FY 2022

INFORMATION TECHNOLOGY PLAN

HTTPS://WWW.FAIRFAXCOUNTY.GOV/INFORMATIONTECHNOLOGY/

Fairfax County
Information Technology

FAIRFAX COUNTY, VIRGINIA
DEPARTMENT OF INFORMATION TECHNOLOGY

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FY 2022 ADOPTED INFORMATION TECHNOLOGY PLAN

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SECTION 1

IT GOVERNANCE

IT GOVERNANCE

PLAN OVERVIEW

The County continues to address challenges and meet new opportunities where technology innovation is essential. In an environment of rapid change, the need for responsiveness with finite resources highlights the importance of strategic planning, solid governance, and program management for collaborative decision making and secure solution delivery at a leveraged cost. The County's IT environment builds on an enterprise architecture that includes industry standards, open systems, the web, cyber security, and tools that support a variety of needs and a diverse portfolio of internal and external applications and systems. The supporting infrastructure provides for optimum system performance and the security of County data and transactions.

The County's technology strategy supports and is aligned with the Nine Priority areas of Fairfax County's Countywide Strategic Plan (https://www.fairfaxcounty.gov/strategicplan). County Information Technology (IT) goals and guiding principles are reviewed periodically for applicability and relevance against new strategic priorities, service demands, IT trends, and budget dynamics. The following priorities serve as the core basis for budget decisions:

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

This plan describes technology projects funded through the annual budget to meet the goals and objectives of sponsoring agencies; provides status updates and accomplishments of ongoing projects; and states benefits anticipated by project sponsors. Projects are linked to the sponsoring agency's strategy, outreach and operational improvement plans, and technology goals established by IT executive management and/or the Board of Supervisors.

The projects in this plan are primarily funded in the Information Technology Fund - Fund 100-C10040, and Fund 400-C40091 (E911). Some projects are funded from other sources such as the sponsoring agency's budgets, revenue funds, or other County dollars to augment investment capacity. Funding is also allocated at quarterly budget reviews to optimize the use of available County dollars and align project funding with project budgets, plans and schedules.

Fund 100-C10040 technology initiatives also support and are aligned with the Department of Information Technology's Strategic Information Technology Plan and include projects that promote:

- **Digital Transformation** – deployment of new capabilities to improve business efficiencies through automation such as: expanding virtual services, advancing mobile/digital workforce solutions, and utilizing innovative technologies such as Artificial Intelligence to deliver better business value.

- **Security** – maintaining a robust and aggressive security posture to protect the County's IT assets and information from evolving cyber threats and unauthorized access/use.

- **Data Analytics** - supporting the County's continuing progress towards becoming a data-driven organization.

- **Cloud Computing** – based on business requirements for securely enabling access to County information.

The IT Plan is focused on principles, investments and strategies, and is organized in six sections:

- Information Technology Governance (Section 1)
- Strategic Directions and Initiatives (Section 2)
- Information Technology Projects (Section 3)
- Management Controls and Processes (Section 4)
- Information Technology Architecture and Infrastructure Foundation (Section 5)
- Appendix (Section 6)

Governance, architecture, and infrastructure supporting IT projects and services are described within this plan. However, ongoing Department of Information Technology (DIT) operating, and personnel costs funded in the General Fund – Fund 100-C10001 and the Technology Infrastructure Fund – Fund 600-C60030, grants, routine operational activities, on-going support efforts, normal upgrades and maintenance work are not included. Additional details of each fund is available online in the Fairfax County Fiscal Year 2022 Adopted Budget Plan.

POLICY GOVERNANCE

Fairfax County's IT governance aligns information technology investments and programs with the County's strategic business goals. The Board's IT Committee, senior executive committees, and a citizen advisory committee provide oversight and guidance on technology programs and investment strategies. Various steering and governance boards are focused on specific programs and enterprise wide projects.
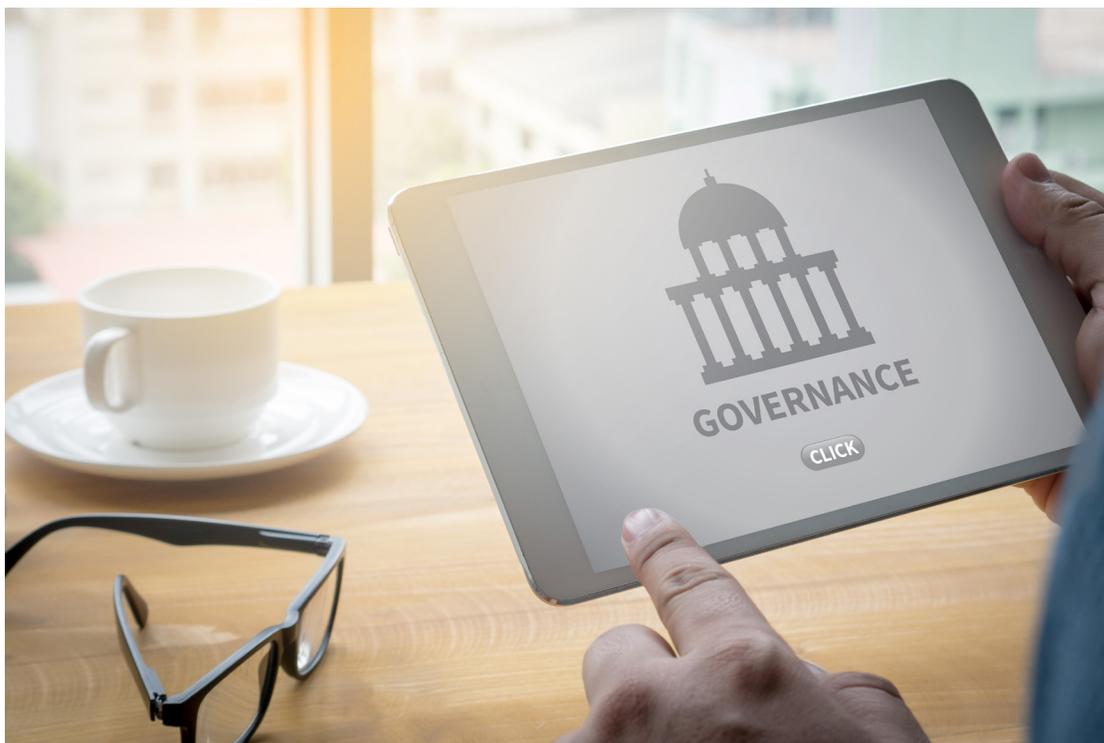
1.0 Technology Organization and Governance

Technology is managed as a centralized enterprise capability in Fairfax County. The Department of Information Technology (DIT) provides technology services on an enterprise-wide infrastructure, architecture framework and standards for most systems. County agencies have a limited number of IT staff that directly support certain agency business specific 'point' solutions or digital industrial systems, and/or provide local first response desk-side user support. Agencies' IT staff matrix to DIT for standards, direction, and assistance in implementing their agency specific business systems, integration, and data strategies. The County's Chief Technology Officer is the Director of the County's Department of Information Technology and manages the County's technology strategy and governance.

1.0.1 INFORMATION TECHNOLOGY POLICY ADVISORY COMMITTEE

The Board of Supervisors is committed to providing the County government with the resources necessary to keep pace with emerging trends in information technology and providing citizens, the business community, and employees efficient and convenient access to information and services. To accomplish this goal, the Board has made substantial and continuing investments in technology. In 1997 the Board of Supervisors established the Information Technology Policy Advisory Committee (ITPAC) made up of a group of citizens to provide the Board with expert advice on technology strategy and assist the Chief Technology Officer (CTO) with technology direction and validation of applicable industry trends to government.

ITPAC meets regularly to review the County's technology plans, key projects, and the annual technology investment portfolio; membership includes:

- One representative appointed by each Board Member (10 in total)
- One representative appointed by the School Board
- 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 are to:

- Stay current with information technology developments and provide recommendations to the Board of Supervisors.
- Review the annual Information Technology Plan and investment budget and make recommendations to the Board of Supervisors.
- Review major information technology projects.
- Present facts and issues that it deems important to the attention of the Board of Supervisors.
- Advise the CTO and DIT on technology trends, strategic direction and related issues.

1.0.2 BOARD OF SUPERVISORS TECHNOLOGY COMMITTEE

The Board of Supervisors Information Technology Committee is established to discuss IT-related issues, initiatives, policies, and topics reflecting the commitment of the Board of Supervisors to:

- Ensure that the County government keeps pace with appropriate emerging IT trends to support County goals and priorities.
- Provide citizens, businesses, and employees with open government and secure access to services and information.
- Promote innovation and improve effectiveness and efficiency.
- Maintain the security of County information systems and data.

1.0.3 SENIOR INFORMATION TECHNOLOGY STEERING COMMITTEE

In FY 1999 a County executive group, the Senior IT Steering Committee, was created to advise the Chief Technology Officer and DIT leadership and provide policy governance oversight for the County's IT strategy. The committee meets to review technology priorities to ensure alignment with the County policy and strategic business initiatives and determine budget recommendations for new and existing IT investments.

Core members of the Senior IT Steering Committee include:

- The County Executive
- Deputy County Executives
- Chief Financial Officer
- Chief Technology Officer/Director of DIT
- Director, Office of Public Affairs
- Other County officials may be asked to participate as needed

The Committee may activate 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.

1.0.4 PLANNING AND LAND USE SYSTEM (PLUS) EXECUTIVE STEERING COMMITTEE

The PLUS project is a major strategic initiative to modernize the County's Land Development systems and business processes by replacing aging, disparate legacy land development systems with an integrated technology solution that enable seamless customer and staff interactions and supports land use, e-plans, and development operations. The Executive Steering Committee provides strategic oversight, evaluates policy implications, assesses business process and organizational impact, approves business solution, unified service delivery models, and provides recommendations to the project's Executive Sponsors. The Committee meets as determined by the Executive Sponsor. Principle members include:

- Deputy County Executive for Land Development Services
- Director of the Department of Land Development Services
- Director of the Department of Planning and Development

- Director of the Department of Information Technology/Chief Technology Officer

- DIT Senior Technical Director

- DIT Technical Project Managers

- Business Project Manager

- Key Stakeholders

1.0.5 HEALTH AND HUMAN SERVICES IT GOVERNANCE BOARD (HHSITGB)

The Health and Human Services IT Governance Board (HHSITGB) establishes strategic direction, policies and priorities for technology initiatives and investments across the Health and Human Service agencies and related partner organizations, promoting an enterprise-level collaborative approach, and one that leverages state, inter-jurisdictional, and Federal interoperability opportunities. The HHSITGB seeks to break information silos using technology and coordinate agency practices to more efficiently and effectively provide Health and Human Services system wide with:

- Executive sponsorship and oversight for initiatives.

- Leadership and advocacy for business and operational improvement opportunities, and collaboration among stakeholders.

- Review of IT project requests.

- Recommendations for organizational and funding structures supporting initiatives.

In its work, the HHSITGB seeks to identify and examine technology trends, programs, practices and operational requirements affecting health human services programs. The HHSITGB focuses on how the delivery of a consistent level of health and human services to the citizens of Fairfax County can be influenced and improved by deployment of specific information technologies. Goals of the Governance Board include:

- Increase data sharing capabilities among Health and Human Services (HHS), Public Safety, and other key partnering agencies to view clients holistically, tailor services to their specific needs, and identify at-risk persons in a timely fashion.

- Create an integrated view of client information across HHS programs and a central point to access data from relevant HHS systems.

- Remove redundancy in the client experience (e.g., eliminate the need for clients to submit basic eligibility information numerous times).

- Improve strategic planning capabilities within HHS agencies and across the system.

- Increase accountability for client outcomes and cost of service.

- Create common standards across agencies for critical areas such as IT security, data confidentiality, etc.

Membership of the HHSITGB includes:

- The Deputy County Executive for Human Services

- Chief Technology Officer/Director, Department of Information Technology

- Director, Department of Family Services

- Director, Health Department

- Director, Department of Neighborhood and Community Services

- Executive Director, Fairfax-Falls Church Community Services Board

- Director, Juvenile and Domestic Relations District Court

- Director, Office to Prevent and End Homelessness

- Director, Office of Strategy Management for Human Services

- Director, Department of Housing and Community Development

1.0.6 COURTROOM TECHNOLOGY EXECUTIVE GOVERNANCE BOARD

The Courtroom Technology Governance Board was established to provide governance and oversight for courtroom and court related technology initiatives. The Executive Board reviews and endorses policies and procedures and provides oversight and direction. The Board is composed of:

- The Chief Judge or Judge designee of each court

- Clerk of Court or Clerk designee of each court and Agency Directors

- Juvenile Court Services Director

- County's Chief Technology Officer (CTO)

- Fairfax County Sheriff

The Director of the Courtroom Technology Office is the designated administrator for the board and is responsible for ensuring effective strategic planning, development, and integration of courtroom technology resources and programs with the courts and other criminal justice agencies and entities.

1.0.7 GOVERNANCE COMMITTEES FOR OTHER IT INITIATIVES

In carrying out its mission, the CTO, the Deputy County Executives and/or DIT senior directors participate on several key County Committees focused on major County initiatives and/or operational oversight agendas that have significant requirement for IT participation. In addition, production systems may have operating boards for shared services, common requirements, new technology capabilities, data analytics and transparency.

1.1   Department of Information Technology Organization

The Department of Information Technology (DIT) provides leadership, governance, architecture, technical resources, and expertise in development and deployment of information technologies to improve efficiency, effectiveness, and promote innovation. DIT is responsible for establishing technology architecture, implementing, and managing systems, applications, communications, and the overall management of the County's information assets. DIT is further charged with security and safety of County information systems, networks and data. Agencies are responsible to adhere to IT policy and standards and coordinate their requirements with DIT. The organizational structure of DIT has evolved over the years to align with changing priorities, trends, and requirements leveraging technology platforms and resources to support County business functions.

DIT is organized into IT discipline subject matter expert groups that support enterprise-wide systems and applications, including the document management platform, Customer Relationship Management (CRM) platform, WEB and GIS systems used by all agencies as well as certain agency specific business application development and support. These include applications that support County agencies' business systems including revenue systems (Tax), human and health services agencies, land development, public works, zoning, public safety/criminal justice, and general County agencies including the libraries, parks and facilities management. DIT supports a multi-channel e-Gov program for architectural direction, standards, and strategies for the County's website, Intranet, web content management system, and mobile applications. The e-Gov team works closely with County agencies and the Office of Public Affairs in overall management and execution of web-content and social media.

A specialized Courtroom Technology group coordinates the implementation and support of modern courtroom technologies for the three Fairfax County Courts (Circuit, General District, and Juvenile and Domestic Relations), and serves as the liaison with the State Supreme Court for technical solution and data interoperability. The Public Safety group manages programs and new initiatives that integrate systems in public safety, law enforcement, and emergency management which also addresses homeland security, and regional collaborative and interoperability initiatives and mandates.

The Information Security Office (ISO) reports directly to the Chief Technology Officer and defines and enforces the security standards and policies required to protect the County's information assets and technology infrastructure. Enforcement and compliance authority for ISO is through the County Executive.

The Technology Infrastructure divisions manages server and storage hardware environments, middleware integration tools, communications and network platforms, enterprise messaging applications, desktops and end-user devices, the network based digital multi-function printing devices (MFD) that support County-wide distributed printing, and the IT Service Desk.

The Policy, Planning and Administration division provides DIT with administrative, fiscal, human resources and IT policy support functions; and the Project/Portfolio Management Office provides compliance oversight and manages the County's IT Investment Portfolio of IT Projects.

In FY 2011, the County's Print Shop function was moved to DIT, and in FY 2017, County Archives was also relocated to DIT to better align with electronic records retention, management, and policy. The County's Mail Services was also transferred to DIT to enhance integration of mail processing with County digitization goals. These functions were re-joined with the Print Shop and Multifunction Device Programs recreating the Document Services, an operating division in DIT.

In 2020-2021, the County faced extraordinary challenges from the COVID-19 pandemic shutdowns and service disruptions. DIT adapted quickly and implemented necessary technologies for continuity of operations and established a framework for secure employee telework, virtual Board of Supervisors meetings and meetings of the County's various Boards, Authorities and Commissions. DIT also made significant contributions to Health Department's rapid technology mobilization supporting the COVID-19 vaccination program.

Due to COVID-19 Pandemic restrictions, annual DIT sponsored technology events such as GIS Day and the Security Awareness Day were cancelled last year.

1.2   REGIONAL AND NATIONAL PROMINENCE IN THE IT COMMUNITY

In addition to internal committee involvement, Fairfax County Government's Chief Technology Officer (CTO), Chief Information Security Officer (CISO) and other members of the County's IT Management team provide leadership and/or participate on several federal, state, and regional committees including:

- Council of Governments CISO Committee, Chair 2011- current
- Council of Governments Emergency Preparedness Council
- National Capital Area (NCR) Homeland Security Executive Committee Advisory Council
- Regional Working Group for interoperability (Maryland, Virginia, and DC, state and local functional and technical leadership representation)
- Council of Governments Interoperability Committee
- National Association of CIOs
- National Association of Telecommunications Officers
- Virginia Local Government Information Technology Executives (VALGITE)
- SIMS (Society for Information Management)
- Northern Virginia Regional Commission
- Northern Virginia Regional Preparedness Advisory Committee - Interoperability (NoVA RPAC-I) and Northern Virginia Emergency Response System (NVERS)
- National Association of Counties
- Public Technologies Incorporated, 2013 Class Fellows
- COVITS Board (Commonwealth of Virginia IT Symposium)

SECTION 2

STRATEGIC DIRECTIONS
AND INITIATIVES

STRATEGIC DIRECTIONS AND INITIATIVES

F airfax County's technology strategy incorporates a plan for investments at optimal time to keep pace with technology innovations and growing demands for constituent services. This strategy has helped the County address new economic realities, improve communications, foster open government for public engagement, and leveraged the overall technology portfolio and capabilities on an enterprise scale to meet the County's diverse operational needs. The following key enterprise initiatives are part of this overall strategy.

2.1 Digital Government/e-Government

The Digital Government/E-Government (E-Gov) initiative, a foundational program, supports the County's goal of a "government without walls, doors, or clocks." The overall goal of digital government strategies is to bring the County's many channels closer to its constituents and businesses, providing services in a more efficient way. At the same time, it implements the policies and procedures that integrate all platforms, both for internet and intranet, to create a transparent and innovative government. It also creates a governance plan to include digital security and privacy issues. The program provides the technical basis to create a data-driven environment that is built on the engagement model which utilizes open data, analytics, and personalized engagement to create a transparent service delivery that encourages users to participate. It enables County agencies' operational efficiency, mobile workforce, emergency management and Continuity of Operations Plans (COOP).

The E-Gov program develops and supports the architecture, web infrastructure, and application framework for over fifty agencies on the Web, other public channels, and internal Web portals. This includes the public website, https://www.fairfaxcounty.gov/, online services, mobile apps, social media, web-based applications, Interactive Voice Response (IVR), Cable TV, and the County's Public Access sites in Libraries and Access Fairfax sites, to provide a unified access point to County information and services. The Department of Information Technology and Office of Public Affairs jointly work on design, navigation, content management and social media integration aspects of the web site. The E-Gov program supports enterprise web application development and provides technical oversight to web developers and programmers. In addition to on-going improvements of the Web and deploying new services, transactions and social media, the strategy also includes Customer Relationship Management (CRM), and Web Content Management (WCM) tools for comprehensive, integrated service options to engage and create a partnership with the community in a collaborative way.

https://www.fairfaxcounty.gov/

Popularity and use of E-Gov capabilities continues to expand. Here is a sampling of significant stats:

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Website Visits	19,105,379	19,311,840	18,160,887	16,314,450	17,821,929	20,382,549
Facebook Reach	28,313,758	58,827,954	91,759,813	66,317,648	76,617,759	95,088,315
YouTube Views	225,120	285,815	305,436	318,264	375,514	762,880
Emergency Blog	349,977	347,896	98,362	161,696	221,372	2,013,020
SlideShare Views	1,209,467	482,708	1,265,402	491,250	1,028,019	1,143,205
Twitter Impressions	23,550,698	56,295,975	69,575,979	62,923,888	65,362,561	75,283,983
TOTALS	72,754,399	135,552,188	181,165,879	146,527,196	161,427,154	194,673,952

Sec 2. Table 1 - Number of visits, views, impressions made with Fairfax County's social media.

The overall digital government program supports Board priorities regarding public engagement, and other County initiatives associated with technology innovation in public service including, land use, Next Generation 9-1-1, Health and Human Services Integration Initiatives, mobility, and transparency.

The County has achieved much success and acclaim for its E-Government focus in integrating the Web and IVR platforms to offer a wide variety of channels for online public access to services and programs, and its success in incorporating social media capabilities in a thoughtful way that enhances service delivery. Fairfax County has consistently received national recognition from the Center for Digital Government as one of the top-ranking localities in the US, placing in the **top ten** for the past fifteen years.

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

WEBSITE

Fairfax County's public website at https://www.fairfaxcounty.gov has been an extraordinary success and has received numerous national and local accolades over the years. The modern, topic-oriented Fairfax County website showcases an enhanced business delivery model, with improved search engine optimization and eliminates data silos thereby promoting transparency on the County's website. The County's innovative use of technology combined with user-friendly website design

has streamlined the interaction between constituents and the government and provides the necessary tools for collaboration and participation with County government.

Approximately 55 County agencies have a presence on the site. The responsive design promotes a "mobile first" approach and renders the website seamlessly on all mobile devices bringing the County government closer to the public - available from anywhere at any time. The County website is also translated using machine translation powered by Google. The website experience has expanded significantly with improved and new interactive features and online applications including the "Fairfax Virtual Assistant" – an AI powered chatbot, to enable citizen interaction with government on various topics. Launched in October 2019, engagement with the Fairfax Virtual Assistant has increased with the highest number of conversations, over 11,874, between March to June 2020 with COVID specific conversations totaling to over 4,000 as Stay-at-Home orders were in place in Virginia due to COVID-19. The Department of Information Technology and Office of Public Affairs work together with agencies to determine the most asked questions by their customers to inform content added to the Virtual Assistant.

To create a data-driven environment and support the ongoing strategy of transparency, interactive visual data and dashboards were added to enhance the web experience and share relevant information. Through data visualizations the chance of increasing audience engagement and presenting information in an understandable and digestible format is much higher.

The Fairfax County website provides secure and expedient access to hundreds of key online services for its constituents to pay, register or apply for services like tax payments, real estate information, permits, housing, jobs, basic needs, park classes etc., The convenience of conducting business online has many benefits including improved service through greater flexibility, faster delivery, cost and time savings for the public.

Sec 2. Figure 1 - Fairfax County Website

The NewsCenter (https://www.fairfaxcounty.gov/news/) on the County's website is the central location to share County and community information - It is a comprehensive site, that consolidates all the ways residents and employees can stay connected with the County, including news articles, social media hub, podcasts, RSS feeds, and emergency alerts.

For website accessibility, website pages are tested for compliance with Section 508 of the Rehabilitation Act of 1973 (https://www.section508.gov/manage/laws-and-policies) and the Americans with Disabilities Act (ADA) by passing through the County's automated compliance checking tool.

E-Government will keep focus on continuous innovation and implement projects that will provide services and programs using new technologies such as cloud-native application development and integration, containerization, and shared services. The County will continue to invest its efforts in integrating Artificial Intelligence concepts to provide more efficient services to the public.

MOBILE

Acknowledging the widespread growth of mobile technology, the County website took a "mobile first" approach using responsive design, rendering the website seamlessly on all mobile devices bringing the County government closer to the public - available from anywhere at any time. Providing mobile accessibility allows residents to access the County at their convenience and reaches a wider user community with the ability to access services and information easily from any location.

Supporting the County's strategic vision and striving to create a citizen-centric approach that goes beyond the website, Fairfax County pioneered the availability of governmental services on mobile devices. In enhancing the County's long-standing goal that our community should access their government 24/7 without walls, doors or clocks, Fairfax County placed government in the palm of their hands with
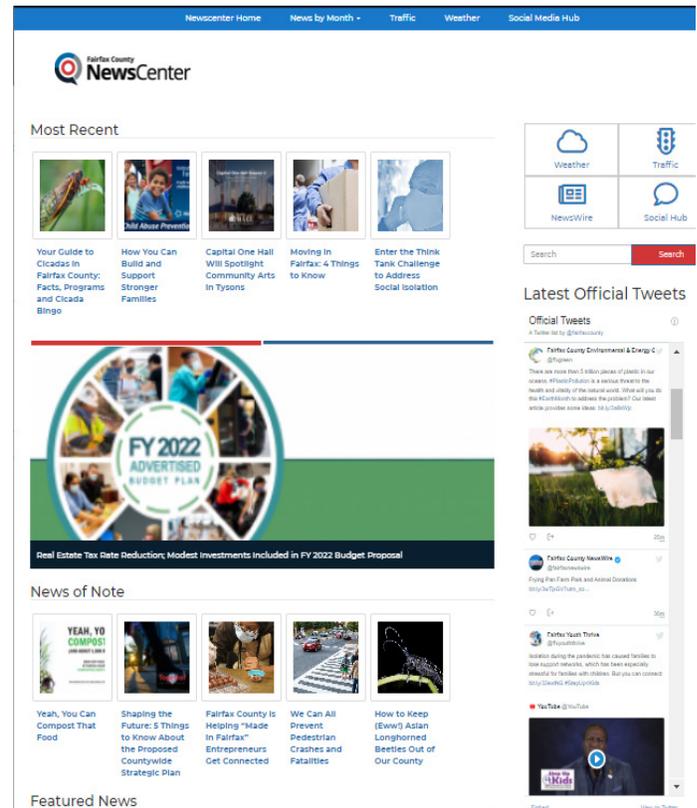
Sec 2 Figure 2 - Fairfax County NewsCenter Tablet View
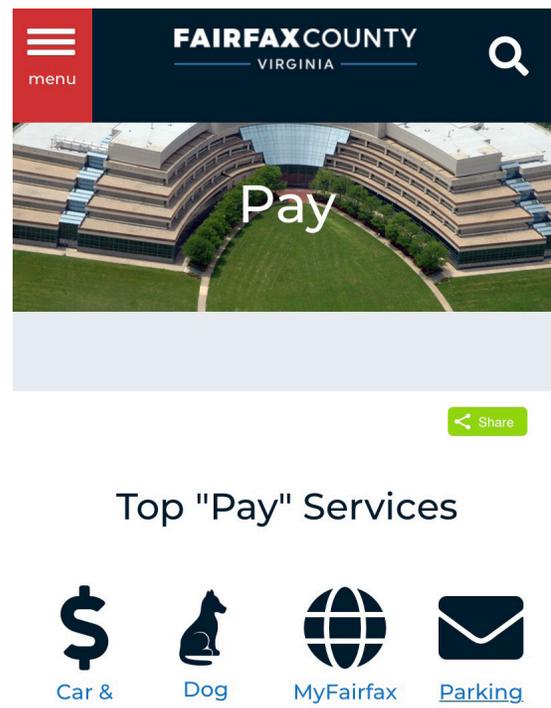
Sec 2 Figure 3 - Fairfax County Services Phone view

the introduction of efficient and cost-effective mobile apps and services.

The public can download the official Fairfax County application on their smartphones and tablets for emergency information, news headlines, one-touch calling through a contact directory, GPS maps, social media links, transportation resources and more at https://www.fairfaxcounty.gov/topics/mobile. The Fairfax County Mobile App has been downloaded over 43,350 times since its launch.

SOCIAL MEDIA

Social media in Fairfax County has been a significant success to engage and provide services. It continues to grow, proving the County is engaging its residents on platforms people use daily. News articles published on the website are integrated into Facebook, Twitter, Nextdoor, Instagram, Flipboard, Apple News and Google News. The County currently has 23 Facebook Pages, with additional 10 Facebook pages for each Board of Supervisors which reached over 95 million people in FY 2020, about 235 percent increase from FY 2015. Across the County's 20 Twitter feeds, Twitter impressions grew from 23,550,698 in FY 2015 to 75,283,983 in FY 2020 – an increase of over 220 percent from FY 2015. The use of these tools is critical to engage in two-way communication with the community. A centralized social media content management system is in place, along with a comprehensive social media policy.

