

Section 2

STRATEGIC DIRECTIONS AND INITIATIVES

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SECTION 2

STRATEGIC DIRECTIONS AND INITIATIVES

The most critical challenge facing organizations today is the imperative to stay current with the rapid pace of change in technology, harnessing innovation that delivers immediate return on investment effectively to realize the organization's strategic goals, optimize service efficiencies, and successfully meet end-user and public expectations. As a strategic investment of County resources, technology facilitates the delivery of better and faster service and enables the County to effectively respond to growing demand at optimal cost and efficiency. However, investments in technology can be significant, including capital, initial transformation and incorporation of technology into an organization's business, and sustainment. Without capital expenditures, capabilities can also be enabled through annual operational cost models, such as with technology 'clouds', subscription services, and other infrastructure or software-as-a-service business offerings. However acquired, new technology must be wisely adopted and carefully integrated into the

organization's technology and business architecture for optimal impact.

The Fairfax County technology strategy incorporates a thoughtful plan for investments at optimal time and delivery. This has contributed to the County's ability to keep pace with growing demands for services and promoted agility in facilitating response to evolving new needs and opportunities. Additionally, this strategy has helped the County address new economic realities, provide improved communication, information and open government for public engagement and, leverage the overall technology portfolio and capabilities on an enterprise scale that meets the diverse needs of a wide variety of operational needs. The following key initiatives are part of the overall strategy and living portfolio of strategic opportunities and objectives on an enterprise scale designed to optimize effective, efficient and customer-oriented services for internal government and constituent engagement.

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 includes an inclusive set of channels, using enabling technology, policy and processes that integrates the

Fairfax County Web Site www.fairfaxcounty.gov, WEB 2.0, 3.0 capabilities and social media capabilities, Interactive Voice Response (IVR) platforms, mobile applications, Cable TV, the County's Public Access sites in Libraries and Access Fairfax sites (the highly successful CRIS Kiosk program was



retired in FY 2010 with the consumerization of WEB 2 and mobile applications). The e-Gov strategy incorporates 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 also includes CRM and Content Management tools for comprehensive, integrated service options. A governance body, the e-Gov Steering Committee (see Section One) develops strategy and goals for this program.

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, and incorporates social media capabilities in a thoughtful way that enhances service's needs. In FY 2012 the County will continue its efforts to add new services to the e-government channels, including new transactions, e-payments, enhanced search and integrated WEB 2.0 and 3.0 capabilities. The e-government program will continue to 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 works 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, 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 new design won national recognition for being 'Best of the WEB' by the Center for Digital Communities. In addition to the benefits for on-line services efficiency, the public Web site is also a part of the County's **"Going Green Initiatives"**.



While initial e-Gov efforts were largely focused on providing access to services, 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) and greater transparency. The County's website has been one of several channels used for public input into the County's FY 2011 budget planning process. Fairfax County and the city of Alexandria shared the Virginia Coalition for Open Government's Freedom of Information Award in the government category. Fairfax County was recognized for its efforts to engage the public in addressing challenging fiscal constraints and projected revenue shortfalls for FY 2010 and FY 2011. The County solicited public input online, by telephone and at community dialogue sessions to help identify solutions for closing the budget gap. Additionally, there was an extensive outreach effort through the use of social media platforms such as Facebook, Twitter and YouTube. This program also received national recognition by Public Technology Incorporated.

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 subscribe 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. Access to information is also expanded 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.com/user/fairfaxcountygov>). Posting content on these sites 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 has been enhanced to incorporate NewsWire (<http://www.fairfaxcounty.gov/news/>) the county's one-stop news shop, which focuses on the delivery of news and information to the public: residents, businesses and other interested groups. NewsWire is a comprehensive tool, that 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 2011 the functionality of site has expanded significantly with the addition of an online discussion tool (Ask Fairfax!) to enable citizen interaction with government on various topics, mobile version of the county website with mobile and iPhone applications to list a few. The county website is also being translated into 12 languages using machine

translation powered by Google. In order to empower public services and affirm county's strategic vision and goals, the website has been enhanced with new and updated interactive features and online applications. In an effort to improve website accessibility, all pages on the public website are tested for compliance with Section 508 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act by passing through the county's automated compliance checking tool.

In FY 2012 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 3.0 with focus on metadata needed for on-line intuitive search and intelligence.

