County's technology posture, key projects, and the annual technology investment plan recommendation. ITPAC serves as advisor to the CTO, providing counsel, experience and support for the County's IT program.

ITPAC was created by the Fairfax County Board of Supervisors to provide the Board with a source of expert citizen advice regarding information technology strategy. The Board is committed to providing County government with the resources necessary to keep pace with emerging trends in information technology; providing citizens, the business community, and employees timely and convenient access to information and services through the use of technology; and using current technologies to create new business processes and improve government efficiency. To maintain these commitments, the Board has made substantial, continuing investments in information technology. The ITPAC Committee membership includes:

- One representative appointed by each Board Member (10 in total)
- One representative appointed by the School Board; and one representative from each of the following groups:
  - Fairfax County Chamber of Commerce
  - Fairfax County Federation of Civic Associations
  - League of Women Voters
  - Northern Virginia Technology Council

The Committee's duties and responsibilities are:

- Stay current with information technology developments, including telecommunications, and provide recommendations to the Board of Supervisors regarding incorporation of technical improvements in the County's information and telecommunications systems.
- Review the annual Information Technology Plan and investment budget and make recommendations to the Board of Supervisors.
- Review major information technology acquisition plans and make recommendations to the Board of Supervisors.
- Present facts and issues that it deems important to the attention of the Board of Supervisors
- Undertake such other activities as become appropriate as information technology changes.

# Section 2

## STRATEGIC DIRECTIONS AND INITIATIVES

# STRATEGIC DIRECTIONS AND INITIATIVES

## FEATURED IN THIS SECTION

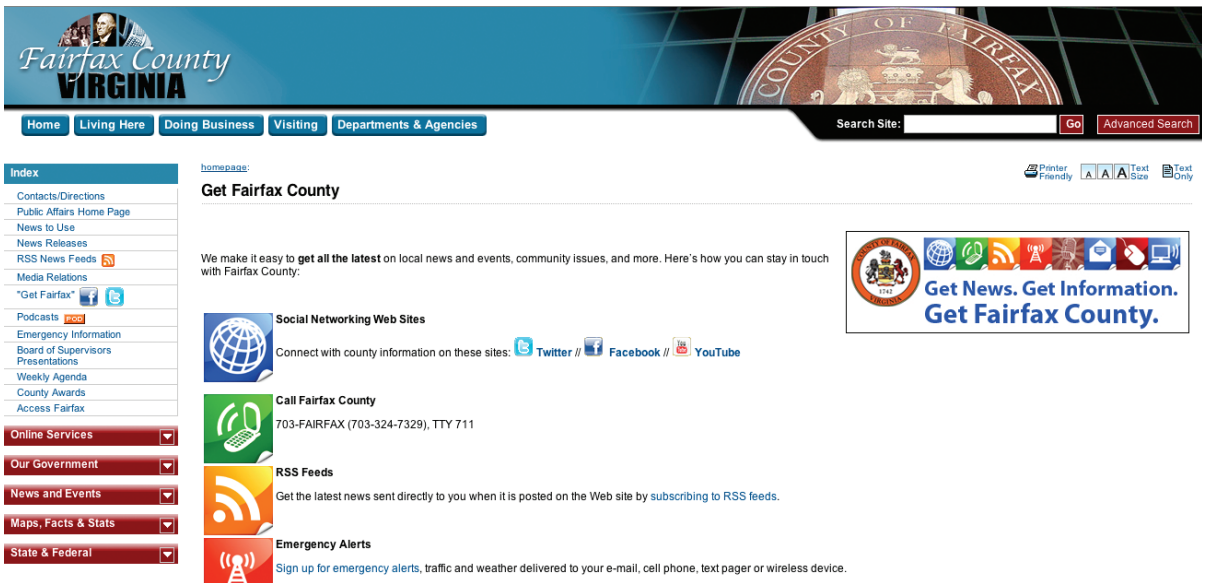
# SECTION 2

## STRATEGIC DIRECTIONS AND INITIATIVES

The most critical challenge facing technology providers is to stay current with the rapid pace of change in technology while harnessing innovations effectively to promote an organization's strategic goals, optimize service efficiencies, and successfully meet end-user and public expectation. Advances in technology facilitate the delivery of better and faster service at a reduced cost. However, investments in technology are expensive and incorporation into an organization's business complex. New technology must be adopted carefully and integrated wisely into the existing technology infrastructure of an organization so as to minimize operational disruption and maximize the benefits in cost effective manner. The following nine strategic initiatives address the County's objective of providing effective, efficient and customer-oriented access to data and services for both constituents and internal government customers on an enterprise scale.

### 2.1 E-government

The e-government initiative is a foundational program supporting the County's goal of a "government without walls, doors, or clocks". The comprehensive strategy uses enabling technology, policy and processes that integrates the Fairfax County Web Site www.fairfaxcounty.gov, Interactive Voice Response (IVR) platforms, and incorporates Cable TV platforms, the County's Public Access sites in Libraries and Access Fairfax sites, and the County's Communications Plan for comprehensive and cohesive access to information and services that span over fifty agencies. In addition to the on-going efforts to enhance the look, feel, navigation and search capabilities of the Web, and deploying new services and transactions, the strategy incorporates CRM and Content Management tools for wide-ranging service options. The County has achieved much success and acclaim for its e-government focus in integrating the WEB and IVR platforms that offer a wide variety of channels for complete on line public access capabilities to services and programs, that also included strategically placed Cris Kiosks. The Kiosk were popular, but with the widespread availability of more internet based on-demand applications and the rapid growth of personal devices including PDAs, I-phones and other devices, the Kiosk program is being retired. In FY 2010 the County will continue its efforts to add new services to the e-government channels, including new transactions, e-payments and enhanced search capabilities. The e-government program will continue to




*Fairfax County Website*

work with the Commonwealth of Virginia, regional partner municipalities, and federal government agencies in interoperability of common service portals and developing web services standards to enable cooperative access and seamless integration of information and services regardless of the origin or the source.

In FY 2008 major e-government initiatives included new applications such as Special Needs Registry, Social Needs Registry and Library Audio Books. The County expanded offerings in mobile access by making the County's public website accessible via wireless devices www.fairfaxcounty.gov/mobile which enabled citizens to interact with County government through personal wireless devices. Additionally, the County continued to work with Homeland Security on regional interoperability initiatives to establish policies, procedures and protocol for data exchange in support of emergency planning and response.

In FY 2009, a major redesign of the County's Web site was undertaken which updated the look and navigation of the 34,000 page site with new functionality and content enhancements and innovative features. The new design included consistent left-side navigation for all pages in order to deliver user friendly access to county-wide services and information throughout the site. A highlighted news section provides easy access to information categorized by topics and brings into focus County functions, departments and agencies, county-wide initiatives and featured services. The implementation of the Google Search Appliance augmented the overall search functionality of the Web site. The Web site introduced a fresh color palette with a white background, along with text only, printer friendly and text resizing features to enhance accessibility, and advance the County's long standing e-government strategy of creating a government without walls, doors or clocks by providing a conduit to carry out on line business with the County 24/7. The public Web site is also a part of the **"Going Green Initiatives"**

Thus far, efforts have largely been focused on providing access to services. However, services are only part of the relationship between citizens and government. Fairfax County is expanding its efforts to provide citizens the necessary tools for engagement, interaction and participation with County government in order to improve communication and services (Citizen-to-Government Networking). During FY 2009, the Website was one of several channels used for public input to the County's FY 2010 budget planning process.

On going strategy include 'Sharing' which has become an integral part of the Web experience. It is referred to as online collaboration, and known as Web 2.0, social networking or social media. A few examples include wikis (community developed reference material), podcast (subscription based audio information), RSS or Really Simple Syndication feeds (subscription-based information), Second Life (virtual reality) and Twitter (social networking). The extensive use of Web 2.0 in social networking enables wide spread collaboration and information sharing, and enables the rapid sharing of information and news worldwide.

Multiple tools assist interested citizens learn more about County's operations, programs, and activities. The County has long made it possible for the public to sub-scribe to information published through e-mail (http://www.fairfaxcounty.gov/email/lists/), and is increasing the breadth of available information through various e-channels. The County provides RSS feeds (http://www.fairfaxcounty.gov/rssfeeds/), which allows users to have information sent to them through tools explicitly designed to track published information. The County continues to expend access to information through County podcasts (http://www.fairfaxcounty.gov/podcasts/). Three county-wide pages have been launched on leading social network sites: (http://facebook.com/group.php?gid=7901829756 – account required), Twitter (http://twitter.com/fairfaxcounty) and YouTube (http://www.youtube.come/user/fairfaxcountygov). Posting content on these sites (which reach millions of people) allows the County to access an expanded, and potentially younger, audience than it has in the past. The Office of Public Affairs maintains the content for these sites, which is often repurposed from existing material.

The County's Get Fairfax County campaign (www.fairfaxcounty.govgetfairfax), consolidates all the ways residents and employees can stay connected with the county, including: the social networking sites, information available on 703-FAIRFAX, News to Use, e-government services, podcasts, RSS feeds, Weekly Agenda and emergency alerts.


In FY 2010 efforts will focus on developing additional content for currently supported e-government channels and harnessing communication and web based e-community technologies in order to empower the public service of tomorrow. Developing policies and procedures for publishing County information, making services available through shared sites in the public domain to reach a broader audience, and delivering content and services through additional channels will remain strategic goals of the e-government program. Building new e-service transactions and e-payments, continued navigation improvements, improved content synchronization from disparate sources, addition of enhanced interactive features to the WEB site to expand and improve applications such as a Special Needs registry and supporting emergency response situations remain a strategic focus. In addition, DIT will continue enhancements to the e-government channels for compliance with Section 508 for accessibility; and maintain the ultimate goal of facilitating the delivery of integrated and accurate information to citizens via multiple platforms along with implementation of additional web search capabilities. The on-going strategy includes incorporation of more interactive input on WEB site usability and metrics, and WEB 3.O with focus on metadata needed for on-line intuitive search and intelligence.


***Fairfax County Twitter***

## Customers Served

**IVR:** 4 million since FY 2005
**Web:** 34,000 pages - 52,445 visitors per day, more than 1,600,000 visits per month
**Unique visits:** 7,757,364 (FY 2008) i.e. *user access multiple pages or conduct business*
**E-services:** 125

## Information and Services Available

| | |
|---|---|
| Adult education classes | Web |
| Becoming a child-care provider | Web |
| Board Meeting minutes (searchable) | Web |
| Budget information and approved budget | Web |
| Bus tour schedule | Web |
| Child-care provider list | Web |
| Collection of household trash & recyclables | IVR |
| County Code – full text | Web |
| County demographics | Web |
| County maps, scrollable, printable | Web |
| Courts – Circuit, General District, and Juvenile | Web, IVR |
| Crime statistics, Wanted List, Neighborhood Watch | Web |
| DTA EPay | Web |
| iCARE DTA Real Estate Assessment and Information Query | Web |
| Library Picture Books | Web |
| Public Meeting Calendar | Web |
| Fire & Rescue Media Information | IVR |
| Health Information Web, IVR, Inspection scheduling status | IVR |
| Information for victims of crime | IVR |
| Job opportunities | Web |
| Library information line | IVR |
| Multi-jurisdictional information | Web |
| My NeighborhoodWebNewcomer information | Web, IVR |
| Parks/Recreation information | Web, IVR |
| Public safety information | Web, IVR |
| Real estate property assessment & tax information | Web, IVR |
| Seniors information and programs | Web, IVR |
| Frequently Asked Questions | Web |
| RSS Feeds | Web |
| Podcasting | |

## Doing Business with the County

| | |
|---|---|
| Access Health Department food inspections database | Web |
| Access GIS aerial photography with pan and zoom | Web |
| Apply for County jobs | Web |
| Apply for a library card | Web |
| Board of Supervisors compliant forms | Web |
| Building Permit Fees Estimate | Web |
| Download request for proposal/invitation for bid | Web |
| Electronic Mailing List | Web |
| Estimate Electrical Permit Fee | Web |
| File complaints about landlord or consumer problems | Web |
| Find location of closest Library by entering zip code | Web |
| Register & pay for Park Authority classes, camps, & tours | Web, IVR |

| | |
|---|---|
| Library Audio Books | Web |
| Obtain permit/plan status | Web, IVR |
| Pay taxes with credit card | Web |
| Pay taxes via eCheck | Web |
| Pay traffic tickets with credit card | IVR |
| Query current real estate property & tax information | Web, IVR |
| Query Human Services online " Resource Guide" | Web |
| Query for current position on the Housing Waiting List | IVR |
| Query specific court case information | IVR |
| Query status of an inspection, permit, or planWeb, | IVR |
| Query Victim Services data for offender release date info | IVR |
| Register a vehicle | Web |
| Request faxes of court fees and procedures | IVR |
| Reserve a golf tee time | Web |
| Reserve/renew Library books – search catalogue | Web |
| Reserve a picnic area | Web |
| Report change of address for tax purposes | Web |
| Report a lost pet | Web |
| Report a zoning or noise ordinance violation | Web, IVR |
| Search for information in historical newspaper | Web |
| Search for County agency telephone numbers by keyword | IVR |
| Special Needs Registry | Web |
| Sheriff Service Civil Process | Web |
| Subscribe to County publications | Web |
| Social Needs Registry | Web |
| Volunteer to help in the Library or Parks | Web |
| Zoning and Noise ordinance compliant form | Web |
| Athletic Facilities Application Request (AFAR) | Web |

## 2.2 Enterprise Content and Document Management

The County established a strategic approach to content and document management by developing an integrated solution on an enterprise platform. Content Management is the foundation for the organization and use of information from structured data (through business applications), and unstructured data in electronic or imaged documents (word processing documents, spreadsheets, e-mail, and reports).

The County continues to develop an enterprise information architecture which frames this plan and becomes a tool for web services, applications development, and web static page content search and navigation. The solution includes a rich document management capability to allow for more efficient flow and storage of vast quantities of required paper records. The enterprise document management technology with incorporated workflow solutions improves business process efficiency and productivity by providing the capability to view hard copy records through automated applications in order to provide required services. In addition to fast and reliable business processes, the document management solution minimizes the need for storage of paper records, reduces storage space needs, protects against mounting storage costs, and reduces human and physical plant asset risks associated with handling voluminous stacks of paper.

Business Reference Model (BRM) is the basis for data classification that aligns with three business areas: service to citizens, support delivery of services, and internal operations and infrastructure. These areas are subdivided into thirty-five separate lines of business which cut across all agencies. BRM provides the foundation for Enterprise Information Architecture and allows for data integration across lines of business within the County. BRM serves as the foundation of a more exhaustive taxonomy and facilitates improved search and classification capabilities across application data and static content. The classification of data is the first and most important step in correctly implementing an Enterprise Content Management System.

In addition to continued work on the Information Architecture and implementing Documentum's Content Management System, the following has been accomplished:

- Classified the variety of information types currently offered on the Web Site
- Implemented workflow processes and defined requirements for contributing content to the County's Web site
- Piloted delivery platforms for Mobile Content (i.e. Wireless "Contact Us")
- Developed an XML Document Model and Metadata associated with static content
- Implemented the Technical Architecture for Content Management
- Continued work on the Information Architecture including:
  - the "Taxonomy of Services" for the County
  - the Inventory of Systems classified by Lines of Business
  - development of an XML Namespace for the County
  - development of repositories for storing XML Objects
- Developed the template and methodology for agency web files that are currently on the County's Web site

Content management integrates with document management. For business activities that also rely on a variety of documents, the document management initiative employs technology at the beginning of a document's life cycle (originated as hard and soft copy) using the system to catalogue and track the documents and enable automated workflow processes through the entire life cycle. This comprehensive approach and associated implementation of technology is called Integrated Document Management (IDM). In seeking enterprise technology solutions that satisfied multiple needs, the County found that best in breed products for content management engines also incorporated document management needs. The integrated solution is more cost-effective, and provides a seamless integration for use of information found in imaged documents and information in databases and other systems required for a complete business transaction. IDM technology provides the ability to organize electronic documents, manage content, enable secure access to documents, route documents, automate related tasks, and facilitate document distribution.

Document imaging is another component of IDM; despite e-government efforts and often in response to legal mandates many government processes remain paper-intensive and require agencies to store large volumes of paper for extended periods of time. Consequently, many County agencies implement technical solutions to

alleviate the demand for increased storage space, improve business processes, and protect against disasters that can potentially destroy important paper documents. Integrated Document Management solutions encompass core business practices, as well as provide better archival and disaster recovery capabilities.

IDM technology has been implemented in a number of agencies over the past five years, for example, document work flow projects in the Office for Children, multiple initiatives for the Department of Family Services, the Commercial Inspections Division of Land Development Services in the Department of Public Works and Environmental Services to meet the needs of the sewer lateral section and complaints tracking, the core modules of an automated Accounts Payable System in the Department of Finance and on-going work for the Juvenile and Domestic Relations District Court supporting case management. Although the individual departmental business requirements vary for the use of IDM technology, the following benefits and quality improvements have resulted form these projects:

- Increased staff productivity from employees' ability to share and act on accurate information through the delivery of the right documents at the right time
- Enhanced communication and collaboration through shared information
- Improved speed of information and transaction flow throughout County agencies
- Improved access and security through controlled access to sensitive documents
- Reduced time spent searching for critical documents
- Improved disaster recovery through electronic storage and backup of information that is far more secure than paper
- Reduced clerical, paper, printing and storage costs

In FY 2010 the County will continue to support the current initiatives of IDM and workflow technology for projects in the Department of Family Services, Office of Children, the Juvenile and Domestic Relations District Court, the Clerk to the Board, and the Department of Finance. Document management and imaging projects, especially when work flow automation is used, can greatly improve operational efficiency and effectiveness. In addition, these projects deliver enhanced information security. Granular control over each piece of data enables access by authorized users, and only for the specific information they need and are authorized to access. These solutions provide business units with the capability to reduce costs, accelerate business transactions, ensure regulatory compliance, and support cross-department communication. IDM will also be integrated with the County's ERP system project, where images of hard copy documentation may need to be embedded in an electronic profile or case record, such as those involved in Human Resource Management processes.

## 2.3 Customer Relationship Management (CRM)

Expectations for easy access to government services continue to expand dramatically. Citizens look for ways to interact with their government through channels that best suit their needs. Fairfax County continues to respond to this growing need through the implementation of Customer Relationship Management (CRM) technology applications. CRM provides agencies and their staff improved opportunities for providing citizens quick and convenient access to information about County programs and services.

In earlier adoption of technologies to enhance tracking and response to citizen inquiries, Internet Quorum' (IQ), and 'PHINITY' call distribution technologies were successfully implemented and proved beneficial to both constituents and County offices and agencies. Significant staff productivity and efficiency improvements were achieved in supporting information exchange with citizens through multiple communication channels: in-person, telephone, e-mail, web, and kiosk. Successful implementation in the Offices of the Board of Supervisors and the Clerk to the Board provided enhanced opportunities to record, route, and manage interactions with constituents and organizations, and subsequent phases provided expanded capability throughout the County. The web enabled IQ system replaced several custom applications and provided the expansion of IQ to the Office of Public Affairs, Consumer Protection, Human Rights Office, Department of Public Works and Environmental Services, County Executive and the County's Legislative function within the County Executive's office, Department of Purchasing & Supply Management, Department of Transportation, and the Alternative Dispute Resolution Program.

The Clerk to the Board of Supervisors uses the IQ Boards and Commissions Module to track appointments and nominations to boards, committees, and councils and maintain a complete correspondence history regarding contact with these individuals. Consumer Protection Division's modules include Complaint Tracking, License Administration and Taxicab Inspections. The systems enable staff to rapidly open and begin investigating cases. By expediting the administrative components of case investigations, the initial response time is reduced, resulting in earlier detection of consumer protection violations. The historical research required to discern whether businesses are repeat offenders or not, and how past cases were resolved is now expedited; cross-referencing cases between investigators allows department staff to share online information pertaining to the same or similar consumer protection violations. Further, the system facilitates collaboration between department investigators on complaints and resolution techniques, and also enables citizens to access complaint histories of businesses online in order to research and determine the pros and cons of doing business with those merchants. In addition, the system allows Fairfax County Police access to license information for all solicitors, peddlers, pawn-brokers, massage therapists, taxi drivers, etc.

The Office of the County Executive uses the IQ Legislative Tracking Monitor application to assist County agencies monitor, review, respond to and track state legislation when the Virginia General Assembly is in session. The system includes the automated downloading of legislative bill information from the Commonwealth's Legislative Information System, thus eliminating the need for a legislative aid to manually track constituent requests. The Human Rights Commission uses the system to create, track and report on case workflows allowing the HRC investigators to meet multiple requirements. The system also streamlines complex discrimination processes and addresses privacy concerns for investigator and conciliators.

The FY 2005 'IPHINITY' call center distribution application implemented for Human Services Consolidated Services Planning (CSP) call center offers efficiency in supporting the growing number of people seeking assistance from social services agencies with limited staff that is geographically spread at various sites. 'IPHINITY' is customizable to route incoming contacts based upon selected criteria, set levels of access, record specialize voice promotes, manage calls based on specific business requirements, and track all interactions to ensure closed-loop resolution. CSP is able to monitor and mange workload and performance with a comprehensive set of analytical tools for real-time and historical reporting. Computer Telephony Integration (CTI), internal calls or transferred calls are presented to case worker along with a "screen-pop" of information from agency case systems and databases relevant to the citizen's call. This integrated approach provides CSP the opportunity to better develop relationships with citizens and more effectively focus resources to address their needs.

Enterprise CRM supports a holistic view which aids in making well-informed decisions about service delivery to the County's diversified population and improves communication through a seamless unified access to information via the County's web site, IVR systems, cable TV, in-person, as well a live 311 Agent. A project steering committee consisting of DIT and agency staff that use or have

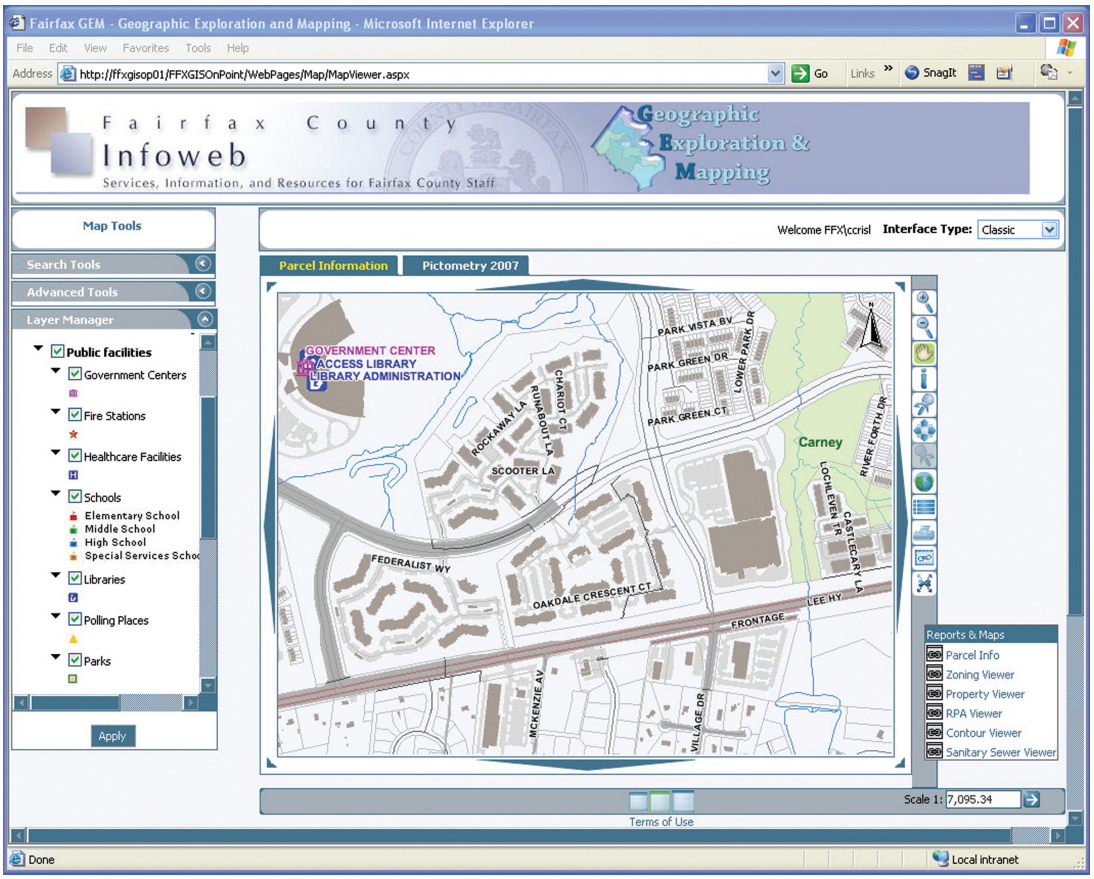
interest in call center functionality was established to manage the implementation and integration of the CRM software within the County's infrastructure environment. Initial efforts involved development of the overall framework and pilot application in the Office of Public Affairs which was successfully implemented in FY 2008. CRM application was also deployed to support Office of Public Affairs customer center sites in several locations. Frequently requested information and telephone numbers for County services and home owner association data is available in a centrally used knowledgebase to support consistent distribution of information. The Office of Public Affairs processed over 33,550 requests for County information and resources since deployment of the CRM application.

Office of Public and Private Partnership (OPPP) is the clearinghouse for partnership information in Fairfax County. CRM efforts in OPPP have consolidated disperse contact list, business partners, and resources enabling staff to utilize the system as a data depository for contacts, accounts, cases, service requests, solutions, correspondence, activities, and allocation of staff and volunteer resources. Additionally, the CRM solution was implemented in the Lee and Dranesville District Board of Supervisor offices in October 2008. The goal in FY 2010 is to provide continued support for agencies and enable screen pop interaction with case record information, contract interaction records and profiles, and transparent case escalation.

## 2.4 Geographic Information Systems (GIS)

Fairfax County's GIS has continued its growth in FY 2009 with over 700 direct GIS users as well as many indirect users who can use GIS embedded applications as part of their business operation. County staff access GIS directly via professional GIS tools and web applications while the public is able to access a wide range of GIS integrated applications.

In FY 2009 an internet web 3-D GIS tool was implemented which enables agencies and the public to view GIS data along with 3-D models; the County currently has 3-D models for over 3 sq. miles of Tyson's Corner and over 5 sq. miles of the Reston-Herndon area.



In FY 2009 the GIS branch expanded the use of GEM intranet web GIS tool. Substantial effort was dedicated to preparing street centerline data for the new CAD/911 system which will go live in FY 2010. The work done previously in developing the Multimodal transportation model was essential for the implementation of the new CAD. Overall GIS usage has steadily grown since 2001. As shown in figure 1, the volume of GIS data served directly to users or via the internet has consistently increased, with the monthly average for the year approaching 5 Terabytes.

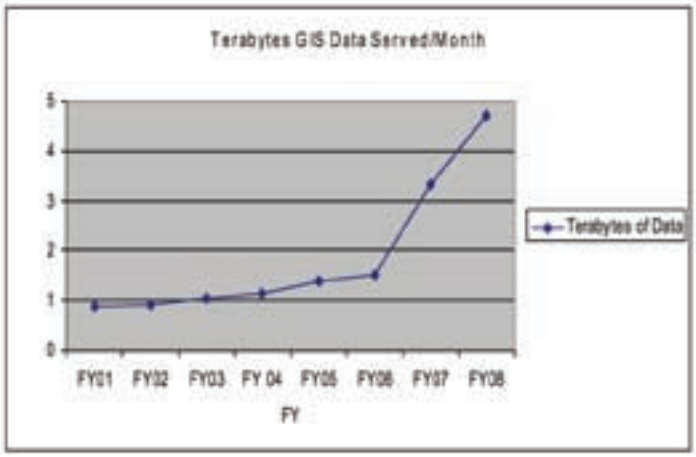



***Figure 1:***

The GIs data warehouse now holds over 800 layers of Fairfax County data and several hundred more of neighboring jurisdictions. The overall size of the vector data stands at 103 GB (including business data tables), and the raster data is now over 2.9 TB on line and an additional 3.9TB currently archived that will be moved to production.

The volume of data in the Digital map viewer increased as the last of the historic property and zoning map books were scanned and added to the database. Currently there are over 30,000 pre-made maps and images of historic maps available online. The application's usage has continued to increase as well, with views and downloads in excess of 32,000/month. The volume of data within the layers has continued to increase. Table one illustrates the most significant layers.

In FY 2010 the GIS branch will continue to enhance the existing applications and GIS data, with particular attention to centerline data. The County will partner with the neighboring jurisdictions and the state to develop a locally maintained, regionally routable centerline data set valuable for emergency response across jurisdictional lines. Also planned for FY 2010 is the release of an enhanced My Neighborhood version 2 with additional features; My Neighborhood currently serves over 5 million maps/images per month. The volume of data within the layers has also increased. Table one illustrates some of the most significant layers and their 2005-2009 values, along with additional values that have recent data:

In FY 2009 a substantial effort involved preparation for President Obama's inauguration in January 2009 with the preparation of numerous maps necessary for extensive coordination among emergency response agencies across the national capital area. GIS staff continues to be heavily engaged in the CAD/911 planning and implementation, as well as a range of emergency response services to support the Office of Emergency Management. Figure 2 illustrates a screen shot of a preliminary map version from the new CAD/911 system. That system will place maps in all county emergency response vehicles and provide substantial new capabilities to emergency responders.

***Table One:***

| Data Layers | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|---|
| Parcels | 341,000 | 343,500 | 356,000 | 357,300 | 358,300 |
| Addresses | 360,000 | 365,000 | 368,000 | 364,700 | 365,100 |
| Building Outlines | 248,000 | 252,000 | 257,000 | 257,277 | 257,300 |
| Miles of Roads | 4,000 | 4,800 | 4,700 | 4,718 | 4,736 |
| Number of streetlights | | | 57,939 | 58,935 | 59,937 |
| Linear miles of sanitary sewer lines | | | 3,350 | 3,373 | 3,390 |

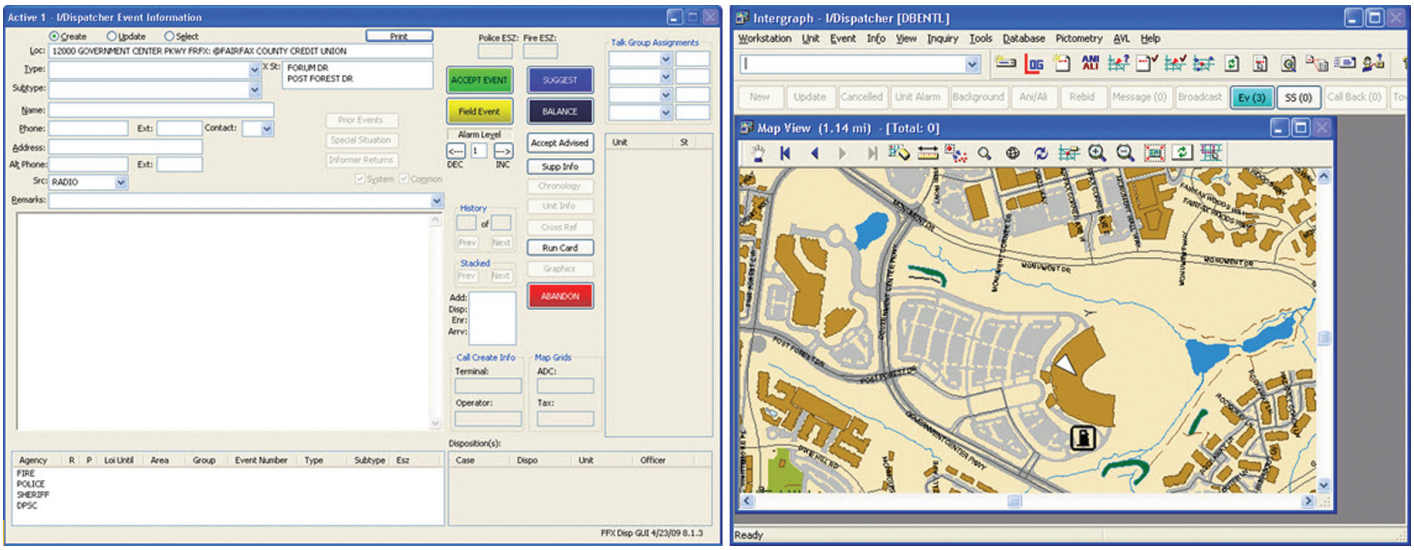



*Figure 2:*

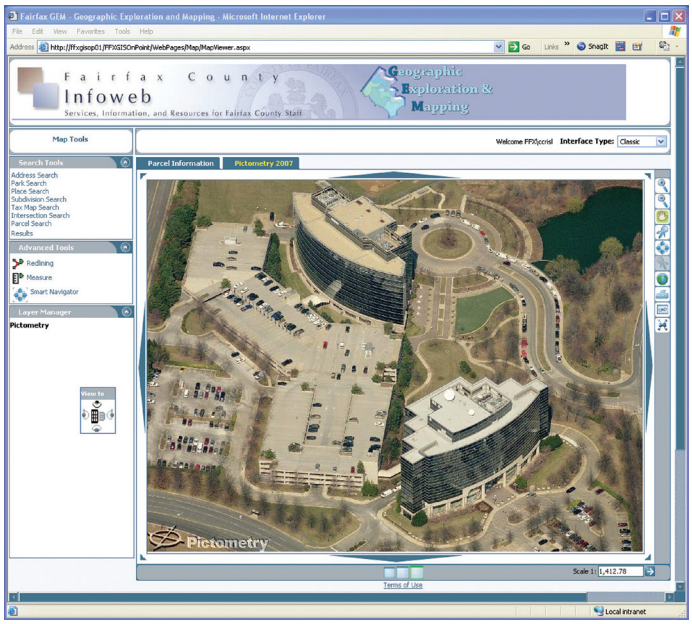
The Master Address Repository (MAR) project, completed in FY 2006 has proved invaluable for the new CAD/911 system. The MAR is the authoritative source of (situs) addresses in the County, which are essential for effective operation of the new CAD/911 system. Additionally, in a joint project with the County's Department of Public Safety and Communication (responsible for the CAD/911 system) the MAR data was checked against post office data and also cross checked against telephone companies' Master Street Address Guide (MSAG) to ensure accuracy in routing 911 calls.

In FY 2009 and into FY 2010 GIS will work with County demographer in preparation for the 2010 census. The initial work identified and provided a list of all residential addresses in the County to the Census Bureau using the data in the Master Address Repository. The Census Bureau reviewed the data and noted that it was the most complete and accurate file they had seen in the regional office. Subsequently Census will compile a list for County verification and review which becomes the basis of the 2010 Census visits and mailings. The MAR is critical in ensuring both the speed and accuracy of the process.

The availability of key County data digitally through the GIS provides a range of benefits to constituents as well as County staff. Orthoimagery is widely used within GIS as well as over the web. Since the parcel and zoning data is now maintained digitally, production of the County's parcel and zoning books were greatly accelerated. Time consuming manual steps were replaced with the digital production process enabling staff to capture other features in the GIS (e.g., more easements, particularly conservation easements). Additionally, map changes are posted to the internet daily, providing web users of the Digital Map Viewer with the latest versions of the maps. Prior to these enhancements maps were printed for distribution annually. Digital production has enabled the use of color maps, and development of new symbolization of zoning patterns are added features. The popularity of the frequently updated data is evident by the steady increase in usage of the Digital Map Viewer.