Sec 2 Figure 4 - Fairfax County Instagram Account

The social media management system's user interface takes the form of a dashboard, and supports integration of various social networks like Facebook, Twitter, YouTube, etc. This system has helped build an engaging presence on social media with the ability to manage all our social networks and schedule messages for future publishing. Additionally, the real time analytics provided by this tool gives an in-depth view of how well the County's social media efforts are being received by the public with the ability to visualize the metrics in one easy place. The tool also helps monitor social media conversations that matter to the County, identify its influences, and observe emerging trends.

In coming fiscal years, the use of social media will continue to be important. The E-Gov plan will further integrate social media into operational aspects of agency lines of business to ensure cross-platform sharing as needed. Social media tools will continue to evolve as the leading E-Gov tools of choice in the years to come.

AUDIO AND VIDEO

Fairfax County launched an Internet streaming radio station simply named Fairfax County Government Radio in 2014. The County owns and produces large amounts of audio content for the County's SoundCloud social media account. The public can listen online (https://www.fairfaxcounty.gov/publicaffairs/radio) providing access to County information 24 hours a day, seven

days a week. During emergencies, the station is used to share important emergency information in an audio format, similar to the way the County currently uses other platforms such as the emergency alert system (https://www.fairfaxcounty.gov/alerts) where residents can sign up to receive emergency alerts by both text and e-mail.

The use of videos has continued to expand beyond the County's existing cable TV channel. Use of recorded video testimony via YouTube for public hearings during COVID-19 is just one example of increased video use as we learn to work and communicate from a distance.

The E-Gov program will continue to affirm the County's strategic vision and goals, with enhancements to services and a focus on improving online service delivery with a coordinated process for implementation. Efforts on re-architecting information, modifying layout and presentation of content on the County website will continue to be of prominence. Emphasis will be placed on providing information based on topics key to the public, based on metrics and usage patterns of the website.

2.2   GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Geographic Information Systems (GIS) are a strategic foundational technology, integrated with numerous County applications and business processes. It is an essential component of County operations and is heavily used by a wide range of County agencies. The GIS Division maintains an enterprise wide GIS system with a range of technologies, related products and data that provide the foundation for ongoing integration of GIS into County operations as well as enabling the agencies to utilize GIS as much as possible to support their lines of business.

Fairfax County's enterprise GIS architecture is undergoing a multiyear modernization plan to ensure that a modern business class IT system underlines the platform. This undergirding will ensure that a resilient GIS system can be relied on as various business systems, like the Planning and Land Use System (PLUS) move into production. This modernization ensures that a resilient plan will be in place, that production servers and the Enterprise portal will be resourced and resilient with disaster recovery capabilities. This effort will also support widespread mobile use of GIS and the adoption of new capabilities like real time tracking, routing, and data analytics.

Web-based GIS applications continue to be central to communicating locational based information to staff and residents. Additional focused applications have been created by County staff for operations and the public in FY 2021. For example, to assist the County response and the dissemination of public health and other contextual information, the COVID-19 Geospatial Resources hub site was deployed (figure 5). This site housed maps and applications, COVID-19 case information for the Fairfax Health District and the Commonwealth, demographic and vulnerable population information, and available downloadable data.

At the beginning of the crisis, many students lost access to school meals. For many, the location of food assistance sites for families and people in need were not well known. To address this need, County staff developed the Food Resources application, which provided a spatial search capability with information about neighborhood and Community food sites, school meal pick-up sites, school bus meal services stops, nonprofit food providers, and grocery stores with hours of service for seniors in one location. This concept was adopted by the region and through cooperation with COG and the region, a permanent viewer is in development to serve the region regardless of jurisdictional lines (Figure 6).

Sec 2 Figure 5 - shows COVID-19 Geospatial Resources Hub

These are recent examples of applications that now permeate the County web site and GeoPortal. The GeoPortal alone hosts 93 applications (Figure 7 and 8), sixteen more than in the summer of 2020, a 20% increase with another 50 mapping applications embedded on various pages. Cumulatively these applications have over 1.6 million views. In FY 2022 rapid expansion and utilization of GIS technology will continue to grow.
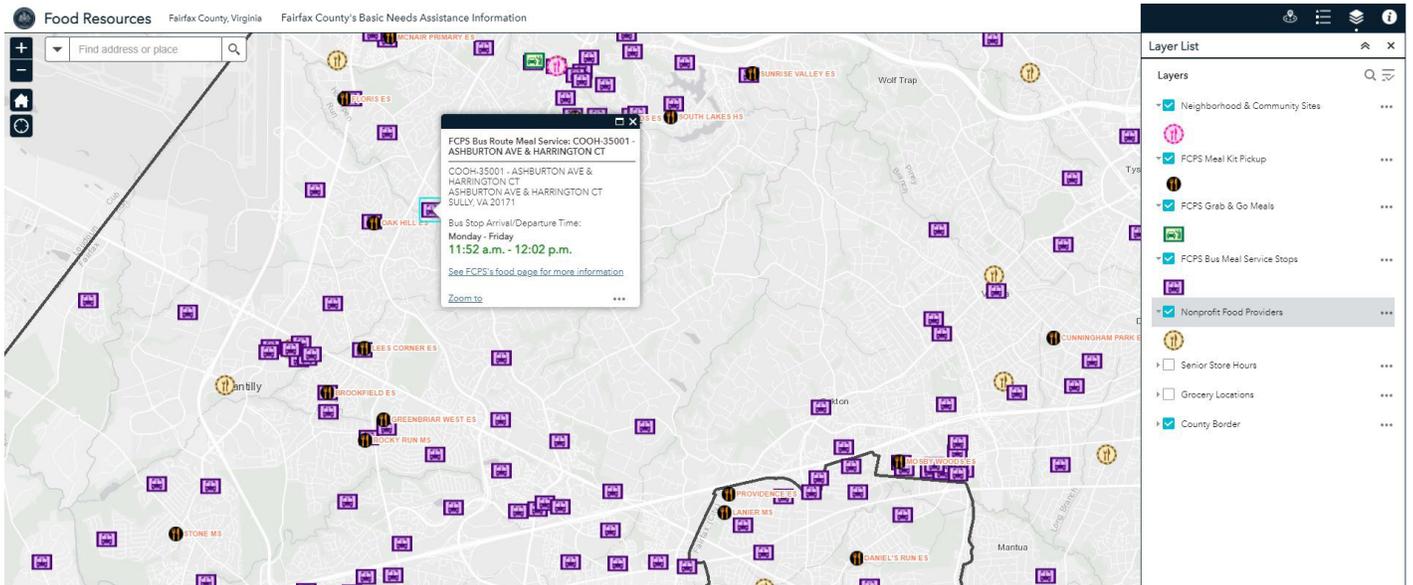
Sec 2 Figure 6 - Shows map with food locations

Most GeoPortal (https://www.fairfaxcounty.gov/maps/interactive-map-gallery) applications are focused and thematic, but the public also had need for a general GIS viewer and reporting application. While County staff have had access to the internal GEM application (Geographic Exploration & Mapping) and use it daily, residents often remarked that they did not. To address this gap, the JADE was developed in FY 2020 as a public facing sister to the GEM application and contains largely the same information, providing residents easy access to GIS information that staff use in assessments and reviews. These applications will continue to receive enhancements in FY 2022 and their use continues to grow (Table 2).
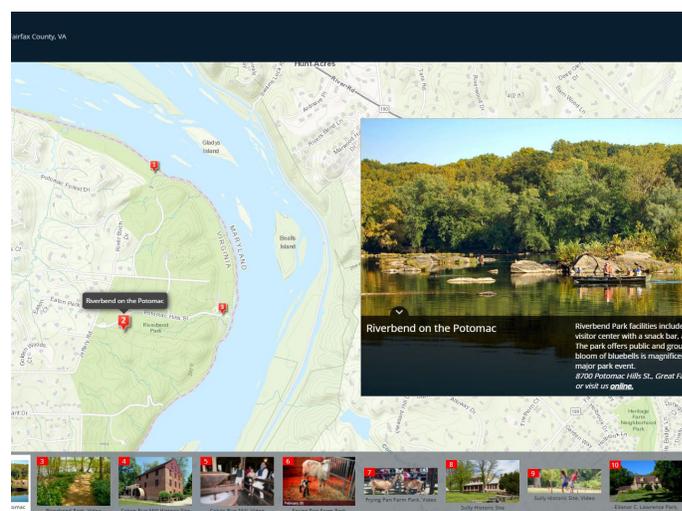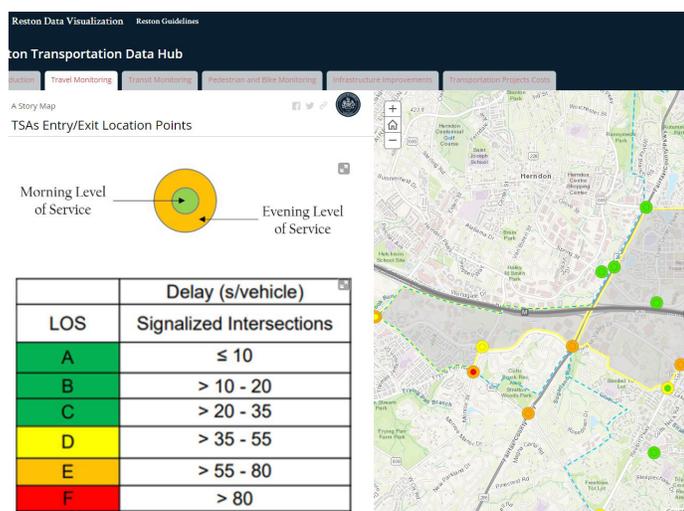
Sec 2 Figure 7 & 8 - shows range of applications available in GeoPortal

	Sessions FY 2021	Sessions FY 2022	% Change
GEM (internal)	160771	195733	22%
JADE (public)	92324	133154	44%

Sec. 2 - Table 2 shows change percentage for use of GEM and JADE systems.

For the first time in 2015 the County obtained LiDAR (Light Detection and Ranging - a remote sensing method used to examine the surface of the Earth) for the entire County. Acquired in partnership with the US Geological Survey and the Department of Public Works and Environmental Services (DPWES), this immensely detailed data set contains over 7.6 billion data points (250 GB of data), approximately 2 points per sq. meter, that provide elevation data of the surface of the entire County, including, trees, terrain, and the built environment. Fairfax County continued this partnership to collect more highly detailed surface data in 2018, this newer collection was at 8 points per meter totaling 46 billion data points and over 1 TB of data. The resulting detail above ground and the ground level provides great advantages. Accurate height measurements of buildings, suspended cables, and the height of trees countywide can be ascertained by anyone with an internet connection (figure 9). Figure 10 shows a wide view of the data and reveals detail of every natural and man-made feature (figure 10). Using this above surface data, LiDAR has been used in line of site analysis for impact analysis of proposed developments (figure 11). In addition to line of site analysis, with above surface data, accurate building measurements can now be made (figure 9). Figure 12 shows the high surface resolution that the LiDAR provides. Surface elevations anywhere in the County can be determined with a click and analytic comparisons made of stream conditions over time to determine the extent of bank subsidence and other hydrological processes.

Oblique imagery and its related software constitute one of the County's core GIS data sets and technology. Originally flown for the first time in 2003, it is a key tool for multiple County agencies. Among many other uses oblique imagery is integrated into CAD/911 operations, Department of Tax Administration assessment processes, the Geographic Exploration & Mapping (GEM) application, the public facing JADE application and serves as the source data used to derive the 3-D buildings in Virtual Fairfax (figure 13). The newest oblique Imagery was delivered in the summer of 2019, with the next acquisition scheduled for spring
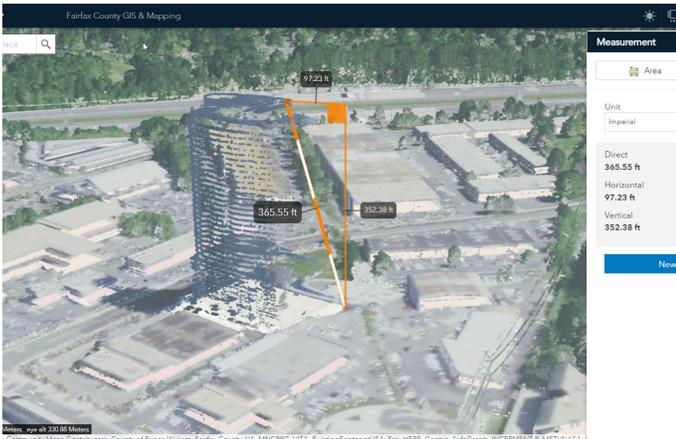
Sec 2 Figure 9 - shows height measurements of buildings, etc.
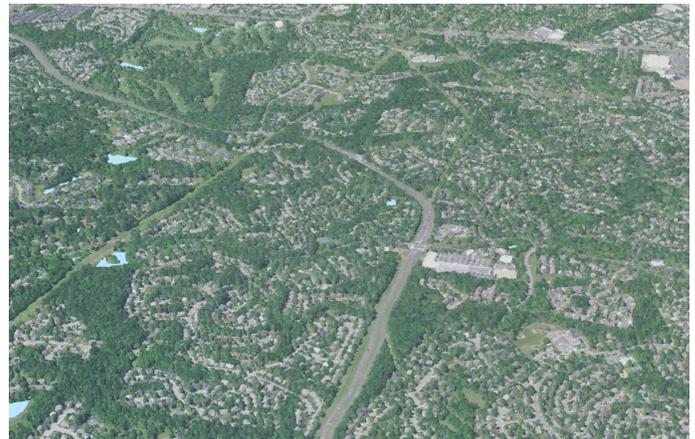
Sec 2 Figure 10 - shows wide range view of data

Sec 2 Figure 11 - LiDAR line of site analysis
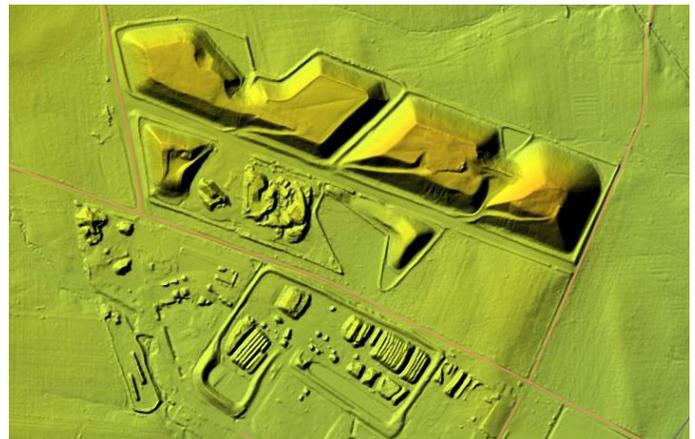
Sec 2 Figure 12 - shows LiDAR high surface resolution

2021. The County will now fly oblique and orthoimagery every year. Below is also an example of the high-resolution oblique imagery for Tysons Corner (figure 14).

Planimetric data is another foundational data set for almost all County GIS applications. Accurate planimetric data depends on high resolution and high accuracy Ortho-Imagery. The County partnered with the state every four years to purchase new Ortho-Imagery, this partnership significantly lowered the cost of the imagery which is used on the web and as a foundation for nearly all GIS data layers. The Planimetric Data Update was jointly funded and completed through a partnership with the Department of Public Works and Environmental Services (DPWES). The work significantly expanded the planimetric features in the GIS data warehouse: over 13 million new planimetric features were added to the GIS planimetric data – an increase of over 400% (figure 15 and 16). The County's GIS Office collaborates with DPWES to determine the optimum refresh cycle and funding approaches. The update to the planimetric process kicked-off in spring 2018 and uses the 2017 imagery. Currently, the update is approximately 85% complete and will be finished in CY 2021.
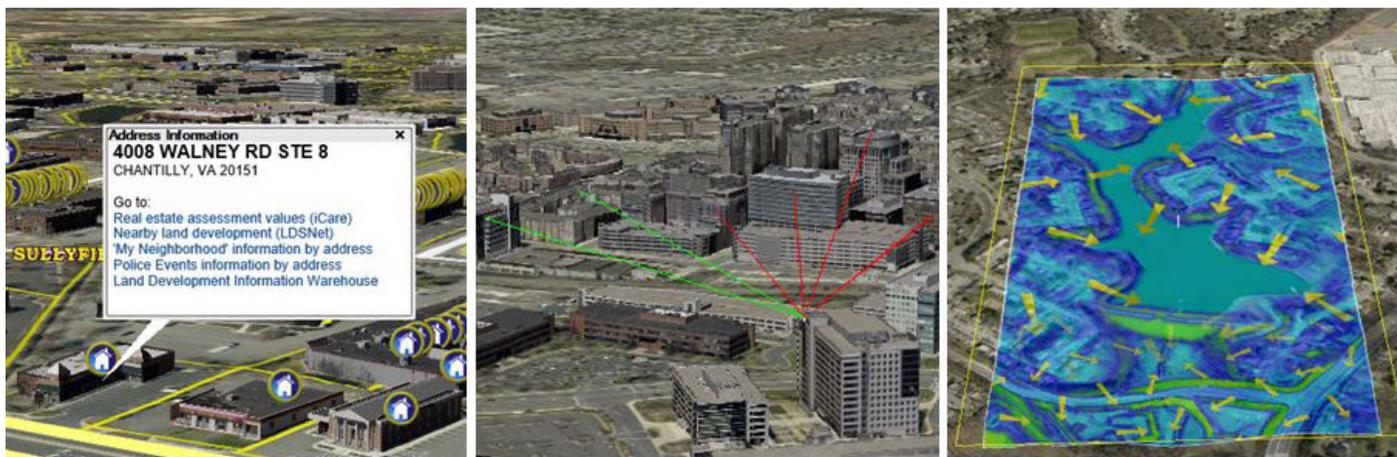
Sec 2 Figure 13 - shows 3D buildings in VIrtual Fairfax

Addresses are essential to almost all County operations. The GIS office collaborated with other County agencies to bring the Master Address Repository online in 2004; GIS now maintains the data in the system. The Master Address Repository (MAR) project has proved to be invaluable for the CAD/911 system as well as other key County systems including land development and tax administration systems. The MAR is the authoritative source of parcel (sites) addresses in the County and is essential for effective operation of the CAD/911 system. It now has over 371,700 unique addresses. The GIS Division plans to refresh and modernize this application in FY 2021.

The availability of key County data digitally through the GIS provides a range of benefits to constituents and County staff. Digital aerial photography is widely used in many GIS applications, providing the ability to do remote reconnaissance or to look back in time to see past conditions. Acquisitions of these datasets is managed by the GIS Division; parcel and zoning data are also key datasets regularly maintained by the GIS Division. All parcel map changes are posted to the internet daily, providing web users of the Digital Map Viewer (DMV) with the latest versions of the maps. Currently, on average, over 13,000 DMV maps are viewed or downloaded per month.

The County's Geographic Exploration & Mapping (GEM) application is heavily used by County staff. The GEM is a web based light GIS that has replaced expensive desktop software for many with an easy to use and informative application supporting various County business lines, especially land development. Many work groups use the GEM to answer questions about geographic phenomenon relevant to their business. In response from the Environmental Quality Advisory Committee and County agencies, a public version of the GEM, the JADE, was released in FY 2020.
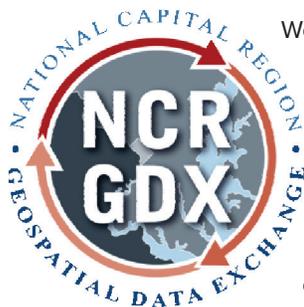
Working towards improved government interoperability is a significant and ongoing strategic activity for the GIS Division, both within Northern Virginia and regionally through the Washington Council of Governments (COG). Interoperability across National Capital Region (NCR) and with the Federal Government for emergency response purposes is also crucial. Fairfax is a member of the COG GIS Executive Committee and has helped guide the development and implementation of the National Capital Region Geospatial Data Exchange (NCR GDX) through its membership in the project's executive committee, project, and project management. The project went live in spring 2012 and

has transitioned from custom software to an industry standard, ArcGIS Online. Users of the system can exchange contextual or event related geographic information between emergency operations centers, command posts, or fusion centers. Additionally, the NCR GDX program conducts its own "community" drills to ensure the readiness of the operators and familiarity with the tools to enable the GIS community across the NCR in collaboration with federal agencies to support a regional emergency response.

Sec 2 Figure 14 Oblique Imagery of Tysons Corner

The CAD2GIS project was established as part of the NCR GDX program. CAD2GIS establishes geospatial data feeds from live CAD2CAD data. This data offers a near real time geospatial view of Fire and Rescue unit and incident locations to provide situational awareness at a regional level. The geospatial data can be consumed and integrated into existing applications by participating jurisdictions within in the NCR to support both local and regional emergency preparedness and response operations.

As the NCRGDX program continues, County staff who administer the program continue to look for ways to solve or assist with regional GIS initiatives and efforts. As the region begins the transition to Next Generation 9-1-1 (NG9-1-1), the GDX Minimum Essential Datasets (MEDS) was expanded to include the required NENA GIS Data Model compliant datasets to support NG9-1-1 operations. In 2019, NCRGDX created the NG9-1-1 Collaboration Tool which allows for coordinated maintenance of Public Safety Answering Points (PSAP) boundary layers across the region to support NG9-1-1 implementations and to ensure 911 calls are routed to the appropriate PSAP. This system assures the update efforts are uniform and coordinated across the region and within the Commonwealth.

Interoperability is crucial in Northern Virginia as emergency response personnel regularly crosses jurisdictional boundaries. Access to accurate street centerline data is particularly important to the Fire and Rescue personnel who may have to cross jurisdictional boundary lines when responding to an incident since there are several locations where the neighboring jurisdiction's fire station or equipment in route is closer to the event. The GIS office maintains Fairfax's street centerline data used in the CAD/911 system and provides the data to the Commonwealth of VA which aggregates Fairfax County's data into a state-wide centerline file. The Northern Virginia Regional Routable Centerline (NVRRCL) project has been an important and ongoing project enabling centerline data sharing for the CAD/911 system. The Regional Routable Centerline project was funded by a grant from the State's Wireless 911 Board. The project established a common street centerline data model to support vehicular routing and enables participating jurisdictions to share current street centerline data to support vehicular routing, and enables member jurisdictions (Loudoun, Prince William and Arlington counties and the cities of Alexandria, Falls Church, and Fairfax) to share routable centerline data across Northern Virginia and the Commonwealth. GIS support for the CAD/911 system is a core GIS office responsibility, involving data maintenance requirements which continue to be a significant effort. With the
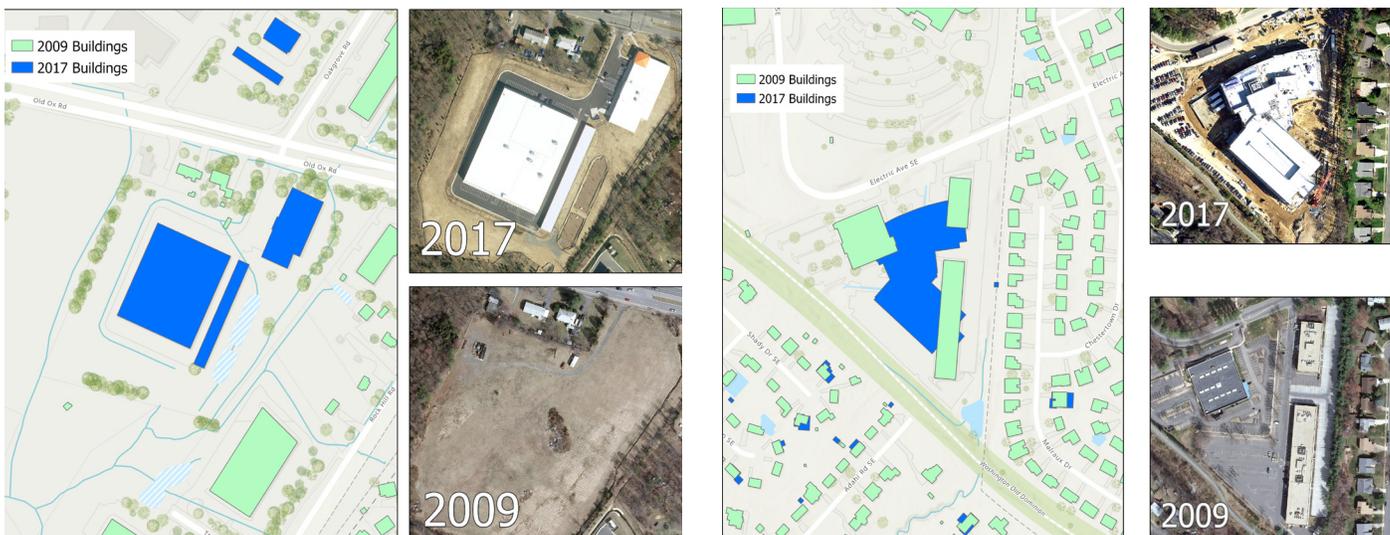
Sec 2 Figure 15 & 16 - shows Planimetric data

transition to NG9-1-1, regional data plays a critical role. In addition to road centerline requirements, NG9-1-1 requires multiple boundary files which will require regional coordination and collaboration to ensure seamless interoperability.

Next Generation 9-1-1 (NG9-1-1) is a total re-engineering of the underlying telecommunications and operations of 9-1-1 by moving it to an internet-based system. The National Capital Region (NCR) is in the process of replacing its 40-year-old legacy 9-1-1 system with NG9-1-1 which will allow seamless interoperability across the region in addition to allowing transmission of voice and text to 9-1-1 and digital media such as video and photos to 9-1-1. NG9-1-1 is dependent upon GIS data to route 9-1-1 calls to the proper PSAP (Public Safety Answering Point) or 9-1-1 center with greater accuracy than today's legacy system, which relies on service provider tabular databases called the MSAG and ALI to route 9-1-1 calls. NG9-1-1 utilizes geospatial call routing which uses GIS data to validate address locations and perform spatial queries to determine the proper responding agency. As a result, supporting GIS data must be regional in nature requiring a greater dependency on regional coordination and collaboration. As part of the GIS data readiness efforts, the NCR underwent a 2-year data validation and synchronization process to analyze and review GIS address point and centerline data to the tabular service provider databases to ensure readiness to support NG9-1-1 geospatial call routing with a goal of a 98% match rate between the datasets. At the conclusion of this task, the NCR was able to achieve over a 99% match rate exceeding national recommended guidelines. Fairfax County will be the first in the NCR to deploy NG9-1-1. As other jurisdictions begin to implement and maintain geospatial data to support NG9-1-1, continued collaboration with neighboring jurisdictions will be critical to ensure seamless interoperability across the region.

GIS technology continues to be an important asset in emergency management. The GIS office has a team of analysts trained to respond and assist the Office of Emergency Management during an emergency. The team has developed a viewer which enables users in the Emergency Operations Center (EOC) to access various datasets including the regional GDX emergency incident layers, the CAD2GIS data feeds, and other supporting data to support both local and regional response efforts. GIS technology enables its users to perform advanced data analysis to inform emergency managers and responders during evolving and dynamic response efforts. For instance, the number of people estimated to be in a particular area, number of homes impacted by a power outage or a boil water order, homes that will be impacted by a sewage pumping station issue, etc.

GIS is a key component of situational awareness in the support of emergency operations and activations and work closely with the Situation Unit to keep the emergency operations staff informed and working from a common operating picture.