Fairfax County NewsWire



Latest News

Get Latest News Updates: News Feed Twitter E-mail

Customers Served

IVR:	4 million since FY 2005
Web:	34,000 pages - 61,102 visitors per day, more than 1,710,856 visits per month
Unique visits	10,062,168 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 Neighborhood	Web
Newcomer 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 plan	Web, 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 Fairfax County Unified System (FOCUS)

Fairfax County government and school system 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 under a single application platform that has the flexibility to meet current and future requirements of both entities. A major investment, the project provides an opportunity to transform and streamline administrative operations, enhance use of information for reporting and analysis, reduce agencies' 'shadow' systems and overlapping processes, and lower related costs. This major initiative also mitigates the risk that current legacy antiquated and disjointed systems pose for system failure, inferior data, and operational integrity. The project is known as FOCUS (Fairfax County Unified System).

The current 'stovepipe' legacy business systems are on various, older generation 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, provide extremely limited employee self-service capabilities, cannot support data analytics needs for decision-making, do not integrate well with the County's e-government strategy, transparency goals, Telework objectives, or COOP (Continuity of Operations Planning). The technological obsolescence of the legacy systems results in on-going sustainability that is 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. Several of the current 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. As such, these systems have no vendor support and rely on retirement eligible in-house staff for maintenance. Further these systems cannot be integrated with future mandated requirements and are a hindrance for county business transformation and efficiency opportunities.

A governance body of senior officials of the County and School system stakeholder agencies developed the

optimal strategy for the acquisition and implementation an integrated financial/procurement/human resources/budget solution 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.

The FOCUS project will foster an environment of change, redesign and transformation to allow for more efficient and effective processes while seeking 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;
- Enable a flexible environment where access to data and information is achievable, even from remote locations;
- Provide seamless integration and interoperability of the new system with other existing applications;
- Reduce the number of shadow systems currently used in the County and Schools that augment legacy system data and the associated reconciliation processes between systems;
- Align the reporting strategy with the County and School system's overall data management and data warehousing strategy. Increase 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 will 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; and
- Facilitate employee self-service, agency workforce planning, and integration with WEB for enhanced public search, inquiry and engagement.

The County's approach for acquisition was to separate the solicitation for the software product suite from the system implementer services. Selection committee members of the key stakeholder agencies for both County and Schools and staff participated in in-depth analysis of top tier software products resulting in the purchase of SAP software in mid-2009. Upon award of the software solution, a separate solicitation for system implementer services was competitively advertised in mid-2009 for firms with deep technical SAP software product expertise, well defined project approach and risk experience for scope, and strong experience in local government and schools K-12 related business areas. Contract award was made in mid-2010. Both these processes included over one hundred

subject matter experts and technical staffs in both county and schools organizations.

The project began implementation activities in summer, 2010, with a joint county/schools project team co-located and working jointly through all phases, blueprinting through realization activities, to include change management and training activities.

The FOCUS project also modernizes the technology architecture from the older legacy financial processing and human resources systems, to include high availability virtual servers; robust identity management systems that manage secure user provisioning access across the county and schools technology infrastructure environments; self-service portals for employees to manage their personnel record information, perform transactions, and for public transparency; business intelligence for flexibility in queries, reports, dashboards and business analytics; and integration in financial processing with digitized documents and workflow, and automatic payment of invoices for received goods and annual payment obligations. The technology also provides the opportunity rapid deployment of mobile applications, further enhancing the county's telework and COOP initiatives.

2.3 Geographic Information Systems (GIS)

GIS is a strategic foundational technology integrated with numerous county applications and business processes, with over 800 map layers and data applications, and integrated as a capability in the e-Gov program. A significant achievement for GIS in FY 2011 was the successful conclusion of the county's supervisor redistricting effort. At its foundation, redistricting is a GIS based activity because it involves drawing new geographic boundaries for the supervisor districts.

With impending state wide and Board elections in November 2011 this effort was completed in a very short period of time in order to develop and submit county plans to the Department of Justice for review. The Board of Supervisors appointed an Advisory Citizens Committee to develop proposed redistricting alternatives using web software tools over the internet. This strategy enabled committee members to work remotely thus reducing length and number of formal meetings. The redistricting plan was accepted by the Board of Supervisors in March 2011 and submitted for review by the Department of Justice. Figure 1 shows the Maptitude Online Redistricting Software with the 2010 census data prior to redistricting. Figure 2 shows

the transfer of a voting precinct from Lee District to the Braddock district

The GIS support for the CAD/911 system is an on-going effort, involving data maintenance requirements which continue to be a significant effort (figure 3). Additionally considerable energy has been devoted to the Regional Routable Centerline project, which is funded by a grant from the State's Wireless 911 Board. This project will enable Fairfax and its neighboring jurisdictions to share up to date centerline for their CAD systems. This is a significant project that will enable member jurisdictions (Loudoun, Prince William and Arlington counties and the cities of Alexandria and Fairfax) to have routable centerline data with Fairfax County. Additionally, the state supports this effort in order to gradually build a statewide routable centerline data set. This initiative not only benefit CAD/911 implementations state-wide, but other business processes that need routable data. This project has been awarded a Significant Achievement in GIS (SAG) award by Esri. The SAG awards recognize organizations that have used GIS to improve our world, and set new precedents throughout the GIS community.