In cooperation with the state's Virginia Base Mapping Program, aerial imagery of the entire County was updated in FY 2009 (previously in 2007 and 2002). In the intervening years, the County independently flew the entire County and acquired orthoimagery of one quadrant per year. The Northwest quadrant was developed from aerial imagery flown in 2001; the Northeast from 2003 imagery; the southeast from 2004; and the Southwest from 2005. This completes the County's first orthoimagery update cycle. Contractual difficulties delayed the state's plan to fly the entire County in 2006, as a result there is no aerial imagery of the County from 2006. Oblique aerial imagery of the entire County was taken again in 2007 (previously in 2005 and 2003), delivered and brought online in FY 2008. Oblique Imagery shows the sides of buildings, which enables County Assessors to more efficiently view and determine property values. The views also provide public safety officials with key information such as window and doors (to determine dimensions and heights above the ground) which aids in planning emergency response.

The planimetric data update project currently underway will update two quadrants of the County dramatically




improving the quality of existing planimetric data acquired from stereo imagery in 1997. In FY 2009 compilation work on updating the planimetric began in the SE quadrant of the County including Ft. Belvoir and much of the Laurel Hill area. This is a jointly funded project between DPWES and DIT, the intent is to update 25% of the County annually, ensuring that the planimetric data will be no more than 4 years old. This data has been requested by Fairfax County's Environmental Quality Advisory Council (EQAC) and a number of County agencies. The updated planimertic data will be a foundational component of the new Computer Aided Dispatch system's maps.

Over 25 County agencies use GIS to in their operations, including the GIS branch itself. These include:

- The transition to digital property and zoning information enables the GIS Branch to maintain these maps daily. These maps are processed and made available for County staff and public users via the web; since the production process is digital, more map series can be easily added. In FY 2008 the soil series was added to the digital map viewer, in FY 2009 the new soil data based on the countywide soil evaluation program conducted jointly with the federal Natural Resource Conservation Services and the Northern Virginia Soil and Water Conservation District was added to the digital map viewer.

- The centerline file was modified to reflect the Northern Virginia common centerline elements and made available to County agencies and is being enhanced with additional data needed for CAD and for regional routability of emergency response vehicles.

- Substantial savings are realized in the Department of Public Works and Environmental Services through the use of GIS. The agency was recognized by the State of Virginia for integrating GIS with refuse vehicle routing for additional flexibility and cost savings.

- GIS technology enabled the Department of Public Works to complete the mapping involved in the Streams Characterization Project in weeks rather than months.

- The Department of Public Works digitized the sanitary sewer lines into the GIS and maintains them regularly. Storm sewers digitization was completed and is now in the GIS data warehouse. The data is also available in the My Neighborhood application. The Department also uses GIS as part of its automated sanitary sewer permit application tool which greatly speeds preparation of the permit by automating cost calculations. GIS is also used to help call takers identify problem areas and prepare work orders.

- The Department of Zoning has digitized the Comprehensive Plan into the GIS for easier maintenance and viewing. The agency uses GIS in the urban design project for Tyson's Corner and has performed 3-D visualization work to better understand the proposed developments.

- The GIS now contains data from Fairfax Water and the Cities of Fairfax and Falls Church on hydrants and water mains.

- The Department of Transportation uses GIS to help plan pedestrian safety projects and analyses.

- The Health Department used GIS to conduct emergency preparedness planning, track unhealthful soil deposits, track well and septic systems and notify citizens when necessary.

- The Park Authority uses GIS for a wide range of planning and management activities. It uses GIS to indentify candidate properties for purchase by the county to improve park resources.

- Oblique and Ortho imagery are now available to 911 dispatch personnel, adding improved response evaluation.

- The Department of Planning and Zoning uses GIS programming and analysis to handle tasks that would have been overwhelmingly manual in the past. The assignment of regional transportation analysis zone numbers to each of the County's' 356,000 individual parcels has made this a routine and quick process. GIS streamlines the Area Plan Review (APR) through the use of a new Comprehensive Plan Amendment Tracking System (CPATS) which uses GIS to generate notices for plan amendments applications. This has largely eliminated errors and provided easy access to the latest information. GIS is integrated into DPZ's Land Information Systems (DPZLIS) with a number of benefits including, easy and quick access to staff report map, generating environmental assessments, and custom page size maps of any county location. These specialized features have been particularly beneficial in zoning enforcement issues where public can now view maps to check permit and enforcement cases via the internet.

- The Department of Transportation utilized GIS for a variety of agency needs and projects. GIS provided tremendous insight in understanding and predicting commuter use of Park & Ride facilities and helps direct the department locate and manage new/ potential facilities. In addition, Department of Transportation uses GIS technologies for the Fairfax Connector bus system's demographic analysis, route planning, and bus stop management. Many of these techniques are also used for the Employer Services program to best promote commute alternatives to Fairfax employers and their staff. GIS is used to plan and analyze bus stop locations and pedestrian safety improvements.

- In health areas, GIS has been used as part of the West Nile Virus planning and response, as well as tracking tuberculosis in the County. Previously GIS had proven its value in the canker worm outbreak in FY 2001 (and before that the Gypsy Moth outbreak). GIS enabled County staff to quickly identify residents who could be affected by planned canker worm spraying and contacted them ahead of time. The GIS also provided spraying coordinates to the helicopter spray crews so that balloons would not have to be used, which was a significant time and cost savings. Drinking water wells have also been identified and entered into the GIS.

- The Fire and Rescue Department (FRD) makes substantial use of GIS and as a result is experiencing significant savings. For instance, in the process of responding to Fire Hydrant and Insurance queries, the GIS saves about 50% of staff time in determining distances. Additionally a 98% staff time savings were estimated in the countywide analysis of identifying five-minute response time areas for fire stations – a factor crucial to establishing areas within response time limits.

- The Police Department has had significant success in its use of GIS for crime analysis. In multiple instances, the Department's crime analysts identified spatial patterns in crime incidents, successfully predicted subsequent crime locations, and arrested suspects. The training of police crime analysts as criminal profilers is heavily dependent on the use of GIS. In addition, the GIS Branch completed development of the My Neighborhood Police Incident viewer.

- GIS was used extensively in planning the response to flooding in the Huntington area. The GIS maps were helpful for both field personnel and staff in the Alternate Emergency Operations Center.

The breadth of GIS utilization across the County, and the extent of its integration into the overall IT architecture are reflected in the award winning plans and efforts of the preceding years. The awards recognize GIS's achievement in fostering and expanding the use of GIS applications to improve County operations:

- The County's GIS program received a "Best of Breed" award in the 2003 Digital Counties Survey. This survey and award recognition was conducted by the Center for Digital Government, in partnership with the National Association of Counties.

- County GIS programs received the VA Governor's Technology award for DPWES' use of GIS in routing refuse collection vehicles.

- In FY 2005 the County's GIS won FOSE's E-Town Award for GIS Integration.

- Fairfax County's GIS received international recognition via the Environmental Systems Research Institute (ESRI) Special Achievement in GIS (SAG) Awards for both the GIS Branch work and the countywide efforts in GIS.

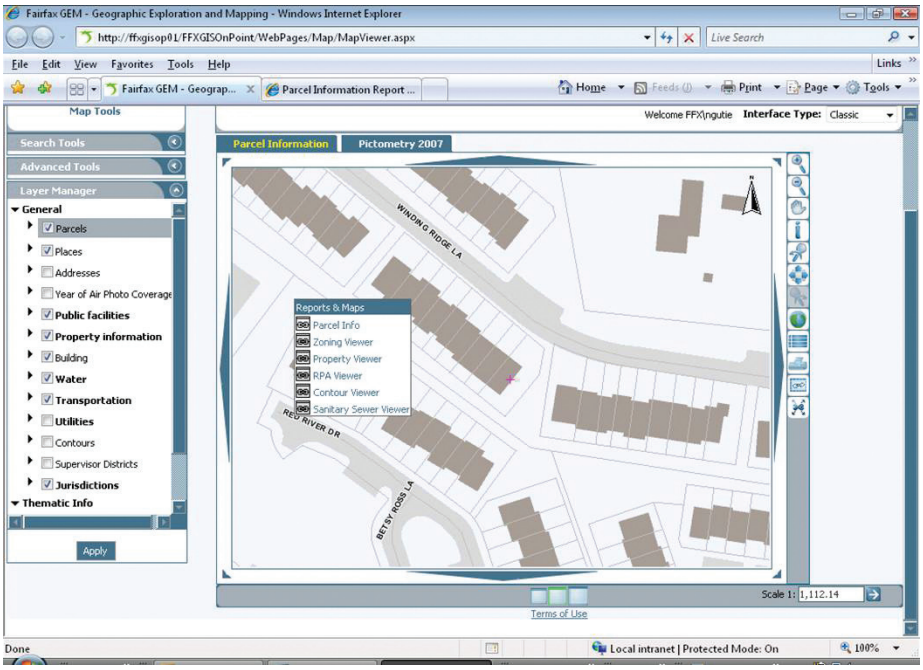
- The National Association of Counties recognized Fairfax County for its use of GIS in the reapportionment process.

Fairfax County is a member of the Northern Virginia GIS managers group, an informal group that regularly meets to

coordinate activities. The most recent accomplishment is acquiring support from the State's Wireless Board through the Virginia Geographic Information Network to build on the past centerline work and develop a regional, routable centerline data set. This work laid the foundation for a state wide routable centerline model. It will enable routing of public safety vehicles across jurisdiction boundaries. The GIS Branch works closely with the State's GIS agency (Virginia Geographic Information Network, now part of Virginia integrated Services Program), and now directly participates in the Emergency Operations Center when it is activated.

The GIS Branch continues its strategic interaction with County agencies to foster development of GIS capabilities and integration into their business processes. The preceding years have seen GIS take root in most County agencies. The program will continue to expand and is an important tool or Public Safety, Homeland Security and Emergency Management. The County is a member of NACo's GIS committee which looks at key GIS issues affecting counties; and the County's GIS manager is a member of the Council of Government's CIO's GIS subcommittee, working on regional interoperability initiatives and pursuing projects and funding to enhance regional GIS.

The County's GIS program will continue to ensure data quality, system reliability and connectivity as well as implementation of new GIS applications. These aspects are crucial to implementing GIS as a data "utility" across the County so that users at any of the County's offices can "turn on" their GIS "data tap" and have all of the data they need available. Data quality is a paramount issue; rigorous Quality Assurance/Quality Control measures have been implemented on the parcel data updates. Similarly, rigorous quality standards were developed for the aerial imagery being acquired and the planimetric data. System reliability is an increasingly crucial issue as more users integrate GIS into their daily operations. The GIS Branch monitors the performance of its applications while the DIT's Server Support Division monitors the underlying hardware and communications links to ensure reliability. Critical applications are monitored around the clock and staff is on call if system outages occur outside of work hours. Finally, as the GIS Branch works closely with other agencies, web-based applications will be used wherever possible, staff will design and implement specific applications that will decrease the time necessary for queries and increase the number of staff that can use the data in applications designed specifically for their operational requirements.



## 2.5 Fairfax Inspection Database Online (FIDO)

The Fairfax Inspections Database Online (FIDO) project is a strategic initiative to enhance and consolidate inspection services provided by multiple County agencies into a single software solution that includes e-permitting capabilities for customers. The system has enabled the Department of Public Works and Environmental Services, the Department of Planning and Zoning, the Health Department and the Fire and Rescue Department to collaboratively provide permit issuance, inspection, and code enforcement services to Fairfax County citizens and business partners.

Goals for this project included migrating from the mainframe environment to a platform that enhances multi-agency access and participation in the affected processes, enhancing customer service by streamlining the permitting process, and facilitating 24/7 access to government services via the internet.

The approach for this project represented a concerted effort to harness the expertise of all stakeholders in the acquisition, design, and implementation phases to ensure a seamless, streamlined integration with all other pertinent business processes and systems. A project steering has provided oversight and direction throughout the project lifecycle, and the committee included the Deputy County Executive for Land Development and Public Safety, Department Directors from the FIDO user agencies, the Deputy County Executive for Information and Compliance, and the Chief Technology Officer. In addition, teams of representatives from each of the core user agencies and the Department of Information Technology (DIT) were established to assist in the management of this project and coordination of system requirements from the stakeholders to ensure system compliance with state and local authorities.

Customers and County staff that use the system on a daily basis formed numerous workgroups to provide critical input for the development of the user and system requirements. Additionally, these workgroups included staff of the Health Department, Department of Tax Administration, Fire and Rescue Department, Department of Planning and Zoning (DPZ), Department of Public Works and Environmental Services (DPWES) and DIT. The collaborative efforts of these groups provided input on the needs of all the beneficiaries, with a concentrated focus on the day-to-day customers and the numerous organizations that rely on the County for permit processing and inspection information. Many of these teams continue to work on FIDO system enhancements and modifications.

The FIDO system creates adaptability on a new platform that will serve as the foundation for future e-permitting enhancements while providing immediate additional functionality and a streamlined process. The project will include the acquisition of a web-enabled system with the capability to provide access to permit information and permit process 24 hours a day, 7 days a week. The system will also provide managers the ability to perform an ongoing analysis of efficiency and effectiveness of resource utilization. Additionally, the FIDO project allows the County to maximize e-government capabilities and enhance customer service by providing the public with 24/7 access to land use data and services that facilitate healthy and safe neighborhoods.

Remaining items for FIDO include the design and implementation of web-based permit applications, and improved email notification capabilities for permit applicants and permit related inspection request, and the integration of wireless technologies for FIDO mobile workers including building and code enforcement inspectors. The FIDO solution is consistent with County standards and fits well with County's e-government and green IT strategies of using emerging technologies, as well as with County agencies work productivity and worker mobility goals.


## 2.6 Enterprise Telecommunications

Contemporary voice communications integrated with voice and data messaging is an organizational requirement in today's technological landscape. As government is asked to do more with less, stretching limited financial and human resources, it relies heavily on efficient voice communications to improve effectiveness in meeting the growing needs of constituents. Whether it is citizen access via e-government; efficient management of government information; the advancement of education; the safety of our children on school buses or homeland security; voice communications plays an enormously critical role.

Integrating voice, video and data communications onto a common structure is now a reality. This convergence brings tremendous benefits to enterprises such as Fairfax County that need enterprise-wide voice and data networks. New types of voice service platforms that support data application integration are commercially available and are seen as a cost effective means of improving County's service to citizens. After decades of high quality phone service provided through the traditional telephone networks, users expect new systems to have consistent voice quality, with never a doubt that they will hear dial tone when they lift the telephone receiver.

The long-term strategy for Fairfax County is to implement Voice over IP (VoIP) services and obtain the maximum utilization of its networking capabilities as well as garner the advantages in functionality and features that this leading-edge technology provides. DIT is implementing a strategy for voice services, utilizing convergent-IP ready technology, over the County's fiber I-Net. This strategy includes a solution architecture that is scalable to support the variety of County sites and agency business requirements distributed over 400 square miles. The strategy uses IP-based telephone service at the smaller sites, so that they can be brought into the common voice enterprise architecture, avoiding investment in converging IP data traffic with IP voice traffic onto one data network. This strategy is both prudent and forward-looking. It will position the County to increase its use of advanced convergent technologies as data, video and voice, and facilitates reductions in other voice service operational costs. The plan is in full alignment with the County's principle of implementing contemporary, but proven, technologies, optimizing IT investments and creating more operational cost efficiencies.

The following six strategic goals for Fairfax County voice services were developed and endorsed by County's Executive management and serve as the building blocks for Fairfax County's Strategic Voice Technology Platform:

| | Goal | Solution Element | Benefit to Fairfax County |
|---|---|---|---|
| 1 | Optimize the total life-cycle cost for voice services | • Centralized Servers<br>• Telephone sets can be moved by users w/o requiring system Programming<br>• Secure centralized management accessible from anywhere | • Reduced cost to update/upgrade<br>• Moves /adds and changes become less expensive.<br>• Additional personnel are not needed to manage the system |
| 2 | Provide common voice architecture, County-wide | • Modular, scalable, "plug n'Play" hardware and software components | • Reduced cost to manage and maintain.<br>• Common look and feel of applications and telephones improves productivity of users.<br>• Users and applications are portable; ex. Call Center agents can be anywhere internally or externally and have the same capabilities.<br>• Users can move between sites and take their number with them, with or without moving their phone |
| 3 | Provide secure remote access for voice and data to expand Telework | • IP Softphone/Agent with Advanced Encryption Standard (AES).<br>• Unique dual line Softphone, splits network signaling from voice<br>• Citrix support for IP Agent | • Conversations remain private and users can work from anywhere<br>• Simplified operation for remote users that doesn't require QoS and allows use of any telephone<br>• Contact Center agents can be remote and have secure access to applications. |
| 4 | Provide compatibility with "best-in-class" citizen access technologies | • Contact Center, i.e. Skills Based Routing.<br>• Mobility Solutions, i.e.Extension to Cellular. | • Maximize # of productive information exchanges.<br>• Citizens can reach County workers even when they are away from their office.<br>• All employees/citizens have same opportunity to access information |
| 5 | Develop a survivable architecture that is scalable and flexible | • Layers of redundancy, i.e. mirrored main servers, enterprise survivable processor, redundant components<br>• Modular components | • Unparalleled reliability and resiliency of underlying architecture<br>• Lower TCO as components can be combined and used in different ways like Lego building blocks |
| 6 | Prepare for the convergence of voice and data onto one logical network | • Applications are media agnostic.<br>Universal licenses | • Applications can be extended anywhere to any device, increasing productivity, and reducing cost.<br>• Add IP Telephones when and where needed at reduced expense.<br>• Existing features work the same as users move from Digital Telephones to IP Telephones thereby easing transition and increasing productivity |

To achieve the goals for next generation voice switch architecture, as discussed above, our strategy takes into consideration a number of technical requirements for the target architecture. The solution must support the County's integrated network philosophy with a single logical architecture. The solution must address the large number of County locations supporting a variety of business and operational needs. The solution must support a range of configurable telephone instruments and feature sets. Finally the solution must also address the following requirements:

- Constituent Relationship Management (CRM) Technology
- Automated Call Distribution/Interactive Voice Response
- Computer Telephony Integration
- Secure Remote Access and Telework
- Unified Messaging
- County-wide Voicemail
- Inbound Caller ID
- Capacity on-demand

The transformation of Fairfax County's voice platform is a significant endeavor that entailed a great deal of planning and thoughtful implementation over many months, but it has a revolutionary impact on the way that the County conducts business and provides services to its constituents. Voice over IP (VoIP) is clearly the strategic technology that the County embraces, using a phased approach to minimize risks at the two core locations. The new voice network infrastructure provides uniformity of telephone features at all County locations and is the foundation upon which to integrate function specific call centers, creating a virtual Constituent Contact Center to streamline incoming call processing while reducing call center operating costs. The new functionality and integration of the voice and data platforms have been implemented in a number of County facilities. Work on this comprehensive project will continue in FY 2010. The replacement of the current telephony infrastructure will serve approximately 15,000 Fairfax County employees. The migration will occur in phases which will allow multiple opportunities and avenues to prepare the FCG community for the transition, and thereby ensure a smooth change of voice project status, system features and functionality, dialing plan information, and changes that users (both employees and citizens) can expect. The project is planned and funded in multi-year phases, with a majority of County sites on the new platform by 2011.

## 2.7 Land Information Accessibility

In January 2006 the Board of Supervisors established the Fairfax County Land Use Information Accessibility Advisory Group ("Advisory Group"). The purpose was to review how land planning and development information is currently made available to the public, and to make recommendations for accessibility improvements. The target stakeholder audience includes County staff and management, novice citizens, active land use citizens, developers, property owners, and others with an interest in knowing more about proposed and ongoing land planning and development activities.

The final report was accepted by the Board of Supervisors in January 2007. The Advisory Group appreciated the responsiveness that County staff had already provided for the initiative. In addition, they recognized several significant improvements that staff had already implemented since the inception of this Board request, including:

- New web page design to reorganize and consolidate the land planning and development information (http://www.fairfaxcounty.gov/living/landuse/)
- New ability to search the Land Development System using a County address to see all nearby land planning and development cases (on a map or by listing, with drill down capability; http://fairfaxcounty.gov/ldsnet/)
- New ability to search the Land Development System by Magisterial District to see all nearby land planning and development cases (on a map with drill down capability; http://www.fairfaxcounty.gov/ldsnet/).

During FY 2008 and FY 2009 additional improvements were implemented to improve public access to land development information based on funding availability, including:

- Adding Building Permit data to the LDSNET Search by Address\Search by Magisterial options,
- Providing web page accessible land planning and development case summaries in PDF download formats,
- Enhancing the LDSNET and My Neighborhood web page integration to streamline end user navigation.

The Advisory Group recommended that the County embrace and build towards short-term, medium-term, and long-term improvements for land use information. Listed below are summaries of the 12 guiding principles, followed by 17 recommendations.

### Twelve Guiding Principles for Fairfax County Land Use Information

The following 12 guiding principles are designed to help maximize public involvement in the land use review and approvals processes, and encourage the continuing modernization of information technologies in Fairfax County's land use review and approval processes.

1. Make land use information publicly available and accessible at the earliest opportunity.
2. Use geo-coding standards across all County databases, land planning systems, electronic development files, and documents.
3. Collect and manage information so that it can be accessed from multiple entry points such as geographic location or by steps in the land use approval process.
4. Make all public land use information easy to find, including information developed by others and submitted to the County, as County-generated information.
5. Ensure consistency and user friendliness across all web pages and across all agencies of the County.
6. Create standard report forms to allow searches across projects and aggregation of those data for use by County citizens.
7. Make sure that information systems and any changes made to them are open and scalable so future needs can be addressed.
8. Tailor land use pages to meet the needs of different user types, and provide information as early as possible about Comprehensive Plan land use proposals.
9. Require external land planners and developers to submit land use application information to the County via electronic files using geo-coding standards; also request 3D modeling and other visualization technology for larger and more complex land developments.
10. Make land use information accessible to citizens with a range of access to tools and resources, including users with no or limited access to the Internet.
11. Establish procedures and provide resources to keep land use information as timely and accurate as possible.

12. Investigate way to increase the dialog and information sharing among all land use stakeholders.

The following 17 recommendations and improvements are intended to be designed and implemented over a number a years:

- **Expanded Application of Land Use Information Tools**. The Advisory Group recommends development of a more integrated and intuitive "front end" web page or portal or repository that enables users to go to one location and search for land planning and development information relevant to their inquiry location; further integration of LDSNet, My Neighborhood, GIS, the Courts Automated Retrieval System (CARS), the Fairfax Inspection Database Online (FIDO) system that contains permits and inspections information, and other related systems; expansion of the My Neighborhood capabilities combined with a data warehouse; providing more land use data that can be imported into a constituent spreadsheet for further analysis.
- **Further Integration of GIS all County Land Use Information Systems**
- **Land Use Public Hearing Information.** For public hearings the County should make available electronically the information currently provided in the hard copy (staff report, proffers, development plans and affidavits).
- **Notification Process Above & Beyond State and Ordinance Requirements.** Fairfax County should study how to provide a process to electronically notify interested citizens about pending land use actions within a user-specified distance of a County address and according to certain categories of proposed land use.
- **Improve Access to Site-Specific Land Use History.**
- **Electronic File Submission and Review.** Fairfax County should update land use review processes to facilitate electronic file submission and review.
- **Citizens and contractors requesting permits should be able to file electronically and utilize address or other information already on file with the County.**
- **Land Use Orientation Page and Activity Calendar.**
- **Verbatim Excerpts and/or Viewable Proceedings of Planning Commission Decision Discussions Should be Available Online.**
- **Collection of Approved Plans and Visualization of Community-Wide Development.** The County should collect an electronic version of approved development plans and build and easily searchable electronic library.
- **Create New GIS Overlays.** The Comprehensive Plan should evolve into a more digital model with GIS layers showing the approved plan with options and alternatives and a layer showing existing property development.
- **Coordination within the County.** The County should work to ensure more cross-departmental coordination and use of spatial data, including public access.
- **Coordination with Other Jurisdictions.** The Advisory Group recommends that County staff stay in close contact with other jurisdictions and other agencies (e.g VDOT) in an effort to make land use information more accessible, to learn about new techniques and technologies, and to participate in collaborative initiatives.
- **Outreach to County Stakeholders such as Citizens and Businesses.** The County should encourage organizations like the Federation of Citizen Associations, District Councils, and larger citizen associations to work closely with Board member offices to collect information about which addresses and parcels are associated with each particular civic or homeowner association.
- **Ongoing Focus Groups.** Some type of periodic ongoing advisory group should meet to monitor progress and make further recommendations.
- **Enhancements to the board Auditorium.** Enhance the capability for speakers and staff to use electronic media presentations and GIS displays in the Auditorium.

The Advisory Group encouraged the County to embrace the concept of continual innovative and incremental improvements as well as longer-term larger improvements as changes in business processes and technology permit. The Advisory Group also recommended that the Board provide consistent funding and sufficient resources to implement these recommendations as well as to sustain ongoing improvements. The final Advisory Group Recommendations are available at: http://www.fairfaxcounty.gov/landusecomm/

## 2.8 Public Safety Architecture Modernization

The goal of the Public Safety Architecture Modernization Project is to implement an integrated software solution suite to support Computer Aided Dispatch (CAD) and Records/ Information Management Systems (RMS) for Fairfax County's Public Safety agencies. This project has an aggressive time schedule, implementing in multiple phases. It includes the following major components:

- Replacement of the legacy Altaris Computer Aided Dispatch system
- Replacement of the custom legacy mainframe Police Records Management system, and related interfacing shadow systems
- Acquisition of EMS Incident Reporting solution for the Fire and Rescue Department, and upgrading the current Fire Records Management system
- Supporting infrastructure including more advanced GIS, radio integration, broadband wireless, and station alerting

The CAD/RMS is the core of this integrated, comprehensive public safety information management system. The County conducted a procurement process, starting with a Request for Qualifications (RFQ), followed by an RFP and a rigorous evaluation of the proposals in order to obtain a modern, integrated state-of-the-art solution with a proven track record.

This project provides the County's public safety first responders with ready access to the tools that enable sharing of tactical information, often in real time and on-site, with a number of different entities such as emergency management agencies; neighboring Public Safety Access Points (PSAP) and Police and Fire departments; as well as state and federal authorities including Department of Defense components. These requirements are particularly critical for the County and other jurisdictions in the National Capital Region and are consistent with NIMS guidelines.
There are numerous technical and functional improvements a new system will offer the County, and many are considered "baseline" products in current generation CAD and RMS applications. This new solution will include the following essential technical improvements:

- Integrated CAD/Records Management System for Police and Fire Rescue – The current Police Records Management System is twenty years old, not integrated with CAD, and well past normal life cycle replacement. It does not support modern law enforcement and crime analysis activities.
- Automatic Vehicle Location (AVL) – The current CAD does not support GPS technology and applications to track the locations of public safety units. This is a vital feature to insure personnel safety, as well as operational capabilities such as nearest unit response and appropriate resource utilization.
- Nearest Unit Response – Efficient routing based on quality mapping data, in combination with AVL will provide the fastest response to the scene and insure that the closest, most appropriate unit is provided with the optimal routing.
- Standards-Based GIS Capability that will integrate with and leverage existing County's GIS data layer and mapping resources. Geographically represented data and information is essential to all public safety agencies, for both after action and statistical reporting, and for on-scene response and incident management. Integrated standards based GIS capabilities will enable the County to leverage technology resources and skill sets across the enterprise and increase efficiency.
- Standards-based interoperability to support both internal County data and information sharing across public safety and related agencies, as well as critical external data and information sharing such as CAD to CAD, interoperability with Virginia Department of Transportation as well as Virginia State Police will provide collaborative incident response with neighboring jurisdictions supporting mutual response.
- Up-to-date tools that improve system administration, enabling the County to better manage and own its application and increase the ability for Public Safety to respond quickly and effectively to changing needs, and reduce reliance on third-party support and overall system maintenance costs.
- A non-proprietary, standards based system architecture built on a standard platform that reduces the frequency of costly and invasive forklift replacements based on hardware obsolesce. This improves the County's posture for planning refresh cycles, warranties and maintenance plans.

This initiative is governed by an executive level steering committee, the Public Safety IT Governance Board, whose

members include two Deputy County Executives, Director of the Department of Public Safety Communications, Chief of Police, Chief, Fire and Rescue Department, Director of Emergency Management, County Sherriff, and County Chief Technology Officer. A steering committee of senior managers of the stakeholder agencies and a 'Tiger Team' of IT Department specialists manage the project activities. Through a competitive solicitation, Intergraph was selected as the core solution, with a variety of third party best in breed products for certain specific applications and supporting tools, such as Zoll for Fire Department Incident Management and EMS systems.

## 2.9 Legacy System Replacement (FOCUS)

Fairfax County government and school system have embarked on a multi-year, joint initiative to modernize the portfolio of enterprise systems that support finance (FAMIS), human resources (government: PRISM/ schools: LAWSON), budget (BPREP), procurement (CASPS) and related administrative applications with an integrated approach that has the flexibility to meet current and future requirements. The project seeks to mitigate the risk that current legacy antiquated and disjointed systems pose for system failure and inferior data. This project collaboration has been named 'FOCUS'.

The current 'stovepipe' legacy business systems are on various, old technology platforms using a variety of hardware and software architectures integrated through a number of interfaces and reporting tools. Previous assessments of these aging systems revealed that they are long past their projected useful lifecycle, do not meet the demands of human resource and financial management processing, have extremely limited employee self service capabilities, cannot support data analytics needs for transparency goals, or COOP, as well as technologically obsolete with on-going sustainability at great risk with high cost. System limitations continue to drive a proliferation of multi-step tasks to produce desired data and the development of numerous 'workaround' systems to gain necessary functionality currently not available. This has also resulted in an exponentially increased risk for security vulnerabilities. Due to their age, several of the current systems have no vendor support and rely on retirement eligible in-house staff maintenance. The systems were developed over twenty-three years ago in programming languages that are outdated and not practiced by the vast majority of the industry labor pool. Further these systems cannot be integrated with future mandated requirements and are a hindrance for County business transformation and efficiency opportunities.

Of these systems, the County government's Personnel Resource Information System Management (PRISM) is the most vulnerable to immediate obsolescence issues, it is over 23 years old and highly and customized based on historical County operational practices to the extent that it cannot be further enhanced. Further, attrition of in-house technical staff as they reach retirement age is jeopardizing future support for maintaining this legacy application – with the other systems approaching a similar expert support dilemma. Due to the impending lack of support, PRISM is the first of the legacy systems that will be replaced.

A governance body of senior officials of the County and school system stakeholder agencies has endeavored to identity the optimal strategy to pursue in its effort to procure an integrated financial/procurement/human resources/budget suite that will support agencies in the delivery of government and school services and activities, take advantage of best practices, provide the opportunity for multi-faceted data-driven decisions, significantly improve the efficiency and effectiveness of existing processes, enhance e-government initiatives and promote Telework opportunities, and aid in the transformation and standardization of financial and human resource processes. This initiative will foster an environment of change and redesign to allow for more efficient and effective processes.

The project seeks to mitigate the risk that antiquated and disjointed systems pose for system failure and inferior data. Automation and modernization will empower both employees and managers to execute processes more efficiently, and make the best strategic decisions based on the most timely and accurate information. This shifts the orientation of the system from that of a data repository to one of an information system solution. With the migration to a more standard, supportable database and development environment that incorporates workflow and Web technology, the project expects to:

- Create a contemporary enterprise scale single solution platform that reduces total cost of system management and data center operations;
- Enables collaborative environment where access to data and information, even from remote locations based on system "look and feel" flexibility;

- Provide seamless integration and interoperability of the new system with other existing applications;
- Reduce the number of shadow systems implemented in county agencies that augment personnel profile data and associated reconciliation processes between systems;
- Align the reporting strategy with the County government and school system overall data management and data warehousing strategy. Increases intuitive reporting, better data definition and analytics as well as data stewardship integrity and security; enable and support performance reporting and consistent information management throughout the organizations; Improve the quality and accessibility of information for decision support;
- Facilitate modern and fully integrated best business practices that are user-friendly and empower agencies and employees to improve their productivity;
- Enhance and improve functionality in back-office functional areas;
- Reduce redundant data entry, storage, and paper processing;
- Facilitate employee self service; agency workforce planning, and integration with WEB for enhanced public search, inquiry and engagement.

The County's approach for acquisition is for separation of the solicitations for product suite and implementer services. Steering committee members of the key stakeholder agencies for both County and Schools and staff participated in in-depth analysis of top tier products. After selection of the software solutions suite, a solicitation for the implementer will be competed, for a company that has both technical product knowledge and experience in the solution selected, and strong experience in government and schools K-12 business.

# Section 3

## INFORMATION TECHNOLOGY PROGRAMS

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## FEATURED IN THIS SECTION

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## INFORMATION TECHNOLOGY PROGRAMS

### Technology Overview

#### Purpose

Fund 104, Information Technology, was established in FY 1995 to strengthen centralized management of available resources by consolidating major Information Technology (IT) projects in one fund. Based on the 1994 Information Technology (ITAG) study, this fund was created to account for spending by project and is managed centrally by the Department of Information Technology. Historically, the E-911 Emergency Telephone Service Fee, a General Fund transfer, the State Technology Trust Fund, and interest earnings are sources for investment in Information Technology projects. However, in FY 2001, the E-911 Emergency Telephone Service Fee revenue and related project expenses were moved to Fund 120, E-911 to satisfy a state legislative requirement that E-911 revenues and expenditures be accounted separately.

The County's technology strategy has several key elements: provide an adequate technology infrastructure for agencies in making quality operational improvements; redesign existing business processes with technology to achieve large-scale improvements in service quality and achieve administrative efficiencies; and promote the use of technology in enabling government services without "doors, walls or clocks". The County's long-term commitment to provide quality customer service through the effective use of technology is manifested in service enhancements; improved access to services electronically, expedited response to citizen inquiries, improved operational efficiencies, better information for management decisions, and increased performance capabilities.

#### FY 2010 Initiatives

In FY 2010, funding of $9.5 million, which includes a General Fund transfer of $7.4 million, interest income of $1.1 million, and $1 million from the County's Cable Fund is provided to meet contractual obligations and complete planned phases of existing IT projects in Fund 104. These projects continue to meet one or multiple priorities established by the Senior Information Technology Steering Committee and include a mix of projects that provide benefits for both citizens and employees and adequately balance continuing initiatives with the need for maintaining and strengthening the County's technology infrastructure. Although many initiatives meet more than one of the technology priorities, for narrative purposes below, projects have been grouped into only one priority area.

In accordance with the FY 2010 Budget Guidelines, funding requests for Fund 104 IT projects were limited to mandates and existing IT projects requiring a planned funding increment to meet contractual obligations and/or to complete a planned phase. During the annual Fund 104 submission process, agencies were advised that in response to significant budget constraints, no new IT initiatives would be considered; and that FY 2010 Fund 104 Funding requests must represent the planned budget increment supporting a previously approved phase required to continue the project deliverables. This change from prior years reflects significant limitations on the County's IT program based on the substantial projected budget shortfall in FY 2010.

In keeping with established procedures, a Project Review Team consisting of business and technical staff from the Department of Information Technology (DIT) and the Department of Management and Budget (DMB) evaluated all submissions requesting additional funding for clear alignment with project plans and anticipated deliverables. Projects were reviewed for continued alignment with project plans and anticipated deliverables. Projects were reviewed for continued alignment with project plans and anticipated deliverables, from both a business and a technical perspective, including whether the continued implementation of the project would realize proposed benefits. Benefits of the project were weighed against the cost and several risk factors, including potential unknowns related to expenses, changes in scope necessitated by new business drivers, technological relevance, operational transformation needs, project schedule viability, and the impact of not funding or otherwise delaying the project. Technical factors examined included alignment with County's technology architecture and standards, impact on existing County IT infrastructure, and availability of viable products and services. Also considered were factors such as the organizational experience with the solutions that support the project's business goals, and the availability of human resources both in DIT and the sponsoring agency to implement the project.