The volume of GIS information continues to grow in Fairfax County. The GIS data warehouse holds over 1400 layers of Fairfax County data and over 400 more layers that cover neighboring jurisdictions. The overall size of the vector data in the enterprise GIS database stands at over 150 GB, and the raster data is now over 15 TB and includes both orthoimagery and oblique imagery. The LiDAR data acquired in 2012/2014 added over 400 GB of data, and the latest acquisition of LiDAR data, received in 2020, added over 2.4 TB for a total of nearly 3 TB. The volume of data in the digital map viewer grows annually as new sets of property and zoning maps are added. Currently there are nearly 51,060 pre-made maps and images of historic maps available on-line.

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 CY 2020 Fairfax County received a Special Achievement in GIS Award from Environmental Systems Research Institute (ESRI). This award was given in recognition of Fairfax County's broad based, innovative and enterprise approach to GIS that has resulted in significant benefits to County agencies and residents.

- In CY 2018 the National Association of Counties granted Fairfax County its 2018 Achievement award for its program "Customizing Data for Health and Human Services Planning", which was GIS-based and helped drive zoning and development decisions.

- In CY 2015, Fairfax County was ranked #1 for jurisdictions with population over 500,000 in the Digital Counties Survey of the "Most Innovative, Pioneering Counties". The award specifically referenced a GIS application developed by the Department of Neighborhood and Community Services. That application was also a winner of one of the Counties GIS excellence award the year before.

- In FY 2014, Fairfax County was awarded a Special Achievement in GIS award by Environmental Systems Research Institute (ESRI) for its contributions to ESRI's national community mapping service. Now a highly-detailed base-map is available for all users of ESRI's tools.

- 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."

- 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, serves on the MWCOG GIS Committee, and also works closely with the State's GIS agency (Virginia Geographic Information Network) , which is part of Virginia integrated Services Program. Additionally, each year, GIS hosts "GIS Day" which promotes the use of GIS and development of new GIS applications through County wide competition and awards. In 2019 the GIS Division hosted the 20th anniversary celebration of GIS Day in Fairfax County.

2.3 CUSTOMER RELATIONSHIP MANAGEMENT (CRM)

Expectations for modern access and interaction with government services continue to expand dramatically. Agencies need automated ways to capture citizen interaction, and to track response to inquiries, requests for services and complaints. The County needs a common solution that integrates with e-government capabilities and the Web, enables improved customer experience and public engagement, and provides an enterprise-wide view of constituent needs and concerns, and agency responses. Fairfax County continues to respond to this growing need through Customer Relationship Management (CRM) technology applications, which allows for centralized rapid application deployment. This enterprise application platform provides agencies and their staff improved opportunities for providing citizens quick and convenient access to information about County programs and services.

This project supports the replacement of several customer facing applications/solutions with more advanced application development platforms. This initiative successfully completed data conversion, migration, and implementation of the contemporary CRM application for various divisions and programs in the Neighborhood Community Services, Community Services Board, Fire and Rescue Department, Department of Tax Administration, Office of Public Private Partnerships, Office of Public Affairs - VFOIA (VA Freedom of Information Act) Front Desk, Media relations, Sully and Mount Vernon Board Offices, and Health Department's emergency response solution. Future phases will continue planned migration from the legacy to the new consolidated online mobile app-ready platform.

Staff continues to meet the County's goals in enterprise application deployment across County agencies and support the County's strategic initiatives. Enterprise application platform facilitates increased efficiencies and effectiveness in managing the many citizen requests and interactions within and across County agencies and business functions. It allows a constituent-focused operation where government is positioned to be proactive to citizen concerns by enhancing collaboration among all agencies and by providing knowledge of common issues for follow-up. The platform also improves transparency by allowing constituents to easily view how the County manages their request with a tracking number. Consolidating intakes, reducing the number of duplicate requests, eliminating redundant systems provide tangible evidence to citizens that their government is working for them efficiently with better access to information, optimized issue response/processing, and improved accountability/compliance.

FY 2022 Adopted IT Plan

2.4 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 an organization's foundation for the 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 has moved from Enterprise Content Management (ECMS) which was an application that was purpose-built from the ground up, to a **Content Services Platform (CSP)**.   A CSP differs from a ECMS by providing a set of base services that can be built upon by others and linked form different applications throughout the enterprise. Historically with business applications built in silos it would require the relocation of documents from one application to another, but a modern CSP is built to tie into any other system the organization uses or may adopt in the future. This solution enables the County to have a rich document management and business process flow for retrieval and storage of vast quantities of required paper records across any systems whether they are onsite, cloud and hosted systems. In addition to fast and reliable business processes, the CSP 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.

Fairfax County also continues to expand **CSP** by using open and services-based architectures, development tools and application programming interfaces that are transforming the integration story, making it easy for CSPs to be extended, enhanced, and combined with other software, including legacy applications. Department of Planning and Development (DPD) determined that an CSP and scanning affords the best solution for automating business processes and ending the dependence on ever-expanding physical files and providing immediate access to agency related documentation, record recovery and, re-filing processes while also reducing expenses for space, shelving, and storage of paper documents. DPD will continue to develop the on-going strategy including integration with GIS for public access and coordination with the County Archivist for over-all records management for in-house flow from agencies and use of cloud solutions.

Content Services Platform integrates with Cloud infrastructure and is being deployed in containers that allows for full portability data between County private cloud, public cloud, and on-premises platforms. Artificial intelligence can also be utilized for tasks like assigning metadata and even recommending document organizational improvements, and automatically categorizing content based on predefined terms and taxonomies, which allows AI to work at a scale and speed to improve business processes almost instantaneously. This comprehensive approach and associated implementation of technology provides a familiar search engine-like interface for rapid information retrieval. This platform can also integrate with low-code development tools and empower business users to build applications in hours that used to require months of software engineering. CSP APIs enable connects to preferred workflow, collaboration, business intelligence and analytical tools to minimize complexity and training needs, avoid custom software development, and add functionality with a building block approach. This integrated solution is more cost-effective and provides a seamless integration for use of information exchange and data sharing with other systems required for a complex business transaction.

Content, records, and document management will continue to be a long-term strategy for integration of structured and unstructured electronic and paper-based information and file types to optimize and enhance overall information management, transparency, and decision processes. These initiatives have provided benefits and quality improvements including:

- Increased staff productivity 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

2.5 INTEGRATIVE HEALTH AND HUMAN SERVICES MODEL AND INFORMATION TECHNOLOGY

In the last few years, the field of health and human services (HHS) has rapidly evolved. Between the COVID-19 Pandemic, demographic changes, economic changes, and new services and programs, the importance of a health and human model that focuses on integration and interoperability has been affirmed. Individuals and families served by the HHS system often have multiple needs addressed by multiple programs and services. For instance, an older adult, experiencing health and mobility limitations who wants to remain in his home may need at least seven services that currently span four Fairfax County HHS agencies - medication management, nutrition guidance, "meals on wheels", home based support services, senior housing, transportation support, and adult day health care.

With this in mind, over the last several years, the County has been engaged in efforts to develop a conceptual foundation and business model which tie together the work of various health, housing and human services agencies in efforts to achieve specific outcomes related to the health and well-being of the County's clients and community. A holistic approach to addressing needs along the spectrum of crisis to self-sufficiency to sustainability, as well as strong communication, coordination and collaboration across programs and agencies are key factors in successfully addressing their needs. The leadership of Fairfax County Health and Human Services (HHS) recognizes that the HHS needs to update its approach to service delivery and management, while

leveraging technology to both improve the client experience and realize operational efficiencies. As we move forward, HHS strives for a model that:

- Ensures integrated delivery, management and evaluation of health, housing and human services
- Is built around a shared vision that focuses on people and their strengths and needs, rather than individual programs, and
- Increases the County's ability to assess program performance, identify long-term trends, and create efficiencies.

The ultimate outcome requires shared planning, robust data, and information exchange to shape policies and future actions focused on improved outcomes and shared accountability. This approach also increases the County's ability to assess program performance, identify long-term trends, and create efficiencies. These integrative initiatives have the goal of delivering person-centered services to County residents enabling a cross-sectoral exchange of process and data that better leverages resources and supports the County's overall goals of safety and health for individuals and families.

Information technology (IT) is an essential tool for gaining a comprehensive view of a clients needs and addressing those needs more effectively. Technology is also a critical enabler of improved collaboration across agencies and external providers and programs and between Fairfax County, the Commonwealth of Virginia, and other localities. Finally, it will enable Fairfax County to leverage data analytics for performance evaluation, policy analysis, program planning and budgeting activities. Currently, there are over 70 information systems used to support the many programs and functions across the Health and Human Services agencies including numerous distinct information systems used for client intake. All this challenges clients navigating the current catalogue of programs, and staff who coordinate services within and across services and programs.

Through the effective use of information technology, the County can deliver a scalable set of coordinated services, improve service quality with more accurate and timely data, bridge service "silos" while increasing administrative flexibility and sustain cost-effective IT assets and services. Seven years ago the Integrative System initiative began moving forward with the establishment of the **Fairfax County Health and Human Services IT Governance Board (HHS ITGB)**. In its work, the HHS ITGB convenes County executive staff, information technology senior leadership, and human service department directors to identify and examine technology trends, programs, practices, and operational requirements affecting human services programs. It establishes strategic direction, policy and priorities for technology initiatives and investments across the Health and Human Service agencies and related partner organizations, promotes an enterprise-level approach and collaboration, and state, inter-jurisdictional, and Federal interoperability opportunities. The HHS ITGB focuses on how the delivery of a consistent level of human services to the citizens of Fairfax County can be influenced and improved by deployment of specific information technologies and data governance. The HHS ITGB seeks to break information silos using technology and coordinated agency practices to provide services system- wide more efficiently and effectively.

HHS has prioritized IT projects that will enable the County to build an IT foundation that supports system integration. The projects are grouped by functionality designed to address a particular Integrative System data management, transaction management, communications or analytics need. Key components that are prioritized for implementation include:

- Document Management
- System-Level Analytics
- Constituent Interaction Management
- Eligibility and Enrollment Management

- Client Register/Master Client Index
- Service Information Exchange, and
- Security and Access Management.

Acknowledging that this is a complex venture, the goal is **not** to build or buy a single, all-encompassing, monolithic IT solution that will address the functionality needs of multiple agencies and the programs they manage. Instead, the aim is to be strategic about County IT investments, planning, and commitment to IT resources. Establishing the foundation for how information technology will be used across the health and human services system is the first step towards a multi-year effort enabling the programmatic innovation envisioned for the system.

DEVELOPING AND IMPLEMENTING THE IT ROADMAP: PROGRESS TO DATE

Previously known as the HHS IT Roadmap, this framework for HHS IT planning adopted by the HHS IT Governance Board reflects an agreement in principle on how the agencies that make up HHS will operate as an Integrative System and how IT will serve as an enabler of optimized, client-centered processes. Furthermore, this process is based on business-driven functional capability expectations and best practices for IT architecture, acquisition, and management; as such it neither prescribes specific IT products or solutions, nor does it advocate for products or solutions from specific vendors. Those details will be fleshed out prior to engaging in specific IT solution acquisitions or build projects. As such, the HHS-IT planning is purposely designed to communicate future IT capabilities and needs in a compelling manner to a wide variety of stakeholders.

The HHS-IT Plan represents the viewpoints and captures the input of multiple stakeholders including but not limited to:
- Program management staff from all eight FCHHSS agencies.
- Executive Leadership from the eight FCHHSS agencies.
- Executive Leadership from the Department of Information Technology (DIT).

The HHS-IT Plan is inherently iterative: Initial work included collaboration of seven capability expectation teams comprised of program management staff from all eight HHS agencies; Process and Data Optimization Workgroups comprised of primarily deputy and division directors; and specific workgroups focused on implementation areas and pilot projects associated with the IT Roadmap.

As the progress evolves and becomes more detailed and prescriptive based on solution acquisition strategies, leadership will explore various options that include leveraging existing County enterprise-wide platforms, build vs buy decisions, and open source arrangements for capabilities for other jurisdictions. The Roadmap is predicated on the need to increase agility in the implementation, management and use of IT; specifically:
- Create a more nimble, responsive approach to IT implementation and provide for a gradual/progressive approach to IT innovation;
- Incorporate "component based" and "service oriented" IT solutions that are designed to interoperate and support various programs/lines of business: wherever feasible, work off common IT components that can interoperate and be replaced or upgraded over time without compromising the functionality and performance of other components;
- Ensure IT supports more rapid, timely changes to policies, business rules and processes;
- Enable greater workforce mobility, user access and self-service where allowable; and

- Enable more significant, ideally real-time interaction across the FCHHSS agencies and programs and with FCHHSS external stakeholders.

Since adoption of the HS-IT planning process the following activities have been completed:

✓ Implementation of the first phase of the Document Management component.

✓ Kick off for Phase II of Document Management

✓ Requirements gathering and vendor engagement for HHS case management and financial management functionality.

✓ Incorporation of School aged child care software enhancements into the HHS IT Plan

✓ Completion of a pilot of the System Level Analytics component and demonstration to the HHS IT Governance Board.

✓ The creation of an HHS data warehouse, a common data model and the use of Microsoft PowerBI dashboards have led to the successful integration and analysis of client-level data within programs that span distinct HHS agencies.

✓ Alignment of HHS Analytics with Results base accountability outcomes reporting, now known as Program Metrics.

✓ Completion of a Constituent Interaction Management pilot component with two distinct HHS agencies. The pilot standardized a business process and data collection for light interactions with individuals in a call center or front desk situation. Evaluation of the pilot also was completed and recommendations about next steps are being developed.

✓ Formal kick off and implementation of the first phase of the Client Register/Master Client Index Component.

2.6 Planning and Land Use System Modernization

The departments supporting Fairfax County's land planning and development processes initiated a major strategic initiative to improve the speed, consistency, and predictability of the development review processes, and for improved access to data and reporting. The initiative supports County plans to advance economic development and competitiveness, enhance business processes, provide better customer service, and achieve increased reliability in plan review, approval, permitting, and inspections. This project will be a catalyst for enhanced service efficiency. The Planning and Land Use System (PLUS) Modernization initiative and associated projects seek to implement the best fit IT solution to meet the overall objectives for business functionality, customer service, and technology capability needs of County departments involved in the regulatory land use and development processes, and modernize and enhance the County's land use business architecture and its underlying technologies.

This initiative also supports Fairfax First and Economic Success strategies and aligns with the Board of Supervisor Public Engagement and County Web-site redesign goals. Fairfax First, will transform the findings of the strategic assessment into tactical recommendations to improve the speed, consistency, and predictability of Fairfax County's Land Use processes, and serve as the primary business driver of the Land Use System Modernization initiative.

- Executive sponsorship for the initiative and governance for associated projects is the Deputy County Executives for Land Development and Information, and a Senior Executive Steering Committee comprised of the Chief Technology Officer, IT Program Directors for Solutions and Land Development, GIS and Web Competency Centers DIT, and agency directors of the five major agencies associated with the land use process. This group provides leadership and strategic direction for the project including goals, timeframes, and priorities.

- Key leadership for the business scope and process improvement opportunities and goals is provided by the Department of Planning and Development (DPD) and Land Development Services (LDS). Other core stakeholder departments include

Fire and Rescue – Fire Prevention (FRD), the Health Department – Environmental Health (HD), and Department of Code Compliance (DCC).

- County staff conducted independent assessments of current procedures and processes, benchmarking the County against other best practices, identifying opportunities for improvement, obtaining input from the development community, developing recommendations to improve services and operational execution and performed an in depth market scan for solutions.

- An Agile development approach for the PLUs system was adopted to deliver the software on an incremental basis, and continuously improve with end-user feedback to ensure the system meets current business needs. The software platform was upgraded to the most current version.

- The Release 1 was successfully launched in the second quarter of FY 2021.

- The PLUS Project Roadmap was updated in the fourth quarter of FY 2021.

- Release 2 is planned for the first quarter of FY 2022.

- Project completion is anticipated in FY 2023.

The Department of Information Technology provides the technological leadership and works closely with the above core departments to modernize and replace most of the legacy systems and supporting system silos that support land planning and development, inspections, and code compliance processes, and provides contemporary capabilities for Web, mobility, and data analytics.

CURRENT SYSTEMS

Fairfax County's land use agencies rely on the legacy custom developed Land Development System (LDS) and the Fairfax County Inspections Database On-line (FIDO) system (an older generation Commercial-off-the-Shelf (COTS) applications), and an assortment of independent sub-systems and interfaces to support Fairfax County residential and commercial development activities since 1996 and 2003, respectively. These systems are based on old land use services business process models that will be updated as a result of alignment of projects related to Fairfax First, and aligned with new technology solution opportunities in the PLUS. The current systems operate on obsolete technology architectures no longer supported by the COTS vendor, and numerous complimentary systems with custom interfaces had been developed to meet evolving business requirements over the past two decades.

The PLUS project will replace and consolidate these aging systems with a modern technology platform that is driven by re-engineered, streamlined, and integrated business processes across the five major land use stakeholder agencies. This project will work in tandem with the ongoing LDS and DPD Electronic Plan Submission Projects (ePlans) to ultimately deliver seamless technical integration and functional interoperability.

FIDO and LDS systems have been expanded to interface with the new LDS and DPD ePlans systems that provide digital plan submission, review, and approval capabilities for the land development industry. The County will continue with the seamless integration of ePlans capabilities with PLUS as part of the Land Use System Modernization initiative.

LOOKING FORWARD

Although the FIDO and LDS systems have provided a set of technology programs customized for County land use agencies, they are very old, have obsolete technical architectures, and can no longer be modified to holistically accommodate the rapidly increasing changes in land planning and development business processes. All together, these are no longer technologically

sustainable and inhibit efficient implementation of new business models and best practices opportunities. Whereas new technology offers numerous additional capabilities and flexibility for today's required innovations and the ability to meet the County's changing demands.

The PLUS project will replace the old systems with an integrated enterprise platform that will:

- Modernize the land use technology system to enhance customer service and improve operational execution, as identified in the ongoing Land Use and Development Services Strategic Assessment;

- Support a service delivery model focused on customer outcomes and more consistent, transparent service delivery to streamline plan, permit and inspection time frames and outcomes;

- Replace and consolidate the County's aging land use systems with a modern technology platform that meets business and customer needs, is maintainable and robust, and is adaptable to changing business needs.

- Consolidate and provide modern WEB and mobile portals for business and citizen use.

In addition to replacing LDS and FIDO, the new system will also replace over a dozen complementary systems that have been developed over the years to meet business requirements for new capability. An iterative configuration approach phased over two years began in FY 2018 for the core systems transition. IT solutions for this initiative will leverage County platforms, standards, cooperative contracts, and associated applications such as document management, data analytics, GIS, WEB and Mobility capabilities that will be used by staff and the development community.

SECTION 3

INFORMATION TECHNOLOGY PROJECTS

INFORMATION TECHNOLOGY PROJECTS

3.1   TECHNOLOGY OVERVIEW

The Information Technology investment fund (Fund 100-C10040), was established in FY 1995 to optimize centralized management of available resources by consolidating major Information Technology (IT) projects in one fund. General Fund transfer, other revenue funds, the State Technology Trust Fund, and interest earnings are sources for investment in eligible Information Technology projects. In FY 2001, the E-911 Emergency Telephone Service Fee revenue and related project expenses were moved to Fund 400-C40091, to satisfy a state legislative requirement that E-911 revenues and expenditures be accounted for separately.

The County's technology improvement strategy has two key elements: redesign business processes and apply technology to achieve improvements in service quality and efficiencies and provide an adequate technology infrastructure that supports County technology solutions. The County's long-term commitment to provide quality customer service through the effective use of technology is manifested in service enhancements, expeditious response to citizen inquiries, round the clock on-line service opportunities, improved efficiencies, transparency, and data driven management decisions.

FY 2022 PROJECT FUNDING

Based on limited fiscal resources, IT projects (supported by Fund 100-C10040) are not included in the County's FY 2022 Budget Plan. Selected projects approved for FY 2022 funding will be supported with one-time balances and/or agency savings during quarterly budget reviews. This strategy enables the County to optimize the strategic use of available dollars and align project funding with project budgets, plans and schedules. FY 2022 IT Project requests are divided between those that were included in the County's FY 2021 Third Quarter Review package ($6.1M); and others that will be considered as part of the FY 2021 Carryover Budget.

PRIORITIES

The funded projects meet one or multiple priorities established by the Senior Information Technology Steering Committee and include a mix of projects that benefit citizens, staff, and the need for maintaining a secure and strong technology infrastructure. The Senior IT Steering Committee, which is comprised of the County Executive, Deputy County Executives, the Chief Financial Officer, the Chief Technology Officer, and other senior County managers, adopted five strategic priorities that guide the direction of IT investments. These long-standing priorities include:

- **Mandated Requirements -** Provide support for requirements enacted by the Federal Government, Commonwealth of Virginia, Board of Supervisors, and those that are Court ordered or result from changes to County regulations.

- **Completion of Prior Investments -** Provide support for multi-year technology implementations, completion of planned phases of a project, and lease purchases.

- **Enhanced County Security -** Provide support for homeland security, physical security, information security, and cyber security solutions and privacy requirements.

- **Improved Service and Efficiency -** Promote consolidated 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 online services. This includes corporate and strategic initiatives that add demonstrable value to a broad sector of government or to the County, and improve productivity and/or enhance effective management of the County's information assets.

▪ **Maintaining a Current and Supportable Technology Infrastructure -** Focus on technology infrastructure modernization which upgrade, extend, or enhance the overall architecture of major County infrastructure components, including hardware, software, and its environment. Ensure that citizens, businesses, and County employees have appropriate access to information and services.

REVIEW AND APPROVAL

Considering economic uncertainties associated with the COVID 19 Pandemic, project managers were advised to strictly limit FY 2022 IT project requests to critical technology needs that could not be postponed. Existing projects requesting additional FY 2022 support were limited to those that had to meet a contractual obligation and/or complete a planned phase. In addition, project proposals had to specify tangible outcomes, provide a five-year implementation, and budget plan, including future infrastructure, maintenance, and support needs, document linkage to agency strategic and business goals, and stipulate that the project would be complete without the need for additional staff.

In keeping with established procedures, a Project Review Team of senior business and technical staff from the Department of Information Technology (DIT) and the Department of Management and Budget (DMB) reviewed the project proposals. Requests were evaluated for those offering greatest opportunities for operational improvements and support for sustained performance, security, and reliability. Existing projects were also assessed for continued alignment with project plans, schedules and return on investment opportunities.   Benefits were weighed against the cost and risk factors including potential changes in scope necessitated by new business drivers, technological relevance, operational changes, project schedule viability, and the impact of not funding or otherwise delaying the project. Technical factors included alignment with the County's technology architecture and standards, impact on existing County IT infrastructure, and availability of viable products and services. Also considered was the organizational experience with the solutions and the availability of staff resources to implement the project

FY 2022 PROJECT CATEGORIES

Thought the following approved projects meet numerous strategic priorities, for narrative purposes, the projects are listed in one of the following categories:

COMPLETION OF PRIOR INVESTMENTS

The County's IT program focuses on using technology as an essential tool to enable cost-effective delivery of services. While some projects can be completed within the fiscal year, most are multi-phase projects requiring more than one year of funding.

The **Courtroom Technology Project (2G70-034-000)** request for $250,000 FY 2022 funding will be considered as part of the FY 2021 Carryover Budget. This project primarily supports continued deployment of digital Courtroom Technology Management Systems (CTMS) in courtrooms of the Fairfax County Courthouse. CTMS coordinates and enables remote evidence presentation in courtrooms through a centralized, integrated audio/video network of microphones, monitors, assistive listening devices, and flat screen displays.

FY 2021 Third Quarter funding of $200,000 supports the **Customer Relationship Management (CRM) Project (2G70-041-000),** an additional $250,000 will be considered as part of the FY 2021 Carryover Budget. CRM technology supports the County's strategic goal of improving on-line 24x7 access strategies, integrating social media tools and techniques to enhance the overall customer experience, and managing service requests via a single user enterprise-wide interface tool. This initiative provides

a unified user approach to handling citizen's service requests, case management, issues tracking, and specialized Freedom of Information Act (FOIA) application to comply with a Commonwealth of VA mandate for local jurisdictions to track and monitor FOIA requests.

The County's **Geospatial Initiative (IT-000028)** is supported by $310,000 at FY 2021 Third Quarter, and will be considered for $1,130,200 funding as part of the FY 2021 Carryover Budget. Planimetric data layers make up many key GIS layers used in most of County maps including those used by the Police, Fire and Rescue, Transportation, Housing and Community Development, Public Works and Environmental Services, Planning and Development, and Tax Administration. Oblique imagery is also essential for many key critical County functions including public safety, zoning, tax administration, and 3D Virtual Fairfax. These key datasets and LiDAR are used in all County's web applications that incorporate maps, and in nearly all public safety vehicles through the Computer Aided Dispatch (CAD)/911 system.

ENHANCED COUNTY SECURITY

Support for cyber security initiatives and critical security requirements for enterprise-wide IT systems is a long-standing cornerstone of the County's strategic IT policy.

Planned funding of $500,000 at FY 2021 Carryover supports the **Cyber Security Enhancement Project (2G70-052-000)** to safeguard the County's IT assets from evolving cyber threats and support mandated regulatory compliance requirements. IT security continues to be a fundamental component of the County's enterprise architecture and strategy, fusing best practice principles with hardware and software infrastructure supported by policies, plans, and procedures. This project provides for IT security system requirements, replacements and upgrades, consulting expenses, and future security product and service acquisitions to protect the confidentiality, integrity and availability of County systems and information.

IMPROVED SERVICE AND EFFICIENCY

Projects recommended for funding in this category provide improved service and efficiency in the provision of services to County residents and the business community. Many of these projects are multi-year initiatives and include projects supporting the County's e-government and public access programs, transparency efforts, strategic human services and land development initiatives, tax and revenue services, and technology efforts designed to improve County processes for enhanced efficiencies and service delivery.

The County's strategic **e-Gov Program (2G70-020-000)** is supported by $350,000 included in the FY 2021 Third Quarter Budget and an additional $300,000 will be considered during the County's FY 2021 Carryover Budget. This project supports the need to meet increasing demands for the County's web site, multiple e-government channels, e-transactions services, improved navigation, web content management and synchronization, mobile applications, social media integration, transparency, Web 3.0, support of the County's intranet (FairfaxNet), and sustained compliance with Department of Justice (DOJ) Americans with Disabilities Act (ADA).

Continued support for the **Commonwealth's Attorney Technology Project (IT-000015)** is provided with $174,000 included in the FY 2021 Third Quarter Budget and an additional $151,000 to be considered during the FY 2021 Carryover Budget. This project replaced a legacy case management system with a modern application with improved workflows and enhanced accountability with additional enhancements planned in FY 2022.

The **Enterprise Document Management Project (IT-000017)** project's $400,000 request will be considered as part of the County's FY 2021 Carryover Budget. This project supports a multi-phase implementation of a contemporary enterprise document management platform and its utilization in support of on-going County agencies' efforts for imaging documents and integration with case-management systems and/or agencies operations. This initiative also, provides for more cost-effective compliance with mandated document retention requirements. Current document imaging systems will be upgraded to latest versions and newer technology.

Funding of $3,445,000 included in the FY 2021 Third Quarter Budget will support the **Planning Land Use System (PLUS) Project (IT-000019);** an additional $9.6M will be considered as part of FY 2021 Carryover Budget. This project is a major strategic investment that will replace and consolidate multiple legacy and disparate land use systems supporting zoning and development plan review, building permit/license issuance, code enforcement, inspection, and cashiering activities with an integrated adaptable enterprise solution with e-Plans review capabilities.

FY 2021 Third Quarter funding of $425,000 supports continued work toward implementation of **Fairfax County Park Authority's (FCPA) Asset Management System (IT-000042)**. The scope of FCPA's asset information program includes Operations and Maintenance for a variety of park authority business areas, capital planning, construction management, and integration with enterprise County systems.