Figure 1. GIS Redistricting Software

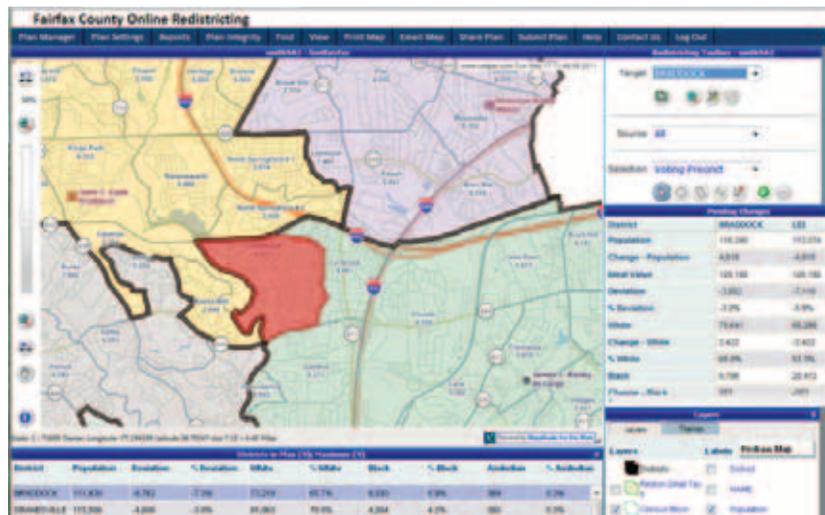


Figure 2. GIS Redistricting Software

The Master Address Repository (MAR) project has proved to be invaluable for the new CAD/911 system. The MAR is the authoritative source of parcel (situs) addresses in the County essential for effective operation of the new CAD/911 system. The joint project with the County's Department of Public Safety and Communication (responsible for the CAD/911 system) to check the MAR addresses against Post Office data and also to cross check against telephone companies' Master Street Address Guide (MSAG) is underway with a projected summer 2011 completion date.

The previous efforts of the GIS office working with the County Demographer in preparation for the 2010 Census concluded successfully with the delivery of the 2010 Census data in February of 2011. The work performed by the

county's GIS staff received praise for being one of the most complete and accurate set of address data received in the regional Census Bureau office.

The Virtual Fairfax application which was rolled out in FY 2010, now provides the public and county staff a new web tool that displays buildings in key areas of the county (over 3 sq. miles in Tysons Corner and over 5 sq. miles in Reston/Herndon) as well as all of the terrain in 3-D (figure 4). It also unifies access to different land information systems (LDSNET, ICARE, and My Neighborhood), and provides easy linkage to information for schools, historic sites and places of interest. Virtual Fairfax averages over 300 user sessions on workdays and about 200/day on weekends.

The new version of the Geographic Exploration and Mapping (GEM) Web application, released in FY 2010 provides extensive information reporting to county staff along with simplified viewing of the oblique imagery and orthophotography has over 500 unique users, averaging almost 100 users/month and over 400 hours/month of usage.

The volume of GIS information continues to grow in Fairfax County. The GIS data warehouse 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 3.3 TB on line with an additional 3.9 TB currently archived that will be moved to production. As a result of new software tools, more imagery and historic maps will be added and made available. The volume of data in the digital map viewer has increased annually as new sets

of property and zoning maps were added. Currently there are over 30,000 pre-made maps and images of historic maps available online.

In FY 2012 the GIS branch will continue to enhance the existing applications and GIS data, with particular attention to centerline data. The County will have an ongoing partnership with neighboring jurisdictions and the state to develop locally maintained, regionally routable centerline data sets valuable for emergency response across jurisdictional lines. The size of most datasets within the GIS database have increased, an improvement over last year (Table 1). Also planned for FY 2012 is the release of an enhanced My Neighborhood version 2.0 with additional features, more intuitive design, and utilizing up to date web mapping technology.