## Funding Priorities

The Senior IT Steering Committee establishes the funding priorities for technology projects. Beginning in FY 2004, based on global changes in social and economic paradigm shifts, the new priorities shown below were adopted. The recommended IT investments meet the five key investment policy objectives shown below and are supported by the Senior IT Steering committee and ITPAC. A more detailed explanation of the projects within these requirements is provided within:

- **Mandated Requirements:** enacted by the Federal Government, Commonwealth of Virgin, Board of Supervisors, Court ordered or County regulation changes.
- **Completion of Prior Investments:** multi-year lease purchase, implements phase or completion of planned project.
- **Enhanced County Security:** homeland security, physical security, and information security and privacy.
- **Improved Service and Efficiency:** consolidate business practices; support more efficient government; optimize management and use of County assets and data; enhance systems to meet the expectations and needs of citizens; and promote service that can be provided through the Internet and e-government.
- **Maintaining a Current and Supportable Technology Infrastructure:** consistent and reliable hardware, software and communications infrastructure; ensure that citizens, businesses and County employees have appropriate access to information and services.

The five investment policy objectives relate to the County's continuing focus on making access to government services more reliable, secure, and efficient. The projects on the following pages are supported and will receive additional funding in FY 2010. The established priorities for IT projects for FY 2010 are summarized as follows:

| PRIORITY | FY 2010 ADVERTISED FUNDING |
|---|---|
| Completion of Prior Investments | $0.3 million |
| Enhanced County Security | $3.9 million |
| Maintaining a Current and Supportable Technology Infrastructure | $5.3 million |
| TOTAL | $9.5 million |

## Completion of Prior Investments – $0.3 million

The County's IT program focuses on using technology as an essential tool to enable cost-effective delivery of services, and continues to stress the need to build reliable, supportable projects in a timely manner. Many projects funded can be completed within that fiscal year, while others are multi-phase projects that require more than one year of funding.

In FY 2010 funding of $182,000 is provided to complete installation of electronic way finding for the Fairfax County Courthouse. The electronic way-finding system displays court dockets on large monitors strategically placed near courtrooms. The system scrolls through defendants' names and courtroom assignments with the objective of providing citizens summoned to court an efficient way to locate their courtroom and reduce the congestion and confusion experienced by the public on the morning their court session is scheduled. Following successful implementation of General District and Circuit Court dockets (as part of the Courtroom Technology Pilot project), the final phase involves installation of electronic docket displays in strategically located public areas and the Juvenile and Domestic Relations District Court (upon their relocation to the new courthouse). This project seeks to improve citizens' access, internally and externally, to the Courts and allows all three Courts to share common resources while providing flexibility and adaptability to incorporate future changes in technology and court processes.

In FY 2010 Funding of $150,000 is provided for continued support of the County's planned on-going maintenance of essential Geographic Information System (GIS) data. FY 2010 funding represents year three of a four year planned initiative to update the County's planimetric data. This project is jointly funded by the Department of Public Works and Environmental Services (DPWES) and Fund 104. Through a series of complex geospatial transformations the raw imagery, taken from aerial imagery flown by the state, will be converted to GIS data available to many County agencies including: Police, Fire and Rescue, the Departments of Transportation, Housing and Community Development, Public Works and Environmental Services, Planning and Zoning, and Tax Administration. The project includes new planimetric impervious surface features including: driveways, building footprints, streams, sidewalks, pools, edges and roads and centerlines, critically needed by key agencies such as DPWES (Stormwater) and by Public Safety.

## Enhanced County Security – $3.9 million

Ensuring the security of the County's IT investments and information assets is of primary importance to the Department of Information Technology. Through many projects and initiatives, efforts are focused on the security of various levels of County data, from email to homeland security measures. During FY 2010, the County will continue to implement a multi-faceted approach to securing County data and assets.

Funding of $1,835,791 is provided in FY 2010 for the Fire Department's portion of the CAD/RMS shared and contractual milestone payments to continue the integration of Fire Records Management System (FRMS) and fire tactical incident support functions with the new CAD/RMS as part of the Public Safety Architecture Modernization initiative. The funding supports continued implementation of tactical incident applications, and integration of Fire Records Management System (FRMS) modules for personnel, equipment and buildings, as well as the capability to manage detailed inventory of FRD's equipment assets, staff resources, response plans, and apparatus assignments. Funding is critical to the overall Public Safety CAD/RMS project and ensures a unified technology platform across public safety agencies.

FY 2010 funding of $1,224,691 is provided for the continuation of a multi-phase effort to implement a modern, comprehensive Law Enforcement Records Management System (ILEADS) to replace the existing Police Department array of disparate legacy systems. FY 2010 funding includes Police Department's portion of 911 CAD/RMS shared and contractual milestone payments to continue the implementation of a modern Police Records Management System (ILEADS) as part of the overall Public Safety Architecture Modernization initiative. The new system will improve the Police Department's ability in prevention, response, case management, and situational analysis relating to the safety and property of County residents. Intelligence led policing, improved criminal justice, and overall strategic public safety resource deployment will be improved upon implementation. The system will enable improved analysis and aid in identifying trends, and assist in staffing decisions and monitoring departmental effectiveness. The ILEADS system will integrate with the Computer Aided Dispatch (CAD) system in the Department of Public Safety Communications (911 Center), ensuring a unified technology platform to facilitate the seamless sharing of processes and data across public safety functions and leverages available technologies.

Funding of $781,901 is provided in FY 2010 for the sixth year of a seven year annual lease-purchase payment for the Public Service Radio System network infrastructure. The project replaced a 20 year old Public Service Communications System, which provided two-way radio communications for all County non-public safety agencies, as well as the Fairfax County Public Schools Transportation Department (school buses), FASTRAN and Fairfax Water, with updated technology that meets the needs of user agencies. The system provides call processing capacity and area coverage to more than 90 percent of the area within the jurisdictional boundaries of Fairfax County. The new network eliminates two zones within the County and provides seamless coverage on one system. Based on a portion of project costs, derived from the number of radios users operating on the system, $1,272,088 will be recovered from Fairfax County Public Schools and Fairfax Water in FY 2010.

## Maintain a Current and Supportable Technology Infrastructure – $5.3 million

In an ever changing technical environment, maintaining a current and supportable technology environment is a challenge that must be continually addressed to ensure performance, operability, security and integrity. The County's technological improvement strategy strives to balance business needs that require technology investments with the desire to adopt contemporary but relevant and supportable technology industry trends, as well as the ability to leverage existing infrastructure. Projects funded in FY 2010 support the goal of continuing to update and strengthen the technology foundation where practical, and ensure that residents, the business community and County staff have appropriate and reliable access to information and services.

Funding of $3,156,293 will continue FY 2010 support to the Public Safety Architecture Modernization Project for implementing common technology infrastructure needs of the Computer Aided Dispatch (CAD) and Public Safety Records Management Systems (RMS) replacing the legacy CAD, Police RMS and Fire and Rescue RMS systems. The stakeholders include the Department of Public Safety Communications (DPSC), Police Department, Fire and Rescue Department, and Office of the Sheriff for case management and incident reporting. FY 2010 funding supports shared milestones, performance bond, commercial wireless broadband, and staff augmentation support. The project will implement an integrated public safety information platform enabling data sharing across functional areas of key public safety agencies for improved collaboration and interoperability.

Funding of $2,100,000 ($1,000,000 of which is funded through the County's Cable Fund), is included in FY 2010 to continue implementation of the multi-year Telecommunication Modernization Project. This initiative is designed to replace disparate telephone systems throughout the County with a contemporary telecommunication platform that includes functionality to integrate voice with data capabilities such as e-mail, other messaging systems and CRM, streamline business processes, consolidate use of telecommunications facilities, enhance system operational efficiency, and reduce overall support costs. An additional core benefit is the use of distributed telecommunications applications across the County's enterprise fiber network (I-Net). The new voice communications platform also provides secure communications to support the needs of Telework, as well as the telecommunications infrastructure to serves the communications needs of County agencies. The project further advances service delivery to citizens, while maintaining flexibility to adopt future technologies with a minimal need for new spending.

Funding of $50,000 is included in FY 2010 to provide for continuing information technology training and certification in recognition of the challenges associated with maintaining skills at the pace of technological changes and to ensure that the rate of change in information technology does not out-pace the County's ability to maintain proficiency. As the County's workforce becomes increasingly dependent on information technology, training support has become more essential.

## 3.1 Information Technology Projects

FY 2010 funding of $9.5 million is included for initiatives that meet the priorities established by the Senior Information Technology Steering Committee. The Senior IT Steering Committee and the Information Technology Policy Advisory Committee (ITPAC) endorse strategic concepts for improved efficiency, effectiveness, and service delivery countywide. The Senior IT Steering Committee and ITPAC were briefed by DIT and informed that the IT modernization program received 17 requests totaling over $27.9 million for FY 2010 Fund 104 consideration. Of this, 8 initiatives totaling $9.5 million were recommended for funding and included in the FY 2010 Adopted Budget. Public Safety initiatives totaling $4,304,000 million are included in Fund 120 (E-911).

The chart on the following page provides a summary of the IT Project in Fund 104 and Fund 120 modernization dollars since FY 2006. The County's IT program continues to address the need for building and maintaining a reliable, scalable technology foundation that can support IT projects to improve the effectiveness and efficiency of County services. Although investment dollars are currently constrained, it has been highly recommended that the County not fall substantially behind in its IT investment targets and goals which are focused on using technology as an essential tool to enable cost effective delivery of government services. To date the County's investments in technology have allowed Fairfax County to serve a growing population without significant growth in staff positions that would be otherwise necessary just to provide basic services. A more detailed explanation of these projects is provided within. The five investment policy objectives relate to the County's continuing focus on making access to government services more reliable, secure, and efficient.

| Budget ID Number | PROJECT TILE | FY2010 STATUS | FY 2006 ADOPTED | FY 2007 ADOPTED | FY 2008 ADOPTED | FY 2009 ADOPTED | FY 2009 REVISED | FY 2010 ADOPTED |
|---|---|---|---|---|---|---|---|---|
| **FUND 120** | | | | | | | | |
| IT0001 | Public Safety Communications Network | On-going | 8,497,796 | 5,908,579 | 7,233,079 | 7,984,403 | 15,286,847 | 4,304,000 |
| | **TOTAL FUND 120** | | **8,497,796** | **5,908,579** | **7,233,079** | **7,984,403** | **15,286,847** | **4,304,000** |
| **FUND 104** | | | | | | | | |
| IT0002 | Human Services Information Systems | On-going | 60,000 | 0 | 75,000 | 0 | 188,393 | 0 |
| IT0004 | Geographic Information System (GIS) | On-going | 491,180 | 411,000 | 386,680 | 158,840 | 1,362,787 | 150,000 |
| IT0006 | Tax / Revenue Administration | On-going | 866,930 | 0 | 0 | 0 | 420,744 | 0 |
| IT0008 | Library Projects | Complete | 502,336 | 0 | 0 | 0 | 0 | 0 |
| IT0010 | Information Technology Training | On-going | 300,000 | 200,000 | 250,000 | 100,000 | 130,970 | 50,000 |
| IT0011 | Document Management and Imaging | On-going | 1,493,410 | 1,351,629 | 1,145,000 | 0 | 2,698,820 | 0 |
| IT0015 | Health Management Information | On-going | 0 | 0 | 280,785 | 0 | 314,717 | 0 |
| IT0022 | Tactical Initiatives | On-going | 850,000 | 276,539 | 96,648 | 0 | 3,963,606 | 0 |
| IT0024 | E government | On-going | 500,000 | 475,000 | 275,000 | 208,190 | 1,092,930 | 0 |
| IT0025 | Adult Detention Center Information | Complete | 697,160 | 0 | 0 | 0 | 302,798 | 0 |
| IT0031 | MS Office Suite Migration | On-going | 0 | 0 | 0 | 0 | 29,715 | 0 |
| IT0039 | Court Modernization Projects | On-going | 350,000 | 0 | 0 | 988,960 | 5,423,813 | 0 |
| IT0043 | Human Resource Management System | Retired | 0 | 0 | 0 | 0 | 289,921 | 0 |
| IT0048 | Incident Reporting and Training System | On-going | 0 | 0 | 0 | 416,691 | 1,035,210 | 1,835,791 |
| IT0050 | Public Service Communications Replc. | On-going | 491,864 | 588,517 | 632,166 | 663,223 | 2,816,244 | 781,901 |
| IT0054 | SYNAPS | On-going | 0 | 0 | 500,000 | 0 | 510,802 | 0 |
| IT0055 | Fairfax Inspections Database Online | On-going | 520,775 | 285,376 | 351,000 | 0 | 1,431,980 | 0 |
| IT0056 | Pilot Crtm Technologies-Wayfinding | On-going | 0 | 0 | 0 | 0 | 15,971 | 182,000 |
| IT0058 | Remote Access | On-going | 50,000 | 100,000 | 0 | 0 | 45,610 | 0 |
| IT0059 | Child Care Technology Systems | On-going | 0 | 0 | 194,165 | 0 | 231,106 | 0 |
| IT0060 | Telecommunications Modernization | On-going | 3,300,000 | 4,495,000 | 1,757,461 | 1,534,750 | 2,835,885 | 2,100,000 |
| IT0061 | Information Technology Security | On-going | 450,000 | 225,000 | 244,160 | 300,752 | 346,441 | 0 |
| IT0062 | Police Records Management/ILEADS | On-going | 300,000 | 500,000 | 2,200,000 | 4,147,000 | 6,447,193 | 1,224,691 |
| IT0063 | Facility Space Modernization | Complete | 99,208 | 0 | 0 | 0 | 14,388 | 0 |
| IT0064 | Proffer Database & Status System | Deferred | 450,168 | 137,715 | 0 | 0 | 0 | 0 |
| IT0065 | Facility Maintenance Management | On-going | 548,750 | 0 | 392,000 | 188,218 | 907,054 | 0 |
| IT0066 | Personal Property Tax System | Complete | 0 | 0 | 0 | 0 | 3,606 | 0 |
| IT0067 | Stormwater Maintenance Management | On-going | 335,993 | 0 | 0 | 0 | 292,958 | 0 |
| IT0068 | Home occupation Permitting System | Complete | | 46,375 | 0 | 0 | 0 | 0 |
| IT0069 | Integrated Housing Management | On-going | 160,000 | 222,500 | 0 | 0 | 196,174 | 0 |
| IT0071 | E-Summons and Court Scheduling | Deferred | 405,000 | 552,500 | 0 | 200,000 | 76,929 | 0 |
| IT0072 | Citizen Relationship Management | On-going | 0 | 500,000 | 250,000 | 300,000 | 433,318 | 0 |
| IT0073 | UDIS Replacement | Complete | 0 | 820,000 | 0 | 0 | 129,215 | 0 |
| IT0074 | Data Analysis Reporting Tool | Complete | 0 | 238,000 | 450,000 | 0 | 28,723 | 0 |
| IT0075 | Participant Registration System | Deferred | 0 | 300,000 | 0 | 0 | 0 | 0 |
| IT0076 | Interactive Web Intake Program Enh. | Complete | 0 | 130,000 | 0 | 0 | 5,000 | 0 |
| IT0077 | Land Development Industry Enh. | Deferred | 0 | 250,800 | 150,000 | 0 | 0 | 0 |
| IT0078 | Courthouse Expansion Technology | On-going | 0 | 1,730,000 | 0 | 500,000 | 2,137,261 | 0 |
| IT0079 | Legacy System Replacement | On-going | 0 | 0 | 800,000 | 7,000,000 | 15,594,455 | 0 |
| IT0080 | RSIS | Complete | 0 | 0 | 217,200 | 0 | 217,200 | 0 |
| IT0081 | Housing Management Software Upgrade | Complete | 0 | 0 | 125,000 | 0 | 125,000 | 0 |
| IT0082 | Land Use Information Accessibility | On-going | 0 | | 300,000 | 0 | 279,574 | 0 |
| IT0083 | Public Safety Architecture Modernization | On-going | 0 | 0 | 2,687,750 | 1,892,458 | 3,920,772 | 3,156,293 |
| IT0085 | Loan Processing System Replacement | On-going | 0 | 0 | 0 | 126,000 | 126,000 | 0 |
| IT0086 | Fire Station Alerting | On-going | 0 | 0 | 0 | 200,067 | 1,340,033 | 0 |
| IT0087 | ParkNet Security Upgrade | On-going | 0 | 0 | 0 | 179,571 | 179,571 | 0 |
| | **TOTAL FUND 104** | | **13,222,774** | **13,835,951** | **13,760,015** | **19,104,720** | **57,942,887** | **9,480,676** |
| | | | | | | | | |
| | **GRAND TOTAL: IT PROJECTS** | | **21,720,570** | **19,744,530** | **$20,993,094** | **26,337,799** | **73,229,734** | **13,784,676** |

## 3.2 Public Safety

### IT0001 Public Safety Communications Network/Systems

#### Project Description

This project provides for continued support and maintenance of the Department of Public Safety Communications (DPSC) network, radio and mobile communication components. The network's component systems are vital for ensuring immediate and systematic response to emergencies, and replacement and enhancement is necessary to maintain performance, availability, reliability, and capacity to meet growing County population and demand for public safety services. The Public Safety Communication Network (PSCN) supports emergency communications of the Police, Fire and Rescue, and Sheriff's departments. This includes public safety call taking (E-911, Cellular E-911, non-emergency), dispatching, and all affiliated communications support. Two of the major technologies utilized are a Computer Aided Dispatch (CAD) system with an integrated mobile data communications component and a wireless digital radio network for voice communications. The mobile data communications capability facilitates the dispatch of resources with minimal voice communications, provides field units direct access to local, state and national databases, and allows continuous contact with DPSC. As needed, this project provides funding for maintenance of the legacy systems and the mobile data communications component. Maintenance and support resources for legacy systems funded from 911 fees through Fund 120 are provided and ensure continued reliable operation of these critical systems.

These legacy systems and components will be supported by the project while a parallel project, IT0083, Public Safety Architecture Modernization, provides the underlying infrastructure components and shared capabilities required for the implementation of a new integrated, interoperable Computer Aided Dispatch that will enable seamless sharing of processes and data across public safety functions and leverages available technologies.

#### Project Goals

The goal of this project is to ensure immediate and systematic response to emergencies, and replacement and maintain performance, availability, reliability, and capacity for growth due to increase in County population and demand for public safety services.

#### Progress to Date

Fairfax County migrated to the new digital radio network in FY 2000 to accommodate growing public safety voice communications requirements and the remedy performance, coverage, fragmentation, and reliability problems associated with an aging, technologically obsolete system at the very end of its sustainable life cycle. Deficiencies in the old system severely impeded critical communications and safety in emergency situations. The new trunked wireless digital voice communications system consolidates all County public safety voice communication and is designed to address coverage, reliability, and operations limitations of the old system used by public safety agencies in the County.

#### Project Budget

FY 2010 funding of $1,200,000 is included in Fund 120 for the third year of a five-year replacement cycle for Mobile Computer Terminals (MCTs). Both the two-way radios and the MCTs have useful life of five years. In FY 2009, the County began to update its Public Safety Radio System to a newer technology platform. FY 2010 funding of $3,104,000 is provided in Fund 120 for continued support of updating the Public Safety and Transportation Operations Center (PSTOC). The upgrade will transition the radio system to an IP-based network, enhance the existing outdoor and in-building radio coverage of the current system, allow the use of more up to date radio dispatch consoles, and relocate the current radio system's central controllers to the heavily secured PSTOC facility.

#### Return on Investment

The return on investment for this project is realized by the performance, productivity, and effectiveness of public safety services in Fairfax County. Replaced and upgraded technology for these systems is critical to the safety of the public and the public safety personnel they support.

## IT0011.5 JDRC Electronic Records Management System

### Project Description

Juvenile and Domestic Relations District Court plans to implement a multi-phase work-flow and electronic records management system to allow the Court to replace traditional paper-based case files and manual court case processes with electronic court case records and automated workflows for case processing and management. The system will be designed to facilitate information management and the sharing of documents, objects, and instructed data through the use of imaging, document management, records managements, workflow, electronic forms, and enterprise application integration (EIA) tools. This document management system, which will be developed using the Documentum Enterprise Content Management system, will allow the court to maintain its case records in electronic rather than paper format. The increasing volume of case records and the complex retention, confidentiality, and destruction criteria as mandated by the Virginia Code have severely impacted the court's ability to manage court documents. The Electronic Records Management System will convert new case records and retrieved existing case records to electronic format in order to substantially reduce the need to rely on paper documents to initiate services to the public.

### Project Goals

An electronic document management system will provide improved security and integrity of records, reduce labor intensive and time consuming record retrieval and refilling processes, expedite workflow processes through an electronic workflow management system for court documents, provide simultaneous and instant access to court records, reduce costs associated with space and shelving for storage of paper documents, and provide a means of safeguarding documents with an electronic backup of court records.

### Progress to Date

The first set of processes for Informal Hearing/Monitored Diversion was implemented at the end of the third quarter of FY 2006. Functionality enabled in this first implementation included electronic document storage in case file format, workflow, form creation, scanning/scanned data routing, and enablement of electronic signatures. A large portion of the baseline infrastructure was also built. The infrastructure houses the various environments for testing, training, acceptance, development and production.

Due to the nature of the workflow, the project will develop in functional segments. The functionality must be built on the processes from intake or pre-court through the public counter, docketing, the courtroom, and post-court. Specific functionality includes case creation, document creation, user ability to view case records electronically, scanning and imaging, expungement, public viewing, redaction and workflow. The user base will grow substantially; besides intake users presently utilizing the system, personnel will include the court clerk staff and public counter staff, judges, and the probation staff. The remainder of the user software licenses will be obtained, the remaining workstations will be updated and/or replaced, scanning in the courtrooms will be set-up and scanners will be added at additional locations around the county. An innovative training period to accommodate the large number of users and accommodate the diverse areas of duties will be planned.

### *Milestones:*

- Initial Servers, Scanners, ePads, SCSI cards, extender cables procured
- User access set up for Pilot, Production, Acceptance, Testing, Scanning, and Training
- Acceptance testing for Informal Hearing/Monitored Diversion initial implementation completed successfully with incidents reported and fixes in place
- Successful completion of 5 scheduled 2 day training classes with a total of 40 users fully trained
- Successful implementation of processes for Informal Hearing and Monitored Diversion with use by intake officers, intake clerks and limited services staff
- Infrastructure to support application, docbases, scanning, etc. set-up (missing failover to another site in case of all server failure at the Government Center)
- Environments set-up for Acceptance, Test, Training, Production, and Scanning
- CYA software for data retrieval set-up, with 15 minutes scheduled back-ups taking place
- Successful deployment of hardware including desktops, monitors, scanners, and eSignature pads, for all presently activated users

- Successful deployment of software, including new County/JDRDC image, Adobe, and signature software loaded on users machines, and scanner software loaded on scanning workstations
- Creation of the ERMS lab (utilized for testing of the application and training sessions) which consists of 8 student workstations, one instructor workstation, a scanner and scanning workstation, and eSignature capabilities
- A Statement of Work to complete the requirements and design phase for the legal process portion of the system.

### Project Budget

Due to FY 2010 budget constraints, $900,000 from this project's existing balances was reallocated to IT0078-Courthouse Expansion Technology Project in order to complete the technology roll out to the nine JDRC courtrooms, master control room, and secluded witness room in the new courthouse. Completion of the above will facilitate the Court's move to the new courthouse schedule for September 2009. The JDRDC ERMS project anticipates that the remaining $900,000 will be sufficient to continue through FY 2010 with no further funding requested.

### Return on Investment

Funding this project will reduce staff time spent locating missing files, and retrieving and re-filing records. It will reduce the physical storage space required for court records, avoiding the cost of leased space near the courthouse. It will expedite the response time to internal and external customers at the Records and Fines and Costs counters, and it will provide easier and more efficient public access to court records. Planned back-up systems will provide necessary data security.

## IT0039 Circuit Court Technology

The Fairfax County Circuit Court is nationally recognized for itsdelivery of outstanding public service and continues to actively pursue state of the art technological solutions to improve customer support and operational efficiencies. This project covers multiple facets of Circuit Court operations and receives funding through the Commonwealth of Virginia's Technology Trust fund.

### Project Description

**Court Automated Recording System (CARS)** – The Clerk's Office of the Fairfax Circuit Court is responsible for providing Fairfax County citizens with reliable, timely, and accessible public records. As custodian of historical land records, the Land Records, Public and Services and Probate sections of the Circuit Court recognized a critical need to preserve deteriorating paper documents, to ensure their availability for future generations. This project was initiated in an effort to preserve these documents and streamline the methods used to record, maintain, store, and view them. More than 35 million Land Record, Public Service and Probate images, dating from 1742 to the present have been digitized, indexed and loaded into the Court Public Access Network (CPAN). CPAN is a web-based, online retrieval system that is available 24 hours a day, 7 days a week, with more than 2,000 subscribers located in twenty-six states and the District of Columbia. Subscribers include citizens, title examiners, law offices, mortgage companies, banks, the Commissioner of Accounts, and County agencies.

**Case Management System (CMS)** – The Court Modernization project began in 1997 with the County-initiated merger of the Circuit Court Judicial Operations agency with the Circuit Court and Records agency, to reduce administrative duties and expenses. At the time of the merger, the Clerk of Court and the Circuit Court Judges identified that a common, more robust case management system was essential for a successful merger of the two agencies. The current case management system (FullCourt) automates the process of how a case moves through the court system and includes; case initiation and indexing, docketing and related record keeping, scheduling, document generation and processing, calendaring, hearings, disposition, accounting functions, security, management and statistical reports. In 2006 an RFP was developed to replace the existing case management system, with a system which incorporated identified business processes and the latest developments in case management software, such as integrated Electronic filing and forms as well as document imaging and management. The RFP process was concluded in 2008 without an award.

**Redaction –** The Commonwealth of Virginia passed legislation mandating the Clerk of the Circuit Court to redact the social security number (SSN) from all images in Circuit Court automated systems that are viewable via secure remote access. The Circuit Court has identified nearly 37 million images currently online and viewable through the Court Public Access Network (CPAN), a subscription internet service. Additionally, FCC requires a Commercial-Off-The-

Shelf (COTS) software package with the capability to integrate into CARS for day-forward operations to remove SSN prior to final export of the new images into public view. Finally, in case future legislation is passed, the software must be capable of adding additional privacy requirements into the redaction process.

## Project Goals

Circuit Court modernization initiatives in the Clerk of Court's technology program include:

- Expanded electronic filing of more than 100 land record document types
- Replacement of the 10 year old case management system with a fully integrated system providing civil and criminal processing, imaging and electronic filing capabilities
- Redesign of the CPAN web capabilities
- Implementation of the Commonwealth's redaction legislation for land records
- Development of an alternate site for CPAN access to provide additional security and continuity of operations
- Increase the number of courtrooms which use new technologies to facilitate remote testimonies, audio and visual displays of evidence, integrated assisted listening and interpretation capabilities

## Progress to Date

Past accomplishments include development and deployment of the Court's Land Records Recording System, including document imaging; implementation of the Court Public Access Network (CPAN) retrieval system, use of an automated jury management system to administer 45,000 potential jurors annually; deployment of a case management system to control the administration of the Court's judicial caseload; development and implementation of paperless probate processing; development and implementation of a streamlined marriage license process which utilizes scanners to import data from customers' operator licenses; and implementation of electronic docketing display directing public to the assigned courtroom.

### *Milestones:*

### CARS

- Digitized back-file images with associated indices and implemented web-based CPAN – 1999
- Scanned, indexed, and stored all land record documents for electronic processing – 2000
- Added non-deed document processes for indexing and storage (judgment abstract and notices, marriage licenses, financing statements) – 2000

***Fairfax County Courthouse***

- Redesigned processes to include automated cashiering and scanning capabilities to update the public record in a more efficient manner – 2001
- Expanded images and associated indices available on CPAN to 1742 – 2001
- Electronic filing prototype for mortgage releases using the ACH transfer of funds – 2002
- Implemented Public Services cashiering system – 2005
- Automated the administration of estates system – 2006
- Incorporated the use of commercial credit cards for payment of fees and taxes – 2007
- Creation and implementation of Electronic filing system, estimated completion FY 2010.
- Phases 2 and 3 of the Electronic Filing System (EFS) to enhance the system and expand document types – FY 2010
- Integration of redacted data and processes mandated by the legislature – FY 2010
- Integrate with Identity Manager for single sing-on capabilities – FY 2010
- Integration of automated scanning in the marriage license application process for customers from nearby states – FY 2010

### CMS

- Provided web-based availability of court information on CPAN – 2005
- Implemented electronic docketing display directing public to the assigned courtroom – 2006
- Conducted demonstrations of case management systems recommended by the National Center of State Courts in preparation for the RFP – 2006
- The RFP process was concluded in 2008 without an award.

### Redaction

- The project team developed RFP specifications for a contract to procure redaction products and services in order to comply with state mandates.
- Vendor selection process is currently underway. Demonstrations from selected vendors is planned for early FY 2010

### Budget

It is anticipated that FY 2010 funding of $739,000 from the Virginia State Technology Trust fund will continue to support Circuit Court technology projects.

### Return on Investment

CARS provides immediate electronic access to CPAN for over 2,000 commercial customers. The system provides added functionality to search for and correct errors that occurred in documents recorded in the previous land records system. Additional benefits include enhanced retrieval and administration of Circuit Court records and an expedited transfer of information to the Department of Tax Administration, Geographic Information Systems and the Department of Public Works and Environmental Services.

For CMS, anticipated imaging and electronic filing enhancements will provide increased efficiencies in the processing of more than 22,000 civil and criminal case filings annually. Multiple parties will be able to access electronic case files simultaneously and file documents from their office or home, reducing the need to travel to the courthouse and provide 24/7 accessibility. Potential interfaces with other jurisdictions will allow the exchange of electronic documents and/or data and eliminate existing manual processes between jurisdictions.

The Redaction Project will enhance the security and integrity of CPAN by removing SSNs from public view. An added cost savings of the project will be the ability of the software to identify items that may be redacted by future legislative mandate without incurring additional reprocessing costs.

## IT0048 Fire and Rescue Incident Reporting and Records Management Systems

### Project Description

The Fire and Rescue Department's Incident Reporting and Records Management Project is part of a multi-system, multi-phase initiative called the Public Safety Architecture Modernization project which will result in the replacement of the current CAD (Computer Aided Dispatch system), as well as legacy Fire and Police Records Management Systems (FRMS and PRMS), a Fire Tactical incident management system, and a field based electronic Patient Care

Reporting system (ePCRS). The overall Public Safety CAD/RMS project ensures a unified technology platform across public safety agencies.

## Project Goals

This project will integrate the Fire Records Management System (FRMS) and fire tactical incident support functions with the new CAD/RMS as part of the Public Safety Architecture Modernization initiative. Additionally, project goals include the implementation of a Fire Tactical incident applications, a field based electronic patient care reporting system, and integration of Fire Records Management System (FRMS) modules for personnel, equipment and buildings, as well as the capability to manage detailed inventory of FRD's equipment assets, staff resources, response plans, and apparatus assignments.

## Progress to Date

The Electronic Patient Care Reporting System (ePCRS) which was successfully implemented in FY 2008 consists of the deployment of a tablet based computer system for all Fire and Rescue units. Patient treatment information is collected directly on the tablet PC while the crew members treat the injury/medical problem. The patient information is linked via secure wireless service to the electronic Patient Care Servers for direct storage. The process is fully HIPPA compliant. The system reduces the overall time required to complete the required reporting process through the elimination of duplicate processes and provides more accurate information for better recordkeeping. This system will enable the Fire and Rescue department to comply with the Commonwealth of Virginia's Office of Emergency Medical Services (OEMS) mandated emergency medical services (EMS) data reporting requirements. In addition, the information captured can be mined to assist the Fire and Rescue Department in both the strategic planning for future services and the tactical deployment of Emergency Medical units based on that information. Fire Records Management System installation and configuration is currently underway with a completion and go-live time frame of FY 2010.

## *Milestones:*

- Implementation of ePCRS – FY 2008
- Fire Records Management configuration and installation – FY 2009 – FY 2010
- Implementation of Fire Records Management – FY 2010

## Project Budget

Funding of $1,835,791 is provided in FY 2010 for the Fire Department's portion of the CAD/RMS shared and contractual milestone payments to continue the integration of Fire Records Management System (FRMS) and fire tactical incident support functions with the new CAD/RMS as part of the Public Safety Architecture Modernization initiative. Funding is critical to the overall Public Safety CAD/RMS project and ensures a unified technology platform across public safety agencies.

## Return on Investment

A unified public safety architecture consisting of a modern records management system, integrated with CAD and other public safety agencies management systems, will result in more cost effective public safety operations. This project ensures FRD's continued compliance with National Fire Protection Agency requirements, the Virginia EMS mandated reporting requirements, and will improve data management, statistical analysis, decision making capabilities, FRD's resource and apparatus standards, and improved operations.

The Electronic Patient Care Reporting System provides more timely and accurate tracking of patient transport information by creating more detailed patient treatment documents electronically with a tablet device directly interfaced with the current Computer Aided Dispatch system. With this system, billing information is readily, securely extracted, and electronically transmitted to the billing vendor which greatly improves the efficiency of billing and revenue collection. Patient care is enhanced through accurate documentation and information dissemination to the medical facility where the patient is transported. Furthermore, a reduction in the staff time required to complete patient care and incident reports provides units with a quicker "return to service" time.

Enhancements to the Fire Records Management System will consolidate personnel, training and apparatus records in a single system of record, eliminate several legacy applications, and provide a central business system for the Fire and Rescue Department. The overall Public Safety CAD/RMS system will provide significant efficiencies for public safety information and technology utilization. The systems have been consolidated under a single strategy with the various components interfaced when appropriate for a comprehensive view supporting incident response.

## IT0056 Courtroom Technology – Electronic Way-Finding

### Description

The electronic way finding system displays court dockets on large monitors strategically placed near courtrooms. The system scrolls through defendants' names and courtroom assignments and provides citizens summoned to court an efficient way to locate their courtroom. This system replaces an inefficient paper based system whereby each day court staff manually posted reams of printed court dockets on bulleting boards spread throughout the courthouse.

### Project Goals

All three courts continue to maximize and share resources focused on providing citizens summoned to court an efficient way to locate their courtroom and reduce the congestion and confusion experienced by the public on the morning their court session is scheduled. This project seeks to improve citizen's access, internally and externally, to the Courts and allow all three Courts to share common resources while providing flexibility and adaptability to incorporate future changes in technology and court processes.

### *Milestones:*

- Phase I – Pilot General District Court (GDC) Traffic Dockets – Expanded to include GDC, Civil and Criminal Dockets – March 2005 – November 2005
- Phase II – Add displays for Circuit Court Civil and Criminal combined dockets – November 2005
- Phase III – add way finding at Main Entrance – FY 2009
- Phase III – additional Circuit Court for renovated wing – FY 2010
- Phase III – additional GDC for renovated wing – FY 2010
- Phase III – add new displays for JDRC, third floor new and renovated – FY 2010

### Budget

FY 2010 funding of $182,000 is provided to complete installation of a unified electronic Way finding system for the Fairfax County Courthouse. Following successful implementation of Phase I and II (General District and Circuit Court as part of the Courtroom Technology Pilot project), Phase III involves installation of electronic docket displays in strategically located areas throughout the newly expanded and renovated courthouse and the Juvenile and Domestic Relations District Court (upon their relocation to the new courthouse).

### Return on Investment

In implementing electronic way-finding, the objective continues to be on providing citizens summoned to court an efficient way to locate their courtrooms and reduce congestion and confusion experienced by the public. The primary benefit will be improved efficiencies, the facilitation of court processes, and services that provide a direct benefit to the citizens, businesses and employees that reside in Fairfax County and conduct business with the Courts.