FY 2021 Third Quarter Funding of $440,000 continues support for the **Jail Management System Replacement Project (IT-000047)**, an additional $2.0M requested will be reviewed as part of the FY 2021 Carryover Budget. This project plans to replace the legacy Sheriff Inmate Management System (SIMS). A replacement system is necessary to meet the requirements of over 1,200 inmates housed at the Fairfax County Adult Detention Center and support a myriad of requirements including alternative work force, booking, receiving and release of inmates, classification, complex sentencing calculations, incident reporting, inmate records, medical and behavioral health, professional services, transportation, and other necessary functions of the Sheriff's Office.

MAINTAINING A CURRENT AND SUPPORTABLE TECHNOLOGY INFRASTRUCTURE

The County's technology strategy leverages existing infrastructure with deployment of contemporary and supportable IT infrastructure to meet business needs. Projects funded in FY 2022 will support the goal of updating and strengthening the technology foundation where practical, and ensuring that residents, the business community, and County staff have appropriate and reliable access to information and services.

Funding of $100,000 at FY 2021 Carryover will be reviewed to support **Information Technology Training (2G70-006-000).** This project supports essential IT training required to maintain staff technical skills and required certification.

Funding of $200,000 at FY 2021 Carryover will be considered for the **Tactical Initiatives Project (2G70-015-000).** This project supports timely response to critical unexpected technology needs created by changes in agency business processes, non-IT initiatives with unexpected IT impact, response to state/federal mandates, new regulations and compliance requirements, and other system upgrades, infrastructure and/or integration requirements.

FY 2021 Third Quarter funding of $800,000 supports the **Enterprise Architecture and Support Project (2G70-018-000)** and an additional $800,000 will be reviewed as part of FY 2021 Carryover Budget. This project supports enterprise infrastructure and

expert services for complex multi-phase business transformation IT systems for County general services, enterprise technology, security, infrastructure, and corporate systems, including the County's Enterprise Resource Planning (ERP) and related business systems. This funding supports necessary software upgrades and integration of business application and infrastructure system components to meet both the County's IT architecture and interoperability goals.

The **Remote Access Project (2G70-036-000)** will be considered for $100,000 as part of the FY 2021 Carryover Budget. This project supports the provision of critical secure remote access to County networks and systems for telework capabilities, disaster recovery operations, and recognizes the increasing reliance of agency mobile workers on wireless solutions. Enterprise-wide standardized access control methodology enables secure identity authentication for authorized access to County networks, data, and systems.

Digital Archives is a new FY 2022 project planned for an initial funding increment of $200,000 as part of the County's FY 2021 Carryover Budget. This multi-phase project plans to transform County Archives from hardcopy to electronic records, and from reactive to proactive information governance and compliance.

IT PROJECTS- PANDEMIC RESPONSE

In response to the COVID-19 pandemic, project teams continued to collaboratively develop and implement innovative technology solutions to support uninterrupted delivery of services and information to the public and staff. Examples include:

- **E-Government Program** - the following are selected E-Government projects/initiatives that were deployed and/or are in process of deployment:
  - **COVID Daily Health Check Application** - Developed the application for County employees to submit their daily COVID-19 Health Check-ins online. The application also includes an administrative entry site for agencies to record Health Check paper submission for employees without online access. Dashboard feature allows managers to view and monitor their staff's submission.

- **Appointment Scheduling Application** - Developed enterprise client scheduling application so County agencies can schedule appointments (both in-person and virtual) with their customers to facilitate social distancing and manage the number of people in the building.

- **Health Department Mass Vaccination Appointment Scheduling Application** - Functional enhancements were made to the Enterprise Scheduling Application for the Health Department to schedule COVID-19 vaccination appointments for County residents. This included creating a prescreening form based on meeting mandated eligibility requirements. The Health Department was able to automatically trigger emails to those residents who are preapproved for an appointment. The application enabled the user to choose the location and time for the vaccine appointment as well as to cancel and/or reschedule the appointment online. Health Department call center staff were also able to schedule a vaccination appointment if a resident called over the phone.

- **Fairfax Virtual Assistant** - Enhanced and trained Fairfax Virtual Assistant (chatbot) with more COVID-19 related information and services from agencies. Conversations related to COVID-19 increased over 50 percent during the months of May – September 2020 compared to March and continue to provide another venue for engagement.

- Continued support of all County digital channels for dissemination of COVID-19 information and services to the public and employees via the County's website, FairfaxNet, and mobile apps.

■ **Health and Human Services** - Additional technology solutions include:

- **CareVan** - supports Fairfax County's COVID-19 response to vulnerable communities. The CareVan is a 37-foot mobile service delivery vehicle featuring multiple onboard workstations, public access to computers, and internet access delivering integrated services in the community to reduce health inequities and increase access to health, housing, and human services.

- **Enhanced call center capabilities** to include the Neighborhood and Community Services (NCS) Coordinated Services Planning call center.

- Upgraded functionality for **Infant and Toddler Connection Program in NCS** to enhance mobile workforce capabilities.

- Supported the technology needs of the Health Department Modular Lab that was established to increase countywide COVID-19 testing capabilities.

- Support for **Health Department Call Taking Function** and **Mass Vaccination Implementation**.

■ **The GIS Program** - developed **Fairfax County COVID-19 Geospatial Resources** (arcgis.com) with providing GIS resources such as maps, interactive applications, map layers and other valuable data. The site includes resources such as:

- **The Food Resources** application developed in coordination with Fairfax County Public Schools and Neighborhood and Community Services to assist the community in locating the nearest food resource (meal kits, bag lunches, etc.).

- The **Senior Store Hours** application which provided information about specific store hours designated for the elderly and other vulnerable populations.

- **The Organizations Accepting Donations** application developed in coordination with Volunteer Fairfax to display government and non-profit locations accepting donations for COVID-19 related needs.

- **The RISE Grant Program Awards Dashboard** developed in coordination with the Department of Economic Initiatives to show locations of grant recipients of small businesses and nonprofits adversely affected by COVID-19 shutdowns.

- **The Health Care Safety Net Resources** developed in coordination with the Office of Strategy Management and Human Services to assist residents in finding health care providers that serve individuals with no health insurance or with Medicaid. Additionally, this site includes resources developed by external sources such as the popular Johns Hopkins University Dashboard data, the Virginia Department of Health's COVID-19 Dashboard, Fairfax County Health Department Health Dashboard, etc.

■ **Public Safety Technology Projects** - provided the following functionalities:

- Modifications to the **Sheriff's Inmate Management System (SIMS)** to enable the Adult Detention Center to track and report on inmates quarantined for COVID-19 symptoms/exposure.

- Modifications to the **Civil Trial Availability** (**CTA**) application used by the General District Court to split trials into twice a day segments (instead of once-a-day segments) to accommodate social distancing safety guidelines.

- Modifications to the **Court Scheduling System (CSS)** Criminal Court Morning Dockets Caseload Calendar and Traffic Morning Dockets Caseload Calendar to accommodate revised Court re-opening schedule changes to comply with social distancing safety guidelines.

- **Interactive Voice Response (IVR)** - applications for the General District Court, the Department of Tax Administration, the Office of Elections, and Fairfax County Public Library were modified with updated hours of operations, tax relief information, elections information, library support, and call center hours.

- **The Courtroom Technology** – this project facilitated additional capacity for the County's three Courts to conduct essential hearings remotely and provided the infrastructure and hardware to support expanded remote judicial functions including arraignments/hearings with incarcerated persons at the Adult Detention Center, advisements, and hearings with incarcerated youth at the Juvenile Detention Center and remote hearings for probate, marriage licenses and concealed carry permits.

IT Projects continue to be a key component of the County's technology strategy. The above examples demonstrate the value of these investments in providing critical resources for agile response to unexpected events and challenges such as the COVID -19 Pandemic.

3.2 PUBLIC SAFETY

2G70-059-000 MOBILE COMPUTER TERMINAL PROJECT (E-911 - FUND)

Project Description

Fairfax County public safety communications relies heavily on mobile data communications for the dispatch of equipment and personnel to emergencies and non-emergency requests. Digital communications are used to allow field units (e.g., police, fire and rescue, and sheriffs) to receive dispatch messages, event notifications, to self-initiate events, make traffic stops, check on licenses and registrations, maintain status for response, and communicate with one another and the Department of Public Safety Communications (DPSC) without the use of voice radio or intervention of a dispatcher at the DPSC. The entire structure of the County's public safety response system, including staffing at the DPSC, is based on the heavy utilization of mobile data communications for critical public safety activities.

Project Goals

This project supports the recurring life cycle replacement of Mobile Computer Terminals (MCT) to ensure this critical equipment is kept contemporary and functional for public safety personnel who respond to emergency and non-emergency requests for services.

Progress to Date

This project supports an on-going program for the replacement of Mobile Computer Technology used by Public Safety personnel. A five-year replacement cycle was determined to be a reasonable replacement term for the mobile computer fleet.

Project Budget

FY 2022 funding of $1,616,200 supports the fifth-year funding of the 5-year lifecycle replacement cycle established for MCT equipment or replacement of 1/5 of the mobile fleet. A new replacement cycle will begin in FY 2023. This is an ongoing IT replacement project supported by Department of Public Safety Communications, the Police, Fire/EMS, and Office of the Sheriff.

Return on Investment

More than 150,000,000 transactions are processed each year via MCTs through the mobile data communications infrastructure and therefore, it is critical to keep this equipment contemporary and available for the many operations utilized by field personnel.

MCTs keep officers on the street versus behind a desk as they provide an efficient, quick method where the officer can complete reports and perform routine queries from a mobile device in their vehicle. In addition to the many functions currently performed on the MCT units, police officers use the MCT for mobile field reporting. The County has incorporated a field reporting system into records management and integrated it with the CAD system allowing officers to complete investigative reports online from their vehicle with most of the preliminary information downloadable from the event history reports in the CAD system. This enhancement saves countless hours previously expended writing field investigation reports longhand by patrol personnel.

3G70-078-000 E 9-1-1 TELEPHONY PLATFORM REPLACEMENT PROJECT (E-911 - FUND)

Project Description

This project supports Fairfax County's initiative to replace legacy 9-1-1 call center hardware and software for dispatch of police and fire units in response to the emergency calls and to enable a transition to a Next Generation 9-1-1 set of services. This project began in 2015 as a multi-phase update of the PSAP (Public Safety Answering Points) communications technology environment within the County to continue 9-1-1 call processing functions, and to replace the external service provider network. The widespread adoption of rapidly advancing technologies like text, video, Voice over Internet Protocol (VoIP), and the increased reliance on high speed broadband services have raised expectations for Next Generation 9-1-1 services.

Project Goals

This project supports an ongoing transition of the County's core 9-1-1 system architecture to new supportable platforms that are technologically current and compliant with National Emergency Number Association (NENA) Next Generation 9-1-1 industry standards to facilitate 9-1-1 public safety services into the future.

Progress to Date

Phase 1 – In September of 2015, implementation of interim Text-to-9-1-1 capabilities was completed in Fairfax County, making Fairfax the first jurisdiction in Virginia, Maryland and the District of Columbia to provide vital access to 9-1-1 for individuals who are deaf and hard of hearing.

Phase 2 – The selection of a new vendor for the replacement of 9-1-1 call taking equipment and voice recording equipment in all Fairfax County 9-1-1 centers and associated secondary locations was completed. Project design and phased implementation began in 2016 and cutover to the new NG 9-1-1 equipment at the Fairfax County Alternate Center occurred in January 2017. Implementation of the system in the Towns of Herndon and Vienna and the City of Fairfax was also completed in January 2017. The phased installation of the equipment at the Fairfax County primary 9-1-1 Center (MPSTOC) was complete in February 2017;

with a transition to an integrated Text-to-9-1-1 capability in the NG 9-1-1 platform completed in March 2017; and incorporation of radio recording within the NG 9-1-1 system complete in the third quarter of 2017.

Phase 3 – Fairfax County was awarded grant funds from the Department of Homeland Security (DHS) to plan and develop the technical specifications for transition to a new Next Generation 9-1-1 ESInet (Emergency Services Internet Protocol Network) service for 9-1-1 call routing. During this phase, grant funds also supported analysis of the legacy 9-1-1 address location information by Fairfax County's GIS staff to enable automatic transition into GIS formats that support NG9-1-1 routing of calls on the ESInet. Competitive evaluation of vendor proposals for the ESInet was completed and a contract award made during the fourth quarter of 2017.

The new ESInet service replaces the main elements of the Verizon provided 9-1-1 call routing network, making Fairfax County the first jurisdiction in Virginia to transition off the legacy Verizon 9-1-1 network. Other Northern Virginia jurisdictions, most of the Commonwealth of Virginia, multiple Maryland jurisdictions, and the District of Columbia plan to use Fairfax County's contract as a basis for transition to a Next Generation 9-1-1 network; this transition will involve careful testing and development of policies to ensure interoperability is maintained across jurisdictional boundaries.

Sustainment Phase 4 – This phase begins after transition onto the ESInet and involves incorporating the ability to receive additional media (such as pictures and video) from the initial 9-1-1 call. Plans also include the exchange of multi-media from the caller to the 9-1-1 center and out to the First Responders' device through FirstNet, and the development and testing of interfaces between the Next Generation 9-1-1 ESInet and the new nationwide First Responder Network (FirstNet).

During the sustainment phase, Fairfax County will coordinate with the wireless carriers to deliver 9-1-1 calls directly to the ESInet so that citizen calls for assistance are received faster and with more associated information. Sustainment also involves periodically refreshing of the workstations and servers that comprise the 9-1-1 call answering sites in the County and the secondary jurisdictions and procurement activities to complete the refresh are underway in 2021.

Project Budget

In FY 2022 funding of $2,180,000 continues support for the required hardware and software upgrades associated with this strategic initiative.

Return on Investment

Improved systems for 9-1-1 services provide enhanced services and capabilities to the citizens of Fairfax County with a high degree of accuracy and functionality with up-to-date technology solutions. These technology upgrades strengthen system resiliency, reliability and establish a technology foundation for implementation of Next Generation 9-1-1 multimedia capabilities such as text, video, and photographs. This on-going multi-part project improves system interoperability with other jurisdictions, call overflow with other Public Safety Answering Points, and location accuracy. The new 9-1-1 call processing technology platforms will result in cost savings for Fairfax County as specialized proprietary systems are replaced with commercial off the shelf components that will reduce maintenance costs.

3G70-079-000 PUBLIC SAFETY CAD SYSTEM INFRASTRUCTURE PROJECT (E-911 - FUND)

Project Description

The Public Safety Computer Aided Dispatch System (CAD System), is one of the County's largest single IT systems. The CAD System is the core technology supporting the intake and dispatch response functions for all Fairfax County Public Safety agencies including Police, Fire and Rescue, Sheriff, and the Department of Public Safety Communications (DPSC 9-1-1 Center) in their core mission of keeping Fairfax County and its citizens safe. This CAD System is used by call takers and dispatchers to process all calls for service received on 9-1-1 and other requests for emergency and non-emergency services in Fairfax County, as well as for mutual aid interoperability. This project supports the update and replacement of the hardware infrastructure and required software licenses, workstations, and associated licenses, used by the CAD system and its users.

Project Goal

The goal of this project is to support the systematic replacement of the required hardware, related equipment, and required software and licenses for current and future functionality over a five-year repeating replacement cycle. The Fairfax County standard for IT foundational and workstation equipment is five years, keeping in mind usability, maintenance, and supportability. Maintaining the infrastructure current allows for better performance, reduces risks of equipment failures, and keeps pace with changing technology and evolving security requirements.

Progress to Date

Staff from the Department of Public Safety Communications, Public Safety agency stakeholders, Department of Information Technology and advisory experts have researched the issues associated with sustaining 9-1-1 Center performance, best practices for hardware replacements, security and resilience, state of the industry and readiness to operationalize and integrate next generation 9-1-1 needs.

Each phase of the proposed project plan addresses replacement components and related software versioning processes with activities including identification, purchase, installation, software license obligations, and eventual transition to a new CAD solution. The hardware and software replacement schedules are coordinated with partner agencies to ensure minimal impact on other public safety projects. Software updates are also coordinated and driven by the manufacturer and industry standards.

Project Budget

Funding of $1,180,000 in FY 2022 supports the next year of the replacement plan established for this project.

Return on Investment

Public Safety agencies rely on the CAD System to provide mission critical lifesaving and property protecting services to Fairfax County and the surrounding areas. By replacing hardware in a timely fashion, the County safeguards against equipment failure and legacy vendor abandonment of aging technology that could potentially result in service interruptions with grievous consequences. This project incorporates the requirements needed to upgrade and replace CAD system components, including software versioning, over a span of five years to keep the system contemporary and upgraded and to allow for continued use by the Public Safety user community. The need for improved CAD system capacity and functionality will continue as a necessary funding requirement. Using a phased, life cycle approach insures that required funding is spread out over a five-year period and avoids the impact of a major system overhaul in any one fiscal year.

2G70-021-000 AND 2G70-022-000 CIRCUIT COURT TECHNOLOGY PROJECT

The Fairfax County Circuit Court is nationally recognized for its delivery of public service. The Court continues to actively pursue state-of-the-art technology solutions to improve both court efficiency and-customer experience. These projects cover multiple facets of Circuit Court operations.

Project Description

Court Automated Recording System (CARS) / Court Public Access Network (CPAN) – The Clerk of the Fairfax County Circuit Court is responsible for providing citizens with reliable, timely, and accessible public records. Over 54 million court records have been digitized into the Court's Public Access Network (CPAN) which is a web-based, online, digital image retrieval system. CPAN offers subscribers 24 hours a day, 7 days a week online access to land records, judgments, marriage licenses, trade names and probate record images, dating from as early as 1742 to the present. CPAN has over 2,000 subscribers who are located domestically and internationally. Subscribers include citizens, real estate title examiners, law firms, mortgage companies, banks, media outlets, and federal, state, and local governmental agencies.

Case Management System (CMS) – The Clerk of the Fairfax County Circuit Court is responsible for receiving and maintaining all court records for felony prosecutions and civil litigations in Fairfax County. The Clerk files, indexes, and manages the complete life cycle of a court case and its pleadings, from case-initiation (Search Warrants/Indictments in criminal prosecutions and Petitions/Complaints in civil actions) to the compilation of the appellate record for submission up to the Court of Appeals and the Supreme Court of Virginia. All pleadings, criminal discovery, trial evidence and post-trial motions, as well as Orders of the Court, are kept in perpetual record by the Clerk's Office.

This kind of dynamic public-record keeping, held in perpetuity, is a ripe environment for the efficiencies today's digital technology has to offer. The Clerk's current Case Management System (CMS) automates case-processing through the Circuit Court, allowing for real-time case indexing, docketing, trial calendaring, data-integrated document-generation and processing, trial/hearing calendaring, disposition-entry, account-ledgering and the running of statistical reports.

Project Goals

Circuit Court modernization initiatives aim to make the Clerk's over 800-Virginia Code-mandated duties more efficient and cogent, using software programs and integrated systems. This unity of effort, through modern systems and processes better-serves Fairfax County court-customers, and protects important Constitutional protections, like due process and speedy trial rights. As the trial-level court, and only court of record in Fairfax County, technology will continue to help the Clerk's Office preserve Fairfax's public history. The review of past accomplishments recited below as "Progress to Date" and future project goals, set out as "Planned Project Schedule," are broken-out between the Court's Land Records systems, and the Case Management systems.

Progress to Date

- Rewritten legacy applications in the latest .NET technology and upgraded the look and feel of reports with graphical representations to support the latest browsers.
- Improved security of image storage with new security methods to ensure the integrity of the public records.
- Upgrade of the Court's Public Access Network (CPAN) to .NET, which also includes a completely redesigned look for a more user-friendly interface for search and retrieval operations, including the addition of new search features.

Other accomplishments include:

- Development and deployment of the Circuit Court's Court Document, including document imaging; with integrated redaction capabilities.

- Implementation of the CPAN retrieval system.

- Deployment of an automated jury management system, which serves as a system clearinghouse for the 60,000 Fairfax citizens who make-up the Court's annual jury pool.

- Implementation of the Clerk's "Paperless Probate" and "Virtual Probate" process, which makes a difficult time in a family's life, swifter and more efficient.

- Development and implementation of a streamlined, and mobile-friendly Marriage License Pre-Application, which gives customers the ability to apply for a marriage license online.

- Implementation of electronic docketing display, which serves as directional signage for the public, as they navigate the large courthouse, to find their courtroom.

These systems provide a platform and foundation for additional capabilities, as the Court's business requirements evolve. Technological system updates, which are critical to platform vitality and customer-service delivery, are also addressed through this fund.

CARS

- Indexed, and stored all land record documents for electronic processing.

- Completed cashiering and scanning capabilities, to update the public record in a more efficient manner.

- Automated the Administration of Estates System.

- Integrated the automated scanning in Virginia's Marriage License Application process.

- Integrated the redaction of data and into existing workflows as mandated by Virginia's General Assembly.

- Developed Online Marriage Pre-Application, an online resource currently used by all marriage license applicants, use of the application has significantly reduced customer wait -times.

- Deployed Phase 1 of a collaborative project with the Commissioner of Accounts of the 19th Judicial Circuit and the Circuit Court's Probate Division, to electronically exchange, maintain and record administration of estate documents and relevant data.

CMS

- Enhanced Expungement Process for improved quality control and quality assurance.

- Implemented court-wide scanning of all case documents with redaction capability.

- Increased the scope of e-transferred Orders to include final Divorce Decrees, final Law Orders, Name Change and Guardian Ad Litem (GAL) Orders.

- Initiated imaging all sentencing guidelines within the case management system to facilitate electronic transmission to the Virginia Sentencing Commission.

- Improved Protective Order Interface with the Supreme Court of Virginia: Office of the Executive Secretary, to communicate injunctions in real-time.

- Expanded a Report Service Library, where custom-built SQL-reports are kept for both on-going and ad-hoc statistical Report-Requests.

- Enhanced Central Criminal Records Exchange (CCRE) report capabilities allowing for charges to be removed from the Exception Report.

- Temporarily suspended the reporting new delinquent cases to the Virginia Department of Taxation for collections during the Judicial Emergency Order time period due to COVID-19.

- Temporarily suspended the accrual of interest on existing delinquent court cases during the Judicial Emergency Order period due to COVID-19.

Planned Project Schedule

- Continued modernization of the Probate Forms Application, as well as expansion of Phase-2 and Phase-3 of the Clerk's Interface with the Commissioner of Accounts, will be the focus of the CARS project over the next year.

- Establishment of a Project Management Office team for better project communication, improved allocation and alignment of resources and assisting with adherence to the CMS project requirements and schedule.

- Expanding enhancements to the Court's CMS which will include e-filling.

Project Budget

Annual funding from Virginia's Technology Trust Fund revenue (mandated by Virginia Code for addressing Circuit Court Clerk's Office technology needs), CPAN subscription revenue, Administration of Justice revenue, and agency funds support technology initiatives in the Circuit Court.

Return on Investment

Taken together, the Clerk's modernized land record and public records systems, and the continued digitization of the Court-side of case management systems, provide Fairfax with a secure, highly efficient, and dynamic trial court that protects important, unquantifiable civil liberties. For instance, CARS provides immediate electronic access to CPAN for over 2,000 commercial customers, making all land records, deeds, deeds of trust, liens, and judgments available to the public on every parcel of land located in Fairfax County. In addition to citizen-customers, CARS serves federal, state, and local agencies, particularly sister-agencies such as the Fairfax County Department of Tax Administration (DTA), the City of Fairfax Tax Assessor's Office, The Fairfax County Geographic Information Systems (GIS) and the Fairfax County Department of Public Works and Environmental Services (DPWES).

Once complete, a comprehensive Court Case Management System will offer Virginia's largest trial court real-time case document imaging, electronic filing, electronic-certifying and payment system portal, and the ability to develop digital trial practice (for the management of digital evidence submission and police body-camera evidence) as well as real-time judicial dashboard capabilities. Multiple parties will be able to access electronic case files simultaneously, and e-file pleadings and other documents from their firms, at any hour of the day or night, reducing road-travel to the courthouse. A more efficient trial court process and e-filing will save self-represented litigants (as well as attorneys) time and money in the life cycle of their case. When the time and cost of litigation reduces, meaningful access to justice is achieved. Finally, potential interfaces with agencies like the Sheriff's Office or other Virginia jurisdictions, will allow the exchange of electronic documents and/or data and eliminate existing manual processes between jurisdictions.

2G70-034-000 COURTROOM TECHNOLOGY MANAGEMENT SYSTEMS - DIGITAL UPGRADE

Project Description

Fairfax County's Court Technology Office (CrTO) began efforts to complete the digital upgrades necessary for the existing high technology Courtroom Technology Management System (CTMS) in 2017. The CTMS provides electronic evidence presentation, video conferencing and systems management for all three Fairfax County Courts. The new digital design and upgrade replaces obsolete analog hardware, and include newer, digital components for courtrooms undergoing renovation. Upgrading to digital hardware is not a "plug and play" fix, and requires new cabling, wiring, connections, and customized software code.

Project Goals

The primary goal of this project (CTMS2) is to upgrade and integrate the high-tech courtrooms, conference rooms, jury assembly and jury deliberation rooms at the Fairfax County Courthouse to a modern digital platform consistent with industry standards. The digital upgrades will support (BYOD) Bring Your Own Devices, HDMI (High-Definition Multimedia Interface) connectivity, Wi-Fi, annotation enhancements, upgraded touch panel displays, and network-managed video services, while retaining existing CTMS functionality. The digital CTMS meets the County's strategic objectives of improving citizen's access to the Courts, facilitating trials and hearings in the most effective and efficient means possible, allowing for all three Courts to share common resources, and providing for the flexibility and adaptability required to incorporate future changes in technology and court proceedings.

Progress to Date

A multiphase deployment to upgrade existing courtrooms to a digital platform commenced in FY 2017 and is planned to continue through FY 2021 - FY 2022. Digital migration requires careful planning and scheduling as only a limited number of courtrooms can be "out of service" at one time. The digital retrofit is anticipated to take twelve weeks per courtroom, planned over multiple fiscal years.

Milestones and planned implementation are:
- FY 2016 – Completed CTMS Digital Design
- FY 2017 – Completed Digital Upgrades for four Circuit Court courtrooms (5A, 5B, 5C, 5D)
- FY 2018 –
  - Completed Digital Upgrades for four Circuit Court courtrooms (5E, 5F, 5G, 5H)
  - Completed Digital Upgrade for two General District Court courtrooms (2J, 2K)
  - Completed Digital Upgrade for two Juvenile and Domestic Relations District Court courtrooms (3A, 3B)
- FY 2019 – Complete Digital Upgrades for five JDRDC courtrooms (3C, 3D, 3G, 3H, 3K)
- FY 2020 –
  - Complete Digital Upgrades for two JDRDC courtrooms (3E, 3F)
  - Complete Digital Upgrades for two Circuit Court courtrooms (5J, 4J)
  - Complete Digital Upgrades for two General District Court courtrooms (1A, 1E)
- FY 2021 –
  - Digital Upgrades for two General District Court courtrooms (1A, 1E)

- Digital Upgrade MCR Network Switch Expansion
- Digital Upgrades for Adult Detention Center Video Arraignment and Remote Hearing Room
- Build Out and Installation of two additional Adult Detention Center Video Arraignment and Remote Hearing Rooms
- Digital Upgrades to Courthouse Jury Assembly rooms to enhance audio and allow remote connectivity with the courtrooms and remote destinations

  - FY 2022 Plans -

    - Digital Upgrade to multiple Courthouse Conference Rooms to allow remote connectivity with the courtrooms and remote destinations
    - Expansion of video conference capabilities throughout the courthouse to allow for non-contact public service areas
    - Installation of Attorney/Client virtual conference rooms (contingent on construction and renovation schedules)
    - Integration of CTMS and other hardware platforms with case management systems, software conferencing (Webex, Teams, Zoom, Polycom, etc.) and digital evidence storage platforms

Project Budget

Funding of $250,000 will be considered as part of the County's FY 2021 Carryover Budget.