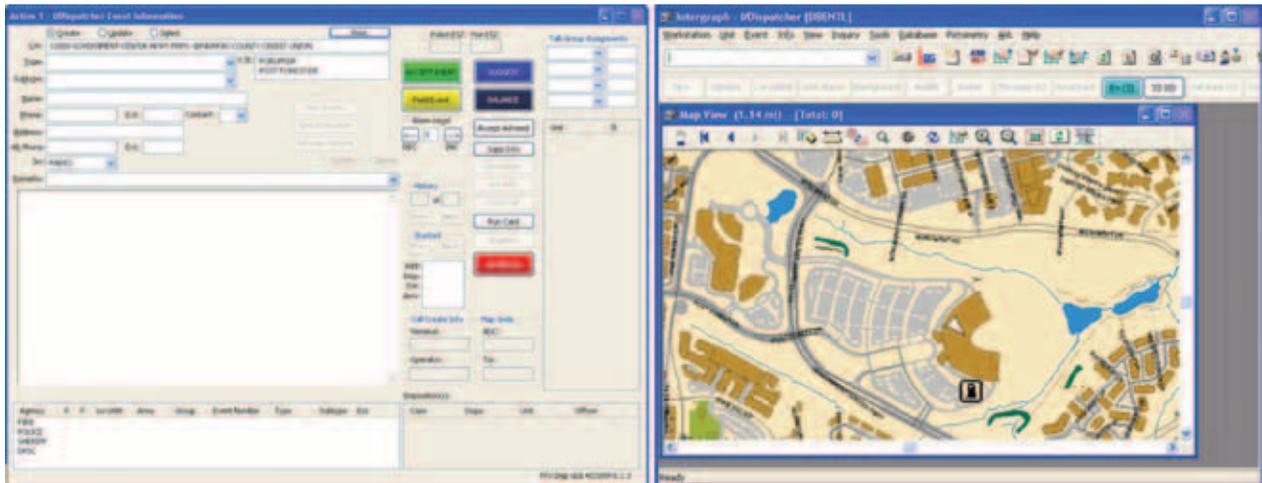


Figure 3. The CAD Dispatcher's Display



Figure 4. The Herndon-Reston Area in the Virtual Fairfax Application

Data Layers	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Parcels	341,000	343,500	356,000	357,300	358,300	358,000*	358,140
Addresses	360,000	365,000	368,000	364,700	365,100	365,100	365,669
Building Outlines	248,000	252,000	257,000	257,277	257,300	257,300	264,361
Miles of Roads	4,000	4,800	4,700	4,718	4,736	4,760	4,825 (county) 7,628 (regional)
Number of streetlights			57,939	58,935	59,937	60,114	60,448
Linear miles of sanitary Sewer lines			3,350	3,373	3,390	3,401	3,410

Table 1 – Some of the significant layers in the GIS database.*The decrease in the number of parcels is due to the conversion of condominiums (counted as parcels) to apartments (which are not parcels – but are considered part of the overall building property.)

The County received an unexpected delivery of orthoimagery from the state in 2011 as a result of the state's partnership with the US Geological Survey and the National Geospatial Intelligence agency. While the resolution was not up to County standards for the planimetric project or locating manholes for the sanitary and storm water, the data was useful as change detection data source. New oblique imagery was flown in FY 2011 and will be delivered at the end of the fiscal year. 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 door locations, and the ability to determine their dimensions and heights above the ground, which aids in planning emergency response. The oblique imagery has also been useful to CAD/911 call takers and dispatchers who now more accurately identify incident locations and response conditions.

The availability of key County data digitally through the GIS provides a range of benefits to constituents as well as County staff. Digital orthoimagery is widely used within GIS as well as over the web. With the parcel and zoning data now maintained digitally, production of the County's parcel and zoning books has been greatly accelerated. Time consuming manual steps were replaced with a digital production process enabling staff to capture additional features in the GIS (e.g., more easements, particularly conservation easements). All 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 and reduced demand for the printed books.

In addition to the GIS branch itself, over 25 County agencies use GIS in their operations. These include:

- **Northern Virginia Soil and Water Conservation District** – the soils maps (both the official 1990 and unofficial 2008) are available with seven other digital map series on the county's web site. The 2008 soil series maps were 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. Sales of the printed property and zoning maps has fallen steadily as more users turn to the free, digital online maps.
- **Public Safety** – The centerline file was modified to reflect the Northern Virginia common centerline elements and made available to County agencies and has been substantially enhanced with additional data needed for CAD and for regional routability of emergency response vehicles. That will continue to change as a result of the regional/state centerline grant.