*Fairfax County General District Court – Traffic Dockets*

## IT0062 Police Records Management System – I/LEADS

### Description

The goal of this project is to implement a modern, intelligent, comprehensive Law Enforcement Records Management System to replace the legacy police records management system. The new system will improve reliability, accuracy, quality of data, and will operate on the principles of "single point of data entry" and query. The I/LEADS System will be based upon proven technology derived from current industry and County standards. The system will expand the capacity of the Police Department, allowing it to better analyze – statistically and through spatial techniques – data on incidents and personnel. It will also aid in identifying trends, and assist in staffing decisions and monitoring departmental effectiveness. Intelligence led policing; improved criminal justice; and overall strategic public safety resource deployment will be improved upon implementation.

### Project Goals

The new police records management application I/LEADS will integrate with the Computer Aided Dispatch (CAD) system in the Department of Public Safety Communications, ensuring a unified technology platform approach that seamlessly shares processes and data across public safety functions and leverages available technologies. The new Police Records Management System-I/LEADS increases the Police Department's ability to prevent, respond to, manage, and analyze situations that threaten the safety and property of citizens.

### Progress to Date

An RFP for an integrated CAD and law enforcement records management solution was completed and a contract was signed in September 2007. Since the inception of the project the Police Department has had a team of police personnel who have been actively working with the project team in the development and testing of the Police Records Management System I/LEADS as part of the new integrated public safety modernization initiative. I/LEADS is scheduled to go live following implementation of the new CAD system. This implementation will be among the largest technology initiatives, and the most extensive records management upgrade for the Police Department.

### *Milestones:*

- Data mapping and data conversion from the Old PRMS to (I/LEADS) – FY 2009
- Installation and configuration of software (ILEADS) – FY 2009
- Acceptance testing and end-user training – FY 2009
- Go Live to production – FY 2010

### Budget

FY 2010 funding of $1,224,691 is provided for the continuation of a multi-phase effort to implement a comprehensive Police Records Management platform. FY 2010 request included Police Department's portion of CAD/RMS shared and contractual milestone payments to continue implementation of a modern, reliable and proven Police Records Management System (ILEADS) as part of the integrated Public Safety modernization initiative. Due to FY 2010 funding constraints, $1,000,000 from the E-Summons Project's (IT0071) existing balances was reallocated at FY 2009 Third Quarter towards completion of this project. The E-summons project is deferred at this time.

### Return on Investment

A unified public safety architecture consisting of a modern records management system, integrated with CAD and other public safety agencies management systems, will result in more cost effective public safety operations. This project will ultimately impact nearly all aspects of police work and police information collection, and link the through an integrated system with CAD. A modern system that assures accurate, timely, reliable and accessible information on events, County geography and Police information will permit the Police Department to efficiently act upon events, from initial response through tracking, investigation and reporting. Additionally, capture and storage of reliable and accessible data from the system will result in the ability to effectively address staffing crime analysis resource allocation, tactical planning and strategic planning. The new system will provide opportunities to increase effectiveness by eliminating redundant work and open up opportunities for information sharing and interoperability between law enforcement agencies. This is a significant tool in developing investigative leads, linking crimes across jurisdictional boundaries, and conducting crime analysis.

## IT0071 Electronic Summons and Court Scheduling

### Project Description

This project was designed as a joint effort between the Fairfax County General District Court (GDC) and the Fairfax County Police Department (FDCP) to develop automated solutions to streamline the traffic summons and court scheduling processes by managing court dockets in a manner that will minimize high and low periods of activity, provide judges and court personnel with a more predictable and manageable workload, and implement of a Electronic Summons application to automate the transfer of summons information from the scene to Police Department's Records Management and the District Court's case management systems.

### Project Goals

Goals are to provide the public efficient and timely electronic access to cases to enhance the public's ability to utilize automated options for review of case information and payment of fines; and improve access to statistical information about the monthly summons issuance patterns to identify officers with heavy caseloads to manage court dockets more effectively therefore improving service to court users and the public. The Court Scheduling System was designed to streamline and improve management of traffic court dates between the Fairfax County General District Court and law enforcement agencies.

### Progress to Date

Phase I

Court Scheduling System is substantially complete and in production. The system allows court administrators and the Police department to coordinate traffic court dates in order to level out and evenly distribute daily court dockets in the General District Court. Additional functionality was added to CSS to streamline officer court dates, and allow the Fairfax County Police Department to enter criminal and juvenile cases court dates into the system. Work is underway to enable court users to manager court schedules for ticket writing groups external to Fairfax County.

Phase II

This phase consisted of the implementation of an electronic summons solution for traffic summons as part of the integrated CAD/RMS project. However, due to FY 2010 budget constraints the E-summons phase of this project has been deferred.

### Project Budget

As part of the Fund 104 review process, the Police Department was asked to prioritize between their two Fund 104 Projects (ILEADS- Police Records Management System and E-summons) and placed ILEADS as a higher priority. Therefore at FY 2009 Third Quarter, $1,000,000 from this project's existing balances was reallocated towards completion of ongoing work on the Police Department's new Records Management System – ILEADS (IT0062). The E-summons project is deferred at this time.

### Return on Investment

Automated solutions allow for the reallocation of existing staff to positions that provide direct assistance to the public, ensure greater accuracy in capturing defendant information, eliminate data entry errors with potentially serious repercussions for defendant, allows faster ticketing processes that get officers back on the road more quickly, reduce overtime for officers waiting in court, reduce the frustration and time citizens have to wait in court for a hearing, provide more efficient use of Commonwealth's Attorneys and Deputy Sheriffs, as well as provide the public near real time electronic access to case Information.

## IT0078 Courthouse Expansion Technology Project

### Project Description

This project is engaged in the planning, design and implementation of modern courtroom technologies for fourteen new courtrooms constructed as part of the on-going Courthouse expansion efforts. These technologies include integrated and electronic evidence presentation, video conferencing capabilities to allow remote witness, remote judge, video arraignment and secluded witness, automated court reporting, assistive listening, electronic way-finding and docket display, and judges' control of the technologies from the bench. The courtroom technologies advance the recommendations provided from the working prototype project developed from the original Courthouse design master plan and supported by the County's affiliation with the Courtroom 21 Project of the College of William and Mary School of Law.

### Project Goals

This project's goal is to modernize and implement up to date courtroom technologies as part of the overall court-

house expansion and renovation effort. The main objectives seek to improve citizens access, internally and externally, to the Courts, facilitate trials in the most effective and efficient means possible, allow for all three Courts to share common resources and provide for flexibility and adaptability to incorporate future changes in technology and court proceedings. Consistency and standardization between the three Courts is necessary to maintain efficient courtroom operations and optimize available resources.

## Progress to Date

The Courtroom 5E High Technology Courtroom Prototype was completed in October of 2006. This project succeeds the completed prototype project by implementing modern courtroom technologies into 14 new courtrooms recently constructed as part of on-going courthouse expansion efforts. The installation and integration of the master courtroom technology plan was completed in January 2008. Completion of Phase II, technology roll out to five new courtrooms for Circuit Court and General District Court was accomplished in December 2008. Phase III includes the completion of nine new courtrooms, master control room, and secluded witness room for the Juvenile and Domestic Relations District Court. Phase III is currently underway and completion is planned for the fall of 2009 in order to facilitate JDRC's move to the new courthouse.

### *Milestones:*

- Phase I complete – Courtroom 5E prototype / cable cutting – Oct 2006
- Completion of the master courtroom technology plan/design for new / renovated courtroom – January 2008
- Phase II complete – technology roll out to 5 new courtrooms for Circuit Court and GDC – Dec 2008
- Phase III – Technology roll out of 9 new courtrooms, master control room and secluded witness room for the Juvenile and Domestic Relations Court – FY 2010
- Phase IV – shelled courtrooms, estimated completion – FY 2010 – FY 2011

## Project Budget

Due to serious FY 2010 budget constraints no new funds are provided for this project. However an agreement was reached with the Juvenile and Domestic Relations District Court (JDRC) to reallocate $900,000 from the Court's Document Management project's existing balances to this project during FY 2009 Third Quarter Review, in order to complete the technology roll out to the nine JDRC courtroom, master control room, and secluded witness room in the new courthouse scheduled for September 2009.

*Fairfax County Circuit Court – Courtroom 5J*

### Return on Investment

The primary benefit are improved efficiencies and the facilitation of court processes and services that will provide a direct impact to citizens, businesses, and employees. The main objectives are to improve citizens access, internally and externally, to the Courts; facilitate trials and hearings in the most effective and efficient means possible; allow for all three Courts to share common resources and provide for flexibility and adaptability to incorporate future changes in technology and court proceedings; and allow the Courts to keep up with the growing demand for automated courtroom functionalities.

## IT0083 Public Safety Architecture Modernization

### Project Description

The Public Safety Architecture Modernization project supports implementation of common infrastructure supporting integrated Computer Aided Dispatch (CAD) and Public Safety Records Management System (RMS), including public safety communications, as well as Police, Fire and Rescue, and Emergency Medical Services records management. This project provides the underlying infrastructure components and shared capabilities required for implementation of an integrated, interoperable public safety system, as well as support for the operational components of a CAD/RMS including network infrastructure, and adopting standard Geographic Information System (GIS) to meet public safety requirements. In a multi-track and multi-phase project, the legacy CAD and mobile Police RMS and the Fire and Rescue RMS will be replaced.

### Project Goals

The project will implement an integrated public safety information architecture enabling data sharing across functional areas of the CAD and RMS in order to support key public safety lines of businesses and provide flexibility to respond to both internal and external data sharing requirements. In this multi-track and multi-phase project, the legacy CAD and Mobile, Police RMS and Fire and Rescue RMS Systems will be replaced. In May 2008 a new Emergency Patient Care Reporting system (EPCR) was the first application to be implemented as part of this project. Options for integrating with the existing Sheriff's Office information system will be evaluated as well.

### Progress to Date

The Project Plan called for completion of a gap analysis for each of the applications planned under this project. The County and Intergraph, the selected CAD/RMS vendor, jointly reviewed and validated all of the County's functional requirements as part of this effort. This was completed and the first planned implementation, the EPCR, was placed into production. Completion of these two high level goals included completion of several tasks that are key to next phases of the project, including network and infrastructure design improvements and upgrades, confirmation of the requirements, and assessment of strengths and weaknesses of the existing commercial wireless vendors to support the project's functional requirements. All Fire and Police Department work sites have been upgraded with wireless hotspots. They now support the EPCR application and CAD Mobile. Ultimately Police Records Management and other Fire applications will also be supported. The public safety wireless hotspots will provide data communications to the field units, which enable updates to the systems to be pushed out over an internal network instead of having to manually touch every one of the mobile units in the County fleet. Additionally, a commercial cellular carrier was selected to provide the primary means of communication between the mobile devices in the field and the wired infrastructure located in the McConnell Public Safety Transportation and Operations Center (MPSTOC). In addition to the aforementioned goals, a significant amount of geospatial Information was captured, verified and incorporated into the new data model adopted by the Fairfax County Geographic Information System (GIS) Branch. This information will allow the CAD system to more accurately locate an incident and actually route first responders to the incident using the data that was collected during this phase of the project.

### Project Budget

Funding of $3,156,293 is provided to continue support of the Public Safety Architecture Modernization Project. FY 2010 funding will support project's shared milestones, performance bond, commercial wireless broadband, and staff augmentation.

### Return on Investment

The Public Safety Architecture Modernization project represents a joint initiative undertaken by the public safety agencies in Fairfax County (Department of Public Safety Communications, Police Department, Fire and Rescue Department, Sheriff's Office of Emergency Management) and provides an integrated public safety suite for CAD and RMS, with supporting network infrastructure to support

robust GIS including automatic vehicle location (AVL), automatic vehicle routing recommendations (AVRR), broadband wireless data services and automated field reporting. Savings are achieved in implementing standards for all stakeholders, consolidating system infrastructure, and reducing system tool redundancies from prior independent systems. More importantly, this project greatly enhances Fairfax County's ability to respond quickly and effectively to emergencies that require coordination among the various responder organizations and share information required for collaboration, case management, reporting, remediation and mitigation. The Public Safety Architecture Modernization project supports implementation of an integrated Computer Aided Dispatch (CAD) and Public Safety Records Management Systems (RMS), including public safety communications, as well as Police Fire and Rescue, and Emergency Medical Services records management. This project provides the underlying architecture for the operational components of a CAD and RMS including network development.

## IT00086 Fire Station Alerting Technology Replacement

### Project Description

The purpose of this project is to provide a turn-key system replacement of fire station alerting components. This alerting system is a critical part of the 911 systems and public safety response, and is a requirement specified in the National Fire Protection Association (NFPA) 1221 Standard. Existing station alerting equipment at the County's forty fire and rescue stations is nearing end-of-life and the primary components are not compatible with an Internet Protocol (IP) network infrastructure. This is a technology lifecycle replacement that is required in order to bring the Fire and Rescue Department's station alerting system to a technical level that will permit integration with the selected Public Safety Computer Aided Dispatch and Records Management Systems (CAD/RMS).

### Project Goals

The business and operational objective is to purchase and implement a proven fire station alerting system that enables Fairfax County to meet the public safety goals of reduced response times, enhanced communication, and immediate access to relevant and critical information. The goal is to integrate the Fire and Rescue Department's station alerting system with the Public Safety Communication Center systems. The system will reduce reflex time for response by providing immediate unit based visual and verbal alert indication at time of dispatch and prior to radio voice dispatch. Additionally, it will provide safe lighting and alert process throughout the station for personnel response to vehicles, recorded announcements, and station alerting capabilities as required by NFPA 1221. Furthermore, the replacement system will streamline maintenance and support for system components.

## Progress to Date

The initial investment for the core system infrastructure to interface with the new Computer Aided Dispatch System will replace the end-of-life infrastructure and network components, and is aligned with the Computer Aided Dispatch System implementation plan. The replacement and consolidation of the remaining fire station alerting components into this single system architecture will be planned for the future. A contract was awarded for the planned replacement and a project schedule has been accepted by the vendor and County.

### *Milestones:*

- Contract awarded – FY 2009
- Design complete – FY 2009
- Install basic system in all stations – FY 2010
- System testing and acceptance as installed – FY 2010

## Project Budget

The FY 2009 project plan called for lease-purchase for full infrastructure replacement requiring a four year financial commitment. The Fire and Rescue Department and DIT together developed a scaled-down and phased implementation where-by out-year costs would be determined by available funding. In FY 2008, $1.3 million in Fire and Rescue Department salary savings were reallocated towards replacement of the most critical of the out-of-date station alerting systems. FY 2009 funding of $200,067 provide for a phased-in full equipment replacement at the County's fire stations. Due to budget constraints FY 2010 funds are not available.

## Return on Investment

The Fire and Rescue Department expects to reduce overall response time to emergency incidents through immediate alerting of personnel. The system leverages the Computer Aided Dispatch system and provides immediate unit based alert indications at time of dispatch and prior to radio voice dispatch. The process reduces what the industry calls the "reflex time", or the amount of time between when the call is dispatched and when the response units are boarded by personnel and ready to respond. This is a life-cycle replacement from aging and incompatible equipment to an integrated COTS system. Maintenance and support costs for system components will be streamlined.

## 3.3 Corporate Enterprise

### IT0004.2 GIS Orthoimagery Update

#### Project Description

This project is part of County's ongoing effort to maintain the aerial imagery in the Geographic Information System (GIS). GIS provides County staff and citizens the means to electronically access, analyze and display land related data. The imagery is used in the My Neighborhood viewer, the Digital map viewer and the new 3-D viewer.

#### Project Goal

Project goal is continued implementation a four-year cycle to update orthoimagery for all 407 square miles of Fairfax County and use the data to provide updated Digital Elevation Models and 5' contours.

#### Progress to Date

With the acquisition of state imagery in FY 2007 the four-year imagery update cycle is up-to-date. The County will be flown again by the state in 2009, and not again until 2013. State imagery will be upgraded to County standards using existing orthoimagery GIS resources.

#### Project Budget

No new funding for orthoimagery was included in the FY 2010 budget. Existing funds will be used to cost share with the state for the 2009 imagery the state intends to acquire.

#### Return on Investment

The Orthoimagery project provides a combination of cost-savings, enhanced revenue and non-quantifiable benefits. Multiple County agencies have benefited from the use of orthoimagery data and others are expected to utilize the data to enhance efficiency. Orthoimagery is used successfully in property appeals cases and allows the County to effectively defend increased property assessments and help citizens with home assessment valuations. The imagery serves as a highly accurate quality controlled layer in the GIS to accurately locate features (e.g., building outlines, streetlights, storm water features). Orthoimagery is available in several public web applications, enabling users to view aerial imagery of any area of the County. These applications serve over a million maps per year enabling public users the ability to view parcel outlines, hydrography, as well as major and minor roads.

### IT0004.3 GIS Oblique Imagery

#### Project Description

This project provides oblique imagery that enables users to view the sides of buildings and structures and measure their height. This imagery enables agencies such as the Department of Public Works, Tax Administration, and Public Safety Agencies to reduce field time in assessing and planning, and enables staff to conduct analyses of buildings not previously possible. This imagery augments orthoimagery which is taken directly overhead and does not capture the sides to structures. Both sets of imagery are part of the spatial data in the GIS data warehouse, which gives County-staff access to a wide range of geo-spatial information about Fairfax County required in their business processes. The oblique imagery is also the source of the 3-D imagery of the Tyson's Corner and Reston Herndon areas. The 3-D imagery is essential in meeting board mandated requirements.

#### Project Goal

This project's goal is to provide oblique imagery as a key component of the County's spatial data warehouse. The data is highly valuable to many County agencies, and provides detailed current and historical information for research and analysis.

#### Progress to Date

The oblique imagery is valuable to agencies such as the Department of Tax Administration (DTA) in supporting their operations. In FY 2010, DTA plans to increase usage of oblique imagery to further reduce field inspection time and costs. Oblique imagery is also used in the existing CAD/911 system and will be used to a much greater extent in the new CAD/911 system since it integrates oblique imagery into its software, adding significant value to emergency response.

The County has complete oblique imagery libraries for calendar years 2003, 2005, 2007 and 2009 (2009 will be delivered in FY 2010). Originally five agencies: Police, Fire and Rescue, Tax Administration, Planning and Zoning, and Information Technology, undertook a substantial review of the technology and data and realized it provided significant value to their operations. These were the original

supporters and each agency now makes substantial use of oblique imagery. It usage continues to increase since it is available internally via the GIS GEM web system. Currently over 160 unique users of oblique imagery log over on average over 7,000 hours per month using oblique imagery. GIS staff coordinates agency needs, specifies requirements, performs Quality Assurance, and provides training and desktop implementation at no cost to agencies. The updates to the imagery are performed biannually. The County will also share the imagery with the Towns of Herndon and Vienna since they are within the boundaries of Fairfax County.

### Project Budget

Existing funds continue the annual update photography and imagery conversion. No new funding available in FY 2010.

### Return on Investment

The oblique imagery project provides a combination of cost-savings, enhanced revenue and non-quantifiable benefits. Oblique imagery is particularly useful in public safety since it enables staff to view and measure the sides of buildings to determine risks, site lines, and other key features. It is also helpful to Fire and Rescue for detecting small vertical features such as fences which could block fire fighter and fire hose access. Assessors are aided in the ability to determine the sides of buildings – an important component of an assessment. Oblique imagery holds the future potential of developing 3-D imagery since it contains building facades (skins) and elevation information, essential for effective representation of the actual areas.

## IT0004.4 GIS Planimetric

### Project Description

The original GIS base map for the entire County was developed from aerial photography flown in the spring 1997 to ensure high resolution and accuracy of base mapping. The GIS aerial base mapping provides mainly two different types of data sets – raster data, i.e., orthoimagery maps (spatially corrected aerial imagery) of the real world, and vector data, i.e., digitized planimetric and terrain relief features (observable features such as building footprints, edges of roads, sidewalks, streams, and the terrain shape from contour lines). Both sets of data are used widely as a back drop to variety of information and applications by County users and the public. County homeowners and businesses are able to compare tax assessments in their communities and access imagery for a variety of needs from across the County.

### Project Goal

Develop a program to update approximately 25% of the County's planimetric and topographic data annually. The data set includes impervious features such as roads, pools, basketball courts and driveways, as well as 2' contours. This program is dependent on the availability of current aerial imagery.

### Progress to Date

The County's planimetric features, DTM, and topographic contouring data needs updating to reflect topographical change and development activities. Through user surveys agencies have requested regular planimetric data update each year in conjunction with annual orthoimagery update of about one fourth area of the County. The aerial photography source for the data update is provided from the February-March 2008 flight missions. A detailed statement of work was developed, with the first year capturing the SE quadrant of the County.

### Project Budget

This project is jointly funded by Department of Public Works and Environmental Services (DPWES) and Department of Information Technology (DIT) through fund 104. In FY 2010 $150,000 is provided in Fund 104 for continued support towards year three to a four year planned initiative to update GIS planimetric data in Fairfax County.

### Return on Investment

The planimetric, DTM, and topographic contouring at 2' contour interval data update will provide a combination of cost-savings, enhanced revenue and non-quantifiable benefits. Planimetric, DTM, and contour data has proved extremely valuable in a wide range of County operations. Over the years GIS staff has designed and implemented many engineering mapping projects for several key agencies, DPWES, Park, and also Fairfax County Water, requiring 1'or 2' detailed accuracy DTM 1' contour data resulting in significant savings. For example the GIS staff provided 1' contour data for flood plain mapping of New Alexandria and Bellview project. Typically design and development of high precision engineering project takes about four to five months provided latest leaf off imagery is available.

This planimetric, DTM and contour update project makes a tremendous impact as it will allow agencies to readily access data needed for engineering design project anywhere in the County, which saves time and money and enhances response, efficiency, and overall productivity. Planimetric data will be an important component of mapping in the County's new Computer Aided Dispatch system. Additionally, capture of many impervious surface features not currently present in the GIS enterprise database is a critical requirement for effective planning, designing, and management of storm water projects. Overall cross agency data sharing for numerous applications will become more cost effective and efficient.

## IT0006 Tax/Revenue Administration

### Project Description

This project provides the information systems development and technology infrastructure required to redesign the County's tax and revenue systems. The Tax/Revenue project facilitates a simpler process for citizens to fulfill their tax obligations and pay for services by modernizing the internal processes used for assessing, billing, and collecting County taxes and other revenues. In FY 2002, the County began replacement of the aging real estate mainframe system with a commercial-off-the-shelf (COTS) product called Integrated Assessment System (IAS). Implementation of IAS allowed for a comprehensive overhaul of many existing functions such as real estate administration, account maintenance, assessment, exemptions and adjustments, accounts receivable, and billing. The core system was completed in FY 2004. The current focus of the project is to migrate to the next generation of the IAS product, the WEB based iasWorld.

### Project Goals

Project goals continue to focus on tax and revenue modernization by implementing the remaining web-based modules of the client server real estate system originally purchased in FY 2002. The implementation of additional product modules will enhance the efficiency of property assessing and inspection by field staff, enable a coordinated approach to managing public inquiries and correspondence, streamline common real estate transactions through customized forms, and provide the core technical architecture to enable the other interactive modules to operate.

### Progress to Date

The assessment administration, CAMA (assessment), accounts receivable and delinquent collection modules of the client server tax system are operational and fully integrated with the County's cashiering system. These modules comprise the core tax system. Implementation of the web-based product, IasWorld, is ongoing.

### *Milestones:*

- Implementation of IAS modules with the exception of the Delinquent Collections Tracking product – February 2004
- Implementation of the iCare internet real estate property information lookup tool (Internet plug in for IAS) and integration of IAS with the department's cashiering COTS software Revenue collector – June 2004
- Installation of the WEB citizen inquiry tracking system module of iasWorld, iRespond) – June 2007
- Implementation of the web - based real estate system iasWorld – June 2008
- iMaintain Module Implementation – FY 2009 - FY 2010
- iField Module Implementation – FY 2009 - FY 2010
- iTax Implementation – FY 2009 - FY 2010

### Project Budget

No additional funding is provided in FY 2010.

### Return on Investment

The remaining IAS product for installation (iasWorld) will permit improved customer service without the addition of staff. Staffing can be held constant as inquiries and correspondence increase due to population growth, changing demographics, and changes in real estate assessments and rates. Citizen inquiries will be more effectively managed, and response turnaround times improved. In addition, real estate appraisal staffs can more accurately collect and record property characteristic data from site inspections, as staff will have the ability to input and transmit data from the field. Improvements in data quality and currency will better equip the County to provide more equitable assessments, defend appealed assessments, and improve the timeliness of revenue generated fro the real

time recording of property improvements. In addition, the new process eliminates redundant data entry work by support staff, as web-based screens will have consolidated fields from several screens in the client-server system. By operating the real estate application within the County's infrastructure, staff can ensure the security of County data communicated over the internet, monitor the application on a 24/7 basis for optimal availability, and ensure secure access.

## IT0011.11 Electronic Accounts Payable System

### Project Description

This project provides a solution that meets the County's goals for an electronic accounts payable process within the current infrastructure using adaptable technology to meet future requirements. Additionally, it provided for a phased-in implementation with minimum impact on existing business processes. The project developed a methodology to utilize new accounts payable electronic processing methods to dramatically reduce the amount of time and effort involved in processing accounts payable transactions. The new methodologies provide in-depth data analysis, targeted audit procedures, and improved internal controls to identify and correct weaknesses in the County's accounts payable processes.

### Project Goals

This project aims to improve the operating efficiency of the entire countywide decentralized accounts payable process, and at the same time achieve the Board of Supervisors' mandates to reduce paperwork and support telework. These goals will be achieved by maximizing the County's use of proven imaging, e-signature, and workflow technologies to replace reliance on paper document processing. In addition to the improved process efficiencies and cost savings expected, it is anticipated that this project will increase countywide internal controls and management reporting by utilizing automated reporting techniques to improve analysis of the County's accounts payable processes.

### Progress to Date

The electronic invoice package selected as the solution, Imagitek's Prodagio A/P, was installed in the production environment and the first go-live agency (DHR) was October 1, 2007, with rollout to the two other proof-of-concept agencies (DIT and FMD) on October 9th and October 15th, 2007. The selected solutions have proven capable of meeting the requirements with the roll to other County agencies scheduled for completion in FY 2010.

### *Milestones:*

- Documented Proof-of-Concept Solution, November 2007
- County wide implementation of Phase I – completion Feb 2008
- County wide implementation of PO invoices – June 2008
- Enhanced Reporting – FY 2009
- Non-PO invoice – FY 2010
- Completed County wide solution for Electronic Accounts Payable – FY 2010

### Project Budget

FY 2008 funding of $520,000 will continue prior year efforts to implement a decentralized electronic accounts payable process from within the Department of Finance to County agencies. By using imaging software, e-signature capabilities, and workflow technology, the electronic accounts payable solution improves operational efficiencies in the County's financial processes. No new funding is available for FY 2010. Future technology enhancements will be accomplished through the Legacy Systems Replacement project (IT0079).

### Return on Investment

This initiative involves the integration of the County's financial and procurement systems and will result in a paperless work process and enhanced management reporting. The greatest financial returns from implementing the electronic accounts payable process are reduced staff processing, document filing retrieval time, copier charges and storage costs. According to industry standards, the cost required to scan and index items is less than half of that required to manually file and retrieve folders of information. Based on the County's cost-benefit analysis, the reduction in staff processing time and copier costs would result in an annual savings of more than $2 million. In addition, more than 800 boxes of records are

archived annually, which currently require 1,600 square feet of storage space. Based on the monthly standard rate of $22 per square foot for storage, the reduction in storage cost will save more than $400,000 annually. Further faster invoice processing will maximize opportunities to realize vendor discount terms. The electronic accounts payable process also improves the County's relationship with its vendor community by facilitating communication.

## IT0011.13 Automated Board Meeting Records

### Project Description

This project will design and implement a document-imaging program in the Clerk to the Board's Office, which will enable the Clerk to the Board's Office to electronically capture Board of Supervisor meeting records and make them available on-line for the public and County staff.

### Project Goal

The goal is to incorporate the Board of Supervisors' meeting videos with the agendas to create a robust easily accessible and searchable on-line record. Project will utilize the enterprise infrastructure for electronic records management.

### Progress to Date

The project is defining system and user requirements.

### Project Budget

FY 2006 funding of $200,000 was provided to plan, design, and implement a document imaging program in the Office of the Clerk to the Board's. No additional funding is required for FY 2010.

### Return on Investment

This initiative is expected to increase the efficiency of producing the board matters package including streamlining the process of getting the records on-line; provide a viable, accurate document system for older and one-of-a-kind documents; reduce error rates as much of the manual data entry will be eliminated; and reduce the space requirements for maintaining paper copies of documents.

## IT0022.9 Correspondence Tracking and Management System

### Project Description

The Correspondence Tracking and Management project enables County agencies to capture communications, track contacts, events and complaints in order to enhance staff and interagency communication. Since its initial launch in 1999, this project continues implementation of a proven Commercial-Off-The-Shelf (COTS) product known as Intranet Quorum (IQ) which has been successfully deployed in several County agencies. IQ is a Correspondence Tracking and Management System that provides an integrated approach to delivering services to citizens and staff. In addition, IQ offers a variety of data points for easy and complete reporting.

### Project Goals

Project goals include enhanced communication between County staff, departments and agencies. The system provides an integrated approach to service delivery enabling users to link to other areas within the database, as well as extend outside the IQ system through scheduling, scanned images, email, fax, and incoming/outgoing postal mail. The project enables agencies to automate business processes and workflows, reduce duplication of effort, share information. These benefits are amplified by the delivery of a seamless constituent interface and enhanced customer service.

### Progress to Date

IQ was initially deployed at the offices of the Board of Supervisors, the County Executive, and the Clerk to the Board. Expansion to other agencies (or portions of agencies) has been on going effort. Over time, address data from the Geographic Information System (GIS) was utilized with IQ to increase agency productivity. To stay current with the County's technical standards, IQ was re-written to comply with the County's current standards.

Demonstrating both fiscal responsibility and agency business awareness, migration to the new version – IQ3 was phased in across user agencies, which allowed staff to perfect migration strategies and application knowledge as well as minimize impact on the agency's productivity.

In 2005 the Board of Supervisors directed the County Executive to expand the legislative function by assessing

the policy impact and response to proposed federal legislation affecting the County. The Federal Legislation Tracking Module was implemented in response to the need for efficient and automated system for tracking issues and specific legislation of interest to the County and reporting back to the Board in a clear concise manner. Additionally the module enables storage of agency information related to specific issues and/or bills. In FY 2010 project work will be primarily concentrated on migration to IQ3 for DPWES agencies, Office of the County Executive, Office of Public Affairs, as well as continued support for current IQ users.

### Project Budget

No funding is provided for FY 2010.

### Return on Investment

Successful implementation provides enhanced communications between County staff, departments, and agencies, thus allowing agencies to share and monitor the status of projects, responses, and track other issues and events as those items progress through the County processes. The project enables agencies to automate business processes and workflows, reduce duplication of effort, and enable the sharing the information between agencies using present e-mail methods. These benefits are amplified by the delivery of a seamless constituent interface and enhanced customer service. In addition, this solution does not preclude installations of applications that support the County's IT architecture, or interact with other agencies' CRM applications.

## IT0024.1 Public Access Technology – KIOSK

The multimedia kiosk was part of the County's e-government strategy designed to assist citizens with access to government information and business transactions. Due to FY 2010 budget constraints and availability of more widely used e-government channels and internet capabilities, the KIOSK program has been retired.

## IT0024.2 Public Access Technologies – Interactive Voice Response

### Project Description

Interactive Voice Response (IVR) technology program develops custom interactive telephone applications that can access and update data in variety of County databases, in addition to providing static information in a timely, convenient manner. For those citizens who do not have access to the Internet, the project was established at the request of the Board of Supervisors "to enable the County's customers to conduct business with the County wherever and whenever it is convenient for the customer". It is one of the foundations for enhancing public access to government information and business transactions.

### Project Goals

The primary goal is to continue the application of text-to-speech technology for certain applications aligned with e-government goals. Interactive Voice Response enhancements include the continued integration of Web and IVR via XML technology for public use.

### Progress to Date

The DIT IVR currently answers more than a million calls annually. The system is available approximately 24 hours a day to interact with citizens, providing an additional option for conducting business with the County after regular business hours. By handling the more routine calls, the IVR allows staff to concentrate on those calls that most need personal attention. It also allows access to a great deal of information after hours or on weekends.

Current Applications:

| | |
|---|---|
| CEX: | Medical Registry services in 7 different languages |
| COURTS: | Circuit, General District & Juvenile, Court Information Line (General Information, Traffic and Criminal Fine Payment by credit card, access to specific cases), |
| CSP: | Consolidate Services Planning survey of services provided, |
| DPWES: | Building Inspections (Requests and Cancellations), |
| DPWES: | Permit/Plan/Building Inspections Status Inquiry |
| DPWES: | Scheduling Special Pickups of brush or bulk items using customer address, |
| DTA: | Real Estate Data (spoken data and FAX on Demand by property address), |
| DTA: | Real Estate and Personal Property Tax Payments |
| FS: | Survey of services to check the quality of service |
| FIRE: | Fire & Rescue's Media Information Line (after-hours fire incident updates), |

HCD: Housing & Community Development's Housing Waiting List (gives position on list),
HEALTH: Health Department Information and Departmental transfers,
HR: County jobs availability and submitted resume status
LIBRARY: Library Information Line (Locate Libraries by ZIP code, phone number search),
OFC: Office For Children Training and Class schedules registration Line,
OPA: Public Affairs 324-INFO Line (general County information, phone number search),
POLICE: Victim Services Information Line (query of offender release date information),
DIT: IT Help Desk – for all County computer related problems.

### Project Budget

Due to FY 2010 budget constraints no additional funding is available. The program requires on-going support from e-government and telecommunications staff to plan and configure new systems, and to trouble-shoot telecommunications system problems.

### Return on Investment

Public access technologies such as the IVR expand citizen access to County information and services and minimize staff resources needed to provide basic information, and allow staff deployment to more complex and specialized tasks. The Public Access Technologies continue to provide a single information architecture and supporting infrastructure for all platforms to deliver new information and e-services to the public. It expands the capabilities of the content management system in order to improve automated workflow, revision control, indexing, search and retrieval for enterprise systems. The project also improves search capability for citizens and constituents, and enables the County to build applications quicker and more efficiently by maintaining reusable components.

## IT0024.3 E-Government – Internet/Intranet Initiatives

### Project Description

This project supports initiatives that improve public accessibility to government information and services. A comprehensive approach is employed to ensure efficient infrastructure capable of supporting multiple business solutions. In addition to enhancing customer service for availability anywhere, any time, public access technologies reduce staff involvement in providing basic information and transactions, thereby allowing personnel to perform more complex tasks and respond to requests for more detailed or specialized information. Internet/intranet initiatives provide significant and wide-ranging opportunities to use technology as a means of making information more readily available to the public. Initiatives include research and development of emerging technologies, expansion of Web applications, improvements in search and navigation, integration with internal systems and other public access channels, and sustaining infrastructure.

### Project Goals

The project's vision is to provide new information and services on all platforms, while continuing to build on existing information architecture. The planned functionality is delivered in support of the County's taxonomy of information and services, using a single supporting infrastructure. The solution is based upon a single content repository for all platform and agencies. The repository enables various features of content management to provide accurate and reliable information, provide additional search capabilities on the public web site, and enable information sharing. The project includes implementing standards and processes for information engineering so that the same application and data is used by County agencies in the development of Web content and applications.