Return on Investment

The CTMS allows new and renovated courtrooms to share a common infrastructure with distributed services through a centralized master control room. This capability provides consistency, standardization, and scalability between the three courts with improved access and facilitation of court processes and services for citizens, judges, court staff, litigants and others who need to conduct business with the courts. Substantial benefits and opportunities have been realized by centralizing and standardizing courtroom technology and sharing resources and infrastructure between the three courts. The implementation of CTMS has improved trial management and provided savings for the County, the courts, attorneys, and litigants.

IT-000014 SHERIFF CIVIL ENFORCEMENT SYSTEM PROJECT

Project Description

The Office of the Sheriff, in collaboration with the three Fairfax County Courts (Circuit Court, General District Court, and Juvenile and Domestic Relations District Court), and the Department of Information Technology is implementing an Advanced Civil Enforcement System (ACES) to automate existing civil enforcement business processes and replace the legacy systems which was a module in the Police Records Management (RMS). The ACES solution provides a desktop and mobile solution, enhanced security, reporting, statistics, and will also provide interfaces between the Sheriff's Office, the Courts, and other County agencies.

Project Goal

The Sheriff's Office is required by Virginia Code 8.01-293 to execute civil processes within its jurisdiction, and to report statistics as required by the Virginia Compensation Board. The goal of this project is to implement an automated Civil Enforcement application for significant improvements and efficiencies necessary to manage the large volume of documents served daily.

Progress to Date

Development for Phase 1A was complete in FY 2019 and included implementation of the core civil enforcement processes for improved efficiencies with automated entry of service information, bi-directional interface with the General District Court's Case

Management System (CMS), interface with the County's Geographical Information Systems (GIS) for geocoding to electronically track service document, and a basic mobile solution utilizing the existing infrastructure. Phase 1B, includes advanced reporting and statistics, expansion of the core and mobile functionality, and secure public and internal web access.

Phase 2A will include bi-directional interfaces between ACES and the three Courts' case management and imaging systems, and interfaces with other County agencies. Phase 2B will include the remaining core and mobile functionality.

Project Budget

Additional funding, when required, will be requested at the appropriate time.

Return on Investment

When fully implemented, the new Advanced Civil Enforcement System (ACES) will provide an integrated and comprehensive civil enforcement solution for electronically processing, distributing, and tracking service documents. The system will significantly reduce staff time spent to manually process physical service documents and improve response time to public inquiries with secure public and internal web accessibility. The ACES will also enhance reporting and statistics required by the Virginia Compensation Board, minimize lost or misplaced documents and provide electronic backup for business continuity.

IT-000015 COMMONWEALTH'S ATTORNEY CASE MANAGEMENT SYSTEM PROJECT

Project Description

The Office of the Commonwealth's Attorney (CWA), in collaboration with the Department of Information Technology implemented a management system with a secure, scalable multi-user platform compliant with Fairfax County IT standards. The CWA's Office has a very high case volume making attorney case and courtroom scheduling a complex and labor-intensive process. The eProsecutor solution is a web-based application that streamlines and automates previous manual processes and improves efficiencies with law enforcement agencies and the Courts.

Project Goal

The goal of this project is replacement of the legacy case management system with a modern comprehensive case management application with improved workflow tools, streamline processes, and enhanced accountability. Other components include the ability to scan arrest warrants, and interfaces to the Sheriff's Inmate System, the Magistrate, Police Records, and other County departments.

Progress to Date

The initial system was rolled out in May 2019 and modifications continued into FY 2021 to better capture barcode and case information at the point of origin. The project's original scope is complete. Additional requirements and modifications were identified and are planned in the next phase of the project in FY 2022.

Project Budget

Funding of $174,000 in the FY 2021 Third Quarter Budget continues to support this initiative. Additional funding requests of $151,000 will be considered as part of the FY 2021 Carryover Budget.

Return on Investment

A modern case management system will significantly improve management and tracking of a large volume of criminal cases handled by the Fairfax County Commonwealth's Attorney's Office. Improvements such as barcode scanning of arrest warrants, auto-generated legal documents, and the automated syncing of attorney calendars will dramatically reduce data entry by office personnel. Generating real-time case assignment reports showing the number of cases assigned, types of cases, and where cases fall into the case life cycle will improve and enhance the current task of case assignment and court scheduling.

IT-000043 GENERAL DISTRICT COURT (GDC) ONLINE DISPUTE RESOLUTION PILOT PROJECT

Project Description

In cooperation with the Supreme Court of Virginia/Office of the Executive Secretary (OES), the Fairfax County General District Court piloted an Online Dispute Resolution (ODR) solution in the Court's Small Claims Division which processes up to 45 small claims cases per court date, resulting in approximately 2,250 cases per year. The ODR system enables citizens to connect with other case litigants and dispute mediators in a mobile-friendly, safe, and secure environment, with 24/7 on-demand accessibility that enables litigants to view their cases and display their information from anywhere and anytime, including mobile devices. The ODR offers a convenient alternative for case resolution when citizens are unable to travel to the courthouse.

Project Goal

It is the objective of this pilot to implement a successful proof-of-concept on-line dispute resolution solution based on the best practices realized by other State Courts. The Court anticipates efficiencies through deployment of an online solution while maintaining compliance with procedural, technical, and legal constraints. A trend towards "cybercourt" has emerged in the United States as the next generation opportunity, especially with mediation and arbitration.

Progress to Date

Starting in April 2021, when the pilot program went live, small claims cases filed with the Fairfax County General District Court are automatically entered into the system for negotiation and potential mediation. The General District Court is monitoring and analyzing its processes to ensure the highest number of people register for and use the remote services. Data gathered through the system's reporting and participant surveys will be used to assess the program's effectiveness, convenience, and improvements in litigants' access to justice.

Project Budget

The project has sufficient budget for the current phase. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

The ODR system is a streamlined method of dispute resolution in which parties can quickly mediate differences online without repeated hearings in courtrooms. The benefits include a reduction in case backlogs achieved by resolving civil cases before their hearings, shortening case lifetimes to an average of days instead of months, and saving staff time and reducing case touch points thereby increasing party satisfaction. Given the ubiquity of the Internet and the public's preference for online accessibility options versus in-person court cases, the General District Court Small Claims division can save significant time, resources, and

money by enabling resolution of certain cases via an online court-based mediation and non-binding arbitration process as a first step prior to court involvement. Upon successful pilot in small claims, ODR can be expanded to other court functions such as traffic, warrant resolution, parking tickets, pleas, etc.

IT-000047 SHERIFF'S JAIL MANAGEMENT SYSTEM REPLACEMENT PROJECT

Project Description

This project begins a multi-phase replacement of the current legacy Sheriff Inmate Management System (SIMS). The Fairfax County Sheriff's Office plans to implement a Jail Management System (JMS) to replace the legacy Sheriff Inmate Management System (SIMS) which is approaching end of life. The proposed Jail Management System (JMS) will meet the demands of managing a potential population of over 1,200 inmates housed within the ADC by supporting alternative work force, booking receiving and release, classifications, complex sentencing calculations, incident reporting, inmate records, medical, behavioral health, finance, property, programs, professional services, transportation, and visiting.

The system will integrate electronic medical records, inmate accounting, reporting, mugshots, scanning, and incident-based reporting (IBRs), as well as interface with multiple state and local systems such as Active Directory, commissary, kiosks, LIDS, NOVARIS, Police Department's Records Management System (RMS), VCIN/NCIC, and VINE. The new system will provide the opportunity to automate remaining manual tasks, provide robust reporting and statistics, automate notifications and alerts, provide a mobile solution, and interface with the Fairfax County Courts (Circuit Court & Records, General District Court, and Juvenile & Domestic Relations District Court) and the Magistrate's Office.

Project Goal

The goal of this initiative is to implement an integrated and comprehensive jail management solution for Fairfax County Sheriff's Office to replace of the current legacy Sheriff Inmate Management System (SIMS) which is approaching end of life.

Progress to Date

The Sheriff's Office has completed the initial exploratory phase of researching and analyzing the available JMS products and functionality. The Request for Proposal (RFP) and requirements are complete, and currently under review with contract award anticipated in FY 2022.

Project Budget

Funding of $440,000 in the FY 2021 Third Quarter package continues to support this initiative. Additional funding requested for this project will be considered as part of the FY 2021 Carryover Budget.

Return on Investment

Existing JMS solutions offer fully automated processes, integrate key functionality, and interface with existing state and local systems necessary to provide significant improvements and efficiencies to the Sheriff's Office. The solution will provide an integrated and comprehensive jail management solution with access to real-time inmate information, reduce redundant manual paper intensive processes, increase efficiencies with digitized work queues to streamline inmate processing and digital displays for real-time statuses on booking and release processes, streamline risk assessment, improve inmate management with

barcodes and scanning for inmate intake, checking rounds, release process, etc., interface with critical state and local systems, and provide improved system availability, security, integrity and electronic backup to safeguard records.

Additional benefits include a mobile solution with robust reporting and statistics, automated notifications and alerts, and interface with the Fairfax County Courts (Circuit Court & Records, General District Court, and Juvenile & Domestic Relations District Court) and the Magistrate's Office. The system will provide a comprehensive, high-availability jail management solution on a secure cloud environment with automated backup and disaster recovery that meet the systems and IT standards as defined in the Fairfax County Information Technology Security Policy (70.05 2015) and the Criminal Justice Information Services (CJIS) standards.
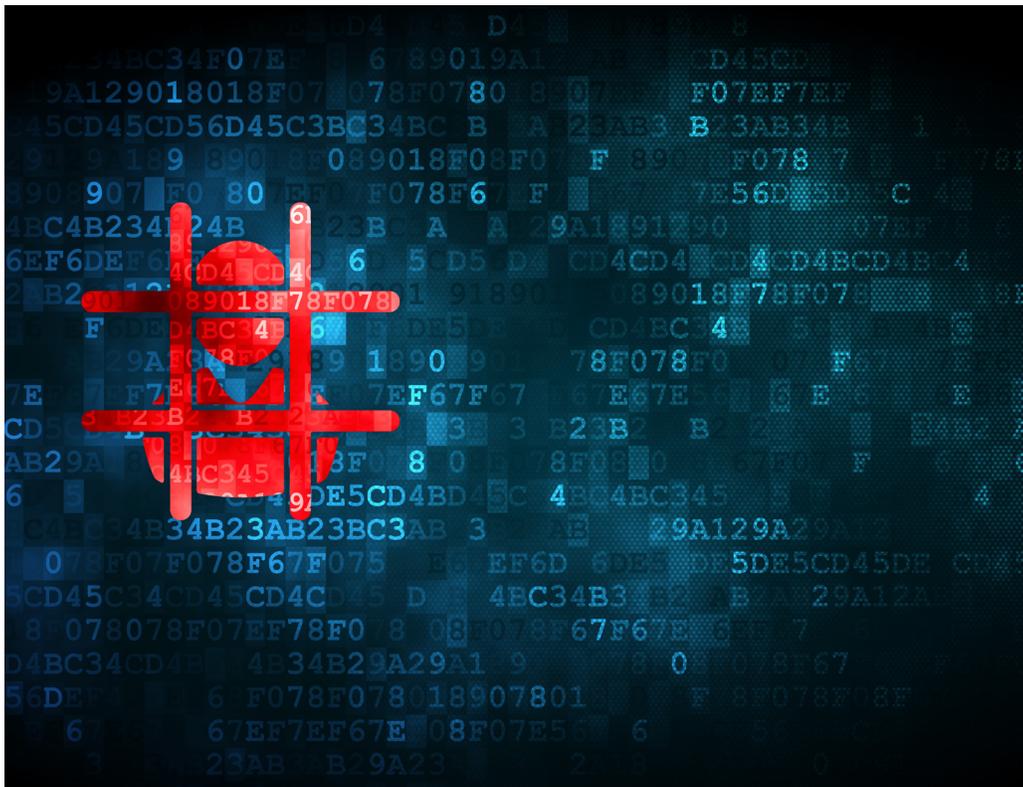
3.3 CORPORATE ENTERPRISE

2G70-011-000 AUTOMATED BOARD MEETING RECORDS PROJECT

Project Description

This project streamlines, automates, and supports mobile-enabled submission, preparation, and delivery of the Board of Supervisors Meeting Agenda and Board Book Package by converting a manual paper-exclusive process to an electronic format.

Project Goals

This initiative is sponsored by the Board of Supervisors and the County Executive to enable the Office of the County Executive and the Clerk to the Board to electronically create the agenda, supporting documentation, document Board of Supervisor meeting matters and post documents on-line for improved accessibility. This project significantly improves the quality and efficiency of producing the board packages for the Board of Supervisors and associated committees and subcommittees.

Progress to Date

Secure Board meeting management software was successfully deployed to support the Board of Supervisors meetings, subcommittee meetings, and other County Boards, Authorities and Committees (BACs) such as Retirement Board, Board of Equalization of Real Estate Assessments, and Water Authority.

The project continues to support and maintain the Board Book system.

Project Budget

Additional funding, when required, will be requested at the appropriate time.

Return on Investment

This project increases efficiency and streamlines the production of the Board of Supervisors' package by providing information and supporting materials on-line, offering Board members an efficient way to review meeting material electronically and improves accessibility and the management and distribution of Board materials. Revisions and updates are easily and instantly accomplished making reprints and redistribution of hard copy unnecessary. Additionally, this solution offers efficient preparation and submission of agenda items, a reduction in manual paper intensive processes, and reduced space requirements for maintaining large paper copies for Board offices and the Clerks' Office. Cost savings are also achieved by eliminating print, labor, and transportation costs were necessary to produce, assemble, and physically deliver the large multi-volume board books.

2G70-019-000 PUBLIC ACCESS TECHNOLOGIES – INTERACTIVE VOICE RESPONSE PROJECT

Project Description

This multiphase project migrated agencies using legacy Interactive Voice Response (IVR) systems to a more contemporary platform enabling interactive project text to speech applications and voice/phone applications for self service automation. The new IVR platform supports more efficient payments, information processing, and management of citizen requests and inquiries.

Project Goals

This 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", for citizens without internet access. IVR is one of the foundational programs for enhancing public access to government information and business transactions. The primary goal is to continue the application of text-to-speech technology for certain applications aligned with e-Government goals.

Progress to Date

The IVR is primarily accessed 9 a.m. to 5 p.m. with an average of 1,000+ calls per hour successfully supporting many agencies including the Department of Tax Administration, Fairfax County Courts, various Health and Human Services units, Office of Elections, and the Fairfax County Library:

Project Budget

In FY 2021 the IVR initiatives was transferred over to DIT Telecommunications Division for improved operational coordination with enterprise telecommunications initiatives. **This project will be retired from the IT Plan in FY 2023.**

Return on Investment

Public access technologies such as the IVR expand citizen access to County information and services and minimizes staff resources needed to provide basic information. The County's IVR system 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 more complex and specialized tasks.

2G70-020-000 INTERNET/INTRANET INITIATIVES PROJECT – E-GOVERNMENT

Project Description

This project supports initiatives that enhance and expand service delivery, not only within government, but between government and the public using information and communications technologies. A comprehensive approach is employed to ensure the support of multiple business solutions on a scalable and secure infrastructure. In addition to providing services and information efficiently to foster long-term citizen engagement from anywhere at any time, digital government services increase productivity by diverting staff resources to address 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 and make data-driven decisions to deliver information, services, and programs effectively to the public..

Project Goals

E-Government's vision is to provide new information and services on cloud-based, multi-channel, open-source, and operating system (OS) neutral platforms, while continuing to build on existing information architecture for both the public website and intranet. This includes research and development of emerging technologies, expansion of Web and mobile applications, improvements in search and navigation, integration with internal systems and other public access channels, leveraging the power of artificial intelligence (AI), data and cloud-native applications and infrastructure.
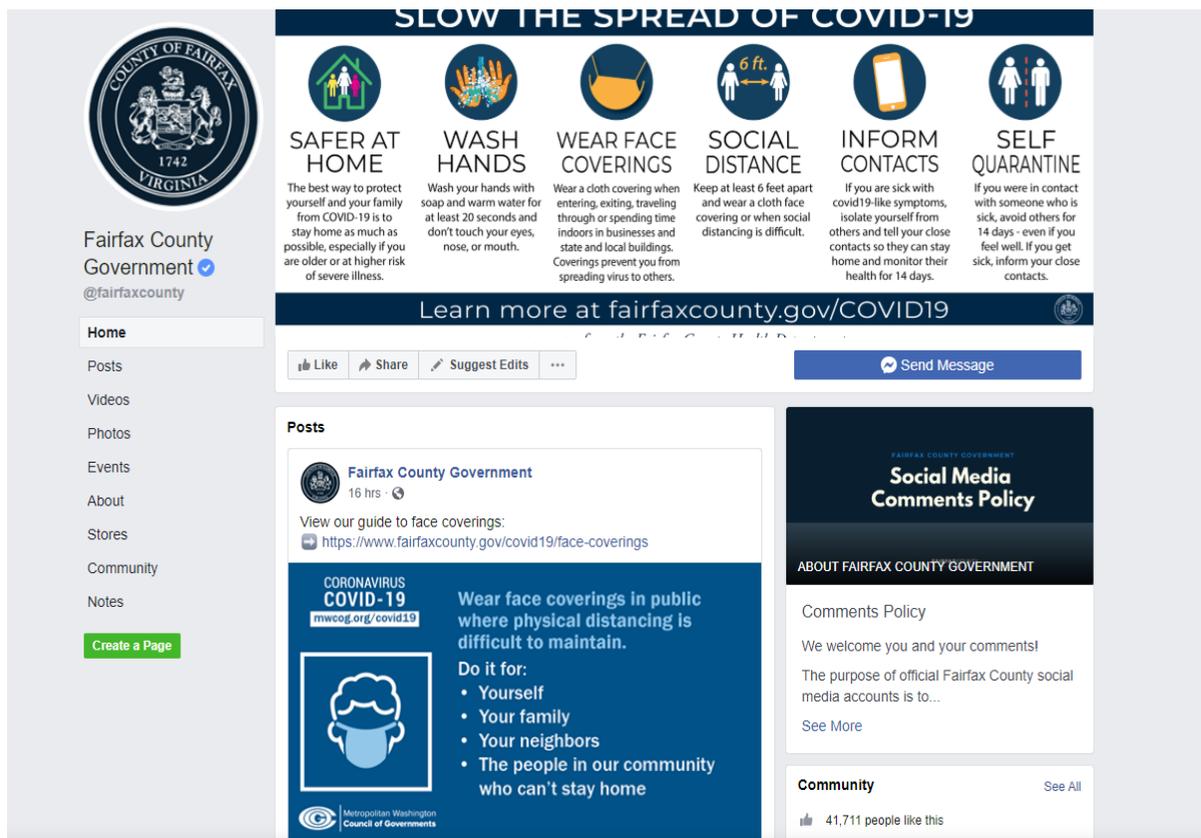
Sec 3 Figure 1 - County Facebook page

Sec 3 Figure 2 - County YouTube page

Progress to Date

1 – Web Content Management and Public Web Site

Built on an open-source enterprise Web Content Management System (WCM) in 2018, Fairfax County's website has evolved since its initial implementation. This state-of-the-art platform provides a scalable solution that puts the County in a position to adapt to new technologies. This system meets the County's requirements for security, publishing workflows, and distributed site management responsibilities. There are 80+ multi-sites in the WCM system to support over fifty-five County agencies that have a presence on the re-engineered Fairfax County website. The award-winning Fairfax County website information architecture presents information based on topics to reduce agency silos and optimize search engine results. The responsive design enables the website to be rendered effortlessly on all mobile devices.

In FY 2021, many major feature enhancements such as **Artificial Intelligence (AI) powered "Fairfax Virtual Assistant"** (chatbot), County-wide events calendar, scheduled publishing, new UI widgets (slide show and accordion widgets), etc. were implemented to enable citizen interaction with County government. These key features not only advanced the user experience but upgraded the current site's information architecture, augmented accessibility for mobile devices, and improved search functionality. The County website is also translated to multiple languages using machine translation powered by Google.

New interactive data visualizations and dashboards were added to the website to create a data-driven environment increasing audience engagement while promoting transparency and accountability. New online services like Online Public Hearing Testimony, avenues for participation in the County-wide Strategic Plan were added, and many applications were enhanced to improve service delivery to the public, especially to provide remote assistance through online applications and registrations during the COVID-19 pandemic. The appointment scheduling application was one of the key applications developed in-house to support the Health Department in the COVID mass vaccination efforts within Fairfax County. In addition to the registration

form and vaccination dashboards, the whole process provided Fairfax County residents one central location to register, schedule and check status on the vaccination process. The County website provides easy access to hundreds of services for its constituents to pay, register or apply for services like tax payments, real estate information, permits, housing, libraries, jobs, basic needs, park classes etc.

In addition to the website, the County's use of social media to communicate and engage with our community grew in FY 2021. The use County's multiple social media platforms like Facebook, Twitter, YouTube, Instagram, Nextdoor, SoundCloud and Flickr expanded and was widely used for public engagement with County government on various topics during emergencies and otherwise. It boosted County operations by creating a culture of engagement and encouraged a two-way dialogue with the public. These are integrated together and come under the umbrella of NewsCenter which is the County's one-stop news shop. The County has about 53 official social media sites/accounts on Facebook, Twitter, Instagram, Nextdoor and YouTube.

As metrics show, more than half of the traffic to https://www.fairfaxcounty.gov/ comes from search, E-Gov will continue to invest in this important aspect, and optimize web content so commercial search engines find County content. The Google Site Search is used to augment the overall search functionality of the website.

In FY 2022, the program will continue to focus on continuous innovation using data and machine learning and improve the capabilities of the AI powered chatbot on the website. Implementing a new cloud-based web statistics and analytics solution as well as a design refresh of the public website is also in the roadmap.

2 – MOBILE APP

Fairfax County pioneered the availability of governmental services on mobile devices. In enhancing the County's long-standing goal that our community should access their government 24/7 without walls, doors or clocks, Fairfax County placed government in the palm of their hands with the introduction of efficient and cost-effective mobile apps and services.

In FY 2019, the official County mobile app was redesigned to complement the updated website, and new version released. The public can download the official Fairfax County application on their smartphones and tablets for emergency information, news headlines, one-touch calling through a contact directory, GPS maps, social media links, transportation resources and more at https://www.fairfaxcounty.gov/topics/mobile.

The re-architecting of the County mobile app with cross platform .NET technology will be the focus in FY 2022 to include new features and functionality.

3 – ENTERPRISE APPLICATION ARCHITECTURE AND SERVICES

E-Government develops and supports many enterprise cross-agency applications like Financial Transparency, Tax Calculator, Directory, Ask Fairfax, Contract Register, NewsCenter and Email Subscriptions. The project develops application framework, standards, and best practices for the current environment to support County agencies in the development of web and mobile applications. It will continue to evaluate and prototype new application development platforms.

A major initiative for integrated cloud-native web sites, applications, services, and infrastructure is bringing Office 365 apps and services (SharePoint, Power Apps, Power Automate, Power BI, Teams), Azure cloud service and applications, and DevOps together for more efficient County platforms and services.

In FY 2022, the program will continue to focus its efforts on innovative projects that will provide services and programs using new technologies such as cloud-native application development and integration, container, and Kubernetes services. More cloud integration, such as multi-channel single-sign-on solution (SSO), are in the road map. More mobile application developments are also planned with cross platform .NET technology.

4 – Web Farm Infrastructure Architecture and Management

This project continues to build and upgrade the web farm infrastructure for the public and internal DevOps environment. The following Internet/Intranet Infrastructure operations are on-going:

- Drive cloud-native transitions for applications, infrastructure as code, and DevOps based software development and integration pipelines
- Create new generation application development and hosting environment based on containers, Kubernetes, and cloud services.
- Secured network settings on high availability internet/intranet server farms for constant improvement of system reliability and security
- Enhance web analytical reporting to provide data-driven insights for dynamic content distribution on both Internet and intranet
- Continuous refinement of the monitoring system to ensure 24x7 availability

5 – Intranet

"**FairfaxNet**", the County's intranet, is an employee focused enterprise SharePoint portal that provides an intelligent platform to seamlessly connect users, teams and knowledge that supports the ability to leverage relevant information across business processes to help employees work more efficiently. FairfaxNet is a centralized resource for internal County content, forms, policies, news, application, training, and other sources of information, it is also the gateway to the County's enterprise ERP solution (FOCUS).

It provides collaboration tools for agencies and work groups which are secure, convenient and a standard workspace for employees to work individually or collaboratively. FairfaxNet is a centralized location for disseminating pertinent County wide, agency-specific or team/project-specific information. It also provides a venue for automating business processes.

Approximately 55 County agencies now have a presence on the County's intranet site, including applications, pages, documents, PDF, and graphics on the internal site. Most agencies have Web content contributors, and Internet Services staff which support content creation efforts for those agencies without a dedicated Web presence. The County's intranet 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.

Phased migration of FairfaxNet from on-premise SharePoint to cloud-based SharePoint Online to keep the system in line with the evolving technology will continue to be a focus in FY 2022. Work is on-going with all County agencies to migrate their sites and contents, as well as hundreds of business-critical electronic forms and workflows. FairfaxNet continues to support more evolved and complex automation of agency business process for operational improvements.

Project Budget

Funding of $350,000 in the FY 2021 Third Quarter Budget continues to support this initiative. Additional funding of $300,000 will be considered as part of the FY 2021 Carryover Budget.

Return on Investment

This E-Government Program continues to provide information architecture, user interface/user experience (UI/UX) expertise, application development framework and supports web infrastructure for all platforms providing new information and digital services to the public web site and intranet. It further expands the web content management system to improve automated workflow, revision control, indexing, search, and retrieval for enterprise systems. The project utilizes open data, analytics, and personalized engagement to create a transparent service delivery that encourages public participation while enabling the County to build applications faster and more efficiently by maintaining reusable components. Robust and powerful intranet platform tools help for digital transformation and automation improve staff efficiencies and productivity assisting in rapid deployment of services to the public website.

2G70-041-000 CUSTOMER RELATIONSHIP MANAGEMENT (CRM) PROJECT

Project Description

Customer Relationship Management (CRM) is a foundational technology that supports the County's strategic goal of improving the quality, efficiency, and speed of deployment for responses to citizen requests/issues by integrating stovepipe applications, implementing on-line 24x7 access strategies, social media tools, low/no code solutions, Artificial Intelligence and techniques to enhance the overall customer experience and manage service requests via a single user enterprise-wide interface tool.

Project Goal

This project is a multi-year effort for the replacement of the legacy CRM and resident facing applications/solutions with a contemporary platform that integrates with County agencies' business applications and processes, consolidating and reducing redundant hardware, software, and maintenance expenses. This enterprise approach to centrilized rapid application deployment provides a multi-platform solution across many channels including e-mail, web, social media, and call center capabilities. The improved integration with the County's Web environment, contact centers, mail, and communications systems, promotes service efficiency and effectiveness, improved customer experience, and citizen engagement. Information and data provided with an enterprise view enhances opportunities for cross-agency processes and service planning.

Progress to Date

This project supports the replacement of Siebel and IQ customer management solutions. Phase 1 included environment setup, business process analysis, configuration, application development, and data migration for eleven County business systems including Board Offices. Phase 2 consisted of successful data conversion and migration from IQ to the new application platform for the Board Chairman's office and the Dranesville Board office.

Phase 3 of the project included implementation for Department of Tax Administration Audit branch, Office of Public Private Partnerships, Office of Public Affairs - VFOIA (VA Freedom of Information Act) Front Desk, Media relations, and Sully and Mount Vernon Board Offices. Phase 4 began with the conversion to online with the O365 upgrade and the transition of vFOIA, 2020

BOS updates, Target, 911 Request, and HD emergency response solution. Future phases will continue planned migration from the legacy to the new consolidated online mobile app-ready application platform.