- **Department of Public Works and Environmental Services (DPWES)** – Solid Waste Division - 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.
- **DPWES Solid Waste Management** – GIS technology enabled the Department of Public Works to complete the mapping involved in the Streams Characterization Project in weeks rather than months. They have been using GIS to help analyze the age of the storm water infrastructure to identify areas where there was lengthy systems that were reaching their service lifetimes and would need replacement or maintenance. The GIS also enables the Storm Water Management Branch to track easements around storm water facilities.
- **DPWES Waste Water Management** – 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.
- **DPWES Storm Water Planning Division** used GIS to analyze flood inundation areas from possible dam breaches and to identify properties at risk of inundation.
- **Government Partners** – The GIS now contains data from Fairfax Water and the Cities of Fairfax and Falls Church on hydrants – an important data element for the CAD/911 maps.
- **The Health Department** used GIS to conduct emergency preparedness planning, track unhealthful soil deposits, track well and septic systems and notify citizens when necessary. Drinking water wells have also been identified and entered into the GIS. More recently GIS was used to assist in response to the H1N1 flu pandemic in finding and mapping vaccine distribution locations.
- **Park Authority** uses GIS for a wide range of planning and management activities. It uses GIS to identify candidate properties for purchase by the county to improve park resources. Recently it used GIS to assist in evaluating the parklands and schools as part of the Reston Master Plan.
- **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' 358,000 individual parcels has made this a routine and quick process. GIS streamlines the Area Plan Review (APR) through the use of the 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 maps, 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. They have been using 3-D analysis to visualize and analyze building size and impact on neighboring properties and thereby make more informed determinations about proposed construction.
- **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 to 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. They also use GIS to help plan pedestrian safety projects and analyses.
- **Pest and Disease Management** – 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.
- **Fire and Rescue Department** 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. More recently they contributed to building a routable centerline for the new CAD/911 system which will improve response times. They also used GIS to help evaluate possible alternative locations of a fire station near Herndon.

- **Fairfax County 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 (for instance, GPS larcenies, burglaries). The training of police crime analysts as criminal profilers is heavily dependent on the use of GIS. The GIS Branch is working with the Department on the design of the next version of My Neighborhood's Police Incident viewer. Police also used GIS to plan the county-wide events for the national night out – community watch program. It highlighted all the activities and enabled efficient routing of staff to cover the large number of events in one evening.
- **Emergency Management** – 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. It was also used for the extensive planning for the inauguration of President Obama – since close coordination with federal and neighboring agencies was necessary. GIS also supported snomaggedon in FY 2009, and regularly supports the Office of Emergency Management in table top exercises.
- **The Department of Systems Management for Human Services** uses GIS regularly as part of tracking and analyzing county demographics. Their key system is the Integrated Parcel Life-cycle System (IPLS) which contains demographic information by parcel. Most recently they have used GIS to analyze and demonstrate the wide range of languages spoken in the county, broken out by language and area.
- **Office of Community Revitalization and Reinvestment** launched its new web site with GIS maps as an integral part. The site and its maps provide a geographical context for people interested in revitalization in the County.

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:

- In FY 2011, Fairfax County GIS, as part of the regional team carrying out the Regional Routable Centerline project, was awarded a Special Achievement in GIS award by Esri. The award recognizes organizations that use GIS to "improve our world – and set new precedents throughout the GIS community."
- GIS was also the recipient of the 2010 VA Governor's Technology COVITS award for its 'Virtual Fairfax' web based application, also written in the Washington Post.
- County GIS programs received the VA Governor's Technology COVITS 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.
- 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.
- 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 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 for 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 Committee, working on regional interoperability initiatives and pursuing projects and funding to enhance regional GIS. Each year, GIS hosts "GIS Day" which promotes the use of GIS and development of new GIS applications through county-wide competition and awards.



2.4 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. The county uses Internet Quorum (IQ), and Siebel technologies to enhance tracking and response to citizen inquiries. These solutions were successfully implemented and have resulted in significant staff productivity and efficiency improvements in supporting information exchange with citizens through multiple communication channels: in-person, telephone, e-mail, and via the internet.

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. Subsequent phases

have 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 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, pawnbrokers, 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.

Enterprise CRM supports a holistic view which aids in making well-informed decisions about service delivery to the County's diverse population and improves communication through seamless unified access to information via the County's web site, IVR systems, cable TV, in-person, as well as 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. In January 2010, the Department of Tax Administration (DTA) Audit Division migrated from the use of multiple Microsoft Access databases and Excel spreadsheets to the CRM which offered improved accountability, increased security, and instant interactive reporting tools. The goal in FY 2012 will be to provide continued support for agencies and enable screen pop interaction with case record information, contact interaction records and profiles, and transparent case escalation.

2.5 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's enterprise information architecture continues to be refined to provide efficiencies and enhanced capabilities to support enterprise document management. This solution enables the county a rich document management and business process flow

for retrieval 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.