### Progress to Date

The County's Public Web site has been an extraordinary success. The County site receives approximately 52,445 visitors per day, which equates to an average of 297,013 page views per day and an average of 1,632,298 hits per day. Approximately 55 County agencies have a presence on the site. The functionality of the site expanded significantly in recent months with the addition of significant content and information as well as the capability to conduct new and updated business transactions.

On going strategy include 'Sharing' which has become an integral part of the Web experience. It is referred to as online collaboration, and known as Web 2.0, social networking or social media. A few examples include wikis (community developed reference material), podcast (subscription based audio information), RSS or Really Simple Syndication feeds (subscription-based information), Second Life (virtual reality) and Twitter (social networking). The extensive use of Web 2.0 in social networking enables

wide spread collaboration and information sharing, and enables individuals to rapidly share news and opinions worldwide. The County extended its presence by launching content on three social networking sites:
Facebook (http://www.facebook.com/group.php?gid=7901829756),
Twitter http://twitter.com/fairfaxcounty
Youtube (http://www.youtube.com/user/fairfaxcountygov).

## 1 – Public Web Site Search and Navigation

During the first phase of the project over 120 content contributors were involved in migrating information from the old site to the redesigned site with a six-month period. The Project team defined a basic Information Architecture for the site, which was then validated by 14 citizen and business focus groups. A "look and feel" template was developed for the redesigned site and migration of over 20,000 files to the new templates was coordinated by the project team. Most importantly, the establishment of working inter-agency groups for the development and dissemination of standards related to site design, application development and implementation proved critical in the project's success. As part of the redesign, a "Contact Us" database was implemented, which provides citizens with direct contact information to County staff from a single search interface. Additionally, site search functionality was enhanced.

In FY 2003, the main subject area pages (Living, Doing Business, Visiting and Government) were developed. Enhancements of the site included: News & Information section, Emergency Information, Local Weather and improved navigation. In FY 2004, a robust and secure environment that facilitates delivery of integrated and accurate information to citizens was built. In FY 2005, several new applications were added including Child Care training, My Neighborhood applications, kids and Teen portal, Seniors and Disability portal, Crime Mapping, and revamped DTA e-pay and Consumer Protection pages. In FY 2006, a new search on the public web site was implemented making site accessible via mobile devices.


In FY 2009, the public web site was redesigned to improve the architecture and functionality with a fresh look and cutting edge enhancements. To provide easy access to county wide services and information, consistent left-side navigation was introduced throughout the site. The implementation of the Google Search Application augmented the overall search functionality of the web site. Additionally a highlighted news section provides easy access to information categorized by topic, and brings into focus various County agencies, County wide initiatives, and featured County services. The public web site is part of the "Going Green Initiative" and provides a conduit for carrying out on-line business with the County around the clock. Additionally, in order to improve ergonomics and enhance accessibility a new color palette as well as text only, printer friendly, and text resizing features were introduced.

## 2 – Infrastructure Architecture and Management

The following Internet/Intranet Infrastructure initiatives are on-going:

- Secured network settings on all 34 servers to minimize risk of intrusion
- Implement a statistical reporting system for both Internet and intranet servers
- Refined server monitoring system

## 3 – Interoperability

As a participant in the Government without Boundaries cross-jurisdictional project, Internet Services staff installed ASP.Net and created a Web Service, which generates XML data from a SQL database using a collaboratively defined schema. This project allows Fairfax County to share park-related data with other local, state, and federal jurisdictions. Additional critical work on regional interoperability for homeland security linking Emergency Operations Centers and CAD functions began in FY 2005 with implementation of a pilot prototype in FY 2006. In FY 2010 efforts will continue with the Department of Homeland Security towards development of a data exchange hub for public safety computer aided dispatch information in the metropolitan region.

## 4 – Infoweb Redesign

The look and feel of the main page of the Infoweb (Intranet site) was redesigned, and continues to be enhanced. This is an on-going process that links with agency operational improvements.

Approximately 55 County agencies now have a presence on the site, offering more than 11,000 HTML documents, 12,500 PDF documents, and 15,000 images on the Internet site. Most agencies have Web content contributors, and Internet Services staff support content creation efforts for those agencies without a dedicated Web presence. The County Infoweb will continue to be updated with additional access to enterprise data and interactivity, and expanded to become a viable alternative for full transaction-oriented applications. The addition of new information and increased business functionality is essentially an ongoing project. Based on conversations with a wide range of County managers, it is also expected there will be numerous concurrent application development requests from a dozen or more agencies for core web-enabled applications as the benefits of the technology become more widely recognized. These requests for support are handled on an as-needed basis based on priority, visibility and functionality, and highest Return on Investment.

## 5 – Web Content Management

Web Content Management will deal with refining the site's information architecture, defining and implementing replicable workflows, as well as designing and implementing the supporting infrastructure for Web content contribution. A COTS solution was purchased and is being implemented.

## 6 – e Services

Internet Services prototyped new application development platforms and developed standards and best practices for the current environment. DIT supports other agencies in the development of Web content and applications. New and updated business transactions supported by the Internet Services staff over the last year include:

- HS/OFC Institute for Early Learning Training (IFEL)
- Hs/OFC Child Care Management System – Modification in FY 2004
- ICARE DTA Real Estate Assessment and Information Query
- DHR Applicant Information Management System (AIMS)
- Public Meeting Calendar
- GIS Digital Map Viewer – Modified in FY 2004
- DTA ECheck – Modified in FY 2004
- Contact Us – Modified in FY 2004
- Library Historical Newspaper Index
- Library Booklists
- Library Picturebooks
- DTA TaxEvaders
- HS HIPPA
- DPZ eComplaints – Modified in FY 2004
- Infoweb – Ibusiness Enterprises (iBE)
- Infoweb – DFS Independent Living Program (FILP)
- Infoweb – DAHS Facility / Site Profile
- Infoweb – DFS Account Receivable (FAMSAR)
- Infoweb – HS eAssist – Modified in FY 2004
- Infoweb – HS FCPMS / IAS – Modified in FY 2004
- County WEB – Kids and Teens portal, FY 2005
- County WEB – Crime Mapping, FY 2005
- County WEB – Child Care training, FY 2005
- County WEB – My Neighborhood, FY 2005
- County WEB – Seniors and Disability portal, FY 2005
- County WEB – Sheriff Service Civil Process, FY 2005
- County WEB – Enterprise Search FY 2006
- County WEB – Public web site accessible via wireless, FY 2006
- County WEB – Boards, Authorities and Commissions, FY 2006
- County WEB – Epartnerships, FY 2006
- Infoweb – Courts Electronic Wayfinding – Circuit Court Docket, FY 2006
- Infoweb – Sign-in and Course Evaluation System (SACES), FY 2006

- Infoweb – Courts Scheduling System, FY 2007
- Infoweb – RSSFeeds, FY 2007
- County WEB – Athletic Facilities Application Requets (AFAR), FY 2007
- County WEB – FAQ's FY 2007
- County WEB – RSSFeeds, FY 2007
- County WEB – Podcasting, FY 2007
- County WEB – Special Needs Registry, FY 2008
- County WEB – Social Needs Registry, FY 2008
- County WEB – Library Audio Books, FY 2008
- County WEB – Library Video, FY 2008
- County WEB – Contact US – modified, FY 2009

### Project Budget

Due to FY 2010 budget constraints no additional funding is provided. The project requires on-going support from Public Access staff and infrastructure staff to help plan and re-configure new systems.

### Return on Investment

The E-Government project continues to provide single information architecture and supporting infrastructure for all platforms and new information and e-services to the public. It further expands the newly implemented content management system to improve automated workflow, revision control, indexing, search and retrieval for enterprise systems. The project improves the search capability for citizens and constituents while enabling the County to build applications faster and more efficiently by maintaining reusable components. Public access technologies minimize staff resources necessary for providing basic information, thereby allowing staff deployment to more complex tasks that require detailed or specialized information.

## IT0072 Customer Relationship Management (CRM)

### Project Description

This project provides the foundation for a comprehensive call center technology solution based on an open architecture, providing an opportunity for sharing process, resources and critical information across multiple Fairfax County call centers. This project addresses service needs by remedying existing business problems while improving operational efficiency and upgrading the technology infrastructure for all County call centers.

### Project Goals

The goal of this project is to implement a comprehensive CRM application which will use industry standard call center technologies and incorporate existing County automated tracking systems. The objective of County call centers is to provide timely and appropriate assistance based on the citizens' needs. Additionally the goal is to provide an opportunity to leverage call center resources through virtual sessions. This project does not build or consolidate existing call centers nor create a central County call center site. The concept provided a central technical architecture and infrastructure foundation supporting call center processes, integration, and sharing of resources as appropriate in improving overall services. This project is complimented by the telephone modernization project, which will improve the telephony foundation needed to distribute and track calls.

### Progress to Date

A project steering committee consisting of DIT and agency staff that use or have interest in call center functionality has been established to manage the implementation and integration of the CRM software within the County's infrastructure environment. CRM application was deployed to support three Office of Public Affairs customer center sites. Frequently requested information and telephone numbers for County services and home owner association data is made available in a centrally used knowledgebase to support consistent distribution of information. The Office of Public Affairs processed over 33,550 requests for County information and resources in the past year and half. The Office of Public and Private Partnerships (OPPP) is the clearinghouse for partnership information in Fairfax County. Efforts in OPPP have consolidated disperse contact lists, business partners, and resources enabling staff to utilize the system as a data depository for contacts, accounts, cases, service requests, solutions, correspondence, activities, and management of allocated staff and volunteer resources. Seible CRM solution was implement in the Lee and Dranesville District Board of Supervisor Offices in FY 2009. Implementation of Computer Telephony Integration and on line user training is planned for FY 2010.

### *Milestones:*

- Office of Public Affairs Implementation completed – FY 2008
- Board of Supervisors Pilot – FY 2009
- Office of Public Private Partnerships – FY 2009
- Implementation of Computer Telephony Integration and on line user training – FY 2010

### Project Budget

Due to FY 2010 Budget constraints funding is not available for this project.

### Return on Investment

Return on Investment is realized from increased productivity from automation and/or streamlining of telephone processes, improved and reliable data capture required for mandatory service reporting, enhanced citizen communication and issues resolution, as well as delivery of improved operational efficiencies. CRM will allow improved historical data tracking through one system, increase awareness and insight to ensure appropriate follow up of citizen needs and concerns. It offers a more holistic view and aids in making well informed decisions about service delivery and improves communication.

## IT0079 Legacy System Replacement (FOCUS)

### Project Description

Fairfax County government and school system have embarked on a multi-year, joint initiative to modernize the portfolio of enterprise systems that support finance (FAMIS), human resources (government: PRISM -school: LAWSON), budget (BPREP), procurement (CASPS) and related administrative applications with an integrated approach that has the flexibility to meet current and future requirements. The project seeks to mitigate the risk that antiquated and disjointed systems pose for system failure and inferior data.

The current 'stovepipe' legacy business systems are on various, old technology platforms using a variety of hardware and software architectures integrated through a number of interfaces and reporting tools. Previous assessments of these aging systems revealed that they are past their projected useful lifecycle, no longer meet today's technology standards, and do not meet the demands of resource and financial management and decision-making. System limitations continue to drive a proliferation of multi-step tasks to produce desired data and the development of numerous 'workaround' systems to gain necessary functionality currently not available. This has also resulted in an exponentially increased risk for fraud and security vulnerabilities. Due to their age, many of these systems have no vendor support and rely on retirement eligible in-house staff for maintenance.

Of these systems, the County government's Personnel Resource Information System Management (PRISM) is the most vulnerable to immediate obsolescence issues. It is over 20 years old and highly customized based on historical County operational practices to the extent that it cannot be further enhanced. Further, attrition of in-house technical staff as they reach retirement age is jeopardizing future support for maintaining this legacy application – with the other systems approaching a similar expert support dilemma. Due to the impending lack of support, PRISM is the first of the legacy systems to be replaced.

### Project Goal

A governance body of senior officials of the County and school system stakeholder agencies has endeavored to identify the optimal strategy to pursue in its effort to procure an integrated financial/procurement/human resources/budget suite that will support agencies in the delivery of government and school services and activities, take advantage of best practices, provide the opportunity for multi-faceted data-driven decisions, sig nificantly improve the efficiency and effectiveness of existing processes, enhance e-government initiatives, promote telework opportunities, and aid in the transformation and standardization of financial and human resource processes. This initiative will foster an environment of change and redesign to allow for more efficient and effective processes.

Previous funding was provided to begin an assessment of the legacy systems used to support core business functions; identify, review and streamline existing business processes currently supported by legacy systems; analyze a review of existing and future trends in software and systems implementer marketplace; and identify and refine functional business requirements necessary in the future software.

### Progress to Date

A joint Steering Committee and project team comprised of

County and School personnel has been formed. The Government Financial Officers Association (GFOA) is currently under contract to provide direction and resources in the identification of current processes, creation of requirements, and preparation and review of the procurement phase. During this past year, the project completed the development of its' strategic design and began to implement the prerequisite planning phases – business process mapping involved the production of more than 200 diagrams to document 64 key current business processes. More than 400 County and school staff from a cross section of the user community including functional managers, subject matter experts and end users assisted in this effort. Requirements gathering and validation involved examining 17 core processes in the finance, procurement, budget and human resource/payroll areas to identify what users need in a new system, followed by validation of those requirements. This provided the documentation necessary to move into the procurement phase of the project, which commenced in December 2008. During the last half of FY 2009, the project team evaluated software products and system implementer services.

The County's approach for acquisition is for separation of the solicitations for product suite and implementer services. Steering committee members of the key stakeholder agencies for both County and Schools and staff participated in in-depth analysis of top tier products. After selection of the software solutions suite, a solicitation for the implementer will be competed, for a company that has both technical product knowledge and experience in the solution selected, and strong experience in government and schools K-12 business.

## Project Budget

FY 2009 funding of $7,000,000 provides continued investment in this initiative, positioning the project to award the software and systems implementer contracts. Due to budget constraints FY 2010 funding is not available.

## Return on Investment

The project seeks to mitigate the risk that antiquated and disjointed systems pose for system failure and inferior data. Automation and modernization will empower both employees and managers to execute processes more efficiently, and make the best strategic decisions based on the most timely and accurate information. This shifts the orientation of the system from that of a data repository to one of an information system solution. With the migration to a more standard, supportable database and development environment that incorporates workflow and Web technology, the project expects to create a collaborative environment where access to data and information, even from remote locations, is based on system "look and feel" flexibility, intuition, data definition, data stewardship and security. The project will:

- Provide a seamless integration of a new system with existing applications;
- Reduce the number of shadow systems and reconciliations between systems;
- Align the reporting strategy with the County government and school system overall data reporting and consistent information management throughout the organizations;
- Incorporate fully integrated best business practices;
- Develop a system that is user-friendly and that empowers users to improve their business processes;
- Add and improve functionality in back-office functional areas;
- Improve the quality and accessibility of information for decision support;
- Reduce redundant data entry, storage, and paper processing;
- Support the countywide balanced scorecard initiative;
- Improve operational effectiveness and productivity;
- Enhance web self-service and improve customer service; and
- Retire existing legacy and back office systems and tools.

## 3.4 Technology Infrastructure

### IT0050 Public Service Communication Replacement

#### Project Description

This project provides continuing support for the Public Service Communications System, which provides two-way radio communications for all County non-public safety agencies as well as the Fairfax County Public School Transportation Department (school buses), FASTRAN and the Fairfax County Water Authority. The completed system provides adequate call processing capacity and area coverage to more than 90 percent of the area within the jurisdictional boundaries for Fairfax County. This project replaced the 20-year old Public Service Communications System which was based on a design that used two transmitter tower sites located in Lorton, on the Energy/Resource Recovery Facility smokestack, and in Fairfax City, on the rooftop of the Massey building. The old system only provided geographical coverage for approximately 60 percent of the County and had limited call-processing capacity, frequently resulting in unavailability for users. In addition, the old system required users to manually select the correct radio channel based on their location within the County, requiring knowledge of the coverage each communications were not possible and many of these locations are heavily populated areas of the County. The old network did not meet the user needs for additional coverage nor provided for future growth or for advanced features, such as mobile data communications.

#### Project Goals

The new radio system eliminated sever geographical coverage problem for County agencies, and provides reliable communications for the County's fleet, back-up and interoperability supporting emergency management activities, and communications for an increasingly mobile workforce. The new system also provides a fully independent backup radio system for public safety agencies.

#### Progress to Date

Prior year activities have consisted of the completion of a consultant study with recommendation for the replacement systems, the development of requirement specifications, contract award, tower site acquisition, and FCC licensing requirement activities, construction, and activation of transmitting tower sites, and the migration of schools and County fleets to the new system. The entire network and the remaining migrations were completed in FY 2007.

#### Project Budget

The FY 2010 project cost is estimated to be $2,053,989 and includes the sixth-year of a seven-year annual lease-purchase payments for the new radio network infrastructure, including the increase of radio repeater location from two to seven sites, to ensure greater than 90 percent call coverage, and for operating costs during the year. Based on a portion of project costs, derived from the number of radios users that will be operating on the system as a percent of the total number of radios; $1,272,088 will be recovered from Non-General Fund Supported agencies, the Fairfax County Public Schools and Fairfax County Water Authority in FY 2010, netting in a general fund cost to the County of $781,901.

#### Return on Investment

In addition to enhanced reliability and coverage, the new network eliminates the two zones within the County and provides for seamless coverage on one system regardless of location, as well as provides ample reserve capacity for peak use periods and future fleet expansion. The replacement system provides reliable radio coverage to many areas of the County that were not covered by the older radio system. This provides the necessary protection and safety for bus drivers and other staffs that depend on reliable communications, improves customer service to County citizens and other County agencies, and reduces reliance on commercial wireless networks. The new system is fully compatible with the mobile and portable radios used by the County's public safety radio system, which allows for direct communication between public safety and public service users for incident or disaster management, and provides a separate back-up system for the Public Safety system should that system fail. The County realized cost avoidance of over $3 million by using the public service system to serve as the back up to the public safety system, rather than modifying public safety system.

## IT0058 Remote Access

### Project Description

This project supports enhanced and expanded capability of internal users to access the County's systems form remote locations for service field activities, telework, and possible pandemic outbreak access. To accomplish this, the telecommunications infrastructure must be flexible in its modes of access, while maintaining a stable and secure communication environment.

To accommodate varied hardware and software capabilities of prospective telecommuters and the architecture of agency specific applications, the remote access solution uses a variety of technologies including dial-up modems, Secure Sockets Layers (SSL) Virtual Private Network (VPN) technology, and Citrix servers to meet the various access requirements. This project supports capability enhancement and expansion of Citrix using thin client technology. Since a number of projects use Citrix to access County information, the telecommunications infrastructure must be flexible in its modes of access, while maintaining a stable and secure environment.

### Project Goals

An enterprise-wide standardized remote access control methodology provides a solution for employees and external system users, and also is intended to be expanded to partners and County customers and residents to authenticate their identity in order to gain access to relevant data and do business in a secure manner. All user authentication and authorization management is policy based and centrally managed allowing for comprehensive audit and reporting services to support and log information on the extensive user base.

### Progress to Date

Required software licenses were obtained and project activity is on-going. A new and improved Citrix farm with the latest technologies was implemented in FY 2008. The expanded Citrix farm prepares the County for continuity of operations in case of catastrophic events such as pandemic flu, weather related disasters, etc.

### Project Budget

In FY 2007, funding of $100,000 was provided to continue the build out of the telework environment and to increase the number of applications that can be accessed remotely. Additional Citrix licenses, Microsoft licenses and consultant services were required in addition to Security Token Cards and application software licenses. No funding is available for FY 2010.

### Return on Investment

This project provides a cost effective approach to enhance the County's infrastructure in order to provide flexibility for a variety of end-user devices that may be used by County staff. The capability encourages more employees to take advantage of telecommuting in line with regional goals supported by the Board of Supervisors.

## IT0060 Telecommunication Modernization

### Project Description

This project is designed to implement Fairfax County's strategic goal of providing Voice over IP (VoIP) services that maximizes utilization of County network capabilities and take advantage of functionality and features provided by leading-edge technology. DIT is implementing a strategy for voice services, utilizing convergent-IP ready technology, over the County's fiber I-Net. This strategy includes a solution architecture that is scalable to support the variety of County sites and agency business requirements distributed over 400 square miles. The strategy uses IP-based telephone service at the smaller sites, so that they can be brought into the common voice enterprise architecture, avoiding investment in converging IP data traffic with IP voice traffic onto one data network. This strategy is both prudent and forward-looking. It will position the County to increase its use of advanced convergent technologies such as data, video and voice, and facilitates reductions in other voice service operational costs. The plan is in full alignment with the County's principle of implementing contemporary, but proven, technologies, optimizing IT investments and creating more operational cost efficiencies.

### Project Goals

The strategic goals of this project is to move the County towards a long-term, flexible voice solution that will underwrite the use of Voice over Internet Protocol (VoIP) while maintaining complete TDM (current technology), functionality. An IP enabled enterprise-class platform will provide the County with the ability to adopt newer value added features from the maturing IP telephony environment. Any

new architecture must yield a flexible yet stable infrastructure that can be the foundation for eventual movement to a converged network environment. Over the life-cycle of this transformational project, change will be introduced in more manageable increments than would be possible in a massive change out of technology, applications and processes. The following six strategic goals for Fairfax County voice services were developed and reviewed with senior County technology managers:

**Goal 1**: Optimize the total life cycle cost for voice services.
**Goal 2**: Provide common voice architecture, Countywide.
**Goal 3:** Provide secure remote access for voice and data to expand Telework
**Goal 4:** Provide compatibility with "best-in-class citizen access technologies.
**Goal 5:** Develop a survivable architecture that is scalable and flexible.
**Goal 6:** Prepare for the convergence of voice and data onto one logical network.

The replacement of the current voice communications infrastructure is anticipated to be a 5 – 7 year project that when completed will touch approximately 12,000 Fairfax County employees. The installation is planned to occur in phases which will allow multiple opportunities and avenues to prepare the Fairfax County Government community for the transition, and thereby ensure a smooth change of voice platforms. Successful implementation will require accurate and consistent communications regarding project status, system features and functionality, dialing plan information, and changes that users (both employees and citizens) can expect.

## Progress to Date

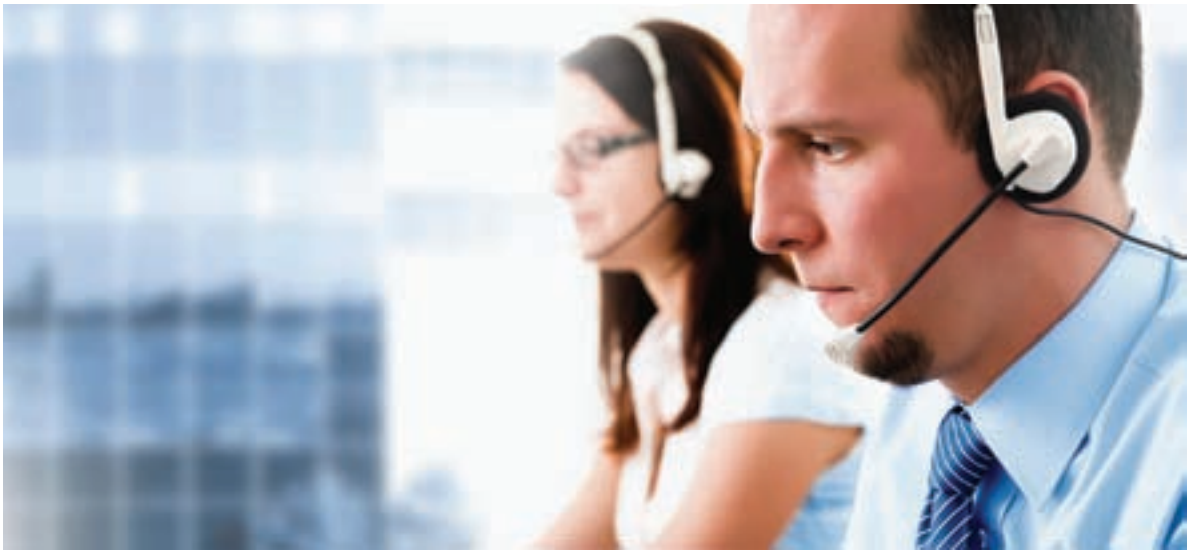
Following the contract award in May 2006, Fairfax County and Avaya, Inc. launched an aggressive "Immediate Relief/Proof of Concept" implementation at 7 sites. These sites were chosen to eliminate the escalating degradation of service in some of the County's oldest equipment. To date the following agency/locations have been migrated completely to the Avaya platform:

- Community Services Board – North West Center
- Chantilly Regional Library
- Community Services Board – Lincolnia Center
- Alcohol and Drug Services – Crossroads
- DIT Radio Shop
- Community Services Board – Springfield Mental Health
- Alcohol and Drug Services Administration
- Housing and community Development Headquarters
- Opportunities Alternatives and Resources – City Square
- Facilities Management Department – Burke Station Rd. ( 6 Buildings)
- Volunteer Fairfax
- Finance Building – Annex
- Juvenile Detention Center
- Juvenile and Domestic Court
- Police Annex
- Massey Building – Police / Fire and Rescue HQ
- Legal Aid – Finance Annex
- Jennings Judicial Center
- Burkeholder – Center and Annex
- Office of Sheriff
- Dept of Information Technology
- Dept of Tax Administration
- Dept of Management & Budget
- Dept of Public Works and Environmental Services
- Human Resources
- Internal Audit
- Human Rights Commission
- Equity Programs
- Cafeteria
- Civil Service Commission
- Alternative Dispute Resolution
- Credit Union
- Dept of Vehicle Services

- Fitness Center
- Library Administration
- Office for Women
- Planning Commission
- Purchasing & Supply Mgmt
- Dept of Cable Communications and Consumer Protection
- Office of Finance
- Mount Vernon Mental Health
- Board Satellite Offices – Gov Center
- Board conference rooms
- Board reception area
- Chairman's Office
- Clerk to the Board
- Office of Public and Private Partnerships
- Office of Public Affairs
- County Attorney
- County Executive
- Electoral Board / General Registrar
- Auditor to the Board
- Storm Water Management
- Bailey's Affordable Health Center
- Police – Organized Crime and Narcotics
- Criminal Justice Academy
- Cameron Glen – (North County)*
- Suicide Crisis Center – Woodburn Rd
- Burke Library
- Joseph Willard Health Center
- New Beginnings
- Retirement Agency
- Board Offices
- Springfield District BOS Office
- Braddock District BOS Office
- Providence District BOS Office
- Mt. Vernon District BOS Office
- Hunter Mill District BOS Office
- Mason District BOS Office

**Goals for the Remainder of FY 2009:**

- Lee District BOS Office
- Sully District BOS Office



- Dranesville District BOS Office
- Implementation of Red-Sky employee location solution
- Implement Meet Me Conferencing
- Implement Meeting Exchange Conferences Services
- Implement Broadcast Voice Mail Solution
- Beta Test Speech Access

**FY 2010 Goals:**

- Pennino Building
- Herrity Building
- Implement Enterprise-wide Mobility Solution
- Beta Test Nortel / Avaya Integration
- Beta Test Unified Communications Solutions

### Project Budget

In FY 2010 $2,100,000 is provided to support continued implementation of the Voice Modernization Project, of which $1,000,000 is provided from the County's Cable Fund (105).

### Return on Investment

The benefits derived from the implementation of this project are quantifiable and substantial. Direct cost savings include: reduction in leased circuit costs; a reduction in message unit costs for outside phone calls; and a reduction in overall maintenance costs, including moving phones, adding new phone lines and changes to existing phone service. In addition, the new voice infrastructure will allow Fairfax County to leverage embedded technology assets and to improve service delivery quality. Business processes will be streamlined because of the ability to share information over an integrated communications platform.

## IT0061 Information Technology Security

### Project Description

This project supports the County's security architecture, designed to provide an appropriate level of protection for all County information-processing resources regardless of technology platform. New security technologies are implemented in order to meet current and future security needs and protect County networks and the confidentiality of legally mandated information contained in many County systems.

The Fairfax County Information Technology Security Policy, the mandated specifications of the Commonwealth of Virginia Information Technology Security Policy and standards, and the Health Insurance Portability and Accountability Act (HIPAA) Security Rule, along with other mandated privacy laws and County internal audit priorities, are examples of governing legal precedence and policy that dictate a requirement for audit controls to record and examine activity in information systems. Such audit controls protect the integrity and sensitivity of information contained within the County's technology infrastructure. This project provides advanced security tools to proactively build and measure comprehensive security best practices within agencies and across the County.

Additionally this project affords Fairfax County the ability to manage connectivity to its infrastructure through controlled network connections that will interrogate unknown devices for verification of anti-virus, patch management, and licensing standards. Devices found out of compliance are quarantined/or refused access until they can be placed in compliance.

### Project Goals

This project continues enhancements to the County's modular network infrastructure that incorporates the necessary levels of embedded security in specific functional areas. In order to manage the modular infrastructure and the additional firewalls, intrusion detection systems and networking devices a Networking Access Control (NAC) solution is deployed to identify non-standard and non-secure systems that are a threat to the security of the infrastructure and County data. Additionally, the on-site support of skilled network engineers are required to roll out a simplified security design and create manageable security architecture that allows for security devices to function optimally and provide identification of specific threats. The project includes the implementation of standardized and centralized secure authentication and authorization methodology for web-based applications.

The distribution Node Intrusion Prevention System (IPS) solution provides the proactive ability to block and detect malicious traffic before it spreads across the County's

Wide Area Network. Combined, these efforts reduce the risk factors that can compromise the availability, integrity, and confidentiality of County information technology assets. This project continues enhancements to the County's modular network infrastructure to allow for incorporation of necessary levels of security to be embedded in specific functional areas. User authentication and authorization management is policy based, centrally managed, and allows for comprehensive countywide security monitoring and audit control process that include audit and reporting services.

## Progress to Date

Work associated with planning, design, and proof of concept in a development environment for the NAC project is underway; while planning and design for the IPS project is complete. The required technology tools will be implemented in phases based on infrastructure engineering needs, business function priorities, and legal mandates aligned with County e-business projects.

## Project Budget

Due to budget constraints FY 2010 funding is not available.

## Return on Investment

This project ensures system compliance with security policies, provides for centralized real-time auditing, provides a solution for managing users and their Web application access, ensures timely access to business assets through an authenticated identity, and provides for an immediate response to technology threats. The information security and internal audit offices will have the capability to perform security management audits and analysis centrally across platforms and verify progress in security management protection via software reporting capability. The implementation of the IPS at the Distribution Nodes helps mitigate the risk of malware propagation that results in a Denial of Service (DOS) condition. In addition, botnet traffic can also be detected and blocked. These projects significantly decrease the staff time required for manual auditing and IT security investigations, and grant the Security Office the ability to provide enterprise-monitoring capabilities as a safeguard to improve reliability and reduce downtime. Non-standard and non-secure systems can be identified as a threat to the security of the infrastructure and County data. The solutions address multiple regulations with minimum resources by implementing and measuring compliance through automated analysis.

## 3.5 Human Services

### IT0011.9 Document Management and Imaging – DFS

#### Project Description

This project supports the transition within the Department of Family Services (DFS) from manual to automated processes for filing, storage and access to records using document management platform technology.

#### Project Goals

Goals of the project are: a) to provide a reliable and secure system for cataloging, archival and retrieval of sensitive Human Services documents for case management, and, b) improve response times for client inquires of case records. In addition, the project allows for the management and preservation of DFS records in accordance with State and Federal mandates, and avoids non-compliance issues associated with the degradation, damage, or loss of paper files.

#### Progress to Date

This is a multi-phased project, where phases will be delivered in modular components aligned with the readiness of the necessary infrastructure. By implementing smaller phases, disruption to business operations is minimized. In FY 2005 and FY 2006, Infrastructure components were developed to support the delivery of the initial component for Family Self Sufficiency (FSS). Functional requirements and a prototype design were completed in FY 2007. Also in FY 2007, requirements definition began for Children, Youth, and Families, for the integration of the Commonwealth's SPIDeR system, and for the replacement of a data feed to a key financial systems. In FY 2008 system design and initial development / configuration tasks were completed for FSS.

Phase I – Self-Sufficiency:
Production rollout of the Document Case Management solution – FY 2009.

Phase II – Children Youth and Families:
The division planned to conduct internal business process mapping and review statement of work proposals for vendor-engaged requirements analysis. **However, due to FY 2010 budget constraints this phase of the project is deferred.**

#### Project Budget

In FY 2005, funding of $1,179,567 was provided to automate the DFS record/document management processes. Due to budget constraints funding is not available in FY 2010.

#### Return on Investment

Cost savings will be realized as a result of improved processing of paper documents, use of staff time, and reduced error rates for more effective and efficient document management. Imaging and workflow projects are expected to increase the security of records, promote telework; reduce error rates since much of the manual data entry will be eliminated; and reduce the space requirements for maintaining paper copies of documents. With the increased availability of accurate, available closed records, the Fraud Unit will be able to more easily investigate cases that may result in increased reimbursement. Accurate and timely processing of services and records are necessary to insure reimbursement for provision of services.

### IT0011.10 Document Management and Imaging – OFC

#### Project Description

This project will provide for the second phase of the Office of Children's (OFC) Electronic Records Management system. In FY 2007, the project transitioned Community Education and Provider Services, and the Child Care Assistance and Referral program to document imaging technology. The second phase of this project includes the Head Start and School Age Child Care program. Head Start maintains files for over 500 children and families in multiple locations. With this technology field staff and federal auditors will have the ability to review files electronically without traveling to multiple locations. The School-Age Child Care Program provides direct services to over 14,000 children in 134 centers throughout the County. Files are maintained on all staff, children and centers. The transition to an electronic system will ensure that citizens receive the most efficient, highest quality of service across OFC program division, and that all legal mandates are satisfied regarding record archival and citizen and client privacy. Phase III includes imaging the files in the Directors office.

### Project Goals

This project provides for a structured enterprise approach to the development of imaging and workflow capabilities which provides increased security and integrity of records; reduces the labor intensive record retrieval and re-filing process; expedites workflow processes through an electronic workflow management system; provides simultaneous and instant access to records; and reduces costs associated with space and shelving for storage of paper requirements.

### Progress to Date

Community Education and Providers Services, Child Care Assistance and Referral program and SACC Registration are currently in production. Head Start, SACC Licensing, the Director's Office and SACC children's files were planned as Phase 3. **However due to FY 2010 budget constraints Phase 3 is deferred at this time.**

### Project Budget

No additional funding is provided in FY 2010.

### Return on Investment

imaging and workflow project increase the security of records, protect sensitive information from unauthorized access; reduce staff time required for retrieval and refining of documents; reduce processing time as workflow efforts streamline the reviews required; provide a viable, accurate documents management system for old and one-of-a-kind documents; promote telework; reduce error rates by reducing manual data entry; and decrease the space requirements for maintaining paper copies of documents.

## IT0054 SYNAPS

### Project Description

SYNAPS was developed for the Fairfax-Falls Church Community Services Board (CSB) to improve client tracking, client/third-party billing, enhance client demographic information, staff productivity data, and provide for compliance with the Health Insurance Portability and Accountability Act (HIPAA) of 1996.

### Project Goals

An enhanced SYNAPS system upgraded to current technology specifications that include improved security technology to ensures continued data protection.

### Progress to Date

Efforts in FY 2008 and FY 2009 included bringing the database and supporting application servers into current technology. Roll-out of new hardware has been base lined as an incremental just-in-time rollout so that hardware and licensing come on-line as CSB staff are trained and join usage of the system. Currently the project is upgrading SYNAPS software and architecture components in order to maintain operations and update infrastructure.