As an example of the potential of this new enterprise platform, during the COVID 19 Pandemic, it was used to deploy a customer facing landlord portal, within 72 hours, to allow for rental assistance. This new resource, modeled after the Commonwealth's landlord portal, allowed landlords to apply on behalf of their residents for rental assistance. This portal connected to the efforts of the Evictions Taskforce and provided landlords a front door to access the Emergency Rental Assistance (ERA) funds.

Project Budget

FY 2021 Third Quarter funding of $200, 000 continues to support this effort. Additional funding of $250,000 will be reviewed as part of the FY 2021 Carryover Budget.

Return on Investment

This centralized enterprise application platform facilitates increased efficiencies, agile deployment, and improved effectiveness in managing the many citizen requests and interactions within and across County agencies and business functions. It allows a constituent-focused operation where government is positioned to be proactive to citizen concerns by enhancing collaboration among all agencies and by providing knowledge of common issues for follow-up. This solution also improves transparency by allowing constituents to easily view how the County manages their request by providing a tracking number. Savings are generated by consolidating intakes, reducing the number of duplicate requests, and eliminating redundant systems. This cost savings provides tangible evidence to citizens that their government is working for them efficiently by providing better access to inform, optimized issue response/processing, and improved accountability/compliance.

2G70-055-000 VOLUNTEER MANAGEMENT SYSTEM PROJECT

Project Description

This project provides an integral approach for recruiting, scheduling, managing volunteers, and producing reports by operational unit. Aggregate reports across County agencies enables more accurate tracking and managing volunteers as well as producing reports by operational units. This system supports integration with legacy volunteer software products used by County agencies and partners (some of which may be converted later).

Project Goals

The primary goal for this project is to better manage over 100 programs spread across multiple facilities in Fairfax County and facilitate enterprise growth of volunteer programs with a single software solution that improves efficiency, recruitment, management, placement, and scheduling. This project also aims for improved tracking and reporting of volunteer contributions and an easy-to-use point of entry for citizens interested in volunteering with Fairfax County. Additional objectives include developing common policies and data elements for the County's volunteer programs and streamlining the process of matching volunteer abilities, interests, and availability with County agency needs.

Progress to Date

The system now integrates all County agencies with volunteer programs and is available to the Board of Supervisor for recruitment of Boards, Authorities and Commissions (BAC) appointees and general volunteers. There are 59,362 volunteers

registered in the system. Pre-COVID over 450 opportunities were being advertised to the public. Currently there are 161 including recruitment for potential BAC appointees by two Board offices.

During the COVID-19 Pandemic, the system was used to identify and recruit volunteers with multiple language skills to assist with translation of blogs, FAQs, and other materials for their communities. When the Inova and Community Vaccination Clinics were opened, and hundreds of volunteers were needed, over 550 volunteers were recruited within a few days who were able to schedule themselves for shifts covering 6 days a week. Currently, 27,850 volunteers stand ready to be contacted should the County need to activate a large pool of volunteers. The project will continue to enhance and expand capabilities and improve user experience.

Project Budget

The project has sufficient budget for the current phases. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

With over one million County citizens and budget constraints, volunteers are an important component in the sustainability of County programs and services. There are now more than 52,650 ethnically and educationally diverse volunteers registered in the system, representing all supervisor districts.

2G70-069-000 TAX SYSTEM MODERNIZATION PROJECT – TAX/REVENUE ADMINISTRATION

Project Description

This project provides for the replacement of the County's two core tax systems Personal Property and Business Professional and Occupational Licensing (BPOL) with a web-based application. Implementation allows for a comprehensive overhaul of many existing functions such as personal property account administration, business filing and licensing, vehicle registration, tax assessment, exemptions and adjustments, accounts receivable, and billing. Elimination of outdated technology platforms enhances opportunities for integration with other County and State systems, as well as facilitates citizen interaction and self-service opportunities via web-based technologies.

Project Goals

The legacy mainframe platform for the Personal Property system and BPOL limits integration with other County and State systems, limits reporting, as well as constrains citizen interaction and self-service opportunities via web-based technologies. System enhancements and modifications, many of which are required by changes in State and County code, cannot be made economically and require lengthy development periods. Integration with Virginia State Department of Motor Vehicles (VA DMV) and Department of Tax Administration (DTA) applications which are critical for assessment, taxation, and enforcement purposes, cannot be automated due to limitations within Personal Property and Business Professional and Occupational Licensing systems.

Progress to Date

This project was initiated an in-house effort to redevelop the outdated legacy Personal Property Tax System which includes Personal Property and Business Professional Occupational License, Delinquent Collections and associated reports and interfaces to the cashiering system, WEB, and Commonwealth of VA DMV and DTA. The goal was to redevelop the legacy

applications to modern, supportable technology platforms for the existing functionality. The focus was then expanded to include enhancing the citizen, business, and staff user experience with DTA. The expanded scope included database re-organization to eliminate batch processing requirements, addressing data deficiencies and other application limitations, as well as DTA identifying business processing improvements and integration with on-line capabilities including integration with internal county applications, state applications and external county partners. In addition, the applications was optimized to facilitate mobile platform use by County citizens and staff.

Project Budget

As part of FY 2021 Third Quarter Review this project is one of four DTA IT Projects consolidated under IT-000033 Tax Portal Enhancements. These four projects support DTA business process improvements, enhancements to the County's Tax Portal for improved access to information and transactions, and related activities. Consolidating into one single project enables more efficient management. **This project will be retired from the IT Plan in FY 2023.**

Return on Investment

This project eliminates risks to County revenue generated from the assessment and collection of Personal Property and BPOL taxes. Modern technology platforms enable the Department of Tax Administration to enhance customer access and improve services to citizens and the business community and enhance the security and use of web technologies for self service functions increasingly used by the community to interact with County systems. This project also provides for automated integration with other County and State systems directly impacting the County's revenue collection activities and contribute to retirement of the legacy mainframe environment in the data center.

Sec 3 Figure 3 - Menu from Department of Tax Administration website

IT-000006 OFFICE OF ELECTIONS TECHNOLOGY PROJECT

Project Description

The purpose of this project is to coordinate the strategic enhancement of election-related technologies and data-driven initiatives for election systems in Fairfax County. The project aims help the County identify and implement the business and technical requirements for election-specific hardware, management systems and applications, as well as manage the acquisition and lifecycle deployment of these systems. All project deliverables and services are designed to meet the operational, security and performance requirements of the County and to comply with Federal and State election laws and mandates.

Project Goals

The primary objectives of this project are to identify and resolve election-specific technology gaps and implement technical solutions that consolidate business practices and increase public access to election information and services. Efforts consistent with these objectives include modernizing the agency's voting equipment and electronic pollbooks, as well as upgrading the practices associated with asset management, voter registration, poll worker management and the aggregation of election results.

Progress to Date

Electronic Poll Books – In FY 2016 this project successfully transitioned the legacy electronic poll books to an enterprise iOS application using up to date technology. In FY 2020 acceptance testing started for a new Electronic Pollbook (EPB) COTS system for enhancements to the existing EPB. This version will allow the Office of Elections greater flexibility in how EPB devices are managed by employing State-certified Cloud technology. This new system will offer a more streamlined approach to both the Election Officer training process as well as the ability to test for and troubleshoot Election Day issues. This version will also allow for greater customization and user-directed focus and will better fit Fairfax County's needs as a locality. In addition to this testing, the Office of Elections completed acceptance testing on a new mobile-config file to ensure the security and the functionality of the EPB devices.

Voter Registration - initiated a State-wide survey of scanner used to improve document scanning workflow. Directed all Fairfax County operators to perform a new workflow based on the results of this survey to better account for commonly found issues within the State's voter registration system. This effort has helped reduce scanner operator downtime.

Digitized more than 820,000 paper-based voter registration applications to be batch uploaded into the state's central voter registration system. This project has helped streamline several business processes within the agency and has decreased application review times by approximately two-thirds.

Election Management System - enhancements deployed for the November 2020 election.

Voting Equipment - was successfully modernized by shifting from a multi-vendor model to a single unified system. All stages of the project, including procurement, machine testing, implementation and post-production maintenance/support have been executed and are complete.

Poll Worker Management - migrated 5,500 volunteer records to a current database and technology platform.

Election Results - The Office of Election implemented a reporting system for the transmission of unofficial results to be performed at the precinct-level using an interactive webform that is accessed through the pollbook application.

Project Budget

Additional funding, when required, will be requested at the appropriate time.

Return on Investment

This project will ensure the County's compliance with Federal and State elections mandates as well as the Report and Recommendations of the Presidential Commission on Election Administration and the Fairfax County Bipartisan Commission report on Election Improvement.

IT-000007 ENTERPRISE PROJECT MANAGEMENT

Project Description

The Enterprise Project Management projects provides for a more effective and streamlined IT project portfolio and project management practices across County departments.

Project Goals

Project goal is implementation of a project/portfolio management solution to strengthen centralized management of the processes, methods, and technologies used to manage IT Projects. The proposed solution provides an integrated dashboard for monitoring key project performance indicators, automated project tracking and reporting capabilities, standardized project management methodology, improved communication, collaboration and decision making, and reduced manual processes. This project will also leverage and expand the use of existing SharePoint licenses.

Progress to Date

Phase one of the solution is complete and in production.

Project Budget

This project will be retired from the FY 2023 IT Plan.

Return on Investment

Project/portfolio management tools provide the County with the ability to enhance management of large complex enterprise wide projects, enhance and improve project planning and organization, scheduling and resource management, cost control and budget management, communication, decision-making, and documentation. In addition, project management tools improve project resource management – physical, financial, and otherwise, to meet overall project objectives.

IT-000016 BUDGET SOLUTIONS PROJECT

Project Description

Fairfax County Government (FCG) and Fairfax County Public Schools (FCPS) have partnered on a multi-year, joint initiative to implement a budget solution to accommodate the requirements of the end-to-end public sector budget formulation process, projections, reporting and program measures. The annual budget process is an ongoing cyclical process simultaneously looking at two fiscal years (current and future/budget preparation).

Fairfax County Government (FCG) and Fairfax County Public Schools (FCPS) have similar overall budgeting processes with distinct development calculation methodologies, timeframes, and reporting requirements, necessitating the maintenance of autonomy between FCG and FCPS. Business requirements for handling budget development and quarterly adjustments vary from year to year. A budget solution on a modern platform will provide the necessary structure and flexibility to meet strategic and tactical requirements also with flexibility to adjust to evolving needs and opportunities.

Modern technology will support preparation of complex budget publications with rapid turnover that rely on consistent data presentation and formatting, in which data must be quickly verified and edited and published in a variety of formats including the WEB.

Project Goals

This project plans to Development of a budget solution to support all facets of budget preparation on a single platform for both County and Schools including:

- Base and incremental budgeting for both expenditures and revenues
- Annual budget formulation and quarterly review adjustments
- Operating fund budgeting
- Multi-year Capital Project and Grant budgeting
- Modeling and forecasting
- Personnel expenditure forecasting, planning, and management

The new design also will:

- Support the end-to-end process in a single solution platform that is centrally developed and used across the Fairfax organization.
- Facilitate autonomy between FCG and FCPS budget development processes and query.
- Provide functionality to manage related budget office functions such as management and control of position count, performance measurement data tracking, budget monitoring and forecasting/projections.
- Presentation of budget data in a wide variety of formats and levels of detail including summary reports and detailed line item reports.
- Seamless integration of budget processes (development, monitoring, reporting, etc.) with enterprise financial and human resource processes, including the SAP financial system, FOCUS budget modules, grants, human capital management applications in County and FCPS.
- Integration with the FOCUS data warehouse for the extraction of budget and actual data at user-defined intervals and upon request.
- Implementation of security and user role management.
- Achieve system maintenance and data management efficiency.

Progress to Date

Implementation of the budget solution is in progress for County and Schools. Future phases for the solution include forecasting/projections, performance measurement data tracking, position count tracking, and budget monitoring.

Project Budget

The project has sufficient budget for the current phases. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

During the period since FOCUS went live, County and Schools budget staff have been utilizing different legacy and manual solutions for budget preparation needs. The marketplace did not have a commercial solution that met the needs of a local public budget formulation process of the complexity and scale of Fairfax County. After researching the market and other governments, it was determined that custom development using industry standard tools and leveraging existing County IT infrastructure was the best and most cost-effective path.

Phase 1 of this project provides functionality for budget preparation and budget publication including the ability for central budget staff to prepare Advertised/Adopted budgets and quarterly reviews. The solution will provide a permanent budget system that will have built-in integration with other County systems including integration with the enterprise resource planning systems (FOCUS/LAWSON) and the reporting data warehouse while also providing security roles and user administration to allow access by department end users, thus relieving much of the additional work from central budget office staff. In addition, with role-based access, system controls and security are enhanced.

In addition, it is anticipated that the budget solution will be better positioned to mitigate risks for system failure by implementing disaster recovery and backup protocols on an enterprise platform. Also, the enterprise platform will be scalable and supported by multiple resources. Long-term opportunities remain in gaining operational improvements in a cost-effective manner through continuous implementation of enhancements on a platform that is scalable, maintained on-site and supported by in-house staff. Creation of a custom budget solution will allow for significant cost savings and efficiencies in terms of staff time management and other resources.

IT-000017 ENTERPRISE CONTENT SERVICES PROJECT (PREVIOUSLY CALLED ENTERPRISE DOCUMENT MANAGEMENT)

Project Description

Enterprise Content Services (ECSP) project is the County's approach to store, centralize, and share documents and other data; this strategy includes the use of tools that enable the origination, creation, editing, management, review, publishing, search, retrieval, and applied use of information regardless of the initial source or format. ECSP is focused on improving business references allowing the County's mobile workforce to deliver better customer service without limitations of location. Additionally, ECSP provides for cost effective compliance with mandated retention guidelines and governance for data that must be preserved for specific periods of time.

Project Goals

Goals include implementation of a ECSP designed to address the ongoing evolution of technology and its utilization in support of County business functions and management of content across an enterprise. This platform relies on accessing a shared repository that serves as the gatekeeper for maintaining the access rights and permissions to all the content stored within it. This project supports the strategic goals of reducing paper records, promotes efficient archival and retrieval of documents, public access and facilitates electronic workflow process improvement initiatives in County agencies..

Progress to Date

Contract was awarded to multiple vendors for contemporary document management solutions. Business, technical requirements, analysis, stakeholders working sessions and phased implementation which began in FY 2016 continues across County agencies in FY 2022.

Project Budget

Funding of $400,000 will be reviewed as part of the County's FY 2021 Carryover Budget.

Return on Investment

Enterprise Content Services Platform enables the County to have a rich document management and business process flow for retrieval and storage of a vast quantity of required paper records. This technology automates workflows, improves business process efficiencies and productivity, reduces paper records and storage needs, and makes data more accessible, easily retrievable, secure, and compliant with records management regulations such as the Freedom of Information Act (FOIA), Land Development Services, Health and Human Services. Deployment of the County's current document management solution enables on-line search of digital documents and allows for more effective use of advanced analytics for decision making, resulting in service improvements for Fairfax County residents.

IT-000028 GEOSPATIAL INITIATIVES

Project Description

GIS is a strategic foundational technology, integrated with numerous County applications and business processes. It is an essential component of County operations and is heavily used by a wide range of County agencies. GIS data and mapping applications are extensively used in tax assessments, social equity awareness, public safety, parks management, urban forestry, storm and wastewater management, planning and development, and other areas.

GIS is utilized across most County agencies daily for planning and decision making. The quality of those decisions depends on the data being used in terms of its currency, accuracy, and completeness. The current initiatives include support for 4 important sets of data:

- Ortho/aerial imagery, oblique imagery, planimetric data, and LiDAR (Light Detection and Ranging). Aerial imagery is the foundation for accurately placing most of the data in the GIS and creating the planimetric data. Derived from aerial photography, orthoimagery is used in almost every GIS application in the County.

- The planimetric data is highly important to many County operations and features the locations of all man made and natural features on the surface. The highly detailed contour and surface data is critical for the County's Stormwater Management Program and is used in all the displays in the County's public safety/emergency response vehicles.

- Oblique imagery is critical 911 call takers who use it to visualize the scene of incidents. It is also essential for the assessment of properties by Tax Administration, checking zoning applications, and as the basis for the creation of 3D data for Virtual Fairfax.

- The County collaborated with US Geological Survey to acquire its first LiDAR, that data has proven to be of significant value to Urban Forestry and Stormwater. As a result, the County will pursue regular refreshes of LiDAR, particularly as its cost continues to decline. The latest acquisition has been delivered to the County and was flown in December 2018. Additionally, the highly detailed and accurate LiDAR data may reduce expenses for planimetric update in the future.

This project will also seek to modernize the GIS infrastructure and complete the refresh of several GIS based systems that are critical to County operations. The modernization will enable sound integrations of GIS with operational business systems, expand the operational use of GIS, protect the investment in data, and provide the stability expected of corporate systems. The refreshes will take advantage of modern tools to provide improved functionality and capability to County government and the public.

Project Goals

This initiative supports acquisition, maintenance, and refresh of key "foundational" GIS data assets at frequencies necessary for optimal County operations. It also maintains the GIS system through enterprise licensing, hardware acquisition support, and funding for GIS based system refreshes or replacements, like the ongoing modernization. Currently there are five data sets that must be maintained through the project. The refresh goals for each are as follows:

- Oblique Imagery acquisition - refresh every year with 1.7" to 3.5" GSD resolution.

- Ortho Imagery - refresh every year with 2" or 3" GSD resolution.

- Planimetric data (derived from the orthoimagery acquired with the state or from EagleView contract) update entire County every 8 years. Because of the size of the investment necessary to update/add up to 17 million features, an 8-year refresh cycle, that is carried out across 4 years, was determined to be the most efficient and cost-effective approach. The highly detailed contour and surface information is particularly important for the County's Stormwater management program. Tests continued to determine if the surface and contour information from LiDAR can replace that from the planimetric update (and reduce its cost). It was determined that LiDAR would replace the topographic update from this project. This change will pertain to the second through fourth quadrants of the current planimetric update project. The third quadrant was completed in March 2021.

- The highly-detailed LiDAR surface and elevation data is able to detect erosion and other changes in the ground surface. It is also useful in analyzing line of site options as with the Route 1 Embark project, and helping with land use/land cover analyses. In 2017, the County's Environmental Quality Advisory Council (EQAC) specifically recommended that the County pursue regular acquisition of LiDAR which is refreshed every 4 years.

- 3D building modelling has been long used in the Virtual Fairfax application. This data has been used to show proposed developments in the existing environment and for community outreach. This dataset has become outdated due to the pace of change in key areas and will be refreshed.

The Geospatial Initiatives Project seeks to complete the update and refresh of key County systems:

- **The Master Address Repository –** This situs address database will undergo a modernization study and receive an update to take advantage of new GIS tools and to create a public interface.

- **The Integrated Parcel Lifecycle System –** This tool was created over 15 years ago and is the basis for demographic forecasting. IPLS will be converted from a desktop application to a web-based tool with a public interface.

- **GIS Portal Migration –** This is a key component of the modernization that will stabilize the production system by providing resiliency, capacity, backup and disaster recovery for GIS.

- **GIS Database Migration –** This is the second major component of the GIS modernization and involves moving the 20+ year Oracle installation to SQL with all scripts, processes, data, permissions, etc.

The project goals also include modernization of GIS systems to meet current and anticipated future needs by increasing mobile capabilities, providing for critical infrastructure, providing for data analytics and program management situational awareness tools, and creating capacity for system growth and business systems integrations.

Progress to Date

The GIS Modernization has made significant progress. Necessary software licensing was obtained for the horizontally and vertically scaled replacement system. The needed hardware has been procured and is being prepared for the enterprise GIS portal migration, a core component of the modernization. The Oracle to SQL Server migration has begun. A new schema and security model have been developed and deployed to the SQL development environment. IPLS has been separated from

the larger database and placed in production in its own SQL database and is now prepared for legacy use until the refresh is completed. This was a move to safe harbor while the GIS database is moved in its entirety.

The MAR project kicked off in March 2021 and is in initiation and requirements gathering. A vendor was contracted, and the MAR will be completed in FY 2022.

The IPLS refresh will begin in FY 2022. FY 2021 activity involved the separation of IPLS from the GIS database and the move of the existing system to SQL server. The legacy system is back in production and will serve county needs for forecasting for the last time in winter 2022. IPLS will be refreshed by the end of FY 2022.

The facility data gathering component of EDGR was replaced in FY 2021. GIS state of the art technology now allows facility observations to be collected in standard tools and is directly linked to dashboards to support the

The County has acquired oblique imagery biennially for 16 years. In 2021, the County was re-flown to capture additional oblique and now orthoimagery as well on the first year of a new annual flight cycle. The imagery is used directly by Department of Tax Administration and many other agencies in the heavily used Geographic Exploration & (GEM) application. The imagery is now available to the public in the sister application of GEM, the JADE application. Oblique imagery, which was refreshed in 2019, is also the source of the 3-D buildings that are used in the publicly available Virtual Fairfax application. The aerial orthoimagery jointly acquired through the state is the essential foundation of the planimetric data update. To save resources, the County will pursue the use of its annually flown orthophotography or LiDAR for this purpose. Currently the County has complete multi-year LiDAR coverage, one set had a split acquisition (part in 2012 and the rest in 2014), and another complete acquisition in 2018-imagery from two different points in time that can be used for surface change analysis. The Planimetric update has completed quadrants one through three, with quadrant four underway.

Project Budget

FY 2021 Third Quarter funding of $310,000 continues support for this foundational technology program. Additional funding of $1,130,000 will be considered as part of the County's FY 2021 Carryover Budget.

Return on Investment

The GIS Modernization funded through this project will have a number of tangible returns. A properly resilient and scaled GIS system will serve the county for the next ten years and provide a stable platform for system integrations now and in the future. This stability is required for the county to exploit GIS in its information system replacements and new acquisitions. Without the modernization GIS would be an underinvested weak link in the information system ecosystem and could not safely be relied on for daily operational business systems. This modernization rectifies this deficiency and ensures that where GIS should be used, it can be.

The above mentioned key GIS data sets are used in all County web applications that incorporate maps and in nearly all public safety vehicles through maps included in the CAD/911 system. Oblique imagery is essential for multiple County functions including critical 24x7 public safety response and tactical tasks, review of zoning applications, property review by the Department of Tax Administration, and provision of 3D data for Virtual Fairfax. The GIS database with new impervious features and contouring, facilitates key land use applications as recommended by EQAC. GIS data also provides County agencies readily accessible data for locations across the County and the ability to view field conditions from a desktop reducing the need to

travel, resulting in significant staff time GIS technology provides locational intelligence to County businesses assisting County staff and leadership to make better informed decisions benefiting government and citizens.

GIS data also provides County agencies readily accessible land data for locations across the County, and the ability to view field conditions from a desktop or other platform reducing travel and enabling remote reconnaissance resulting in significant staff time savings and improved response. Planimetric data makes up many of the key GIS layers used in most maps created in the County and provides an easy to display base map for all device platforms. Finally, with LiDAR the County has the most detailed surface elevation data available to date, making it especially helpful in stormwater run-off analyses, Urban Forestry canopy evaluations, and line of sight determinations for proposed developments.

IT-000030 INVOICE PROCESSING PROJECT – DEPARTMENT OF FINANCE

Project Description

Fairfax County's Department of Finance and Fairfax County Public Schools' Financial Services scans approximately 100,000 invoices for image capture and workflows for accounts payable routing. The process currently relies on a legacy document management platform that is no longer supported. This project supports migration and conversion of existing data to the County's new enterprise document management platform, including implementation of the Vendor Invoice Management (VIM) system. This initiative is a collaborative effort between the County Government and Fairfax County Public Schools' Financial Services.

Project Goals

The goal of this project is to deliver an improved and streamlined accounts payable process for Fairfax County Government and Schools by migrating invoice scanning and workflow management from a legacy document management system to the County's new enterprise document management platform.

Progress to Date

Following project initiation in FY 2019, the project has completed invoice image scanning and migrated all archived invoices to the County's new enterprise document management platform.

Project Budget

This project is complete and will be retired from the IT Plan in FY 2023.

Return on Investment

Each invoice image provides an audit document for review and approval as well as purchase justification, is saved as part of document retention requirements, and alleviates the need for storage of hard copy invoices. Scanning invoices begins the accounts payable process and starts the aging for all documentation, limits the routing of paper copies thus preventing lost invoices and reducing late payments. The automated workflow allows finance personnel in agencies and at FCPS to locate and review all invoices for their agency. Copies of these invoices can be printed at any moment and used to provide support for internal and external reports, including audit and FOIA requests. This initiative increases efficiencies in invoice processing as well as agency approval routing, and provides faster invoice submission and approval for more prompt vendor payment and discount realizations.

IT-000031 DATA WAREHOUSE AND BUSINESS INTELLIGENCE – DEPARTMENT OF TAX ADMINISTRATION (DTA)

Project Description

This project supports the development of a data warehouse business intelligence solution for the Department of Tax Administration (DTA) to collect and analyze data from disparate internal tax systems and third-party data sources, develop composite data queries, reports, dashboards, and data visualizations to make analytical results available to County decision makers, staff, and external users. The analysis of the impacts of raising or lowering tax rates, creation of new special taxing districts, and the identification of business development areas currently require extensive efforts to develop mission specific reports.

Project Goals

This project will provide a Business Intelligence Data Warehouse for internal and external analytical use, support development of composite views of the County's tax information for use by management and staff for improved business decisions, support optimized internal business processes and compliance with tax requirements.

Progress to Date

Business process review is complete and requirements gathering started; data modeling and design is on track for completion. A pilot project was delivered to DTA for review.

Project Budget

As part of FY 2021 Third Quarter Review this project is one of four DTA IT Projects consolidated under IT-000033 Tax Portal Enhancements. These four projects support DTA business process improvements, enhancements to the County's Tax Portal for improved access to information and transactions, and related activities. Consolidating into one single project enables more efficient management. **This project will be retired from the IT Plan in FY 2023**.

Return on Investment

This project will support replacing multiple disparate tax and ad hoc database systems with an integrated solution that supports standardized processes for data gathering and sharing across all County tax systems. The data warehouse will be a self-service tool designed to improve response to tax/revenue reporting needs more efficiently and enable DTA to create on-demand management and analytical reports for improved decision making and operational effectiveness.

IT-000033 TAX PORTAL ENHANCEMENTS – DEPARTMENT OF TAX ADMINISTRATION (DTA)

Project Description

This project supports enhancements for an improved and streamlined, citizen-oriented experience on the My Fairfax - Tax Portal. The County has experienced tremendous growth and steady demand for online and mobile access to the County's tax and revenue systems. This initiative will continue to modernize and provide easier access to the County's tax portal while maintaining established information security protocols.

Project Goals

Enhancements to the MyFairfax - Tax Portal coincide with established customer service and business initiatives to provide easy access to tax related information and history and to empower County citizens and businesses to perform all tax related activities, inquiries, payments, etc. remotely, via the web or on a mobile device. Security improvements such as the use of a two-factor and bio-metric identification as well as integration with various password management applications will continue to provide secure access to tax and revenue data. Additionally, functional improvements such as access to tax history via a mobile device by scanning intelligent 2D bar-code information already contained on all County tax correspondence, can be leveraged. Also, further integration with 3rd party applications to facilitate functions such as taxpayer managed recurring payments provide an additional benefit. These enhancements to the MyFairfax Tax Portal will provide a more robust online experience for all taxpayers by enabling an interactive online experience County citizens and businesses expect.

Progress to Date

In collaboration with the CRM (Customer Relationship Management) team, the Tax Evaders application was successfully moved to Microsoft CRM and went live in FY 2021. This has enabled a better customer service experience for both internal and external users of the system. Future enhancements to the system are planned for better integration with other systems. Enhancements to the MyFairfax Portal now offer more efficient signup processes for external users.