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 the best 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. Although the individual departmental business requirements vary for the use of IDM technology, the following benefits and quality improvements have resulted from 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 Department of Family Services implemented IDM solution for Self Sufficiency program and begun the requirements for Children, Youth and Family program. In FY 2012 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, and the Clerk to the Board. 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 FOCUS (ERP) 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.

2.6 Technology Infrastructure Initiatives

To ensure continuous delivery of quality services in a cost-effective and resource-efficient manner, Fairfax County's technology infrastructure is designed with the flexibility to respond to the County's evolving technology and business requirements. The County established a strategic approach to building agile enterprise infrastructure architecture by consolidating and standardizing IT resources, implementing scalable and elastic infrastructure components, moving toward service-based technologies, and automating processes while ensuring visibility, security, and accountability.

Virtualization and Consolidation

Virtualization and Cloud Computing technologies serve as the fundamental foundation for this strategic direction. In FY07-FY08 Fairfax County established virtualization as the primary means to deliver server-based (hardware & OS) infrastructure services. The virtualization of server-based infrastructure services introduced technologies such as VMware, Symmetric/Asymmetric multiprocessing, enterprise-class server hardware, grid computing, etc. The virtualizations of server-based infrastructure not only provided a means to securely and efficiently share server resources ("do more with less"), but the County utilized virtualization to consolidate and standardize the overall server landscape. By implementing virtualization for server infrastructure platform, Fairfax County eliminated and/or consolidated server hardware which not only increased total cost of ownership (i.e. predictable costs, streamline of upgrades), but also reduced power, cooling, and physical server hardware footprint in data center thereby contributing to County-wide "Going Green Initiative". These resource efficiencies also allowed Fairfax County to optimize management of resources, maximize application throughput, increase control over delivery of IT services, simplify administration, and ultimately build a foundation for the virtualization and standardization of other infrastructure components.

In FY08-FY09 Fairfax County continued the move toward virtualization/consolidation of infrastructure architecture by implementing storage virtualization (SAN, NAS, Grid storage), application virtualization (Terminal Services, Citrix), client virtualization (VDI), and network virtualization (VLAN, Load balancers) technologies. Virtualization of the infrastructure architecture has not only improved overall physical and operational efficiencies, but also provided better resource/capacity planning and provisioning of resources. This scalable, resource-efficient, and standardized architecture has become the base for

Fairfax County to build out the "dynamic" data center. The dynamic data center provides the enabling infrastructure to move Fairfax County to next phase of strategic goal for the infrastructure architecture which is providing infrastructure as a service or the establishing of an internal private cloud. In FY 2010 Fairfax County received federal stimulus funding for energy consolidation projects of which a portion is dedicated to initiatives related to desktop power management, enterprise server consolidation and telework initiatives designed to lower power consumption, decrease greenhouse gases and reduce the County's carbon footprint. The virtualization/consolidation effort has reduced servers on an average ratio of 65:1.

In FY 2011 IT enterprise platform and infrastructure projects received national recognition for reducing the county's carbon footprint as well as providing operational efficiencies. The IE PC power management deployment automatically shut down 14,000-plus end-user PCs across 55 offices when not in operation resulting in energy and cost savings. The County also deployed Nomad Enterprise to deliver operating system upgrades, software deployments, and patches to PCs, servers, and sites without disruption. Additionally with implementation of a self-service software deployment portal users can locate and install software without requiring IT staff to leave their office.

Cloud Computing

In FY 2010, the County considered the potential benefits of in internal private cloud infrastructure by leveraging features from virtualization/consolidation base and other enterprise infrastructure initiatives (i.e County institutional network, PSTOC, E-Gov enhancements, etc). In addition, Fairfax County introduced complimentary technologies such as enterprise data backup/recovery, mirroring, clustering, data de-duplication, replication, centralized infrastructure management tools, etc in order to make the private cloud functional. Besides server provisioning services, with the advancement of the enterprise dynamic data center, the County provided additional cloud-based infrastructure services such as storage provisioning, password management, application provisioning, and business continuity. By using virtualization as the base technology, the County's dynamic data center/private cloud will be able to have internal and external components that provide different services based on costs, capabilities, needs, and SLAs. This will be aligned with the requirements of the business and deliver value by enabling improved and incremental products and services.

In FY 2012 the County will continue to build on the internal private cloud by standardizing and enhancing the dynamic data center infrastructure (i.e. unified network/server/storage infrastructure, more efficient business continuity technologies, enhanced security infrastructure, etc). With these enhancements, the County will be able to meet its strategic goal for an agile infrastructure architecture that meets technical and business demands by providing a platform to not only deliver infrastructure services via Internet in a shared, measured, secure, service-based, scalable, and elastic means; but also applications, business processes, and security services.