### *Milestones:*

- Purchase 10 New Citrix Servers and Replacement Application server(s) (2) Fail-over capable Production, (1) Test/QA/Training, (1) Report – FY 2009
- Hardware Configuration, O/S and software Installation, and User Testing – FY 2009
- Deployment to Production – FY 2009 - FY 2010

### Project Budget

FY 2008 funding of $500,000 supports the replacement and scaling-out of application servers and introduction of a more reliable environment to meet expected growth and increased utilization with a maximum user population of 800 users. No additional funds required for FY 2010.

### Return on Investment

The enhanced system provides greater system reliability and end user satisfaction. The final phase will also produce a more reliable and less labor-intensive application.

## IT0059 Child Care Technology

### Project Description

The Child Care Management system determines client eligibility, tracks child enrollments, and processes approximately $3 million in monthly provider payments for the Child Care Assistance Program. The system processes over 2,500 home child care facility permits for Provider Services and connects families with child care providers participating in the Child Care Resource and Referral System, tracks current market rates for providers, and interfaces with FAMIS. This project will upgrade the software for the Child Care Management system to Windows 2003 and Oracle 10g.

### Project Goals

The goal of this project is to provide up-to-date, secure technology and offer e-government services to family day care providers and centers. Additionally, this project brings OFC technoloy into compliance with DIT requirements. A .NET framework will provide a full WebCCMS suite, where providers and centers can access to their data via the web, and have the ablility to maintain their profiles, thus reducing the need for OFC staff to maintain data. OFC depends on this database to issue permits and support the Child Care Assistance and Referral program, which includes the online search for child care on the public web.

### Progress to Date

This project was initiated in FY 2008. Design and environment configuration have been completed, acceptance testing and move to production is planned for the fall of 2009.

### Project Budget

The FY 2008 partial funding of $194,165 for this project was provided from the County's IT budget. The remaining funding of $341,646 was provided by the agency. The total cost of $535,811 will cover all necessary software, hardware and consultant services to fully implement this project. No additional funds required for FY 2010.

### Return on Investment

E-government services will give providers and centers the ability to access data and maintain their profiles, reducing the need for OFC staff to maintain data. This system supports the Office for Children's permitting of family care providers and the Child Care Assistance and Referral program, and enables permiting and the processing of over $3 milliln monthly payments to providers and centers. Upgrades avoid future cost assosicated with a non supported system. E-government services support the County's IT strategic plan.

## IT0069 Integrated Housing Management System

### Project Description

Housing and Community Development (HCD) deployment of a comprehensive house management system, will result in a redesign and consolidation of seventeen programs, six computer systems, six separate databases, and a host of manual processes. This effort streamlines requirements for HCD's compliance with U.S. Housing and Urban Development's (HUD) reporting structure, incorporates all HCD partnership program financial information on one technology platform, and enables project-based reporting requirements for all Public Housing Authorities. Much of the data for the new system can be automatically extracted from the existing County financial and procurement system, eliminating the need for manual data entry and reducing inaccurate data reporting and/or the omission of pertinent financial data.

### Project Goals

Project goal is to automatically extract information from the existing corporate enterprise systems, eliminating manual data entry that can result in the reporting inaccuracies and omissions of pertinent financial data.

### Progress to Date

Phase I which commenced in March 2007 automated postings transactions originating in Yardi to FAMIS. The initial HUD mandated modifications were completed July 2007, remaining modifications continued through December 2008. Currently phase I performs interface posting of four to six thousand transactions from Yardi to FAMIS with little human intervention including automated reconciliation and reporting. Phase II will automate posting transactions originating in FAMIS to Yardi as well as additional FAMIS to Yardi alignment functions.

***Milestones:***

- HUD Mandates Completed – FY 2008
- First Integration Complete, FY 2009
- Second Integration – FY 2010

### Project Budget

FY 2006 funding of $160,000 was provided to develop an interface between the financial module of HCD management system and the County's financial and procurement system. Additional funding of $222,500 was provided in FY 2007 to complete the interface and ensure compliance with HUD mandates. No additional funds were requested for FY 2010.

### Return on Investment

The principal return on investment for this project involves savings related to staff time and improved customer service. The implementation of this system reduces compensatory pay and overtime for staff involved in the time consuming dual-entry of financial information. Clients will receive better customer service when inquiring about payments or Housing Assistance payments they expect to receive, landlords and housing assistance clients will be able to access this information through the Web, and payments can be processed as needed, rather than a weekly batch process. Landlords who receive rental payments and clients who receive utility assistance will receive their payment in a timely manner. This project provides Housing Management staff remote access to up-to-date information which improves customer service. Furthermore, capital project expenditures will be monitored more closely by project managers, potentially decreasing the risk of overages. Each housing project and program's financial situation is monitored individually, allowing Housing Management to make more informed decisions regarding performances.

## IT0075 Participant Registration System

### Project Description

This project was designed to allow the Department of Community and Recreation Services (CRS) to implement a centralized, web-based participant registration and tracking system at all community centers, senior centers, and teen centers. Project goals include the implementation of standardized data collection on participants for all centers, easier registration process for participants who use CRS centers more than once or at more than one location, ability to sort multiple data fields and develop reports for use in program development, strategic planning and improved customer service for citizens using CRS centers.

**The Participant Registration System project is deferred as part of the FY 2010 Budget reduction process.**

## IT0085 Loan Processing System Replacement

### Project Description

The Fairfax County Department of Housing and Community Development (HCD) provides loan assistance to resident homeowners under a number of County and Federally sponsored programs. These Loan programs are available to assist low-to-middle income residents in securing and maintaining affordable housing.

### Project Goals

This project's goal is to replace HCD's twenty three-years old Loan Processing System with a COTS program that facilitates current loan processing and tracking need, as well as retains Mainframe connectivity to the Department of Finance functionally. Through the years both the functionality and technology associated with the existing system have become dated and the need for a more robust loan processing system have grown. Implementing a current loan servicing system that utilizes web technology to properly account, service and report on the excess of $46 million in loans in the HCD portfolio will allow for enhanced revenue and compliance with federally mandated HUD programs.

### Progress to Date

A request for Proposal was issued in the spring of 2009.

### Project Budget

FY 2009 funding for $126,000 was provided to replace existing department of Housing and Community Developments software used for its loan processing. FY 2010 funding is not required.

## Return on Investment

To address current shortcomings of the Loan Processing System, the County would need to invest substantial amount of time at an estimated cost of $300,000 and $500,000 in programming fees and discontinue its plan to phase out the inefficient IDMS and its associated maintenance costs. Procuring and implementing a loan servicing system that utilizes web technology is needed to properly account, service and report on the excess of $46 million in loans in the HCD portfolio, many of which are not captured in LPS. It also allows for enhanced revenues through the use of database matches (e.g., the Clerk of the Court, DPZ, etc.) which can enable HCD to independently determine if the conditions for loan repayment have become due. Given the large dollar amounts in our Proffer and various deferred loan programs the opportunities to enhance revenues or deter the loss of funds justify the need for this new system.

## 3.6 Planning and Development

### IT0011.12 Comprehensive Plan/Zoning Ordinance Workflow

Project goals included the implementation of a Document Management System (DMS) to provide for an audit trail for amendments to the Comprehensive plan. The workflow component of a Document Management System saves time and reduces paper by allowing for an electronic circulation of draft staff reports, amendments, memos, letters, and other staff documents for review, editing and approval. DPZ produces many types of documents such as paper copies for publication or distribution to the public, as well as Web pages and other electronic products.

**This project is deferred as part of the FY 2010 Budget reduction process.**

### IT0055 Fairfax Inspection Database Online (FIDO)

#### Project Description

The FIDO Project involved the replacement and consolidation of several platform-specific land use management systems into a single enterprise solution that supports land use permit issuance, inspection, and code enforcement operations at five County agencies (Public Works, Planning and Zoning, Fire and Rescue, Health, and the Code Enforcement Strike Team). FIDO supports ninety different permits (building, roof, basement, restaurants, sign, sprinkler systems, fire alarms, etc.) land use complaint types (residential overcrowding, tall grass, junked cars, etc.), and also includes a web portal to allow citizens and businesses to query the status of a permit applications and code enforcement complaints.

#### Project Goals

The goal of the FIDO Project was to provide a single database solution that met the needs of multiple agencies involved in similar processes. FIDO was integrated with several other County systems (Land Development System, Integrated Assessment System, and Master Address Repository System, GIS) to provide a seamless process throughout the lifecycle of construction projects, and code enforcement management activities. Project goals also included enhancing customer service by streamlining the permitting process, and reducing permit issuance, plan review and inspection timeframes.

#### Progress to Date

All relevant FIDO modules (Permits, Code Enforcement, License, Customer Service, and Cashiering) are in production for DPWES, DPZ, FRD, the Health Department and the Strike Team. Other agencies such as the Department of Housing and Community Development, and the County Attorney also access FIDO on an as needed basis.

In FY 2009, the project team completed implementation of an enhanced Code Enforcement module that transformed code enforcement activities from an agency-centric module to an address-based case management module that aggregates all agency activity for a specific address in a single case. Work also continued on the development of a mobile wireless building inspection system for DPWES that will interface with FIDO. The DPWES wireless system is scheduled for implementation in 2009.

In addition, a mobile wireless FIDO pilot was launched in the Department of Planning and Zoning in February 2009 that involves the extension of the FIDO desktop to the field for up to 10 DPZ code enforcement inspectors. The pilot provides direct access to FIDO from the field through a laptop and virtual private network that allows the Inspector to interact with FIDO as if he is in the office. Initial feedback has been positive as it allows the Inspector to access and update Code Enforcement case information remotely, thereby eliminating the requirement to "drive back" to the office to perform system research and update activities. The Fire and Rescue Department and Health Department inspectors will participate in the mobile wireless pilot during the summer of 2009. Remaining project tasks include the enhancement of the FIDO web portal to allow citizens and businesses to apply for land-use permits via the Web, and the expansion of wireless technologies to support all Building and Code Enforcement field inspectors with compliance inspections, and complaints management.

#### Project Budget

Due to budget constraints FY 2010 funding is not available.

#### Return on Investment

FIDO consolidated land use data from several disparate systems into a single land use data repository that has transformed multiple agencies heterogeneous business

processes to a homogeneous presentation layer that provides accessible business intelligence to key decision makers and customers. This data repository has led to a collaborative land use management business architecture that minimizes extended 3rd party reviews and information shortfalls that have historically prolonged permit issuance and code enforcement lifecycles. Data centralization has also maximized employee productivity by providing a single point of reference that has eliminated the need for phone calls and manual processes to determine the status of permit issuance pre-requisites (i.e., Site plan, code enforcement violations, contractor licenses, etc.).

System consolidation efforts included the elimination of redundant technical infrastructure and software maintenance expenditures that will ensure system efficiencies and cost savings throughout the FIDO system lifecycle. In addition, savings are realized through a streamlined system that has enabled the land development industry to work more productively with the County thereby providing growth opportunities for County residents and businesses, that can potentially enhance tax revenues. Moreover, the e-government capabilities and collaborative agency approach to code enforcement activities provided by FIDO has established an electronic dialogue between the County and citizens to monitor and/or eliminate conditions that may negatively impact quality of life issues in Fairfax County neighborhoods.

## IT0064 Proffer Database and Status System

The goal of the proposed proffer system was to provide an adaptive technical architecture to supplement Fairfax County's existing proffer business architecture, and enable the implementation of a reengineered Proffer monitoring, implementation, and fulfillment processes. The objective of PRODSS was to provide a quick response reporting tool to summarize and display key proffer data elements in a flexible, project specific and user-friendly format.

**The Proffer Database and Status System is deferred as part of FY 2010 Budget reductions.**

## IT0065 Facility Maintenance Management System

### Project Description

This project supports the acquisition of an Integrated Facilities Management and Grounds Management System as a single, integrated facilities information resource for the Facilities Management Department (FMD) and the Fairfax County Park Authority (FCPA). An updated system will increase the effectiveness and efficiency of staff and utilization of capital resources required to maintain and manage County and Park facilities and properties. The new system will support the goals of the project through the enhancement of data collection methods and tools, improved warranty tracking, elimination of redundant facilities information databases, user friendly interfaces for customer access, and a strong reporting system.

### Project Goals

The goals of this project are to acquire and implement a state of the art Computer Integrated Facilities Management (CIFM) System. FMD and FCPA hold the greatest portion of responsibility for the maintenance of County's largest and most valuable physical assets: its properties, facilities and the subsystems that keep them operational. The maintenance aspect must be fully integrated with the management of those assets by encompassing all the functional components and activities that support Lease Management, Space Management and scheduling, Inventory Control, Grounds Management, Contracts Managements, Utilities Management, Physical Security, and Emergency Preparedness/Disaster Recovery. By implementing a web base, "one stop shop" for facilities information, we will be able to improve internal efficiencies as well as provide more accurate, completed, and timely information to customer agencies. By implementing a web base, "one stop shop" for facilities information, the County will improve internal efficiencies as well as provide more accurate, complete, and timely information to customer agencies. By consolidating the redundant facilities tables and databases maintained by various branches within FMD as well as by the participating "partner" agencies, the County will gain the benefit of more consistent data and improved interagency coordination of information.

### Progress to Date

Phase I – Portfolio and Demand Maintenance – was implemented in March 2007. Implementation of Planned Maintenance, Inventory bar-coding, space management and configuration of handhelds is planned for June 2009; Real

Estate Leases module for August 2009, and Capital Projects phase by December 2009.

### Project Budget

FY 2009 funding of $188,218 supports integration services required for the completion of project milestones. FY 2010 funding is not available.

### Return on Investment

Extensive saving will be realized through the streamlining of communications and processes throughout FMD and the Park Authority, the most quantifiable savings derived from time saved by field personnel (crafts, trades, and grounds personnel) and Work Control Center staff within the agencies. The replacement system will provide bar-coding and wireless technology to greatly improve the speed and consistency of data collection necessary to better utilize field staff the elimination of excessive hand recording of information that is entered into the system at a later time and/or by a different individual. Accurate and timely data collection plays a vital role in improving time management for field staff and will ultimately work to extend the life cycle of equipment. Improved data collection in the field, along with a web based customer request and inquiry interface will save time for staff in terms of handling customers' status inquiries and work order processing from initiation to close out. With the implementation of this system, duplicate work orders, work performed by vendor for inventory that is under warranty and multiple tasks on work order will all equate to savings by cost avoidance.

## IT0067 Stormwater Maintenance Management System

### Project Description

This project will consolidate a number of stand-alone databases used for work order, complaints, and infrastructure inventory in the Maintenance and Stormwater Management Division (MSMD) into one streamlined, integrated maintenance management system. Data is currently captured in multiple, mostly stand alone, applications, some of which are in old technology programs and unable to run on a network. Most of the data is not linked, requiring repetitive input of information, which costs staff time and increases the likelihood of input error. Non-integrated data also makes it difficult to consolidate and provide information necessary to meet mandated reporting requirements.

Replacement of existing databases with an integrated system will tie together work orders, materials equipment, complaints, GIS and infrastructure inventories; allow data sharing across the agency and with partner agencies; result in better customer service by allowing residents, Board of Supervisor offices, and others easy web-based access to information concerning complaint status, work order status, and infrastructure maintenance history by location (e.g., history of flooding at a particular site).

### Project Goals

Project goals seek to increase operational efficiency by streamlining the work order, inventory tracking, and reporting processes; improve decision-making through the increased availability of pertinent information and enhanced analysis; provide synchronization of GIS data for services requests, and work orders and asset management. The project will enable cross-referencing of inventory with other GIS data layers, creating maps for work orders, and providing more detailed information to staff and customers. The reduction in manual data entry will result in fewer data entry errors and improve the quality of data. Additionally, enhanced tracking of "trouble spots" (i.e., systems or structures with recurring maintenance problems) as well as the consolidation of reporting capabilities for budget preparation and performance measurement provide further efficiencies for improved operations.

### Progress to Date

The Requirements Analysis Phase for the project was completed during FY 2007. Based on the results of the Requirements Phase, FY 2008 activities included a market analysis of compatible COTS packages. During FY 2009 an existing COTS package at DPWES's Waste Water Management system was selected for modification and expansion to support the Stormwater Divisions new work order and asset tracking systems. Project is expected to be complete in FY 2010.

### Project Budget

FY 2006 funding of $335,993 supported the completion of the Projects' Requirements Analysis phase, and the remaining balance supplemented by some agency funds will support the procurement and implementation of the COTS solution. Due to budget constraints FY 2010 funding from Fund 104 is not available.

### Return on Investment

The benefits of an integrated system include reduced operational costs, migration of aging legacy system to a modern database, integration of agency data, decreased reliance on preprinted forms and photocopies, an improved level of completeness and accuracy in data collection efforts and improved access to information for decision making. Data is entered once at the source, and cost savings will result from the elimination of data entry redundancies existing between the present materials, daily labor time entry and work order databases. Web-based customer complaint/maintenance request and customer inquiry interface will save time for staff for handling customer's initial reporting of problems, status inquiries and work order processing from initiation to close out. In addition, the proposed system will provide public access to data in appropriate cases such as on-line complaint/maintenance requests and work order status, thereby eliminating significant call-taking functions, as well as providing customers direct access to data.

## IT0077 Land Development Industry Enhancements

The customer flow management project would reduce customer wait times, use staff resources more efficiently, provide real-time and accurate workload and backlog statistics for management analysis, and improve customer service. In light of budget constraints, DPWES/LDS (Land Development Services) agreed in October 2008 to temporarily suspend the customer flow management project, but believes firmly in the benefits of the project and the need for the implementation of a customer flow management tool in LDS.

**This project is deferred as part of FY 2010 Budget reduction process.**

## IT0082 Land Use Information Accessibility Initiatives

### Project Description

During January 2006, the Board of Supervisors established the Land Use Information Accessibility Advisory Group ("Advisory Group"). The purpose of the Advisory Group was to review the ways in which land planning and development information is made available to the public, make recommendations for accessibility improvements, and develop a high-level plan of action. The Advisory Group made a number of recommendations which were accepted by the Board of Supervisors in January 2007. See http://www.fairfaxcounty.gov/landusecomm/ for the final Advisory Group report.

### Project Goals

Project goals are to improve the ability of citizen and business constituent to easily access information concerning land use planning and development activities in their communities.

### Progress to Date

During FY 2007 LDSNET web page enhancements were made to provide two new inquiries; the Search Land Use Information by Address, and the Search Land Use Information by Magisterial District. Both of these functions also supported searching by, and accessing spatial views of land development information on a map. During FY 2008 staff addressed several Advisory Group recommendations that included:

- Improving navigation between the LDSNET & GIS My Neighborhood web pages for common data elements,
- Expanding the Search by Address/Search by Magisterial District features to incorporate building permits and additional Plan types/Plan history,
- Expanding the LDSNET web page to include Site and Rezoning plan summaries in downloaded PDF files,
- Documenting requirements for citizen email notification of Site/Rezoning plan submissions, and 3D imagery tool integration for the My Neighborhood web page.

In FY 2009, 3-D web-based applications provided an enhanced web capability which allows users to view key GIS data such as parcels and road centerlines along with the 3-D models. The application enables users to incorporate and view 3-D web models available from web libraries on their local computers, and also assists user in viewing and evaluating the spatial impact of proposed land use developments. Future plans include further enhancements to the 3-D web viewer and the GIS My Neighborhood web page improvements. These include rezoning information, site plan submissions, and building permit information relevant to address-specific web inquires, as well as summary reports and GIS map displays of active land use activities along with community information concerning elected officials, school pyramids, parks and recreation facilities, and public safety locations (i.e. police and fire/ rescue stations).

### Project Budget

Due to FY 2010 budget constraints additional funding is not available.

### Return on Investment

The project streamlines constituent access to relevant land use information, enhances navigation and provides more intuitive and web-based visualization tools for understanding the spatial environment. These efforts exhibit Fairfax County's commitment to making land use process and information more open, inclusive, and citizen-oriented. These projects enhance citizens' awareness of land use information impacting their neighborhoods and facilitate citizen participation in the process. Information on these systems is available 24/7 on the County's website.

## IT0087 ParkNet Security Upgrade

### Project Description

The project is an IT hardware and software integration project to upgrade and bring ParkNet, Fairfax County Park Authority's aging business application into compliance with Payment Card Industry Standards (PCI) and replace aging hardware and operating system platforms with a County-compliant, Windows-based hardware and operating system platform to serve the Park Authority and its citizen-customers.

### Project Goal

This initiative ensures conformity with current supportable IT architecture and security standards as well as compliance with the Payment Card Industry mandates for accepting credit card payments over the internet and IVR.

Project objectives include: securing the Parknet application by using County-standard tools for anti-virus protection; securing the ParkNet application from threat of environmental mishap and promoting Continuity of Operations Planning (COOP) by relocating it from the Herrity Building to the Enterprise Operations Center; increasing system availability to staff and citizens, placing the administration of the ParkNet platform under the auspices and standards of the agency's organizational unit; providing a faster application for agency staff (which benefits County citizen-customers); and eliminating the need for special DEC Alpha Cluster and Open VMS skill for Automation Services Branch staff.

### Progress to Date

Procurement activities will be complete by the end of FY 2009. Software integration, installation and testing are planned for FY 2010. The project will use existing County infrastructure resources for implementation.

### Project Budget

FY 2009 funding of $179,571 was provided to address project needs collaboratively with the Fairfax County Park Authority. FY 2010 funding is not required.

### Return on Investment

The ParkNet system is critical to a range of agency core functions including recreation center and golf course point of sale activities to program and camp registration via the internet and IVR portal, architecture and security standards, as well as compliance with Payment Card Industry mandates for accepting credit card payments over the internet and on the IVR. Opportunities exist for enhanced revenue because of increased uptime and availability of the ParkNet system and the Internet class registration capability. The project protects the application, agency information, and citizen information by moving the server to the County's Enterprise Operations Center (EOC), and promotes Continuity of Operations Planning (COOP) by involving County staff and resources in the protection of the data.

# Section 4

## MANAGEMENT CONTROLS AND PROCESSES

# MANAGEMENT CONTROLS AND PROCESSES

## FEATURED IN THIS SECTION

# SECTION 4

## MANAGEMENT CONTROLS AND PROCESSES

### 4.1 Information Management Framework

#### Background

In FY 1994 the Fairfax County Board of Supervisors created a citizen Information Technology Advisory Group (ITAG) to study the use and management of Information Technology (IT) by the County government. The ITAG was composed of eight private sector executives from Fairfax County based companies. Two committees supported the ITAG, one made up of staff from their own corporate organizations and the other comprised of County staff. The work of the ITAG resulted in the creation of the Department of Information Technology (DIT).

Several independent County organizations already involved with application programming, systems infrastructure, data center operations, telecommunications, mapping and technical training were merged to the new IT Department. Centralized resources for system security, architecture and standards, e-government, technology planning and administration were added resulting in a full function centralized County government IT organization. ITAG also recognized that larger County departments would still need to retain some IT staff in addition to utilizing central DIT resources, and that agency business specific projects such as technology based industrial systems or small scale point solutions would be better handled by the agency rather than the central IT agency. DIT assists these agencies with consultation, mentoring, technical project support, infrastructure utility provisioning, licensing and standards compliance. All departments must adhere to County IT standards, planning and budgeting and continue to follow the direction set by the County to ensure consistency, cost efficiencies and aggregate technology investment value.

ITAG made further recommendations for IT governance and funding, including:

- The County create a Chief Information Officer (CIO) position to oversee DIT and technology Countywide
- The CIO should report directly to the County Executive as a Deputy County Executive level position
- IT be treated as an investment and given consistent funding annually
- The CIO be responsible for IT planning Countywide and the expenditure of major IT project funds
- The County create a funding mechanism to ensure IT employees are trained properly and their skills are kept up to date
- An annual IT plan is written to detail IT direction, projects and project portfolio budgets.

At the time of ITAG recommendation for establishment of a technology modernization fund, it also recommended that the County provide funding of approximately $20 million per year for investment in technology in order to sustain the Board of Supervisor's goal for service efficiencies and effectiveness at optimal cost. This fund provides money for software, hardware and services required successful project delivery. The modernization fund represents the County's enterprise wide and key departmental projects, which are closely tied to business process improvement and strategic goals.

Based on the initial ITAG recommendations, the following have been implemented in on-going development and improvements in the County's IT organization, governance, and support structure:

- Centralization of the major IT functions for the County (FY 1995)
- Creation of a CIO function (FY 1995)
- Standardization of technology investments across the County (FY 1995)
- Annual technology project review incorporated in the County-wide budget process (FY 1995)
- Creation of a technology modernization fund (FY 1996)
- Funding for technology training (FY 1996)
- Project Steering Committees, formal project reporting and governance framework established. (FY 1996)

- Creation of a permanent private sector advisory group: ITPAC (Information Technology Policy Advisory Committee) (FY 1998)
- Creation of an internal Senior Executive IT Steering Committee (FY 1999)
- Launch of an internal project management certification program (FY 1999)
- Creation of an enterprise technology architecture committee (FY 2001)
- Creation of an IT Investment Portfolio Management position in DIT (FY 2002)
- Creation of an enterprise technology architecture function in DIT (FY 2002)
- Development of strategic planning alignment process (FY 2003)
- Strengthening and reorganization of IT Security leadership an capability (FY 2003 and 2004)
- Merger of information architecture, web services and document management functions (FY 2004)
- Establishment of Architectural Review Board in DIT (FY 2005)
- Reorganization to establish resource capability that addresses regional homeland security interoperability requirements, and creation of a position dedicated to integrated Public Safety and Emergency Management strategy (FY 2005)
- Re-designated CIO position as Deputy County Executive (DCE for Information Departments and Compliance, and, designated Director of DIT as Chief Technology Officer (FY 2006)
- Established E-Gov Executive Committee (FY 2007)
- Created Customer Service function for enhanced Help Desk end-user tech commodity devices in DIT (FY 2007)
- Established Services-Oriented Architecture Team (FY 2007)
- Adopted ITIL Framework for Service Support (FY 2007)
- Established Deputy Director to enhance executive capacity on IT service delivery and operational efficiency, and manage emergency support initiatives (FY 2007)
- Established Court Technology Leadership position and Governance structure (FY 2007)
- Established Public Safety IT Governance Board, and, Public Safety IT Architect (2008)
- Enhance Change Management and configuration Management Processes (FY 2008)
- Released new strategic plan and updated Systems Development Life Cycle Standards (FY 2008)
- Established Leadership for National Capital Region Interoperability Initiative (FY 2007)
- Legacy Replacement System (County and Schools) Steering Committee (FY 2008)
- Develop new Technology Strategy Map (FY 2009)

## Executive Governance

The Deputy County Executive for Information and Compliance (DCE-I) is responsible for the overall strategic direction of technology and information initiatives. The Board of Supervisors expanded the role of the DCE since the position was created as CIO in FY 1995. Today, the DCE is responsible for a broad range of information-related departments, including the County Libraries, Department of Cable Communications and Consumer Protection and Office of Public Affairs who partner with the Department of Information Technology on public access technology capabilities and the e-government program.

The Director of the Department of Technology is also the County's Chief Technology Officer (CTO). The CTO develops strategy, policy and processes for technology County-wide. The CTO creates the agenda for IT and communications technologies, and directs the activities in the Department of Information Technology.

The Senior IT Steering Committee is the County's executive technology oversight body, providing policy, asset and resource authorization and guidance for the County's IT program. This group includes the County Executive, Deputy County Executives, Director of the Department of Information Technology/CTO, and Director of the Department of Management and Budget. The committee receives additional input on a variety of issues from the County's Senior Management Team made up of all agency heads. The committee meets monthly to look at specific IT initiatives, opportunities and issues, sets the County's IT strategy based on the Board of Supervisor' direction, and approves the annual IT investment plan which is delivered by the CTO to the ITPAC for its endorsement. The Information Technology

Policy Advisory Committee (ITPAC) is a group of citizen technology savvy leaders appointed by the Board of Supervisors to advise the DCE and CTO on strategy, the industry, and best practices. The annual ITPAC agendas provides information about both existing portfolio initiatives as well as planned initiative and opportunities, most of which require IT investment support in either upcoming or future budget planning cycles. ITPAC writes an annual letter to the Board of Supervisors with its recommendations and advice on technology priorities as part of the annual County budget process. Members also advise their respective Board members on critical matters.

The e-Government Steering Committee provides guidance and direction for new capabilities provided via the Web and other public access cannels. The DCE is the chair of the committee, which includes the CTO, E-Government Manger, Directors of the Department of Cable Communications and Libraries, and the Office of Public Affairs, supported also by the County's IT Security Director and County Attorney. The committee considers the impact of emerging trends such as the public's adoption of social networking and other information mechanisms in forming the County's strategy for enablement of and governance over related e-Government initiatives.

Finally, major projects such as the Public Safety Information Systems project and Legacy Systems Replacement project have governance boards typically chaired by the sponsoring Deputy County Executive with membership including the stakeholder business departments and the CTO or DIT management. These boards/committees oversee, provide guidance and resolve related policy issues to their agencies project manager(s) and teams to ensure scope and delivery.

## Project Investment Prioritization and Execution

The Senior IT Steering Committee established funding priorities for technology projects. Based on changes in social and economic paradigms, and state mandates that must be fulfilled, the following priorities are adopted as guidelines for project funding decisions:

- Mandated Requirements
- Leveraging of Prior Investments
- Enhancing County Security
- Improving Service quality and Efficiency
- Ensuring a current and supportable Technology infrastructure

The process is managed by the IT Project Portfolio Office in the Department of Information Technology. For each fiscal planning cycle, initial project recommendations are submitted by County departments as part of the annual budget process. A two-phase approach was implemented to assist in the preparation and evaluation of information project proposals submitted for funding. Project proposals must meet the following requirements:

- Submission of viable projects: minimize project requests that may be beneficial to County business conceptually, however lack substantive information in critical project areas such as staffing plans, technical architecture, project deliverables and benefits;
- Ensure that proposed project timeframes, areas of responsibility and funding accurately reflect County procurement, budget and existing IT project commitments, as well as clearly identify the impact of the project on agency business and technical staff, and agency operations;
- Identify potential savings by utilizing exiting County-owned technologies or by jointly reviewing similar individual project requests to minimize IT software and hardware duplication and leverage existing technology investments;
- Ensure that proposed project schedules are feasible, and/or that ongoing projects are within scope and budget, and are on schedule.

Early in the process, agencies are requested to submit both a business and technical viability analysis for each proposed project. The business analysis, reviewed by staff from the Department of Management and Budget (DMB) and the Department of Information Technology (DIT), includes such factors as business objectives, return on investment including cost savings, cost avoidance, enhanced revenue, non-quantifiable service benefits, staff savings and staffing efficiencies, indicators to measure success, estimated costs, business related risks and alternatives to the proposed project.

The technical analysis, reviewed by staff from DIT, includes such factors as proposed system architecture and its compatibility with the County's technical architecture standards, impact on existing systems and infrastructure, data conversion, electronic interface requirements, and staffing requirements for development and maintenance of the solution. DMB and DIT make recommendations for improvement of the proposals. The final proposals are

presented in an oral interview setting conducted by DIT and DMB senior management, who make funding recommendations for consideration by the Senior IT Steering Committee. This process is guided by the five information technology priorities established by the Senior IT Steering Committee.

The Senior IT Steering Committee reviews the recommendation for inclusion in the County Executive's annual proposed budget. ITPAC's recommendations are included as part of the Budget Adoption process. ITPAC develops a letter supporting the strategy and themes for the proposed project funding package to the Board of Supervisors. The Board makes the final decision on funding based on alignment with the Board's goals and recommendation of the County Executive.

As stated previously, funding in the IT modernization budget represents the strategic and enterprise-wide initiatives for the County. If during the project review process a project is identified that is not strategic, does not have enterprise wide benefits or benefits a major department mission but does benefit a small independent function, funding may be placed into requesting departmental budgets. The department can then use these funds to undertake the project internally with existing staff or contract for services if necessary. Agencies can request that DIT manage the project if that is the best course. Departmental projects must follow the established IT standards, methodology and architecture requirement with DIT providing advisory consultation, infrastructure, resources, and/or standards compliance.

Once projects are approved for funding, a steering committee is created for each project. This committee can vary in size and membership, based on the dollar value and the strategic importance of the project. A project manger is selected from the department sponsoring the project and a technical project manager is assigned from DIT and /or the user agency's technical group if one exists. Project managers are required to hold regular meetings and report progress and issue. All projects must follow the County's standards and project methodology as defined by the CTO in the County's IT standards. Formal architecture standards have been developed that provide further guidance to the project managers. This process is managed by the IT Portfolio Manager in DIT.

The County formally certifies project managers through a project management certification course developed by DIT, which certifies business agency staff to lead projects at different dollar thresholds. Once certified and assigned to an approved project, the project manager's compensation may be adjusted to reflect enhanced organizational contribution. The certification focuses on project reporting and administration, contract negotiation and management, technical architecture, business process redesign, task planning and other topics. Certification is also required for technical project managers. DIT assigns a Technical Project Manager that works with the agency Project Manager to approve the technical solution, help develop the schedule, coordinate implementation activities in DIT, and execute the technical solution. The Technical project manager is involved in the solution selection process and contract negotiations.

In addition to the Project Steering Committee, DIT may conduct periodic project reviews to track progress and support conformance to standards. DIT has established the Architectural Review Board to assist agencies in determining viability of solution and compatibility with architectural standards and the County's infrastructure as a part of the solutions competition and acquisition process. This includes member's participation on Selection Advisory and Technical Advisory panels. Major IT projects with increased risk, higher strategic value, or a material degree of external visibility may receive over sight in tracking project performance and technical guidance from the PMO function in DIT.

Project investment prioritization and execution is based on the following elements that work together to create an enterprise wide process and focus for IT in Fairfax County. The process is inclusive of all agencies and ensures that selected IT solutions align with the enterprise strategic goals:

- Executive Management
- Private sector and internal County board of directors roles
- Executive IT Steering Committee
- County-wide planning and review of technology investments
- Focus on standards, training and certification
- Project Steering Committees
- Collaboration between agencies and DIT
- Portfolio management
- Architectural Review Board

- Skilled project management
- Performance management

In any organization, a wide range of business processes and practices support all information technology projects directly or indirectly. They are integral to both the development and the delivery of flexible, cost-effective and reliable solutions. The following sections provide a brief description of three of these processes, which have been crucial to the successful implementation of information technology solution sin the County's service environment. These processes are:

- Strategic Planning Process
- Information Technology Architectural Planning and Execution
- IT Investment Portfolio Management
- System Development Life Cycle Standards; and
- Information Technology Project Management Program

Each process is briefly discussed in terms of its origins, its larger operational context, the primary functions performed, principal business benefits achieved and future directions.

## 4.2 Strategic Planning Process

In FY 2004, DIT assembled a departmental Strategic Planning team of staff across the IT organizational specialties to gather input on value, need, and expectations related to the future provision of information technology solutions and services, and DITs posture for success. The team was organized into external communications team, internal communications team, and IT research and development team. The resulting efforts of this initiative complemented the annual process for development of the IT Plan and operations of the Department of Information Technology.

The focus of the planning process is to ensure a comprehensive approach to IT across the enterprise, taking into consideration a number of important influences (both internal and external) of relevance to the organization. Influential factors include changing requirements and channels for 'G2G' interaction, the need for business integration and interoperability for cross-cutting County initiatives, fast adoption of e-government opportunities, industry and economic trends, and similar imperatives. The strategic thinking and planning process provides a framework to make decisions around alignment of IT resources to meet the needs of County government. The Strategic Plan provides the County forethought for long term technology commitments and allocation of limited resources to achieve business objectives. This process is necessary to keep and update technology, analyze appropriateness of technology refresh cycles, and the effectiveness and sustainability of technology investments.