Project Budget

Balances from four related DTA IT projects are consolidated into this project for a budget increase of $453,756 as part of the FY 2021 Third Quarter Budget. The projects all support DTA business process improvements, enhancements to the County's Tax Portal for improved access to information and transactions, and related activities. Consolidating the various projects into one single initiative enables more efficient management.

Return on Investment

Enhancements to the MyFairfax Tax Portal will improve customer service, decrease the volume of phone calls and in-person visits, help reduce expenditures associated with the printing and mailing of bills, and free staff for other more complex business initiatives. The continual application of new technologies and service delivery methods is necessary to keep up with the demand and expectations for easier online and mobile access to tax information and transactions.

IT-000036 TARGET ENHANCEMENT PROJECT – DEPARTMENT OF TAX ADMINISTRATION (DTA)

Project Description

This project supports the redesign of the Department of Tax Administration's (DTA) Tax Evader/Target website into a more an interactive application, integrated with County revenue systems, GIS, CRM solutions, and available via web/mobile platforms for easy access and use by County citizens and staff. Virginia Code § 58.1-3518 requires all owners of vehicles normally garaged in Fairfax County to report their property to DTA. If a taxpayer fails to do so, Virginia Code § 58.1-3519 empowers DTA to make a statutory assessment based on the best information available. This redesigned application will significantly improve the County's ability to track and manage revenue collection.

Project Goals

The goal for this project is to redesign and deploy a single application for reporting vehicle tag and location information, integrated with the Master Address Services (GIS), County tax applications for vehicle registration, license plate reader applications, and CRM MS Dynamics for workflow management, tracking and reporting.

Progress to Date

To date, the project has worked with stakeholders to gather and document detailed requirements, analyze the existing solution, and identify integration points. Using an agile development methodology, the project will continue to work on design, architecture, and development to address the requirements as defined by the Department of Tax Administration.

Project Budget

As part of FY 2021 Third Quarter Review this project is one of four DTA IT Projects consolidated under IT-000033 Tax Portal Enhancements. These four projects support DTA business process improvements, enhancements to the County's Tax Portal for improved access to information and transactions, and related activities. Consolidating into one single project enables more efficient management. **This project will be retired from the IT Plan in FY 2023**.

Return on Investment

The redesign effort will provide a single point application for reporting vehicle tag and location information, accessible to County citizens and staff using web and mobile platforms; integration with County Master Address and Location services (GIS); integration with County Tax applications for vehicle information retrieval and automated registration; integration with License Plate Reader applications; and integration with County CRM for Workflow Management, Revenue Tracking, and Constituent Reporting.

IT-000040 TAX BUSINESS PROCESS ENHANCEMENTS - DEPARTMENT OF TAX ADMINISTRATION (DTA)

Project Description

This project will expand the use of Customer Relationship Management solution in the Department of Tax Administration to several of its other critical DTA business processes that capture revenue (Business Tax, DTA Call Center and Non-Tax Accounts).

Project Goals

The goal of this project is to expand the use of the County's CRM solution to the following DTA sections for improved business processes and revenue collection:

- **Business Tax Section (BTS)** works to bring businesses into compliance by conducting field investigations and surveys for the discovery and audit of business establishments to determine tax liability for business property and business licenses.
- **Central Information Telephone Section (CIT)** is a "one stop" service area to assists and responds to taxpayer inquires pertaining to individual personal property taxes, real estate, and the payment of personal property and real estate taxes.
- **Non-Tax Section (NTS)** is responsible for collecting delinquent payments for nine different Fairfax County Agencies and many ad-hoc agencies as and when the need arises.

Progress to Date

An initial proof of concept was built and tested for operations in the Central Information Telephone Section. Further development has been postponed pending go live of the new personal property tax system in July 2021. The new Tax System provides a single account model, known as a tax master account, for easier and more accurate development.

Project Budget

The project has sufficient budget for the current phases. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

The Department of Tax Administration's use of the County's CRM solution in its Audit and Target Business processes has resulted in improved business processes and decision making. DTA anticipates similar improvements from deployment of CRM to several critical business processes that capture tax revenue including the New and Delinquent Business Licenses and Business Personal Property, amendments to already filed Business Licenses and Business Personal Property, and tracking and monitoring delinquent tax payment data.

IT-000041 FIELD MOBILE - DEPARTMENT OF TAX ADMINISTRATION (DTA)

Project Description

Field Mobile is a CAMA (Computer-assisted mass appraisal) data collection solution that provides full editing of residential and commercial data in an interface designed for mobile devices such as tablets or laptops. Designed for offline use, Field Mobile is a standalone solution that can be used when network connections are unavailable or unreliable. The Mobile module is integrated into iasWorld application for easy field access by appraisers to property data.

Project Goals

This project supports implementation of Activity Center and Field Mobile to the County's iasWorld appraisal and tax administration application for full field editing of residential and commercial data in an interface designed for mobile devices offline/filed assessments.

Progress to Date

Changes in DTA business processes due to the COVID 19 Pandemic prompted the need to reevaluate solutions for field operations in FY 2022.

Project Budget

The project has sufficient budget for the current phases.

Return on Investment

Field Mobile is fully integrated with iasWorld, providing streamlined and easy access to property data requiring verification or update in the field. Deployment of Field Mobile/Activity Center will change the way DTA's appraisers work in the field, eliminating the need to track down and organize maps, information, paperwork, or property record cards before making a site visit.

IT-000046 PCI COMPLIANCE

Project Description

Fairfax County operates a countywide Payment Card Acceptance Program which allows the County to accept credit and debit card payments for most of the services offered to the citizens and their guests for over 1,100,000 transactions each year. This project supports migrating the County payment card acceptance program from the current systems to a contemporary secure web-based enterprise wide system in compliance with the Payment Card Industry Data Security Standard (PCI DSS).

Project Goals

This project plans to migrate the County's current payment systems to new secure technology for improved security features, better pricing, and lower other costs associated with maintaining a secure and compliant payment card program. Additionally, this project will allow the County to improve and expand programs that can accept credit card and online payments.

Progress to Date

Following project kick off in CY2019, currently 90% of development is complete, with 75% fully implemented across all project channels. Project completion is targeted for FY 2022.

Project Budget

The project has sufficient budget for the current phases.

Return on Investment

The County strives to provide the public with secure and convenient credit card and online payments. This project, once completed, will improve the program by implementing the most current secure card processing technology that was previously unavailable. The project will reduce the cost of the program enable the expansion of the program to additional community services.

3.4 Technology Infrastructure

2G70-018-000 ENTERPRISE IT ARCHITECTURE AND SUPPORT PROJECT

Project Description

This project supports the strategic infrastructure and expert services required for complex multi-phase enterprise-wide business transformation of IT systems for County general services, enterprise technology, security and infrastructure, and corporate systems including the County's ERP and related business systems.

Project Goals

The main goal is to realize optimal system performance and infrastructure environment efficiencies, and support system enhancement and open-government initiatives. This includes various product platforms, security, middleware, document management, and the web services for seamless performance between Fairfax County Government agencies and Fairfax County Public Schools environments. Additionally, the project provides for on-going transformation support activities, development of business intelligence and reporting model repositories, system performance, system engineering, security access technology and knowledge transfer. The funding supports projected system integration and configuration services and includes various product platforms, security, portal, and web services enabling seamless system integration.

Progress to Date

A modern system landscape and server environment was implemented for development, testing, training, conversion, and full production systems needs that support the SAP ERP solution, portals, security, and third-party bolt-on products for overlapping project phases. On-going infrastructure and specialized expert support services will continue in FY 2022 to support system enhancements including HANA DB migration, workflow and reporting improvements, transparency, system performance and engineering, security access technologies, and technical system refresh.

Project Budget

FY 2021 Third Quarter funding of $800,000 supports services necessary for enterprise-wide business applications and infrastructure processes. An additional funding increment of $800,000 will be reviewed as part of the County's FY 2021 Carryover Budget.

Return on Investment

This initiative supports the County's on-going technology modernization program aligned with the IT investment priorities that provide a stable and secure IT architecture while leveraging IT investments. This program allows for a 24 x 7 system availability and extends the ability of agencies to perform work with an improved window for planning and executing system maintenance activities with fewer resources. On-going support for modernization of County systems empowers both employees and managers to execute processes more efficiently, and support functions that improve overall system performance and availability.

2G70-026-000 FAIRFAX RADIO SYSTEM PROJECT

Project Description

The County has two 800 MHz radio systems: The Public Safety Radio system on newer technology supporting all the public safety responder agencies; and the Public Service Radio legacy 800 MHz radio system serving the general government agencies and Fairfax County Public Schools. The Public Safety Radio system was upgraded in FY 2014 to the new P25 digital/IP technology (this system is supported in the DIT Operating part of the E911 - Fund). This project provides redundancy to improve the reliability and disaster recovery capabilities of Public Safety Radio system and to retire the legacy Public Service Radio system.

The initial plan was to leverage the expanded capabilities and capacity of the Public Safety Radio System P25 digital/IP system, however, after careful analysis and more recent availability of commercially based Push-to-Talk solutions, this project has been modified to replace aging Public Safety Answering Point (PSAP) dispatch center consoles, provide improved back-up and redundancy to the Public Safety radio system, and implement Push-To-Talk for non-public safety radio users. Implementing broadband wireless IP phones with Push - to- Talk for non-public safety users meets a wider set of business requirements for mobile workforce communications. These efforts will significantly reduce the County's recurring radio systems expenses while providing new capabilities for all the Fairfax County radio users.

Project Goals

This project provides for the necessary upgrade of the Public Safety system for improved redundancy and modernized dispatch center equipment, and leverages commercial wireless IP phones with Push - to - Talk for numerous non-public safety County agencies including Connector, FASTRAN, Department of Facilities Management Public Works Environment Services fleets, and Fairfax County Water Authority.

Progress to Date

The Push -To-Talk radio solution was successfully implemented in numerous County agencies, including: Community Services Board, Department of Vehicle Services, Department of Planning and Zoning, Elections Office, Department of Information Interoperability links have been established between the commercial Push - to - Talk network and the P25 Public Safety radio

network. Dispatch center call processing equipment has been upgraded at Department of Public Safety Communication (DPSC) and the County's backup facility, Towns of Herndon, Vienna, and Fairfax City. The upgrade to the Public Safety radio system and disaster recovery began in late FY 2017 was completed on time and within budget in FY 2018.

The Push -To-Talk radio solution was successfully implemented in numerous County agencies, including: Community Services Board, Department of Vehicle Services, Department of Planning and Zoning, Elections Office, Department of Information Technology, Security Staff in the Department of Facilities Management, Department of Vehicle Service, Fairfax County Water Authority, FASTRAN (CSB Merrifield Neighborhood Services), Department of Public Works and Environmental Services, Department of Transportation (CONNECTOR) non-revenue, and Fairfax County Park Authority. Additional deployment options are under review.

Project Budget

The project has sufficient budget for the current phases.

Return on Investment

Broadband Push-to-Talk far exceeds the current Public Service system capacity and provides a future-proof solution by leveraging smartphones and reducing the out-year cost associated with a future "fork-lift" system replacement and associated annual maintenance costs for a separate system. The enhanced Public Safety Radio system will provide continuing dedicated utility and enhanced backup capability for improved reliability for Public Safety agencies and other emergency support functions. Leveraging the use of the new Push-to-Talk functionality on smart-phones provides enhanced mobile workforce capabilities for the County workforce at a lower cost. The two capabilities will be interoperable, allowing communication between public safety and public service users for incident or disaster management.

2G70-036-000 REMOTE ACCESS PROJECT

Project Description

This project supports enhanced and expanded capability of authorized County users to securely access the County's systems from remote locations or field service activities, telework, Continuity of Operations Plans (COOP), and emergency events such as pandemic outbreaks or natural and weather emergencies.

Project Goals

This project established an enterprise-wide standardized remote access control methodology and architecture that provides a solution for employees and external system users, partners and County customers to authenticate their identity in order to gain access to systems and relevant data to conduct work securely. All user authentication management is based on policy and centrally managed allowing for comprehensive audit and reporting services. This project supports increased security, simplified management, secure access from remote locations, and mobility.

Progress to Date

Through this project, over 12,000+ users can access County systems as authorized, with over 8,000+ able to gain access simultaneously. Project activity is on-going to support, enhance and expand enterprise-wide remote access, which supports County Telework and Continuity of Operations (COOP) goals.

Project Budget

Funding of $100,000 will be reviewed as part of the County's FY 2021 Carryover Budget.

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 remote access 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 and also provides County staff necessary remote access capabilities in case of emergency events such as snow storms, hurricanes or possible pandemic outbreaks.

2G70-052-000 CYBER SECURITY ENHANCEMENT INITIATIVE

Project Description

The Department of Information Technology defines and enforces the security standards and policies necessary to protect the County's information assets and technology infrastructure. This project supports ongoing cyber security projects and services to support various initiatives safeguarding the County's IT assets from evolving security threats, cyber security system enhancements, replacements and upgrades, service consultation expenses, and future security product and service acquisitions to assist with ensuring the confidentiality, integrity and availability of County systems and information and support for regulatory compliance requirements.

Project Goals

The goal of the County's IT security program is to ensure confidentiality of information, integrity of data, systems and operations, technical compliance with legal mandates such as HIPAA and PCI, privacy, and availability of information processing resources. The basic elements of identification, authentication, authorization, access control, and monitoring are employed throughout the County's technology enterprise.

Project Budget

Planned FY 2021 Carryover funding of $500,000 will continue support for the County's Cyber Security program.

Return on Investment

Cyber security continues to be a fundamental component of the County's enterprise architecture and strategy. The security architecture and practices fuse best practice principles with a hardware and software infrastructure supported by policies, plans, and procedures. This multi-layered approach is designed to provide an appropriate level of protection of all County information processing resources, regardless of platform, and includes incorporation of industry best practices for an overall risk reduction. The secure network architecture is a defense-in-depth approach to network security design. The County is dedicated to the protection of its IT assets from evolving cyber security threats and blocking unauthorized access to County data and information.

IT-000034 ENTERPRISE DATA ANALYTICS AND BUSINESS INTELLIGENCE PROJECT

Project Description

This multiphase project supports the County's strategic objective of improving evidence-based decisions ensuring resources (time, money, and people) are used efficiently and effectively, and developing sustainable strategic plans to better serve constituent populations. This project will position the County to address the County's Strategic Plan across all 9 pillars and allow agencies, programs and initiatives to benefit from innovative technology solutions such as Internet of Things (IoT), Machine Learning, Artificial Intelligence and predictive analytics.

Project Goals

This project supports implementation of a centralized data analytics platform to eliminate agency data silos by integrating information from disparate County systems for improved analysis, decision making, and more effective service delivery across a spectrum of County services. The goal is to provide timely and accurate data that is easily accessed, understood, and acted upon, resulting in a more proactive and effective decision making that is financially and operationally more efficient, and to utilize application of innovative technology solutions across County programs and services.

Progress to Date

The County currently has an existing infrastructure to implement the proposed data warehouse/dashboard/business intelligence solution. For Diversion First, the data warehouse infrastructure is well underway. The warehouse design is complete and reports development is slated for completion CY 2021.

Project Budget

The project has sufficient budget for the current phrases. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

Enterprise Data Analytics will create a one-stop-shop for County program information and data, operationalizing data currently held in system silos via a central data warehouse.   Providing an Enterprise Data Analytics solution to public safety initiatives (i.e. Diversion First and the Opioid Epidemic) will inform the County of what its most pressing public safety needs are, and how best to allocate people, time, and money in achieving the outcomes and metrics critical to the success of programs and initiatives. This project will also support the County's Strategic Plan with innovative technology solutions such as Internet of Things (IoT0, Machine Learning, Artificial Intelligence and predictive analytics.

IT-000044 HANA FIORI MOBILE PROJECT

Project Description

This project supports migration to HANA SAP database for SAP applications and deployment of Fiori Mobility for frequently used SAP functions. HANA is an in-memory database software for SAP applications and is required for SAP S Series upgrades, priority patches and processing high speed transactions and analytics. **Fiori Mobility** is a set of applications for frequently used SAP functions such as workflow approvals, information inquiries, and various self-service tasks for desktop, tablets, and smart phones.

Project Goals

Project goals include deployment of HANA SAP database services for advanced high-speed analytics processing, application development, data access, and administration. SAP Fiori will provide role-based, user experience across commonly used SAP function across desktop, tablets, and smart phones.

Progress to Date

The licenses were procured, a detailed plan for deployment was developed and will be implemented.

Project Budget

The project has sufficient budget for the current phases.

Return on Investment

SAP HANA transforms critical enterprise functions from finance and supply chain to customer service. It enables business to transact, analyze and predict in real time. The primary benefit of migration to SAP HANA database is its speed and access to data in real time. Its architecture organizes and stores data in columns and in-memory which eliminates data copies, allows for faster loading, with less memory. The Hana SAP database is necessary for new SAP upgrades and patches.

Fiori Mobility is a newly written, easy to use set of applications for frequently used SAP functions, such as workflow approvals, information inquiry, and self service for desktop, and mobile devices. Fiori provides an easy to use configurable and extendable "map" of the SAP system organized by user roles across various devices.

IT-000045 LOADRUNNER PROJECT

Project Description

This project supports LoadRunner implementation, a software testing tool used to test applications that measures system behavior and performance under load. LoadRunner can simulate numerous users concurrently using application software, recording, and later analyzing the performance of key components of the application. Accelerating and enhancing application testing helps improve and maintain high software performance and deliver on business performance improvements.

Project Goals

This project supports implementation of LoadRunner, a load testing software, for faster and enhanced testing of enterprise applications to accelerate testing and development, reduce slowdowns and gain a better understanding of performance issues.

Progress to Date

Testing software as a service will be used on an as needed basis. This project also supports SAP Landscape Management which replaces the existing monitoring application for SAP Systems at substantial cost savings.

Project Budget

The project has sufficient budget for the current phases. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

LoadRunner enables validation of performance, simulates workloads, benchmarks production system performance, and optimizes deployments of SAP HANA database software. The application shortens testing and development cycles, reduces bottlenecks and costly production defects, and enables analysis of performance issues for enterprise applications. LoadRunner reproduces business processes that end users would perform in production, creating scripts that can be modified to simulate actual user behaviors. SAP LAMA will automate repetitive, time-consuming administration tasks and tailor processes to the business specific needs.

DIGITAL ARCHIVES (NEW)

Project Description

This project will enable the transformation of the County Archives and Records program's current oversight, coordination, management, and maintenance capacity, from a focus on hardcopy agency business records to electronic records, and from reactive to proactive information governance and compliance. When fully implemented this project will enable information governance policies and information compliance requirements to be centrally coordinated and managed, providing more oversight as well as more standardization in the way county records and information are managed, it will enable more compliance with legal statutes for the required retention and disposition of county records and information, and will also support easier access to institutional memory and knowledge through seamless, user-friendly integration with the business applications that county staff use and rely on every day.

Project Goals

The County Archives and Records Program seeks to migrate from a legacy local system installation to the County's Enterprise Content Management (ECM) system, already licensed by the County. This system will then be built-out to support enterprise-wide role-based coordination with County agencies for records-related workflows and procedures, as well as support access by all county staff to legacy institutional knowledge/information assets.

Project Date

This is a new FY 2022 initiative. Project planning and initiation is pending budget approval.

Project Budget

Funding of $200,000 for the initial phase of this initiative will be considered as part of the County's FY 2021 Carryover Budget.

Return on Investment

Improved compliance with state regulations for the retention and disposition of government records and information, improved management and agency access to legacy business information, and efficiencies in day-to-day management of County business records and information (e.g. consolidation and automation of records workflows and procedures, uniform procedure and repository for agency digital conversion projects), and IT resources better focused on SSOT (single source of truth).

3.5 HUMAN SERVICES

2G70-037-000 CHILD CARE TECHNOLOGY PROJECT – (NCS)

Project Description

The Child Care Management System (CCMS) for the Office for Children (OFC) in the Department of Neighborhood and Community Services (NCS) determines client eligibility, tracks child enrollments, and processes approximately $1.5 million per month in provider payments for the Child Care Assistance Program and Referral Program. This application processes over 2,500 home childcare facility permits for Community Education and Provider Services and connects families with childcare providers participating in the Child Care Resource and Referral System. It also tracks current market rates for childcare providers and interfaces with the County's financial management system.

Project Goals

This project will develop and implement a Child Care Management System providing seamless integration of services with the Virginia Department of Social Services' (VDSS) automated childcare system and with the Virginia Child Care Resource and Referral Network (VACCRRN). This project will also align reporting strategy with County and state data, reduce redundant data entry, improve operational effectiveness and productivity, enhance web self-service for the childcare community, and bring OFC technology in compliance with County standards and requirements.

Progress to Date

This project has streamlined business process workflows and system reports to enable staff, customers, and stakeholders efficiently manage information. Implementation of interfaces with various Fairfax County systems and vendor supported systems eliminated manual repetitive processes and provided for a seamless, streamlined integrated case management process.

Additionally, various modules have been enhanced, which allow:

- Approved family childcare programs to conveniently update elements of their business profile on OFC's website
- Request information about family childcare permit requirements and inspections
- Manage and view online reimbursement submissions
- Capture Emergency/COVID-19 related data for childcare programs (family and center) concerning if childcare program was open, days of the week open, hours of operation, capacity, vacancy levels
- Enable Public Safety staff (Fire and Rescue /Police) to search for childcare based on a certain search criterion; and integrate with the Fairfax County GIS application.

Functionality was also included to meet required federal and state legislative mandates, to provide tablet inspection functionality and update forms, to enable an archive and purge process, and added general enhancements to the CCMS system designed to improve OFC's operations and customer access. FY 2021 plans were adjusted after the start of the COVID-19 pandemic in response to emerging requirements, and included integrating Emergency COVID-19 data into the Provider Access module and allow providers to update data as needed.

FY 2022 plans include:

- Develop a module to capture family inquiries about the availability of childcare services including Head Start, SAAC, and childcare subsidy. This will include tracking referrals to childcare programs prior to the family applying for childcare assistance, and linking childcare assistance inquires to the online Child Care Search function on the County website.
- Implement a Learning Management System for registration, tracking, reporting and data aggregation/analysis of adult education sessions across multiple OFC programs.
- Develop an application checklist workflow in CCMS for Virginia State applications to ensure seamless processing for clients when childcare funding changes from State to local funding.
- Develop a quality control workflow to permit randomized application review.
- Integrate Emergency COVID-19 data into the Provider Access module and allow providers to update data as needed.
- CCAR Application Tracking Report.
- Improve CCSM Provider Access on Mobile Devices.
- School Calendar Management; Team Auto-Assignment; Funding Categories and Team Display enhancement in CCMS; Restricted Access to State Cases in CCMS.

Project Budget

The project has sufficient budget for the current phases. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

Modernization of the childcare system has ensured a stable application to support the business functions of the Office for Children. Efficiencies will be gained in seamless integration of processes for VDSS and VACCRRN allowing quicker processing of applications and childcare permits. Migrating to a modern platform that incorporates web technology provided improved accessibility to data and information from remote locations. Additionally, it has eliminated many administrative processes, given customers the ability to manage data online and enhanced childcare search functionality with County GIS integration.

IT-000008 CHILD WELFARE INTEGRATION PROJECT (FROST)

Project Description

The Child Welfare Integration System project will provide a single source for foster care data collection and child welfare resource management and alleviate the time social workers spend updating multiple local databases and spreadsheets as they work to serve children and families. Considerable time is lost from direct client services as social workers comply with manual processes and update data in local systems to fulfill program reporting requirements. The lack of integration between the various systems results in the inability to demonstrate client specific and program-wide progress and does not support data driven decision making. Child welfare clients often exist in complex and unpredictable situations. As such, social workers need a view of all factors influencing children and families which allows them to assess the challenges and to develop comprehensive plans aimed at successful and sustainable outcomes.

Project Goals

The goal of this project is to develop an integrated solution for child welfare program staff which provides a holistic view of case information, business workflows, and data for operational and compliance reports for more effective service delivery. The Online Automated Services Information System (OASIS) mandated by the Virginia Department of Social Services (VDSS) for case management does not fully support the needs of the department's child welfare program management and does not provide the Department of Family Services staff access to all the information required for local reporting. Consequently, reporting on customer data is time consuming, requires redundant data entry and data validation with the state systems.

Progress to Date

Following initiation in FY 2016, this project was put on hold pending discussions with the Virginia Department of Social Services (VDSS) on the availability of child welfare collected data stored in the state's case management system, OASIS. Attempts to gain access to an OASIS data export from VDSS were unsuccessful; the project resumed in 2020 with a revised scope of work for a foster care and child welfare resources tracking system now referred to as Foster Care Resource Operation System for Tracking (FROST). In March 2021 FROST moved to production. Due to state policy changes in January 2021 (details were not known until much later), the Foster Care, Resource, and Training modules could not go live with the rest of the system. A change request is currently in progress to address needed changes. The ADP/KinGap (Adoption/KinGap) and COS (Court Ordered Services) modules are in production and working well. Reports are currently in development.

Project Budget

The project has sufficient budget for the current phases. Additional funding, when required, will be requested at the appropriate time.

Return of Investment

The FROST system will provide the web-based application required to manage a consolidated data repository of the multiple local systems used primarily for management reports. These include the FCAS (Foster Care Alert System); FAST (Foster Care and Adoption Statistical Tracking); and Foster Care Provider spreadsheets. FROST will provide Fairfax County with a comprehensive solution for managing data collected in various child welfare processes which includes Foster Care Intake, Foster Care Resource Management, Post Adoption Services and Child Welfare.

FROST will streamline and automate the process involved with updating stand-alone systems by providing a single secure portal for data recording activities, thus allowing social workers to do their job more effectively. The time savings gained can be applied toward guiding clients towards successful and sustainable outcomes. Savings are also anticipated with measuring and understanding the impact of program efforts on participants through improved reporting capabilities to track efforts, outcomes, and participant progress. This system consolidation effort is expected to reduce the amount of IT support required to maintain the aging systems currently in place.

IT-000025 INTEGRATED HUMAN SERVICES TECHNOLOGY PROJECT

Project Description

Within the Health and Human Services (HHS) system, clients, individuals, and families are often assessed with multiple needs spanning multiple service programs. A holistic approach to addressing needs along the spectrum of crisis to self-sufficiency to sustainability, as well as strong communication, coordination and collaboration components are key factors in successfully meeting their needs. As the Fairfax County Health and Human Services system enhances business integration, technology will be required to enable and support that vision. The data collected within the Health and Human Services systems help develop policy which shapes future County action.

The strategic use of innovative information technology to support Fairfax County's Health and Human Services Systems will help find the connections in fragmented data and incrementally link pockets of information across and within functional areas for both a mobile and community based workforce, as well as a diverse client base. This project supports the development of a roadmap and implementation plan for integrated Health and Human services technology.

Project Goals

This project plans to develop a comprehensive view of clients and their needs; deliver a scalable set of properly coordinated services, improve service quality with accurate and timely data, and deploy and maintain cost-effective IT assets and services. A well-defined technology strategy will lead to solid planning and successful deployment of resources in support for enhanced business integration.

Progress to Date

Work in FY 2020 and FY 2021 included completion of the first phase of document management, the development and pilot of integrated intake using a constituent interaction application, sharing of data from the data analytics pilot, the documentation of integrated financial and case management technical and business requirements. Recent work expanded planning to include technology systems that were not included in the first phases, such as the School Aged Child Care System (SACC) as well as better aligned system level analytics work with the work from the program metrics and HHS Data Analytics team.