Enterprise Telecommunications

Contemporary voice communications integrated with data, video, presence and messaging is an organizational requirement in today's technological landscape. As government agencies are asked to do more with less, they rely heavily on a variety of communications technologies to improve effectiveness in meeting the growing needs of constituents. Integrating voice, video, data and presence information onto a common broadband infrastructure is the new reality. This convergence brings tremendous benefits to geographically dispersed enterprises such as Fairfax County.

The near-term strategy for Fairfax County is to implement Session Initiation Protocol (SIP) Trunking services and benefit from the advantages in functionality and features this leading-edge technology provides. DIT is currently developing implementation plans for creating pure IP connections to the carrier cloud. This will yield a communications architecture that is secure, robust and scalable at a lower cost than traditional Public Switched Telephone Network (PSTN) connections

The County's strategy for the next generation voice architecture took into account complex technical requirements for an integrated network strategy. The solution supports a range of configurable telecommunication instruments and communications technologies and also provides a single logical architecture for addressing the business and operational needs of agencies located in multiple locations throughout Fairfax County. The transformation of Fairfax County's voice platform is a significant endeavor that entails a great deal of planning and careful implementation over many months. Voice over Internet Protocol (VoIP) is clearly the strategic technology that the County embraces. Integration of the voice and office productivity platforms, often referred to as Unified Communications, has been implemented as a pilot in selected County facilities. The integration of the Avaya platform with Microsoft Office Communicator creates a seamless work environment where information and communications share common attributes and interwoven capabilities. This also includes opportunity to integrate with commercial wireless platforms to be deployed as part of smart-phone and 'I' pad device capabilities.

The County is also embarking on a strategy that enhances its wireless communications and broadband capabilities designed for integration with the County's robust, secure fiber infrastructure. This initiative will leverage the county's private voice wireless (radio), network and telecommunications programs for a unified architecture and support scenario. This strategy, designed to leverage federal broadband grant opportunities and public-private partnerships, will provide improved services and better cost efficiency than similar commercially available broadband solutions, especially supporting public safety response operations and regional interoperability.

2.7 Inspections, Code Enforcement and Land Development Accessibility Initiatives

Fairfax Inspection Database Online (FIDO)

The Fairfax Inspections Database Online (FIDO) is a strategic initiative to enhance and consolidate permit and 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 (DPWES), the Department of Planning and Zoning (DPZ), the Health Department (HD), the Code Enforcement Strike Team, and the Fire and Rescue Department (FRD) 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 legacy mainframe ISIS system to a technical solution that promotes business process homogeneity in a multi-agency environment, and facilitates 24/7 internet access to land use services (for citizens and business partners) via the Internet. In addition to the replacement of the legacy ISIS mainframe system, FIDO also replaced several agency-specific permit, code enforcement, license, and cashing with an enterprise solution that provides accessible

business intelligence with resultant land use service delivery enhancements, and diminishing redundant technical infrastructure expenditures.

Additionally FIDO also eliminated several manual permit issuance pre-requisites (i.e. Site Plan approval, contractor license validation, code enforcement investigations) with automated interfaces to multiple state and county systems (State Contractor database, Master Address Repository, Plans & Waivers System, Integrated Assessment System) that consolidate prerequisites in custom developed FIDO look-up screens. FIDO's Web portal and Integrated Voice Response (IVR) module also provide citizens and business partners FIDO on line access to:

- reports of alleged land use code violations of properties in their neighborhoods,
- the status of the County investigations of alleged problem properties in their neighborhood,
- scheduling inspections for approved permits, and
- the status of building permit applications

During FY 2010 Code enforcement Inspectors from FRD, DPZ and the Health Department received wireless-laptop access to FIDO in order to streamline field-based alleged problem property assessment and code enforcement violation activities. FIDO wireless access from the field



has reduced the need for multiple trips back to the office to update FIDO with inspection results, and provides a “virtual mobile office” for mobile workers to work collaboratively with senior management to resolve “quality of life” neighborhood issues.

In FY 2011 all FIDO modules (Permits, Code Enforcement, License, Customer Service, and Cashiering) are in production for DPWES, DPZ, FRD, the HD, and Code Enforcement Team). Other agencies such as the Department of Housing and Community Development, and the County Attorney also access FIDO on an as needed basis. During FY 2011 staff also worked with DPWES to launch FIDO's web based permit application module, and the implementation of a mobile wireless building inspection system for DPWES building inspectors. In FY 2012 the web permit application module will expand to include additional DPWES permits, and staff will also launch a pilot to evaluate building intelligence software to consolidate land use data from FIDO and several other Fairfax County land use systems. The pilot will focus on providing parcel history profiles for Fairfax County properties, and land use query capability for Fairfax County citizens and land use agencies.