Keeping up with the pace of change in technology and using technology effectively to meet government business requirements and public expectations are still the most critical challenges facing information technology providers. Advances in technology enable the workforce to provide better and faster service at a reduced cost, but changes in technology are expensive and complex. New technology must be adopted carefully and integrated wisely into the existing technology infrastructure of an organization in order to maximize the benefits in a cost-effective manner. To give focus and direction to staff within the technology department and to better plan for the future, a vision statement was adopted by DIT that aligns with the County's vision statement:

> *"We are a skilled, forward thinking and responsive organization that builds partnerships in the delivery of a strong and innovative technology environment. We pursue and embrace opportunity to creatively enable and strengthen service delivery through Fairfax County."*

Values were developed along with strategic goals and initiatives. To review these values, goals and initiatives, refer to the Department of Information Technology Strategic Plan, October 2003.

Seven major trends impact technology solutions and enrich the County's current technology architecture. These trends maximize IT capability for users and stakeholders while presenting some deployment challenges in the face of IT resource limitations:

1. The workplace is more mobile; therefore, mob functions can be performed without being tied to a physical location.

2. Communication, collaboration, and information sharing methods are increasingly automated.

3. Information resources must be managed from a full life cycle perspective.

4. Security for information and communications systems and privacy of information are critical priorities.

5. Technical architectures are facing increased capacity and flexibility demands.

6. Citizens require "around the clock" access to information and services through a variety of convenient delivery channels.

7. Interoperability requirements drive a need for data standards and open information architecture.

To accomplish DIT's mission and vision, strategic initiatives are categorized within three strategic focus areas to ensure well-defined purpose. Essential components of each initiative are identified to facilitate the development of agency policies and processes as DIT seeks to achieve its key objectives. The successful adaption of these strategic initiatives positions DIT to provide an effective technology infrastructure and efficient customer service support. The overall outcome promotes County agencies working together with partners, maximizes County agency resources to provide diverse government services and optimizes accessibility to County constituents and customers.

Internal DIT **Collaborative Initiatives** are focused around governance structure and processes, technology rollout, interoperability framework, technology portfolio management and marketing. **Customer Service Delivery Initiatives** are designed to improve customer service improve continually the quality, responsiveness and cohesiveness of products and services delivered. The third set of initiatives, **Staff Improvement Initiatives**, revolves around resource allocation of personnel and skills ownership and accountability.

A major challenge is the development of comprehensive performance measurement systems. Working to overcome these challenges is a strategic priority as the importance of developing performance measurements is fully recognized. Projects have been launched for both initiatives and performance measures that will result in improvements and alignment with the intended direction of the department and the County in a continuous improvement mode.

DIT is in the process of refreshing its strategic plan and developing a balanced score card approach. Key elements of the updated plan will include more focus on the strategic direction of the agencies served, and how agency strategies will necessitate changes in DIT's future infrastructure plans and the development of DIT resources and reduction in the overall cost of IT delivery.

## 4.3 Architectural Planning and Execution

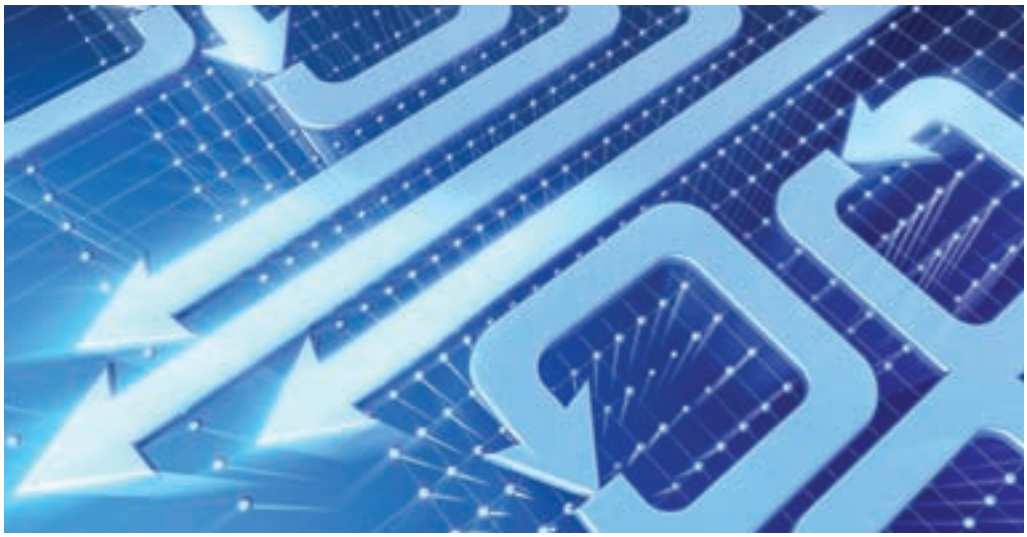
DIT is faced with the constant challenge of staying nimble while aligning the County's information technology strategy with the agencies' evolving business requirements. The IT provider imperative is that solutions must be delivered on time and within budget. Rapid changes in business requirements can overwhelm the capabilities of the IT infrastructure. Disparate decisions and infrastructure investments can easily create a complex and fragile computing environment that is intolerant of change. Given the rapid pace of today's business innovation, no agency can afford to be locked into an environment that is resistant to change. One of DIT's key goals, well aligned with industry-wide best practices, is to develop operational agility. In that effort, the modern IT function has to lower the cost of future changes while optimizing the total cost of ownership for each solution.

IT Architectural Planning creates an adaptive architecture that "engineers out" everything that inhibits change, while "engineering in" a high tolerance for the unanticipated. Specifically, an IT Architectural Plan maximizes the effectiveness of IT, while minimizing the risk associated with IT execution. DIT's architectural planning sets a clear direction for the future development of information technology in Fairfax County. IT Architecture introduces a set of architectural best practices to guide IT in the process of designing a flexible technical infrastructure, which frees the organization to provide an IT environment that meets business requirements.

Execution of the IT Architecture Strategic Plan insures the following benefits:

- Better alignment of IT assets with business goals to create a shared enterprise-wide vision
- Supercharging the infrastructure with leading-edge technologies and 'on-demand' capacity
- Developing a consistent framework for future technology decisions
- Making more effective IT investments and optimizing IT funding processes
- Resolving emerging business problems while leveraging the existing technology investment
- Reducing unnecessary database, hardware and application software redundancy, thereby providing the potential to reduce the cost of IT (DIT recognizes that some redundancy is necessary and beneficial to promote availability, reliability, and recovery of systems)
- Promoting data sharing between agencies and across IT platforms; improving interoperability and the potential for agency resource sharing

To steward this process, a Strategic Architecture Committee composed of DIT and technical and /or business representatives of County departments was formalized. Committee members selected have knowledge of contemporary information technology (IT) direction and the role IT plays in the vision or mission of their agency. The purpose of the Architecture Committee is to address information technology (IT) architecture issues Countywide and to



propose IT architectural goals, standards and guidelines for consideration in implementing IT projects and initiatives throughout the County. In addition to assessing conformance of proposed solutions, the committees' review process provides an opportunity to emphasize the need for interoperability of systems and processes that cross agency or functional lines.

The Committee also works with County departments to ensure participation and inclusion in decisions that affect the annual IT planning process. Responsibilities of the Committee include:

- Provide information technology architectural leadership to Fairfax County Government in supporting the on-going development of a strong, flexible, interoperable and secure technology environment.
- Ensure an integrated view between the County's architectural direction and technology initiatives and implementation plans.
- Work closely with DIT and other County IT groups to identify IT architectural issues related to business needs and IT projects, and propose approaches to address them.
- Propose IT architectural plans and standards to DIT, the DCE and the Senior IT Steering Committee for Countywide implementation.

In FY 2005, a new organizational team was created within DIT to provide oversight of all County architecture and infrastructure standards, policies, and directions. The responsibilities of the **Architecture Review Board** include application development architecture, infrastructure and information architectures, security architecture, emerging technology, process and data modeling, integration and interoperability methodologies, technical standards, and SDLCS compliance. ARB's role is extremely important and valuable given the need to leverage solution platforms and processes across the enterprise and provides scalability, repeatable processes, and seamless interoperability for achieving cross agency business initiatives and countywide goals.

## 4.4 System Development Life Cycle Standards (SDLCS)

The County published standards for documenting the development and implementation of applications. The standards included written means of conveying information about the planned application, to allow for controls, performance, data integrity, appropriate infrastructure and operational procedures required to place the application into production.

The Systems Development Life Cycle Standards form the basis of making the development of applications a consistent, repeatable process. The SDLCS provides application developers a framework of the important procedures and universal requirements necessary to complete an application. As new technologies emerge and become part of the County's systems portfolio, new application development techniques and application architectures using emerging technologies are required. The SDLC standards were enhanced in 2007 to include updates and additional components. As part of the document update, the SDLC includes new WEB development, wireless and interoperability standards, updated security standards, reviews for e-government and GIS, and requirements for Continuity of Operations (COOP) plan and related disaster recovery information as a requirement for deployment of any new system. As an example, web applications must conform to Section 508 and ADA requirements, which enable the use of assistive technology such as screen readers for the blind. The standards are being enhanced to take advantage of WEB 2.0, open source, and WEB 3.0 technologies that will further enhance citizen to government engagement, decision support, and transparency.

The SDLCS and architecture standards apply to all applications developed for use by Fairfax County Government. All staff and contractors providing, developing and maintaining applications for County Government must comply with the Standards, which are published.

A value implicit in the SDLCS is the importance of using the expertise of the project manager (PM) to select the appropriate outputs. While a minimum number of document deliverables are mandatory, the PM must select others appropriate to the individual project. Furthermore, SDLCS promotes accountability. The last phase of the Standards, the Evaluation Phase, includes a post-implementation review to ensure that the project has met its requirements and lessons learned on how the application development standards can be improved. Periodically, selected IT projects are reviewed internally by DIT business and technical staff. In additional, the Fairfax County Internal Auditors may review randomly selected projects.

### Description of the Standards and Process

The Systems Development Life Cycle Standards form the basis for making the development of applications in Fairfax County a consistent, repeatable process. The SDLCS provides a framework for application developers outlining he important procedures necessary to complete an application. Using SDCLS as a starting point, the Architecture and Planning team leads the effort to reformulate a methodology of procedures that should be followed and their execution. Each year, staff will review and refine the SDLCS as necessitated by changes in technologies.

The eight phases of the Fairfax County Systems Development Life Cycle are:

1. Preliminary Plan
2. Define Requirements
3. Design
4. Develop
5. Test
6. Implement
7. Support
8. Evaluate

Each phase contains multiple steps; each step has one or more outputs. The standards can be found on the Fairfax County Web Site on the Department of Information Technology Main page at the following address: www.fairfax-county.gov/gov/dit/sdlcs.htm

## 4.5 IT Project Management Training Program

Managing an information technology project to successful completion on time and within budget is extremely challenging. Successful completion of complex initiatives depends on project mangers' knowledge and understanding of technical aspects of an IT project as well as having the skills required for managing projects in a dynamic environment. In the early 1990's the County's internal audit office reviewed several information technology projects, and recommended that the County:

> *Establish a Countywide IT Project management-training program in consultation with IT Project Management professionals. Provide training to both DIT and agency personnel prior to undertaking extensive IT projects "AND"- establish industry approved guidelines for assignment to the role of IT project manager.*

This need was further highlighted in late 1996 in a consultant's report released on December 17, 1996 entitled, "Renewing Fairfax County: An Organization and Staffing Evaluation of Fairfax County Government." On March 7, 1997, the County Executive's response to the Board of Supervisors about the study included:

(1) "The DIT will establish an Information Technology (IT) Project Manager training and certification program within 3 months—, with certification of a cadre of IT Project Managers within 6 months." AND

(2) "DIT and agency personnel would not be assigned project management responsibilities until certification requirements have been completed. Curricula will include classroom and on-the-job training elements,"

In early 1997, the Department of information Technology (DIT) reviewed other organizations' project management practices and conducted a survey of County information technology managers to determine the type of knowledge and skills needed to enable County staff to function effectively as project managers. Based upon the results of the review and survey, a County project management training program and the associated course content was designed and implemented.

In 2001, the County's IT Project management (ITPM) training program was redesigned to include the project management core competencies outlined in the Project Management institute's (PMI) body of knowledge (PMBOK). PMI is the recognized leader and credentialing organization for project management professionals. Fairfax County's new ITPM training program incorporated current industry approved ITPM practice to ensure high quality project outcomes. Additional enhancements are made each year as technology and best practices evolve. In recent years focus has been placed on managing risks, IT security, organizational change management, and business process redesign.

The new and improved training program consists of ninety-six (96) hours (12days) delivered over the course of 8 weeks by County staff and a project management professional. The overall objective of the IT Project Management course is to provide IT project managers with a foundation in basic project management concepts, principles, and practices to effectively an efficiently mange IT projects.

The core content areas covered are:

- IT Project management Fundamental
- Project Leadership and Communication
- IT Project Plan Development
- Microsoft Project
- Solutions Delivery Framework for Information Systems
- Project Budgeting and Cost management
- Information Security, Risks and Controls
- Project Procurement and Contract Management
- Project Risk Management
- The Technology Delivery Process
- Business Process Redesign
- Information Systems Audit and Control
- Group Presentation & IT Systems Case Study
- Best Practices and Lessons Learned


Training is provided to those individuals who are currently, or will soon be managing an information technology project. Staff are identified by their agency director and selected through a formal nomination process. The training program is currently institutionalized and is normally conducted once a year. Approximately two hundred and sixty (260) Fairfax County and local government IT professional have completed the program and met certification requirements. An IT Project Manager specification (position series) is also included within the County's personnel classification system.

The Fairfax County IT Project Management Certification is awarded to participants in recognition of full participation in the ITPM course. The County's certification is customized for its IT Project management operations. Certification is based upon class participation and achievement of the course objectives. The project manger acquires a clearly defined set of core competencies related to ITPM by attending all IT project management classes in their entirety. This includes the successful completion of a hand-on Microsoft Project desktop training course. Certification in IT Project Management is the basic requirement for managing all levels of IT projects in Fairfax County. Once certified, an individual is given responsibility for the project management process from initiation to closure. The County's IT Project Management training program provides that methodology for achieving high quality IT results utilizing County and contracted resources effectively and efficiently.

In June of 2008 Fairfax County's IT Project Management Training program was recognized by the National Association of Counties and received the association's annual Model Program Award which recognizes innovative county government programs designed to modernize and streamline county government and increase services to citizens.

# Section 5

## INFORMATION TECHNOLOGY ARCHITECTURE

# INFORMATION TECHNOLOGY ARCHITECTURE

## FEATURED IN THIS SECTION

# SECTION 5

## INFORMATION TECHNOLOGY ARCHITECTURE

### 5.1 Enterprise Architecture

This section identifies the current information technology architecture implemented in Fairfax County. The County's technology architecture is a strategic asset that defines technology components necessary to support business operations and the infrastructure required for implementation of new technologies in response to the changing needs of government business. It is a multi-layered architecture that includes:

- Application and Data Architectures
- Platform Architecture
- Network Architecture
- Internet Architecture
- Security Architecture

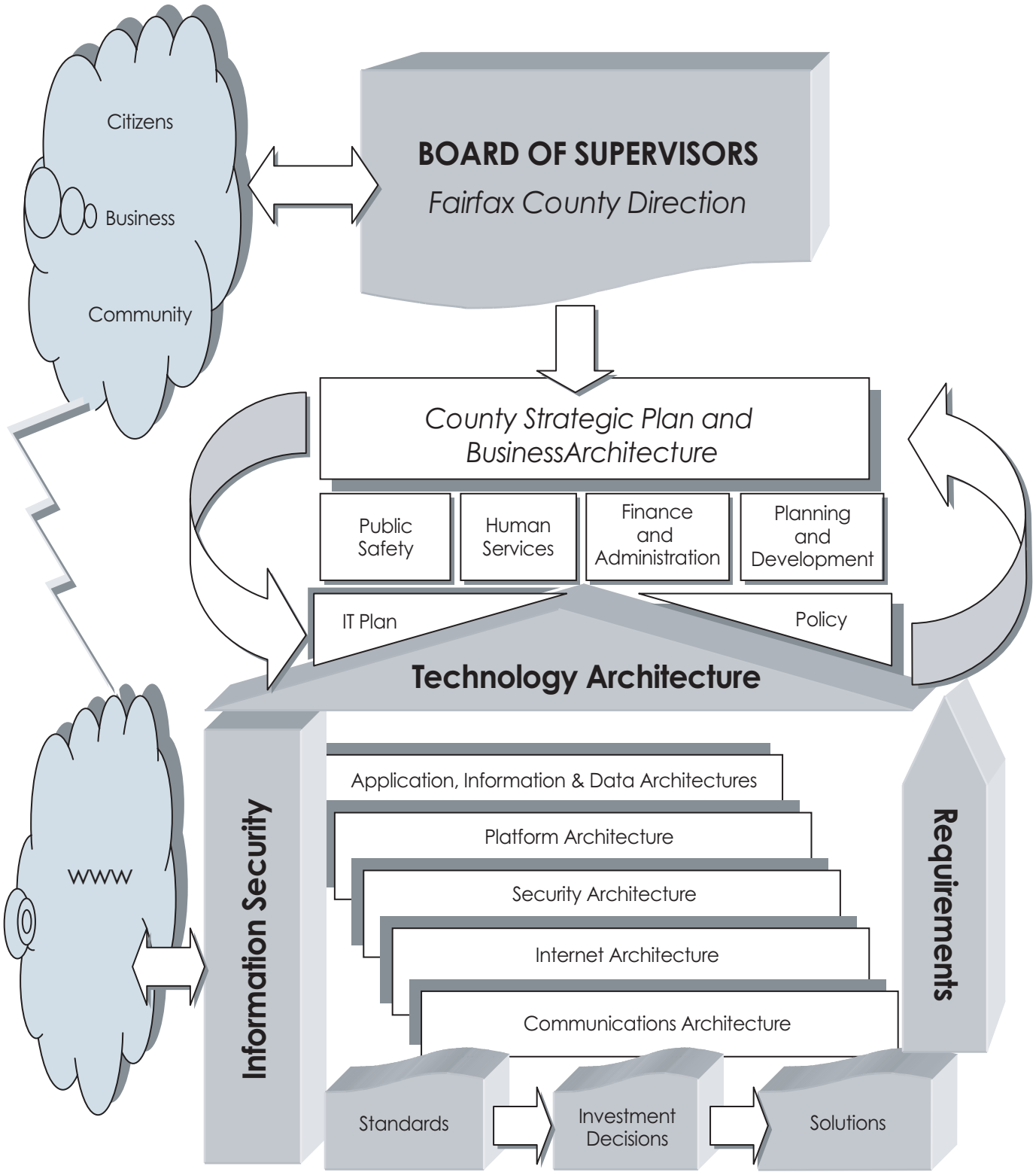
### IT Architecture Process Model

Fairfax County adopted Enterprise Architecture (EA approach) as the blue print or roadmap by which specific technology solutions are developed. Architecture defines the manner in which technology is used to enable flexible business solutions which enable expansion and change as requirements evolve, technology is updated, or becomes obsolete. Architecture as a foundation and roadmap enables the County to establish open standards, assess the impact of new requirements and evolving technologies, and allow for the incorporation of new technologies as part of an updated blueprint that benefits other solutions. Enterprise Architecture improves the efficiency and effectiveness of technology investments by reducing redundancy, leveraging solutions and platforms, optimizing value, and promoting the sharing of knowledge and best practices across County government.

The Enterprise IT Architecture Process Model on the following page illustrates the inter-relationships between the County's IT architecture and business, and the iterative processes involved to ensure the development of an IT enterprise that is efficient, cost-effective, responsive and business driven. For the purposes of the County's model, the businesses have been grouped into four major functional areas; Human Services (HS), Public Safety (PS), Planning and Development (PD), and Finance & Revenue (F&R), inclusive of over 50 departments and agencies representing hundreds of unique and often times cross-agency services.

The model is based on the following Mission Statement that directs the County's information techology activities. Every effort undertaken is framed and aligned with this mission statement:

"Delivery of quality and innovation information technology solutions for agencies and those doing business with Fairfax County Government."


Citizens
Business
Community
BOARD OF SUPERVISORS
Fairfax County Direction
County Strategic Plan and BusinessArchitecture
Public Safety
Human Services
Finance and Administration
Planning and Development
IT Plan
Policy
Technology Architecture
WWW
Information Security
Application, Information & Data Architectures
Platform Architecture
Security Architecture
Internet Architecture
Communications Architecture
Requirements
Standards
Investment Decisions
Solutions

## 5.2 Application and Data Architecture

Application architecture defines the design and correlation among software programs and applications. The Architecture promotes common development and presentation standards, enables optimum system integration, provides opportunities for use of shared infrastructure environments, servers, storage and related tools; enables shared use of data, facilitates the reuse of components, and the rapid deployment of applications in response to changing business requirements. Application Architecture includes elements of technology architecture that converts business process to business intelligence to support the County's goal of delivering timely, efficient and cost effective services. In Fairfax County a vast inventory of enterprise-wide and agency specific applications reside on mainframe, server, and desktop computer platforms. New applications and application enhancements are constantly evaluated, developed, acquired, and implemented as older "legacy applications retire. The legacy mainframe environment will like-wise retire after all such applications have been replaced or re-developed.

The County's goal is to use and create industry standard application development tools and language environments that are adaptive in client/server and Web-enable models. Application architecture protects the County's investment in 'classic' systems by providing enhancements that facilitate enhanced user-friendliness, improved data manipulation, reporting, and end user controls. In addition, by keeping abreast of emerging technologies such as Web Services, XML, SOA and other contemporary methods, the County positions itself to take advantage of emerging opportunities offered by these technologies. An exhaustive discussion is beyond the scope of this section; however, some examples of the County's application architecture and some recent developments are described here.

As the County moves toward a balance between Commercial-Off-The-Shelf (COTS) vs. in-house development, there is a transition to a new framework for application development. The new framework incorporates Software Engineering, Information Architecture, and Application Development Methodology. These principles and techniques are used to augment the current Systems Development Life Cycle Standards (SDLCS). The resulting approach encompasses application life cycles for "cradle to grave"; that is, from the earliest stages of planning, through requirements and design, to implementation and post-implementation support. New applications will be built on the most current and promising platforms and an architectural framework based on the future of IT. While support for existing legacy systems will continue, a dramatic move is also underway to embrace new development platforms such as .Net and standards such as XML and Web Services.

The .Net platform provides the foundation for the next generation of both departmental and enterprise-wide applications and offers a stable application environment with more opportunity for componentization of business logic, sharing of common components and the integration of business processes across application boundaries. A new class of tools such as Visual Studio.Net provides County developers with a robust and flexible development environment. Encapsulating both existing and new business logic into "Web services" provide the ability to expose business processes across organizational and application boundaries, within the County, other local jurisdictions, the state, the federal government, as well as business partners. XML provides the common "glue" to hold together and provide consistent information across boundaries to facilitate data sharing among disparate platforms and systems. Enterprise Application Integration (EAI) products such as WebMethods and Microsoft BizTalk allow virtually unlimited ability to share, incorporate information and business process from older, mainframe and client/server applications in to the new environment. With the ability to extend business processes further through the use of ASP code, the end product will be greater than the sum of the parts. A detailed "Architectural Framework" document has been developed, and is intended to be an organic document flexible enough to reflect and incorporate rapid advances in information technology.

**Production Applications –** Fairfax County is in the midst of overhauling and updating many of its administrative applications as well as acquiring new applications. Key applications in the midst of development or further enhancement include the County's land development system, tax systems, public safety systems, various human services systems, and financial management and human resource management systems. DIT maintains a mainfrafme environment to support County legacy applications. Efforts are underway to convert these applications to new technology. In 2010 the County's Human Resource System will be replaced with a contemporary first tier ERP solution.

DIT provides first tier infrastructure support for over 100 server-based agency applications that provide Windows GUI access to Relational Database Management Systems (RDMS). The IT standards call for complex, Internet accessible or high access databases to use Microsoft SQL Server

or Oracle as appropriate. However, there are also "fat client "and web-based agency specific applications that are maintained separately by agency IT staff. The majority of small agency applications use Microsoft Access or Microsoft SQL Server as their database and programming language architecture. Most agency server-based systems reside on Windows 2003 servers that support both applications and file and print server-sharing requirements.

**Geographical Information System Applications (GIS) –** The ArcGIS software suite provides high-end GIS tools and functionality to the GIS user community. The software integrates visual or graphic data in the form of maps, with descriptive or attribute information from an organization's internal databases. ArcGIS provides to tools for analysts to access, visualize, and query both graphic and tabular data for better analysis and decision-making. There are three levels of license usage for ArcGIS that the county uses. The highest level, ArcInfo, is used by professional GIS analysts for sophisticated analysis and processes. The View level is used by most users for map creating and simply analysis of the County's geographic data sets. Arc Internet Map Server (ARCIMS) and ArcGIS Server are two components used to distribute highly customized GIS based applications through the Internet / Intranet.

## 5.2.1 The Application Tools

Application tools are information technology components used to develop and support application functions. Application tools include the support systems required to facilitate work planning and communications.

**Programming/Development Tools –** New applications are currently under development using fourth generation object oriented languages and tools. This approach will continue as additional client/server applications are developed and as Commercial-Off-The-Shelf (COTS) system components are purchased. Standard life-cycle methodologies are employed to define, develop and implement new systems. The models, design, and documents created are updated throughout the system development and maintenance life cycle. In specific instances, expert system technology is used to incorporate complex rule based functionality into systems. Third and fourth generation languages and tools are used in only a few specific development efforts and as utility programs on the mainframe tier of some client/server systems. New developments use ASP and ASP.NET for the application layer. The County uses webMethods and Microsoft BizTalk to assist in the integration of applications at the presentation, business logic, and data layers. Documentum is the County's enterprise content and document management software solution. The County also supports REAMS imaging solution. Software Engineering technologies are being incorporated into the Systems Development Life Cycle Standards (SDLCS) to provide a disciplined and consistent development approach.

**Collaboration Tools –** The County uses Microsoft SharePoint and Office Communication Suite which include instant messaging and web conferencing. Additionaly, the County uses other video conferencing and web conferencing tools to support collaborative communications. ThinkTank is used for Group session Collaborative Software in the Group Decision Support Center. Groups use the computer-supported meeting center and its software to conduct process improvements, strategic planning, program evaluation, and vendor selection sessions.

**Database Management Systems (DBMS) –** The County uses several database management systems to support its business applications. Mainframe legacy applications use DB2, IDMS, and /or VSAM databases. Oracle and Microsoft SQL Server are the County's databases standards.

**Departmental Reporting –** Business Objects/ Crystal Reports, SAS, QMF, SQL Reporting Services are the current tools supported for basic ad-hoc query and departmental reporting.

**Enterprise Decision Support Systems and Business Intelligence –** The County's portfolio currently contains a number of products used for reporting, analytic, and decision support. Many of these products were brought into the environment through purchase of a variety of COTS solutions with embedded tools. As a result, the County's business intelligence capability is built on departmental level rather than an enterprise level. The proliferation of tools and the associated support, training, and infrastructure costs present a strong business case for rationalizing the portfolio. The County's strategy in this regard is to provide shared enterprise capability and infrastructure for decision support. To that end, the County is currently assessing a variety of platform solutions including SAS, Business Objects, and others that could facilitate the consolidation of isolated point solutions. As standards are defined for the County's enterprise solution(s), the portfolio will be rationalized into fewer products over time. This approach will enable DIT

to upgrade and modernized the existing portfolio while creating economies of scale for improved support and cost control.

**Desktop Office Automation/Workstation Software –** The County has adopted Microsoft Office Suite for general productivity automation functions including Word, Excel, PowerPoint, and Outlook. Microsoft Internet Explorer is the standard for Web browsing. Other automation software includes Microsoft Project and Visio. Agencies may have other desktop based software for special requirements.

**IT Service Desk software –** The IT Service Desk provides County employees a centralized portal for computer support. InfraEnterprise is the web-based solution used to support the Service Desk function leveraging the ITIL framework. The Automatic Call Distribution telephone system is used to route calls. The IT Help Desk has a high percentage of first-call resolution.

## 5.3 Platform Architecture

Platform architecture defines the technical components of the infrastructure including server and client platforms, the operating systems and interfaces supported, as well as other software tools and equipment used to operate applications. Fairfax County's platform architecture includes over 600 servers: z/OS mainframe, UNIX (IBM AIX, Sun Solaris and Unisys ES) and Microsoft Windows 2003/2008. Over 12,000 PC's provide end-user access to County systems. Laptops, Blackberries and other PDAs and handheld devices also support employee access to agency business systems. All personal computers are standardized using Windows XP /Vista and the Microsoft Office 2003/2007 to support office automation requirements. Vista is being rolled out in a few agencies with a careful full deployment strategy. Total server storage requirement have grown from 394 gigabytes in 1998 to the current total of over 300 terabytes. The County also uses state and other non-County hardware platforms as necessary. The following paragraphs describe the major features of the County's platform architecture.

### 5.3.1 The Platforms

**Desktop PCs, workstations and Peripherals –** DIT prescribes hardware platforms and desktop applications standards as well as procurement vehicles to optimize support and cost. Desktop computers (PCs) are replaced in accordance with the County's PC Replacement Program cycle using adopted standards bundled with the MS Suite. The PC Replacement strategy applies to all agencies and provides the County economies of scale as well as a more robust, effective support environment.

The current desktop computer platform standard consists of Pentium 4 and above processors running the Microsoft Windows XP/Vista operating system. County PCs are used for office productivity software, enterprise e-mail and groupware, application client software, Internet/Web access, and mainframe emulation. The next wave of PC replacements to be deployed will be Windows Vista. This will be approximately one-fourth of the installed base. Windows 7 and Windows Mobile will be evaluated for the next deployment enhancement.

Desktop and network printing is accomplished through a large inventory of stand-alone and network printers and appliances. Agencies use a variety of laser-jet type desktop and high speed LAN based printers in offices. In 2003, the County's copier inventory became an enterprise multi-function copier/printer/scan/fax machine asset. In FY 2005, this program was moved to the Department of Information Technology and incorporated into an enterprise printing solution strategy.

**LAN-based Network Servers –** Fairfax County LAN server environment utilizes Intel and Unix-based servers. Enterprise-class server technology (e.g. UniSys ES 7000, DELL/IBM Blade, SUN servers) support the County's enterprise infrastructure applications such as Exchange, Active Directory, SQL, Oracle, Citrix, etc. The County supports virtualization as a standard platform for LOB and infrastructure applications where feasible.

### 5.3.2 Storage Area Network

In FY 2002, Fairfax County implemented its first Storage Area Network (SAN). This enabled data storage in a centralized location, with redundancy and failover, mitigating the risk of data loss due to hardware failure. Data from all severs (mainframe, UNIX, and INTEL) now coexist on the same disk subsystem. In 2006, the County refreshed the enterprise disk arrays and fabric with EMC DMX-3 disks and Cisco fabric. The County recently enhanced storage by implementing Netapp and IBM XIV storage systems, which positions the County for future growth and the ability to meet strategic initiatives for Data Lifecycle Management.

Storage Management requirements addressed by the SAN are:

- Scalable storage capacity that allows users to increase storage as needed.
- Modular, adaptive architectures which allows users to deploy storage in a variety of centralized and distributed environments with re-deployment capabilities as needed.
- Highly available architectures to prevent downtime.
- Cross-platform solutions that support a variety of operating systems, allowing users to reduce costs by standardizing on a single enterprise storage solution, rather than operating system specific solutions.
- Higher levels of performance to support the ever-growing volume of online data.
- Higher performance backup and restore operations to support shrinking backup windows.
- The ability to share data across the enterprise rather than building "islands of data."
- Easy to use, centralized management tools that allow hardware and data to be distributed."

### 5.4 Network Architecture

The County's communications infrastructure includes voice and data technologies, as well as various topologies, transmission services and protocols necessary to facilitate the interconnection of server platforms, intra-building and office networks (LANs), and inter-building and campus networks (WANs). The County's voice and data networks continue to grow, in terms of cost, sophistication, and increased demand on the County's communication staff.

The Communication Group in DIT supports over 14,000 data ports and over 15,000 voice ports. While current initiatives have resulted in many significant changes future plans will continue to meet the challenge of increasing demands. The Gartner Research Group and others now document that network technologies refresh every 18-24 months. This will create additional challenges for County's fiscal and staff resources, as the County strives to keep network standards in line with evolving business requirements, security and other support needs. The communications plan strives to take into account growth, based on the needs of County agencies as programs expand, which in turn require new or expanded network resources to provide both intra and inter County links. The Internet and Web-enabled applications have rapidly expanded. This expansion and the need for business continuity required the expansion from a single high capacity DS-3 for internet services to two DS-3's and one 50-100MBPS MAN circuit connected to two separate ISPs. Initiatives and technologies, such as e-Government applications, streaming video, teleconferencing, and more integrated and complex applications drive the requirements for the County's communication infrastructure and its components, thus the requirement to update and/or enhance annually. The desire for increased network security has resulted in the County employing Network Address Translation (NAT) to add another security layer to protect its Enterprise Network.

The goal is to provide a network that is responsive and reliable for the user and the users' applications and allows for the uninterrupted flow of voice, data, and video information. To this end, the County is working on several projects that will boost and consolidate the underlying physical infrastructure supporting voice, data, and video, while providing increased, cost-effective bandwidth potential, and improved output. The best opportunity recognized is the implementation of the I-Net, a metropolitan fiber ring that connects over 400 County and Schools facilities. The County views a strong, viable communications infrastructure as a vital component in the overall IT strategy toward maintaining its success in deploying cost-effective solutions that optimizes its business goals, and maintains its reputation as a leader in technology.

*Fairfax County's Enterprise Technology Operations Center*

### 5.4.1 Enterprise Data Communications Network

The Enterprise Data Communications Network for Fairfax County Government serves as the data communications backbone that provides countywide access to information technology resources. Operated by the Department of Information Technology Infrastructure Division, the Enterprise Data Network connects approximately 14,000 computer devices in over 300 locations. These computer devices include personal computers, printers, network servers, communications equipment (routers and switches), UNIX workstations and servers, mini-computers, and the mainframe computer. Additionally, various wireless technologies are rapidly expanding throughout the County's network. The County began a project utilizing commercial broadband wireless infrastructure to support wireless applications, data, images, and live video to the field and mobile devices supporting primarily public safety responders and evolving for other key business areas.

All supported network systems are based upon open standards, and compliance with published standards is required for any network-connected device or system. The County standard network protocol is TCP/IP. Gigabit Ethernet is the standard backbone speed in the County and 100 MBPS is the standard desktop speed.

The Enterprise Wide Area Network (WAN) is built of two different architectures. One: I-Net or Institutional Network utilizing the dark fiber provided to the County through the COX and Comcast Cable Franchise Agreements. I-Net spans seven hub sites and two key resource centers, Massey Public Safety Campus and the Government Center. These sites are networked via a 10 gigabit DWDM fiber optic backbone. The I-Net DWDM backbone provides connectivity to 180+ remote sites running a 1 gigabit uplink from the backbone to the site. I-Net also employs MPLS (Multiprotocol Label Switching)/VRF (VPN Routing & Forwarding) to allow I-Net to service many types of diverse traffic whether it is enterprise, public access, public safety, or voice over IP. Through MPLS/VRF each type of traffic can be separated logically for security support, as in enterprise vs. public access, or prioritized in the case of voice traffic. I-Net has now positioned the County Data Commu-

nications Network to respond quickly to the ever-changing technology needs of its customers. The remaining WAN sites are supported via Verizon ATM and TLS services.

The County also utilizes both ISDN and DSL technologies for small sits such as group homes and small park sites. The decision to use these technologies is based on staff size and data requirements of the staff. Use of the ISDN technology is being phased out in favor of I-Net, ATM, of DSL.