Department of Code Compliance

In 2007, FIDO provided enhanced code compliance technologies to the County's Code Enforcement Strike Team to facilitate the rapid deployment of cross-agency investigative teams focused on neighborhood quality of life issues such as overcrowding, multi-vehicle storage, hoarding, and alleged fire code violations. By 2010 these technologies included web based data repositories of address-specific code enforcement data, and field-based wireless access to FIDO for inspectors involved in investigative data collection and analysis activities. Based on the success of these activities, existing FIDO business functionality will be leveraged to support the newly established (FY 2011) Fairfax County Department of Code Compliance. The new agency will utilize the web, wireless, and land use data consolidation features of FIDO to provide enhanced data sharing and inquiry capabilities for agency personnel, with associated web capabilities for citizens to track the status of code enforcement investigations in their neighborhoods

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 information accessibility improvements. The target stakeholder audience included County staff, citizens, the land development industry, property owners, and others with an interest in knowing more about proposed and ongoing land planning and development activities. Details concerning the Advisory Group's final report and recommendations are available @ <http://www.fairfaxcounty.gov/landusecomm/>

DIT has taken an incremental approach to address the Group's recommendations due to on-going budget constraints and funding challenges. 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 including:

- 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.

- My Neighborhood web page integration to streamline end user navigation.

During late FY 2010, Virtual Fairfax was released to the public (<http://www.fairfaxcounty.gov/gis/virtualfairfax/>). It is a web-based application that integrates web-based GIS 3-D imagery and GIS capabilities with existing land use systems such as IAS (tax assessment), LDS (Commercial and Residential development plans), and FIDO (building permit issuance). The application has thousands of 3-D buildings in the Tyson's and Reston/Herndon areas as well as some zoning information around the planned Metro stations in Tysons Corner. With a single mouse click 3-D aerial tours of the County – business centers, historic sites, schools, parks – along with easy address-based searches/queries of construction sites and building permit issuance activities is now possible. Users can also view their own 3-D models within the application and conduct shadow analyses of 3-D objects.

On-going efforts to address the Advisory Group's recommendations to meet government transparency objectives will continue in FY 2012 (subject to funding priorities) with the following initiatives:

- Expansion of web-based building permit application capabilities for County business partners and citizens.
- The implementation of data warehouse/business intelligence software to provide the public with unfettered access to land use data, including (but not limited to) commercial and residential development plans, building permits, complaints, and inspections.

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 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 the new system offers the County including:

- Integrated CAD/Records Management System for Public Safety agencies
- Automatic Vehicle Location (AVL) – This is 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.
- 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 increasing the ability for Public Safety to respond quickly and effectively to changing needs, and reducing 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 obsolescence. This improves the County's posture for planning refresh cycles, warranties and maintenance plans.

Interoperability – Northern Virginia CAD 2 CAD Exchange

Funded through Federal Homeland Security grants, the CAD2CAD Exchange is a strategic regional project enabling the sharing of non-sensitive, fire Computer Aided Dispatch (CAD) data between the operational CAD

systems of the City of Alexandria, Arlington County, and Fairfax County. With implementation of the CAD2CAD these jurisdictions can view real-time status of fire units and request resources from one another in mutual aid responses which currently occurs over 40 times per day.

The exchange is supported by the Data Exchange Hub, a component of the Nation Capital Region's Interoperable Communications Infrastructure. This real-time data interface supporting 24 x 7 mission-critical emergency functions has improved mutual aid coordination, information and situational awareness, reduced dispatch times, and improved incident response times and service to the community. The Unit Status and Request for Resource Services implemented on Feb. 18th 2010, have significantly reduced the time needed to select and dispatch resources to incidents requiring Mutual Aid. Monthly statistics from before and after the CAD2CAD implementation reflect an almost 50% reduction in the Turn Out time of Units Responding to Mutual Aid calls. That is a direct, measurable and tangible return on investment for grant funds applied to date toward this effort.

The project complies with emerging regional and national data sharing standards, thereby allowing for the inclusion of other regional partners as future grant funding permits. This achievement represents both a technology integration success and a long sought-after milestone in the operations of 911 dispatch, and is a milestone for interoperability standards and methodology that can be expanded in public safety, and be applied to other internal multi-agency or inter-governmental application and collaboration opportunities.