The creation of a Public Access Network in FY 2005 was an addition to the Enterprise Wide Area Network (WAN) Architecture. This network provides public access computers to the citizens of Fairfax County providing them access to County and Internet resources while protecting Fairfax County's Enterprise Network. The Public Access Network includes all public libraries, community and recreation services sites, and select human services sites. The design provides for separate physical networks at each site while sharing the existing WAN infrastructure and using logical separation on the WAN. A firewall between the Enterprise Network and Public Access Network allows for county IT staff to manage the infrastructure down to the desktop for each site. This model will be the standard for any new facilities requiring both enterprise and public access.

The County will continue to implement wireless LANs and wireless data over commercial systems as necessitated by business and operational requirements. The use of this technology is carefully evaluated to ensure all County data is protected from unauthorized access. Currently, non-broadcast SSID's, MAC address registration, and digital certificates are required to gain access to the private WLAN. VPN technology is employed to protect data over commercial services.

Network Management is currently supported on four platforms:

1. Orion Solarwinds – Monitors I-Net infrastructure for up/down alerting and performance issues.

2. Verizon Managed Services – Provides fault reporting of all ATM and I-Net sites.

Currently, mainframe connectivity is achieved through a Cisco router using CIP (Channel Interface Processor), connecting directly to the IBM Mainframe through a fiber-optic channel supporting communications of the TN3270 (Telnet) sessions. In FY 2010, the County will enable native Ethernet connectivity directly to the mainframe eliminating the need for the CIP router.

The County has implemented a "Safe" architecture dividing its perimeter into five business groups E-Commerce, Internet Access, Partners, Emergency Operations, and Public Access. Each group has its own physical firewall tailored for the specific business area. This strategy has increased firewall performance and limited exposure to each business group.

- The E-Commerce business group supports all public facing web services providing access to County resources for both citizen and business.

- The Internet business group is used to control County employee access to the internet and allow for content and virus scanning.

- The Partners business group allows for connections to external "Trusted Partners" to include Fairfax County Public Schools, Fairfax County Water Authority, Commonwealth of Virginia (State Police, State Health, Department of Social Services, Supreme Court of Virginia, Department of Juvenile Justice, and State Board of Elections) as well as public safety connections for several adjoining jurisdictions.

- The Emergency Operations group was established to secure the Emergency Operations Center providing IT resources to the Department of Emergency Operations.

- The Public Access network was built for the Libraries and Community and Recreation Services.

Remote access via VPN and Citrix services provides access to the County's Enterprise Network resources for telecommuters, vendors, remote access users or business travelers, as well as several small Fairfax County offices. Security for remote access is managed through a Remote Access Server using security tokens and PIN numbers.

## 5.4.2 Institutional Network (I-Net)

The County has designed and implemented a network (I-Net) utilizing dark fiber which was provided through the Cable Franchise Agreements with COX Communications -Northern Virginia and Comcast of Virginia.

Fairfax County's I-Net is one of the largest and most complex local government networks in operation. This carrier-class network comprised of over 4,000 km of single mode fiber (SMF), in a ring, hub and spoke topology. There are seven Hub sites that are redundantly connected in a ring. The I-Net is one of the most viable, cost-effective and technologically advanced solutions that the County has implemented since computers first appeared in the County's technology inventory. The fiber optic infrastructure enables the County enhanced capabilities for transporting data, voice and video. Through the I-Net the County will reach its ultimate goal of converged voice, data and video technologies. The I-Net can provide services such as high speed data, Voice over IP (VoIP), broadcast video, video conferencing, streaming video, and distance learning. The network has several origination points, and facilities for controlling the switching and routing of data, voice and video signals among all participating sites.

Although broadband service is available through local telecommunication companies, it comes at a significant price, a loss of flexibility, and for some services, only limited availability. The I-Net provides bandwidth that is virtually "unlimited" while meeting the County's present and future communication requirements. The I-Net is becoming the "super highway" for the County's internal video, voice and data communications. The virtually "unlimited" bandwidth provided by the I-Net allows the County to amortize its cost over the life of the I-Net with an overall long-term operating cost savings.

### I-Net Voice/Data Service

See sections 5.51 and 5.53 for detailed information.

### I-Net Video Network

The Video Network is a scalable integrated video transport system which provides a high quality image delivery system with scalable bandwidth, capacity, and growth potential for future Fairfax County Government and Fairfax County Public School applications. Additionally, the Video Network provides video services to over 400 Fairfax County Government and Fairfax County Public School facilities. The I-Net video network transport has two distinct communication links: Coarse Wave Division Multiplexing (CWDM) is the transport technology that provides forward and reverse transport for I-Net enabled County facilities. The forward (downstream) transport provides select cable TV operator channels and local origination content produced by the County's Video Production facilities for services such as distance learning. Each I-Net enabled facility is equipped to transmit reverse (upstream) video to the County's Video production facility for processing.

## 5.4.3 Voice Communications Network

The convergence of voice, data and video traffic into a single network is the ultimate goal for the County's communication architecture (see section under Network Communications and I-Net). Strategic direction for County's communications capabilities and services was developed in an FY 2002 comprehensive study of the telecommunications architecture, including support issues, unique applications and opportunities made available by the I-Net. FY 2006 saw the expansion of this strategic plan into a Request for Proposal (RFP) for the design, engineering, and implementation of a new County-wide voice platform to replace the disparate systems with an enterprise-wide voice communications solution. In FY 2007, the County began execution of a new telephone architecture with an enterprise-wide VOIP capable system. Implementation of the new voice modernization system is currently on going and will be substantially complete in FY 2010. The solution uses the latest technology that includes VOIP and the I-Net (fiber-optic network) as the backbone network that connects County facilities and will lower the County's circuit costs.

This multi-phased project spanning several fiscal cycles eliminates the diverse network of disparate legacy telephone systems with a contemporary telecommunications solution that will send call traffic over the County's I-Net infrastructure and integrate with the County's messaging platforms and IT based telephony applications. These plans and programs will help meet the telephony needs and requirements of Fairfax County citizens and employees, and leverage the high-speed, high bandwidth connectivity provided by the County's I-Net for a fully integrated video, data and telephony enterprise.

The County's Voice Communications Network provides voice communications services to all Fairfax County Government agencies, as well as various affiliates via County-owned systems located in buildings throughout the County, connected via telephone company lines and several direct County-owned connections serving various campus locations. Voice communications services are managed centrally through the network, supporting local and long-distance calling, call centers, IVR (Interactive Voice Response) systems, voice mail, conference bridge and audio-video teleconferencing, hot-lines and special '800' numbers for specific programs, industrial systems monitoring devices, and residential services for County-operated group homes and apartments. Management and voice communication support is also provided for the primary and backup '911' communications centers. In addition cell phones are centrally managed.

The total environment includes approximately 400 sites, comprised of two major campus environments, several large Human Services center, Parks, Libraries, Police, Fire and Rescue stations, "911" Centers, Public Health Centers, etc. DIT supports over 20,000 phones. During an average month the County places over 1.3 million calls excluding intra-building calls. Below is a brief, but by no means complete, summary of the current County's voice communications infrastructure.

The main Fairfax County government sites – the Massey Campus and the Government Center Campus will be served by the Avaya enterprise platform. The Massey Campus implementation was complete in FY 2008 and the Government Center Campus will be complete in FY 2010. Additionally, a number of the larger multi-agency County facilities have migrated to the Avaya platform; those that have not will be migrated by the end of FY 2010. With the implementation of a more streamlined dialing plan, many agencies with a dispersed geographic footprint are enjoying much tighter voice communications integration between locations. Avaya applications, such as the Call Center application, allow agencies to have call center agents located across the County from a physical standpoint, yet part of the same work group from a agency mission standpoint.

With its ability to leverage the cost saving technology inherent with I-Net, the new Avaya platform is able to more fully exploit the broadband capability offered by the County's fiber network. A significant share of voice communications traffic between locations is currently carried "on net" via the I-Net resulting in significant cost savings associated with not using commercial circuits.

A Nortel Networks 61C has been installed at the Health Department's Kelly Square location. This IP enabled PBX not only gave the department advanced capabilities, but it also took a significant resource load off the old Massey PBX. This system was implemented several years ago, prior to the enterprise project. Voice communications to smaller remote sites, including Libraries, Parks, Public Health Centers, etc., are served by various Toshiba systems and the newer Avaya systems.

A Nortel PBX is located at the PSCC (Public Safety Communications Center) for emergency calls, while administrative calls at this location are processed by a Nortel Succession 1000 PBX. The PSTOC building has two Nortel CS 1000 (carrier-class PBXs) installed for public safety emergency calls and a redundant 911 system. Police and Fire and Rescue stations – are on a Public Safety Voice network which is independent of the other County agencies, and have been upgraded to Nortel BCMs.

Other platforms include a ninety-six (96) port computerized conference bridge is located at the PSCC for predominately Police and Fire and Rescue operations. This conference bridge is provided by Octave, and is expandable to 192 ports; voice needs of our very small offices, i.e., small Human Services and community services sites are supported by carrier provided POTS service and single-line analog sets (some of these will be converted to IP phones off the enterprise system project). Various agencies also use centralized IVR services with connectivity provided via Verizon T-1 and numerous channel banks at distant sites. These services have greatly improved Fairfax County Government's ability to provide quality services to its citizens and business clientele.

The County's voice communication systems that used to capture ACD historical statistics have been replaced with new hardware and a new Call Center Management solution from Avaya as part of the Voice Modernization Project. This capability greatly improves the collection of necessary statistics used by Call Center managers to evaluate the County's response to County citizens. Additionally, the County has implemented a new Telecommunications Expense Management System – Anchor Point which significantly improves the management of the County's telephony systems and improves inventory, work order, and billing processes.

**Mobile Data Network –** To support operations of the various public safety agencies, the County operates a 450NHZ mobile data communications system (MDCS) that ties the response vehicles of the Police, Fire and Rescue and Sheriff's departments to the County's Computer-Aided Dispatch

(CAD) system, as well as access to various databases maintained by the Commonwealth of Virginia and the Federal Bureau of Investigation. This system consists of more than 900 Mobile computers Terminals (MCT) and Vehicular Radio Modems (VRM) in vehicles of the various agencies, with transmitting equipment located at six sits in the County.

**Public Service Radio Network –** The County operates a second 800 MHz trunked radio system that supports more than 3,000 radios for the Department of Public works and Environmental Services, Public Schools Transportation (school buses), Park authority, FASTRAN, the CONNECTOR bus system, and other non-public safety County agencies. In 2005, this seven-site system replaced a 1980s era system that had limited coverage and performance. Continuing in FY 2010, the County will remain fully involved in the FCC mandated 800 MHz re-banding effort.

## 5.5 Internet Architecture

Fairfax County's Internet architecture supports the County's E-Government program which utilizes emerging technologies to make County services and information more readily accessible and available to the public. The interactive nature of technology allows the public to conduct business (e.g., pay taxes, apply for permits, etc.) with the County at their convenience and provides convenient access to enterprise data (real estate assessments, Human Services resource databases, etc). The e-Government architecture defines the standards, technologies and guidelines for public access, and requirements for conducting electronic business with County agencies, state agencies and outside entities. The County's Internet architecture is comprised of the following:

- **High Speed Connection to the Internet –** The County's fractional DS-3 connections to the Internet provide internet access for County staff as well as outside access to the County's Web server(s) by residents, business, and others via the Internet.
- **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 within the County. The Web server can be viewed as an "on-line service counter" where residents and others may obtain information related to services, licenses, taxes, recreation, court filings, etc. The Web server also acts as the distribution or collection point for information obtained from or provided to enterprise databases via an "Application Server".
- **Intranet Web Server –** The County InfoWeb Intranet Web server provides a portal access to County information and applications for agency and employee use.

- **Application Servers –** provide the gateway between the County Web servers and the information stored in County enterprise databases. The application servers communicate with various databases on the County mainframe and other platforms, accessing and collecting the requested information, formatting the information, updating the database where appropriate, and returning the result to the Web server for dissemination to the requestor. Application severs also provide additional levels of security to ensure that only allowable information is accessible.
- **Interfaces –** between the County Application servers and the enterprise databases provide the link that allows access to data residing in a wide array of sources. The interfaces make it possible to access data from virtually all of the County databases: DB2, Oracle, SQL, MS Access and VSAM. The interfaces are comprised of "Application Program Interfaces" (APIs), Open Database Connectivity (ODBC), SOA, and other standards that enable the access layer of the web architecture.

## 5.6 Security Architecture

The Information Security Office defines the security standards and policies necessary to protect the information assets of the County. The security layer employs security principles coupled with a hardware and software infrastructure supported with application policies, plans and procedures. This architecture is designed to provide an appropriate level of protection for all County information processing resources regardless of platform and includes incorporation of industry best practices for overall reduction of risk. Security continues to be a fundamental component of the County's e-business strategy. Fairfax County's secure network architecture takes a greater defense-in-depth approach to network security design. A method of network partitioning and the development of a modular infrastructure are deployed to better shield important resources within the network. This modularity controls the traffic that flows to and from one area of the network to any other.

The objectives of the information security program are to ensure confidentiality of information, integrity of data, systems and operations, technical compliance for HIPAA and PCI, privacy and availability of information processing resources. The information security program utilizes a multi-faceted approach to meet these objectives that includes research and implementation of threat reduction techniques, technological and managerial solutions when possible as well as implementation of awareness raising activities. The basic elements of identification and authentication, access control and monitoring of information processing activities are employed throughout the enterprise.

In view of the dynamic environment of information technology, the security architecture continues to evolve to meet the challenges arising with new technologies necessary to conduct e-government activities. Identification and authentication, access control, and auditing functions are performed on the specific platforms using the capabilities inherent in the appropriate operating system. Policies, standards, software, hardware and processes are continually evaluated in order to modernize the infrastructure and facilitate the County's e-government activities while providing secure access to County resources. Fairfax County has implemented a network architecture that takes a greater defense-in-depth approach to network security design.

Firewall technology is used as the main perimeter defense with all access from the Internet routed through the County's system of firewalls. In addition, the County uses broad filtering and routing at the firewall portion nearest to the Internet connectivity, while more granular filtering and routing is exercised nearest the internal network connection. Classic authentication for each internal user is based upon a unique UserID (also called a sign-or log-on) combined with a unique password. To improve the secure access and authentication to web-based applications as well as backend servers, the County has procured products to provide a solution that resolves today's security issues and positions DIT to leverage this investment and framework in the future. E-Trust, through its SiteMider module, provides a software platform of shared services that includes reduced sign-on, authentication management (who are you), and entitlement management (what you are allowed to do on the site) for web-based applications. eTrust also provides a secure reverse proxy solution that passes requests to enterprise backend content servers, and returns resources to the requesting client, thus allowing for a practical solution to the protection of internal assets. With Identity Management in place, the County will be in a position to manage user profiles for both internal staff and public access, making personalized e-Government a reality. Expansion of eTrust will continue in order to provide a secure access and an end-user authentication platform for internal and external users.


The County's network employs a private/public network model. Sensitive and critical assets are located on the private portion of the network while information and services available for public use are located on the public section. DIT continues implementation of modularized, multiple firewalls supporting a variety of specialized application requirements. The County provides Dial-Up, VPN and Web Access technologies for remote users. Each of these requires security tokens and LDAP authentication for access. Remote access is approved at the same level as if the user were physically at their work site. Remote access is granted to authorized telecommuters, who periodically need to access County Systems from home or other locations. The remote access program has proved of further strategic value as it has been expanded to accommodate continuity of operations planning for Fairfax County.

The County has implemented an Intrusion Detection System (IDS) to detect intrusions within the network and is implementing an Intrusion prevention System (IPS). IPS differs from IDS in that its primary function is prevention rather than detection. IPS devices can proactively prevent intrusions by detecting signs of an intrusion and/or detecting an actual intrusion attempt. IPS provides capacity to perform real-time analysis of Intrusion attempts to determine if sensitive data, systems or network devices are being attacked or if a breach of confidentiality, integrity, or availability has occurred. The primary objective of Intrusion Prevention is to reduce damage and isolate/contain malicious traffic. With the large quantities of lag and alarm data generated by firewalls and sensors, the need for a specialized application to support the role of correlation was implemented. The IPS solution conducts a comprehensive threat assessment and allows for quick identification of credible threats to the organization in order to facilitate expedited response and containment of intrusions and malicious activity.

As mandates such as HIPAA and Procurement Card Industry standards become effective, the consequences of employees mishandling sensitive and confidential data have changed with new enforcement ramification. Information security awareness activities are implemented to effect a culture change for all employees. Through security conscious employees, realization of return on investment in security technologies can be leveraged further as overall risk to data and systems is reduced.


Standards

# STANDARDS

## FEATURED IN THIS SECTION:
## Fairfax County Information Technology Standards

# FAIRFAX COUNTY
# INFORMATION TECHNOLOGY STANDARDS

## OVERVIEW

The Department of Information Technology establishes, updates, and retires technical standards throughout the year to ensure alignment, consistency, and modernization in the selection and design of business solutions across the County.

A product or platform is established as a standard through a governance process. This approach enables DIT to define and develop a portfolio of technology solutions that can be effectively managed and supported given available resources. Typically, projects in the concept stage come before DIT's **Architectural Review Board (ARB)** to discuss the technical approach and business objectives. Where the concept relies on new products or non-standard configurations, the details are assessed to establish general conformity to enterprise objectives. The ARB may steer the solution back to conformance, or it may authorize the use of a new product or configuration by granting a waiver. The ARB may alternatively recommend that the new product replace an existing standard, or that it be added to the list of supported standards. When DIT's executive management approves a recommendation, the standards are updated accordingly. Once adopted, the new product and its former standard, if any, are further classified as emerging (new), current (established), twilight (becoming obsolete), or sunset (retiring from support as of a known date).

When a standard is established, it indicates that the designated technology will be supported by DIT as applicable, and that the selection is in alignment with broader IT goals, objectives, and strategic direction. In some cases, a standard may be adopted in advance of procurement or deployment, to provide strategic direction for emerging business needs. Adoption of a standard is not intended to convey endorsement for, or recommendation against, any specific product.

Declaration of a standard indicates DIT's strongest recommendation for selection of the listed product(s) over any alternatives that may be similar or comparable. Generally, any solutions that will rely on the systems enterprise infrastructure, connect to the network, or depend upon DIT support must be fully conforming. Agencies using or selecting non-standard solutions may apply to the Architectural Review Board for a waiver on the basis of business needs and justification.

Standards are essential to sound cost controls in software licensing and maintenance, hardware, services, training, and integration. Having fewer platforms in use enables allocated resources to better support the information systems under management. Agencies are encouraged to invite DIT members to participate in selection and technical advisory committees for the Request for Proposal (RFP) process. In some cases, DIT and its ARB should be consulted in advance of an RFP, to help explain technical alternatives and develop the proposal language to support conformance with existing and emerging standards.

The standards shown here do not represent a comprehensive view of all the products in use across the County. The list is intended to convey the primary standards for the major solutions to be supported by DIT and/or delivered with DIT resources.

Revised May 2009

## PLATFORM ARCHITECTURE STANDARDS:

### END USER SOFTWARE

| COMPONENT | CURRENT STANDARDS |
|---|---|
| Operating System | Windows XP/Vista |
| Word Processor | Microsoft Word 2003/2007 |
| Spreadsheets | Microsoft Excel 2003/2007 |
| Presentations | Microsoft PowerPoint 2003/2007 |
| Database | Microsoft Access 2003/2007 |
| E-Mail Client | Microsoft Outlook 2003 / 2007 Outlook Web Access (latest release) |
| Project Management | Microsoft Project Professional 2007 |
| Graphics | Microsoft Visio Professional 2007 |
| Web Browser | Microsoft Internet Explorer -1E7 |
| Antivirus | Symantec AntiVirus (latest release) for Workstations and Servers |
| Patch Management | Microsoft System Center Configuration Manager (SCCM) 2007<br>Windows Server Update Services (WSUS) |
| Mainframe Terminal Emulation | Blue Zone |
| Thin Client Access | Citrix Presentation Server 4.5/5.0 |
| Other | Must be approved for Business Unit standard image/requirements |

## PLATFORM ARCHITECTURE STANDARDS:
## END USER HARDWARE

| COMPONENT | DESKTOPS | LAPTOPS |
|---|---|---|
| Power | Single | Single |
| CPU | Intel Core 2 Duo Processor 800GHz FSB | Intel Core 2 Duo T7500 (2.20GHz, 4MB L2 Cache) |
| Disk Configuration | 160 GB , SATA drive | 80 GB, 7200 RPM Hard Drive |
| Media Drive | 16X DVD R/W combo drive | 8X DVD CD-R/W combo drive |
| Memory | 4 GB, Non-ECC SDRAM, 4 DIMMS | 4 GB RAM (2 DIMMS) |
| Monitor | 19" SVGA, Ultra Sharp, Flat Panel, DVI/ VGA | Wide Screen WXGA+ LCD Panel |
| Video Card | Dedicated 256MB ATI Radeon, dual monitor capable DVI | dedicated 128 MB NVidia |
| Interface Card(S) | Ethernet 10/100/ 1000 Base- T | Built-in Ethernet card |
| Operating System | Windows XP/Vista | Windows XP/Vista |
| File System | NTFS | NTFS |
| Maintenance | 5 Year on-site, next business day | 5 Year on-site, next business day |
| Additional Hardware Requirements | Sound bar | Port replicator, external mouse, keyboard and monitor if used as desktop.<br>Security Lock |
| Platform | Dell | Dell |

## PLATFORM ARCHITECTURE STANDARDS: HAND HELD MOBILE DEVICES

| COMPONENT | CURRENT STANDARDS |
|---|---|
| Platform | RIMM/Blackberry |
| Software Compatibility | Outlook Exchange (Downloadable), Active Sync, Date Book, Address Book, To do List, Memo Pad, Calculator |
| Connectivity | TCP/IP Internet or USB enabled |

## PLATFORM ARCHITECTURE STANDARDS: GENERAL SERVER STANDARDS

| COMPONENT | CURRENT STANDARDS |
|---|---|
| Procurement | Servers are procured by DIT as warranted by many factors, including current utilization of existing infrastructure, the requirements of planned projects, and the availability of specific funding for new equipment. Some platforms will share components and others will not, depending upon the unique circumstances for each project and product. Sharing and re-use are promoted when feasible.<br>Agency Project Managers work with DIT to develop a technical task plan and budget estimate for the project's hardware, software, middleware, peripherals, storage, maintenance, and connectivity. DIT will assess the requirements in light of the current environment (and other factors) to confirm which components must be purchased, and which will be paid for through DIT funding. |
| Operating System | Microsoft Windows Server 2003 Standard Edition<br>Microsoft Windows Server 2003 Enterprise Server (clustering or servers with 4 processors or more); Windows Server 2008<br>Solaris (latest release)<br>z/OS 1.4 |
| Thin Client Access | Citrix Presentation Server 4.5/5.0 |
| Hardware | Intel (Windows)<br>SPARC (UNIX)<br>IBM Z-Series (Mainframe) |
| Backup | Symantic Net Back Up<br>z/OS DFSMS |
| Storage | SAN/NAS |
| E-Mail | Microsoft Exchange Server 2003 Enterprise Edition<br>L-Soft LISTSERV |
| Web/Application Servers | Preferred: Microsoft Internet Information Server – IIS7<br>Apache Web server (if required by COTS package)<br>Tomcat (if required by COTS package)<br>JBOSS<br>BEA Systems WebLogic<br>Microsoft BizTalk<br>Web Methods |
| Communications Protocol | TCP/IP |
| Configuration/Change Management | Infra Enterprise – ITIL Service Management |

## PLATFORM ARCHITECTURE STANDARDS: FILE / PRINT / WEB SERVERS

| COMPONENT | FILE / PRINT SERVERS | WEB SERVERS (INTEL) | WEB SERVERS (UNIX) |
|---|---|---|---|
| Type | INTEL | INTEL | UNIX |
| Power | Redundant, UPS required if not EOC-resident | Redundant, UPS required if not EOC-resident | Redundant, UPS required if not EOC-resident |
| Fault Tolerance / Disk Configuration | Operating System Drives - Raid 1 (Mirrored)<br>Database / Application Drives - Raid 5 utilizing SAN if EOC resident | Operating System Drives - Raid 1 (Mirrored))<br>Database / Application Drives - Raid 5 utilizing SAN if EOC resident | Operating System Drives - Raid 1 (Mirrored)<br>Database / Application Drives - Raid 5 utilizing SAN if EOC resident |
| CPU | Dual 3.0 MHz | Dual 3.0 MHz | Dual 1.5 GHz |
| Network Interface Cards | Dual Ethernet 1000 Base-T | Dual Ethernet 1000 Base-T | Dual Ethernet 1000 Base-T |
| Operating System | Windows 2003/2008 Server | Windows 2003 Server; Windows Server 2008 | Solaris (latest release) |
| Monitor | 17" SVGA Color, if non-EOC site<br>Not required if EOC resident | 17" SVGA Color, if non-EOC site<br>Not required if EOC resident | Rack mountable Flat LCD monitor<br>Required if EOC resident |
| RAM | 4 GB<br>Minimum Cache 256MB | 4 GB<br>Minimum Cache - Database/Application specific | 4 GB<br>Minimum Cache - Database/ Application specific |
| File System | NTFS | NTFS | Solaris |
| Third Party Software Requirements | Symantec Antivirus, Enterprise Edition<br>MS SCCM Client | Symantec Antivirus, Enterprise Edition<br>eTrust SiteMinder Agent<br>MS SCCM Client | Symantec Antivirus, Enterprise Edition<br>eTrust SiteMinder Agent |
| Web Server Software | N/A | Internet Information Server IIS7<br>Tomcat (if required by COTS package)<br>BEA Systems WebLogic | Apache (if required by COTS package)<br>Tomcat (if required by COTS package) |
| Platform | Dell | Dell | Sun |
| Maintenance | 5 Year, 24/7, 4 hour on-site, parts & labor included | 5 Year, 24/7, 4 hour on-site, parts & labor included | 5 Year, 24/7, 4 hour on-site, parts & labor included |
| Additional Hardware Requirements | Raid Controller<br>Rack mountable rails if EOC resident<br>Minimum 3 Open Slots to facilitate system expansion<br>HBAs (if connected to SAN) | Raid Controller<br>Rack mountable rails if EOC resident<br>Minimum 3 Open Slots to facilitate system expansion<br>HBAs (if connected to SAN) | Raid Controller<br>Rack mountable rails if EOC resident<br>Minimum 2 Open Slots to facilitate system expansion<br>Dual HBAs (if connected to SAN); DVD-ROM & Tape Drive (DDS-4) |
| Pre-Install Options | None | None | None |
| Storage And Backup | Symantic Net Backup Enterprise Backup Client | Symantic Net Backup Enterprise Backup Client | Symantic Net Backup Enterprise Backup Client |

## PLATFORM ARCHITECTURE STANDARDS:
## DATABASE / APPLICATION SERVERS

| COMPONENT | DATABASE SERVERS (INTEL) | DATABASE SERVERS (UNIX) | APPLICATION SERVERS (INTEL) | APPLICATION SERVERS (UNIX) |
|---|---|---|---|---|
| Power | Redundant, UPS required if not ETOC-resident | Redundant, UPS required if not ETOC-resident | Redundant, UPS required if not ETOC-resident | Redundant, UPS required if not ETOC-resident |
| Fault Tolerance / Disk Configuration | Operating System Drives - Raid 1 (Mirrored)<br>Database / Application Drives - Raid 5 (utilizing SAN if EOC resident) | Operating System Drives - Raid 1 (Mirrored)<br>Database / Application Drives - Raid 5 (utilizing SAN if EOC resident) | Operating System Drives - Raid 1 (Mirrored)<br>Database / Application Drives - Raid 5 (utilizing SAN if EOC resident) | Operating System Drives - Raid 1 (Mirrored)<br>Database / Application Drives - Raid 5 (utilizing SAN if EOC resident) |
| CPU | Quad 3.0 Mhz | Quad 1.5 Mhz | Quad 3.0 Mhz | Quad 3.0 Mhz |
| Network Interface Cards | Dual Ethernet 1000 Base-T | Dual Ethernet 1000 Base-T | Dual Ethernet 1000 Base-T | Dual Ethernet 1000 Base-T |
| Operating System(s) | Windows 2003 /2008 Server<br>Windows 2003 /2008 Advanced Server (Clustering) | Solaris (latest release) | Windows 2003 Server<br>Windows 2003 Advanced Server (Clustering); Windows Server 2008 | Solaris (latest release) |
| Monitor | 17" SVGA Color, if non-EOC site<br>Not required if EOC resident | Rack Mountable LCD Flat monitor<br>Required if EOC resident | 17" SVGA Color, if non-EOC site<br>Not required if EOC resident | Rack Mountable LCD Flat monitor<br>Required if EOC resident |
| RAM | 8.0 GB Minimum Cache - Database/ Application specific | 8.0 GB Minimum Cache - Database/ Application specific | 4.0 GB Minimum Cache - Database/ Application specific | 4.0 GB Minimum Cache - Database/Application specific |
| File Systems | NTFS | Solaris | NTFS | Solaris |
| Third Party Software Requirements | Symantec Antivirus, Enterprise Edition<br>MS SMS Client | Symantec Antivirus, Enterprise Edition | Symantec Antivirus, Enterprise Edition<br>MS SMS Client, SCCM Client | Symantec Antivirus, Enterprise Edition |
| Platform | DELL | SUN | DELL | SUN |
| Maintenance | 5 Year, 24/7, 4 hour on-site, parts & labor included | 5 Year, 24/7, 4 hour on-site, parts & labor included | 5 Year, 24/7, 4 hour on-site, parts & labor included | 5 Year, 24/7, 4 hour on-site, parts & labor included |
| Additional Hardware Requirements | Raid Controller<br>Rack mountable rails if EOC resident<br>Minimum 3 Open Slots to facilitate system expansion<br>HBAs (if connected to SAN) | Raid Controller<br>Internal Tape Drive for Root Volume Backup<br>Minimum 2 Open Slots to facilitate system expansion<br>Dual HBAs (if connected to SAN); DVD-ROM, Tape Drive(DDS-4) | Raid Controller<br>Rack mountable rails if EOC resident<br>Minimum 3 Open Slots to facilitate system expansion<br>HBAs (if connected to SAN) | Raid Controller<br>Internal Tape Drive for Root Volume Backup<br>Minimum 2 Open Slots to facilitate system expansion<br>Dual HBAs (if connected to SAN); DD-ROM, Tape Drive(DDS-4) |
| Storage And Backup | Symantic Net Back Up | Symantic Net Back Up | Symantic Net Back Up | Symantic Net Back Up |

## APPLICATION ARCHITECTURE STANDARDS: APPLICATION DEVELOPMENT

| COMPONENT | MAINFRAME | UNIX | INTEL | INTERNET / INTRANET | GIS |
|---|---|---|---|---|---|
| Database Software | DB2 | Oracle 10g | SQL Server (latest release)<br>Oracle 10g | N/A | Oracle 10g<br>Oracle Spatial DB |
| Application Development Frameworks | N/A | Java | .NET Framework (latest release)<br>Java | .NET Framework (latest release)<br>Java | .NET Framework (latest release)<br>ESRI |
| Virtualization | LPARS | Zones/ Containers | VMWare | VMWare | Zones/ Containers |
| Software And Development Tools<br>(Report Writing Products Are Listed On Page 8.) | COBOL<br>CICS<br>TSO<br>JCL | N/A | Microsoft Visual Studio – Latest Release<br>Eclipse | Microsoft Visual Studio – Latest Release<br>Eclipse | ArcGIS 9.1 & Extensions<br>ERDAS 9.3<br>ARC Internet Map Server 4.0/9.1<br>ArcSDE 9.3<br>ArcPad 8<br>OnPoint 6.2<br>Microsoft Visual Studio – Latest Release |
| Version And Release Control | SCLM | Serena Version Manager | Serena Version Manager | Serena Version Manager | Serena Version Manager |
| LDAP / Directory / Authentication | RACF | Native operating system (Solaris, Linux, AIX) | Active Directory<br>e-Trust SiteMinder | Active Directory<br>e-Trust SiteMinder | Native Operating system |
| Data And Process Modeling | MS Visio Professional – Latest Release | MS Visio Professional – Latest Release | MS Visio Professional – Latest Release | MS Visio Professional – Latest Release | MS Visio Professional – Latest Release |
| Middleware (EAI) | webMethods<br>Jacada | webMethods | webMethods<br>MS BizTalk | webMethods<br>Jacada<br>MS BizTalk | N/A |
| Workstation Requirements | TN3270 Emulation<br>TCP/IP Connectivity | Oracle Client Suite<br>ODBC Drivers | Oracle Client Suite<br>ODBC Drivers<br>SQL Management Studio | MS Internet Explorer – IE7 | Terminal Server Client<br>Citrix Metaframe Client<br>Active X Plug-in<br>Active Directory Tools |

## PLATFORM ARCHITECTURE STANDARDS: ENTERPRISE SOLUTION PLATFORMS

| PLATFORM | CURRENT STANDARDS |
|---|---|
| Report Writing:<br>Departmental Reporting Needs | Business Objects<br>Microsoft SQL Reporting<br>Easytrieve Plus |
| Statistical Analysis | SAS |
| Enterprise Reporting<br>Business Intelligence | N/A |
| Document Scanning/Imaging | Documentum Enterprise Content Management / Captiva |
| Web Content Management | Documentum Web Content Management |
| Web Search Engine | Google Appliance |
| Survey Instrument Software | SNAP 8.0 ProNet Edition (w/Scanning module) |
| Correspondence Tracking | Intranet Quorum |
| CRM | Siebel |
| IT Services Management | Infra Enterprise – ITIL Service Delivery |
| GIS | ArcGIS 9.3 & Extensions<br>ERDAS 9.3<br>Arc Internet Map Server 9.3 / ArcGIS Server 9.3<br>ArcSDE 9.3<br>ArcPad 8<br>OnPoint 6.2<br>Electronic Field Study 2.7 |
| Voice Communications | Avaya S8700s and G700s Servers |

## FAIRFAX COUNTY DATA COMMUNICATIONS STANDARDS

### NETWORK PROTOCOLS

TCP/IP – Network is pure IP environment.
BGP/OSPF – Routing protocols employed on County WAN/MAN.
MPLS/VRF – Architecture employed on County WAN/MAN.

### STRUCTURED CABLING STANDARDS

### ACCESS LAYER CABLING:

CAT-5E – used in existing facilities
CAT-6 – used in all new construction
CAT-6A – used in new construction with special high speed requirements
All voice and data cabling are terminated in same faceplate with color code inserts to identify function.

### BACKBONE CABLING:

Multi-mode optical fiber 62.5/125
Single mode fiber – use dependent on distance

### DATA NETWORK STANDARD EQUIPMENT

The Fairfax County Enterprise Network is standardized on Cisco networking platform. Below are the specific models of equipment deployed in the network. Platform families may be added or modified.

### ROUTING:

Cisco 2600/2800 – Access layer sites (Non I-Net)
Cisco 3800 – I-Net Access layer sites
Cisco 6500 MSFC – Campus Routing
Cisco 6500 Sup720-3b – I-Net Core/Campus Routing

### SWITCHING:

Cisco 2950 – Wire Closet (small IDF) be phased out
Cisco 3560 – Wire Closet (small to medium IDF)
Cisco 4500 – Wire Closet (medium to large IDF)
Cisco 6500 – Core switching (MDF)

### DWDM SWITCHING:

Cisco ONS 11454 – I-Net Core

### WEB CONTENT /CACHING:

Ironport S660
DNS:
F5 Big IP 1500 GTM – Global Load Balancer/DNS

### CONTENT SWITCHING/LOAD BALANCING:

Cisco CSS-11000 Family

### FIREWALL:

Industry standard firewall hardware



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