Project Budget

Funding for the current phases of initiatives is provided in the project. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

The strategic use of information technology to support Health and Human Services in Fairfax County will help find the connections in fragmented data across many Health and Human Services systems. It will incrementally link pockets of information across and within functional areas for both a mobile and community-based workforce, as well as a diverse client base, and enable analysis of information across programs. Multiple agencies partnering to view clients holistically, tailor services to their specific needs and identify at-risk persons in a timely fashion will enable better client service. Creating an integrated view of client information across Health and Human Services programs and a central point to access data from relevant Health and Human Services systems will also remove redundancy in the client experience (e.g. eliminate the need for clients to submit basic eligibility information numerous times). Additionally, common standards will be created across agencies for critical areas such as IT security, data confidentiality, etc. and appropriate mechanisms to deliver information technology and services that support and improve preparedness, coordination, communication, compliance, and response of human service agencies will be designed.

IT-000026 DIVERSION FIRST INTEROPERABILITY PROJECT

Project Description

Diversion First is a multi-phased (Sequential Intercept Model) program aimed at diverting persons with serious mental illness (SMI) from arrest to assessment and treatment. This program offers alternatives to incarceration for people with developmental disabilities, mental illness, and substance abuse disorders who have committed low level offenses. It is intended to prevent repeat encounters within the criminal justice system and has seen positive results in its first three years. Fairfax County initially deployed its Diversion First program in January 2016.

This project supports implementation of a technology solution to standardize and automate data capture, analysis, and reporting, to ensure accuracy of the data, and significantly improve turn-around times for reporting and predictive analytics. This will ultimately result in improved public safety, a healthier community, and a more cost effective and efficient use of public funding.

Project Goals

Primary technology goals for the Diversion First program are to automate the processes involved in data capture from various sources, standardize the data captured from several agencies and systems, and populate the captured data into a newly designed data warehouse.

Information Technology is vital to support the data collection and return on investment measures across systems and within each component of the Diversion First Initiative. The project will identify associated internal and external systems of partner organizations and interventions as well as data elements and intervention measures across varied law enforcement, justice, and mental health systems to support the data collection, data sharing, and outcome evaluation of these diverse initiatives necessary to determine overall success and assist with decision-making and assessing outcomes. Creating interoperable data capacity is vital to measuring outcomes and assuring quality improvement as additional diversion components are implemented.

Progress to Date

The Diversion First project team has finalized and documented data elements from the various data sources to be used in building the Diversion First Data Warehouse and Power BI as its dashboard reporting solution. Data is captured from the County's Sheriff's Information Management System (SIMS), the Court's Supervised Release Program (SRP), the CSB's Merrifield Crisis Response Center Data Sheet (MCRCDS) and CSB's electronic health record (Credible). In addition, a BI tool was developed for the Community Response Team.

To ensure the privacy and confidentiality of the data in the Diversion First Data Warehouse, a Qualified Service Organization Agreement (QSOA) between CSB and DIT was signed in September 2019. Memorandums of Understanding (MOU) between the Sheriff's Office and DIT was signed in December 2019, between PD and DIT in January 2020, between Court Services and DIT in December 2020 and between Court Services and Fire and Rescue in January 2021.

Project Budget

The project has sufficient budget for the current phases. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

Providing a data analytics and warehouse solution to initiatives such as Diversion First (and eventually other initiatives like the Health Department's Opioids Initiative, and the CSB's multi-disciplinary Crisis Response Team) will inform the County of its most pressing needs, best ways to allocate people, time, and money in achieving the outcomes and metrics critical to the success of the programs. Replacing manual inquiries about past involvement in a mental health or related systems and implementing interconnectivity between disparate systems improves access to pertinent information, streamlines processes, and will result in more informed and timely decision making. Diverting individuals with mental illness away from jails towards more appropriate community based mental health treatment is an effective strategy for providing necessary mental health care, enhancing public safety by making jail space available to more violent offenders, providing the criminal justice system with alternatives to incarceration, and reducing the cost and associated risks to the individual offender and the public.

IT-000027 HEALTH AND HUMAN SERVICES INTEGRATED ELECTRONIC HEALTH RECORDS PROJECT

Project Description

This project was originally initiated to pursue a common information technology solution to support Health Care documentation needs for the Community Services Board and the Health Department. The project goals and scope have changed to focus specifically on the Fairfax County Health Department's Programs and Divisions. The solution will support multiple Health Department areas to allow for: the coordination of health care services, documentation of health care encounters, practice management including event scheduling, workflow management and workload management, and revenue cycle management including registration, payer information, invoicing/billing based on encounter documentation and resource use, and functionality for financial and cost accounting.

Project Goals

The project goal of the Fairfax County Health Department's Electronic Health Record (EHR) is to provide a scalable, information technology solution for health care services and related information management that supports service delivery within the Health Department (HD) as well as coordination of service delivery across County agencies. Over the next fiscal year, the Health Department plans to initiate the planning, development, and testing of the EHR's multi-year implementation.

Progress to Date

In FY 2021 the Electronic Health Record contract was awarded. Initial planning meetings were held, which included project planning and requirement review sessions. In FY 2022 the Health Department plans to continue these efforts to work towards a go-live date in FY 2023.

Project Budget

The project has sufficient budget for the current phases. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

While the scope of the project has changed over time, there is still significant value to investing in an Electronic Medical Record for the public health programs of the Fairfax County Health Department. Currently, the Department maintains paper records and processes for many clinical services. The Department has leveraged a historic practice management system for some limited functionality. Given the age and limitations of the legacy system, the Department has concerns about long-term maintenance of this system and the data it contains.

It is anticipated that implementation of a true EMR for the Department will lead to improved billing practices, increased efficiency operations and increased provider productivity. An electronic system will allow for automated process and the capacity to leverage data on client outcomes, and digitization of paper records will enhance the Department's documentation and records retention processes. Requirements focused on communicable disease investigation and integration with Virginia Department of Health state systems will significantly improve existing process and lead to efficiencies for both organizations with respect to communicable disease reporting and investigation.

Working in coordination with the Office of Strategy Management for Health and Human Services and the Department of Information Technology, the Health Department intends to ensure that ultimate EMR implementation is done consistent with the County's data governance and integrated analytics frameworks, which will allow for additional HHS analytics insights.
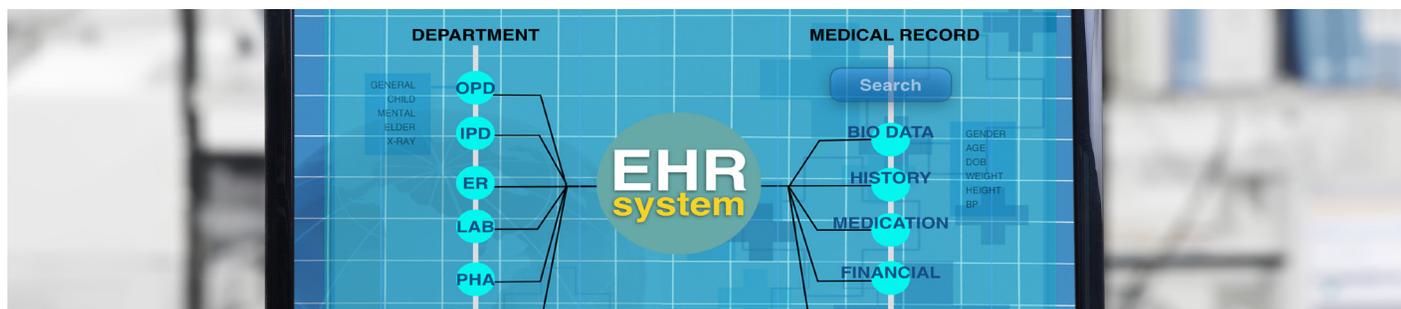
3.6 PLANNING AND DEVELOPMENT

2G70-040-000 FACILITY MAINTENANCE MANAGEMENT SYSTEM PROJECT

Project Description

This project supports the Facilities Management Department's (FMD) efforts to implement an Enterprise Asset Management System for effective management of the department's core business line, Operations and Maintenances service delivery. The new system provides FMD with a mobile application to support demand and preventive maintenance. The project also provides specialized reporting and dashboards to enhance FMD executive management of resources and workload management.

Project Goals

The goals of this project are to deploy specialized asset and inventory management systems that meet FMD's unique needs. The vision is to deploy mobile applications with an enhanced ability to manage large inventory of assets, to view, manage, and report on work orders, improve the efficiency of preventative and corrective maintenance programs.

Progress to Date

In FY 2019 an application with the requisite functionalities was identified to meet FMD's business needs. A statement of work was developed, and work began on the design and configuration of a system to support the demand maintenance functions for the Operations and Maintenance workforce responsible for maintaining County facilities. Demand maintenance and technician-driven real-time corrective maintenance functions moved to production in FY 2020. In FY 2021, work began on the expansion of operations and maintenance capabilities supporting asset inventory management and preventative maintenance operations. After successful completion of the current pilot, Operations and Maintenance will employ a regional rollout plan to load the remaining asset data and preventive maintenance schedules.

Project Budget

The project has sufficient budget for the current phases. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

This project provides County facility managers with information and tools to support the effective planning and maintenance management of the County's portfolio of facility assets. The deployment of mobile applications will increase efficiencies and provide more accurate and timely responses to facility management requests and provide robust reporting on maintenance program results for planning and resource management.   These investments in service request management solutions will improve the quality of service by providing staff with the tools and data to manage customer requests for facility management. The features included will improve FMD leadership's ability to track critical facility assets and track and report on the condition of County assets.

IT-000010 ELECTRONIC PLAN SUBMISSION AND REVIEW PROJECT - LAND DEVELOPMENT SERVICES (LDS)

Project Description

The Land Use Information Advisory Council appointed by the Board of Supervisors (BOS) issued several guiding principles that included more robust use of technology to facilitate the electronic submission and review of land use applications. The Department of Land Development Services is implementing electronic plan submission, review, and approval to enable architects, engineers and construction professionals to submit plans and revisions online with markup and editing capabilities 24 hours a day, 7 days a week, from anywhere in the world. The electronic process enables constant communication where clients can collaborate with one another for real time editing. The requirement for printing and transporting paper plans will be eliminated, enabling users to submit plans and track review progress in an inexpensive and efficient manner.

Project Goals

The goal is to leverage the pilot ePlans program conducted in the Department of Land Development Services (LDS) and the Department of Planning and Development (DPD) and expand the capabilities currently being developed to review building and site plans electronically. The ePlans initiatives will yield numerous benefits, including enhanced customer service, reduced carbon footprint, cost savings, cost avoidance, and meet recommendations of Board-appointed committees.

Progress to Date

Progress to date has substantially satisfied the original goals of the pilot project regarding usability of the system in Fairfax County. The remaining project goals include platform architecture upgrades and the addition of more plan types submission capabilities to the industry at large. The Project will continue to work closely with the PLUS System project team to ensure the new system provides compatible and/or comparable electronic plan review capabilities.

Project Budget

The project has sufficient budget for the current phases. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

This project will provide a streamlined and more collaborative plan review process, which advances Goal 3 of the County's Strategic Plan to Facilitate the Economic Success of Fairfax County: Improve the Speed, Consistency, and Predictability of the Development Review Process. In addition to streamlined review and plan submission processes, this project provides significant environmental benefits and financial savings stemming from reduced paper costs and reduced fuel consumption. Once implemented, this project will eliminate/significantly reduce the need to print large paper plans (which can weigh over 50 lbs.) and deliver them to numerous agencies for review. Customer savings and improved customer service combined with a streamlined and more collaborative plan review process advance the County's goal of supporting and enabling further development and redevelopment throughout the County.

IT-000011 EPLANS PROJECT – DEPARTMENT OF PLANNING AND DEVELOPMENT (DPD)

Project Description

The Land Use Information Advisory Council appointed by the Board of Supervisors (BOS) issued several guiding principles that included more robust use of technology to facilitate the electronic submission and review of land use applications. Since that time, the Department of Planning and Development (DPD) made the initial investment to develop and implement a pilot ePlan system for the zoning application process. This pilot project supported the complete review process from distribution of the case material to the various County agency reviewers through action by the BOS with the intent to model a fully automated review process.

Project Goals

This project's goal is complete automation of submission, review, plan markup, and collaboration of land use applications within County stakeholder agencies. The ePlan system facilitates this via many of its built-in features. The pilot project's interim goal was to identify and evaluate the unique challenges of electronic review in a system that must support long-term project review with multiple review cycles; the potential for individual reviewers to change over the life of the project; the need for multiple cases and case types to be reviewed and tracked concurrently; and the need to allow for significant amendments to a case (i.e., amendments such as an addition of land area or change in the zoning district, not just submissions of amended plans).

Progress to Date

Following approved re-zonings, related site plans are now being accepted, distributed, and marked up via the ePlans system also deployed in Land Development Services. This project expansion builds directly on DPD's initial investment in ePlans. Electronic plan review (ePlans) is one of the key features of the Planning and Land Use System (PLUS). When the PLUS system is deployed, this capability will be employed as the standard business process abandoning paper-based plan review. The benefit of ePlans will become fully realized as County staff and customers will have become proficient with electronic plan review and its associated benefits.

The pilot project served its purpose to identify key benefits, concerns and desirable features of an electronic review system. This information is being used directly in the development of PLUS to ensure that the ePlan system incorporated in PLUS is not only functional but provides similar benefits and desired features.

Project Budget

The project has sufficient budget for the current phases. Additional funding, when required, will be requested at the appropriate time.

Return on Investment

The incorporation of the ePlan system for plan review will enable staff to process land-use applications in a more efficient manner by significantly reducing the administrative aspects of manually distributing and digitizing large plan sets. The automation of site review, analysis, collaboration, distribution and parallel processing of agency comments and markups potentially yields considerable reduction in applicant costs and improved staff efficiency. The digital process also lends itself to creating higher quality files for better and easier record storage, retention, and access. The pilot project significantly advanced the staff inputs for the development of the electronic plan review feature of the PLUS system.

IT-000019 PLANNING AND LAND USE SYSTEM (PLUS PROJECT)

Project Description

This multi-phase initiative will replace and consolidate numerous legacy land use systems supporting zoning and development plan review, building permit/license issuance, code enforcement, inspection, and cashiering activities. The disparate legacy systems are heavily customized, unable to meet County business processes, and customer service goals. Land Use systems targeted for replacement include the 21 year-old Land Development System (LDS), Plans and Waiver System (PAWS), Zoning Application System (ZAPS), the 14 year-old Fairfax Inspections Database Online system (FIDO), and several complementary systems that provide e-services, and mobile wireless support for citizens and inspectors. These systems lack the native agility of modern technologies that provide a flexible enterprise platform for evolving business process and architecture requirements; they rely on outdated business processes, lack optimal security capacities, and have compatibility issues with emerging desktop, tablet and mobile wireless technologies.

Project Goals

The goal of this project is to modernize the technologies supporting land use and development processes, which is in direct support of the County's Strategic Plan to Facilitate the Economic Success of Fairfax County, specifically Goal 3: Improve the Speed, Consistency, and Predictability of the Development Review Process. The PLUS project also aligns with other strategic initiatives including Fairfax First (an initiative to improve the speed, consistency, and predictability of County development review processes), zMod (and a plan to modernize the County's Zoning Ordinances), Chairman's Community Council of Land Use Engagement, and Phase 2 of the County's Lines of Business: requiring the delivery of modern, private-sector experiences, digitization, and multi-system integration opportunities.

Progress to Date

- The County established governance structure, project plans, developed statement of work, and contracted for consultant support to develop an implementation approach specific to County needs.
- In addition to replacing LDS and FIDO, the new system will also replace over a dozen complementary systems that have been developed over the years to meet new business requirements. The County selected Accela Civic Platform Land

Management and Environmental Health Modules for its robust and feature-rich product offerings that will help the County achieve the recommended improvements in the Strategic Assessment.

Planning and design of the future state started in FY 2017, progress highlights and plans include:

- In 2017, County staff selected a software platform and implementation service provider, conducted an initial fit-gap analysis, defined a comprehensive inventory of records, and established environments on the County IT infrastructure.

- County staff conducted independent assessments of current procedures and processes, benchmarking the County against other best practices, identifying opportunities for improvement, obtaining input from the development community, developing recommendations to improve services and operational execution; and an in-depth market scan for solutions.

- An Agile development approach for the PLUS system was adopted to deliver the software on an incremental basis, and continuously improved with end-user feedback to ensure the system meets current business needs. The software platform was upgraded to the most current version.

- Release 1 was successfully launched in the second quarter of FY 2021. The PLUS Project Roadmap was updated in the fourth quarter of FY 2021. Release 2 is planned for the first quarter of FY 2022.

- Project completion is anticipated in FY 2023.

Project Budget

FY 2021 Third Quarter funding of $3,445,000 continues support for this major initiative. Additional $9.6M requested will be considered as part of the FY 2021 Carryover Budget.

Return on Investment

In addition to providing a single enterprise platform that will enhance land use service delivery activities while eliminating risks associated with legacy system failure and recovery efforts, the PLUS project will deliver a customer service portal for constituents and industry partners with more real time status and transparency about permit applications and land use transactions. Other significant benefits to citizens and staff include GIS integration, modernized mobility platforms for customers and staff, integration with e-Plans and document management systems, decreased processing cycles, opportunities for business transformation, a scalable and flexible configuration to support evolving business needs, future improvements, and delivery of improved metrics and reporting capabilities.

IT-000035 FIDO LIFELINE PROJECT

Project Description

This project supports requirements of maintaining and supporting the existing legacy land use applications usable pending implementation of the PLUS system. The current systems must remain operational to provide services to County citizens and agencies.

Project Goals

The goal of this project is to support a "lifeline" strategy for support/ upgrade the current FIDO/LDS software/infrastructure required to maintain operational functionality of these critical systems pending go live of PLUS project.

Progress to Date

The project continues efforts focused on the maintenance, enhancement, and support of FIDO/LDS systems for uninterrupted operations. Efforts have focused on required software and infrastructure upgrades, mobility, and various LDS enhancements to comply with mandates and meet agency needs (e-plans, price schedules, system integration, etc.).

Project Budget

Additional funding, when required, will be requested at the appropriate time.

Return on Investment

FIDO-Life Line is a crucial part of technology planning to sustain and support legacy land use systems for sustainability, risk reduction, and base-line performance while County-wide initiatives to modernize the land use and related processes continue with implementation of the PLUS project. This is project protects critical operations and reduces risk of system failure in multiple legacy land use systems that support plans, permits, inspections, and other related activities.

IT-000042 FAIRFAX COUNTY PARK AUTHORITY ASSET (FCPA) INFORMATION MANAGEMENT SYSTEM

Project Description

This project supports implementation of a facilities and asset life cycle management solution to manage ongoing maintenance activities and to support capital project planning and construction project management for the Park Authority. The planned application will interface with County enterprise solutions including the financial system (FOCUS) and other enterprise solutions supporting content management and mapping. The planned solution will introduce mobile computing capabilities for asset maintenance staff.

Project Goals

This goal of this project is to implement an asset management program to guide reinvestment, maintenance, and upgrades to infrastructure and capital equipment for Fairfax County Park Authority. The legacy application in use does not adequately support the agency or meet its strategic objective. The scope of FCPA's asset information program includes operations and maintenance for a variety of park authority business areas, capital planning, construction management, and integration with the County's enterprise financial systems.

Progress to Date

In FY 2019, an effort was launched to document requirements supporting the specific and unique needs of Park Operations, including supporting the asset lifecycle of non-standard assets. Work on refinement and development of scope of work continues; the project team identifying procurement/contract vehicles for software solution and contract services that meet FCPA's requirements for an asset management system. In FY 2020 work was completed on the asset program foundation including classification and prioritization of PA assets, asset type inventories, service and work management policies and a condition assessment methodology for PA assets. Planning is underway for the final software selection round and for policy and process improvement recommendations for PA's capital improvement program.

Project Budget

FY 2021 Third Quarter funding of $425,000 will continue to support this initiative for the Park Authority.

Return on Investment

Investment in a contemporary asset management system for the Park Authority will aid operations and preventative maintenance and inspections, extending the useful life of assets managed by FCPA. Assets covered by asset management system include everything from trails to Rec Centers to Athletic fields to natural and cultural resources. A well-integrated and comprehensive asset management system will significantly improve the FCPA's quality of service to customers and residents and improve revenue generated by FCPA programs and facilities. Additional benefits include enhanced decision making based on the condition of assets and requirements for upgrade, renovation, and replacement.

SECTION 4

MANAGEMENT CONTROLS AND PROCESSES

MANAGEMENT CONTROLS AND PROCESSES

4.1 Information Technology Management Framework

BACKGROUND

I n 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.

Today DIT assists County agencies with consultation, mentoring, technical project support, infrastructure provisioning, security, licensing, and policy 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.

EXECUTIVE GOVERNANCE

The overall governance structure is described in Section 1 of this Plan. 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 Chief Financial Officer. 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 routinely 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 ITPAC (described in Section 1) is a group of technology savvy citizen leaders appointed by the Board of Supervisors to advise the CTO on strategy, the industry, and best practices. The annual ITPAC agendas provide 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 IT matters.

The e-Government Steering Committee provides guidance and direction for new capabilities provided via the Web and other public access channels. The committee includes the CTO, E-Government Director, Directors of the Department of Cable Services, Libraries, and the Office of Public Affairs, and is also supported by the County's IT Security Director and the 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 governance over related e-Government initiatives.

Finally, major projects such as the Planning and Land Use System Project (PLUS), Public Safety Information Systems project, Courtroom Technology, Health and Humans Services Integrated Services Initiative have governance committees, 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 Management Office (PMO) in the Department of Information Technology. For each fiscal planning cycle in alignment with annual budget guidelines, initial project proposals 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 technology project proposals submitted for funding. 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;

- Proposed project time frames, 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 using 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 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 DIT staff, 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 provides the County Executive input and recommendations on technology issues for consideration as part of the Advertised Budget input process; the committee also composes an advisory letter to the Board of Supervisors supportive of the strategy and themes contained in the proposed IT project funding package under consideration for inclusion in the County's Adopted Budget.

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 accomplished within in requesting agencies' departmental budgets. Departmental projects must follow the established IT standards, methodology and architecture requirement with DIT providing advisory consultation, infrastructure, resources, and/or standards compliance. All technology solutions are required to be brought before the DIT Architecture Review Board for solution technical review. Formal architecture standards have been developed that provide further guidance to the project managers. All projects must follow the County's standards and project methodology as defined by the CTO in the County's IT standards.

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 manager 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 prepare Project and Expenditure plans, hold regular project meetings and report progress and issues. Guidance is provided by the IT PMO in DIT.

The Business Sponsor's Project Manager (PM) is responsible to manage business requirements, project scope, and transition of the business to the new technology capabilities. DIT assigns a Technical Project Manager (TPM) that works with the business sponsor PM responsible to design and 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 (normally) solution provider contract negotiations. The DIT PMO assists with IT contracts development review, and compliance.

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 competition and acquisition process. This includes 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 direct oversight in tracking project performance, contract requirements, and technical guidance from the Project Management Office (PMO) function in DIT. As available, the County may offer an IT Project management training program for business practitioner project managers. Knowledge goals focus on project reporting and administration, contract negotiation and management, technical architecture, business process redesign, task planning and other topics.

SUMMARY

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 four of these processes, which have been crucial to the successful implementation of information technology solutions in the County's service environment. These processes are:

STRATEGIC PLANNING PROCESS

- Information Technology Architectural Planning and Execution
- System Development Life Cycle Standards (SDLCS)
- 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

After more than a year of work, engagement, development and refinement, Fairfax County leadership presented a detailed Countywide strategic plan to the Board of Supervisors in February 2020. The plan sets a clear, unified, community-driven vision for the next 10-20 years; aligns and integrates existing issue-and department-specific plans; provides a tool for focusing and prioritizing initiatives over the next 3-5 years; and aims to communicate progress on achieving measurable outcomes to all stakeholders.

A driving motivation of this effort was the realization that Fairfax County needs to evolve and find new and innovative ways to serve the community. While the County overall enjoys enviable national rankings in median income and school performance, as well as low crime rates and great parks, there are challenges that need to be addressed. Opportunity varies depending on who you are and where you live in the County, and there is a widening gap between those at the highest rungs of the economic ladder and those who struggle to get by; traffic congestion challenges the region's economic and social vibrancy; higher rents and housing, taxes and other living costs threaten the ability for many to live in the County; and increased growth and urbanization strain the County's natural resources and built infrastructure.

The intent of this strategic plan is to define a vision for our community, to prioritize the actions to address the most critical challenges and to move us toward that vision. Based on extensive community and stakeholder input, nine priority areas were identified:

- Cultural and Recreational Opportunities
- Economic Opportunity
- Effective and Efficient Government
- Empowerment and Support for Residents Facing Vulnerability
- Health and Environment
- Housing and Neighborhood Livability
- Lifelong Education and Learning
- Mobility and Transportation
- Safety and Security

The plan development process included extensive research to review existing documents, previous community input, relevant scholarly work and the latest trends, and to benchmark the work of other communities. Additional targeted outreach to stakeholders and service provider partners was conducted to gain additional insight. Once the research was completed and draft strategies were developed, another round of community engagement was conducted in the fall of 2019. Efforts are now underway to lay the groundwork for implementation following Board of Supervisors' review and eventual adoption. Future budgets and work by County staff will align with the priorities in this plan. Performance management systems will also be aligned to show the community how the needle is moving on desired outcomes and to hold County government accountable for results.

For additional information on the County's strategic planning process, please refer to https://www.fairfaxcounty.gov/strategicplan/

In concert with the Countywide effort, the Department of Information Technology assembled a 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 alignment with County-wide business strategy. This effort complements development of the annual IT budget and IT plan, while considering organizational evolution, changes in technology capabilities, and operational requirements.

The Department of Information Technology Strategic Plan can be easily integrated with the Countywide effort as well as One Fairfax, the County's policy committing Fairfax County government and public schools to intentionally consider equity when making policies and delivering programs and services. The IT plan is intended to keep up with the pace of change in technology and using technology effectively to meet government business requirements and public expectations. The plan focuses on four key areas:

- Digital Transformation: Digital transformation drives end to end innovation that includes people, policies, processes, and technology. It enables development of new capabilities that improve efficiencies through automation. These efficiencies will be achieved in a secure manner with a focus on improving citizen services and government business engagement

- Data: Fairfax County is a data-driven organization that leverages data as an asset for continuous improvement and effective decision making. The Department of Information Technology will establish a County-wide data stewardship framework that includes standards, governance, privacy, analytics, and open exchange. As the central IT organization, the technology department will provide pathways, tools, and expertise to promote data-driven insights and develop evidence-based strategies

- Security: Fairfax County is continuously strengthening its information systems and infrastructure by adopting innovative methodologies to improve our overall security posture as well as ensuring that no unauthorized access or use of such data/information occurs. Information Security Office will continue to maintain a robust and aggressive vulnerability and risk management program to continuously assess and validate the organizations security and to ensure compliance with Federal, State and industry regulations and best practices

- Cloud: Fairfax County embraces cloud computing based on business requirements for enabling convenient access via, on-demand networks to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications, and services) that can be rapidly provisioned and deployed with minimal management effort or service provider interactions.

These areas are closely aligned with several of the nine priority areas in the Countywide strategic plan, including Effective and Efficient Government; Safety and Security; and Economic Opportunity. An overarching goal of the Department of Information Technology Strategic Plan is to enhance and build on its long-standing reputation of being a trusted central partnering organization providing reliable services.

4.3 ARCHITECTURAL PLANNING AND EXECUTION

The Department of Information Technology is faced with the constant challenge of staying nimble while aligning the County's information technology strategy with the agencies' evolving business requirements. Architectural planning sets a clear direction for the future development of information technology in Fairfax County.

The **Architecture Review Board (ARB)** was established In FY 2005 in DIT to provide oversight of all County architecture and infrastructure standards, policies, directions, to address IT architecture issues County wide, to propose IT architectural goals, standards and guidelines for consideration in implementing IT projects and initiatives throughout the County. The responsibilities of the ARB include application development architecture, infrastructure and information architectures, security architecture, emerging technology, process and data modeling, integration and interoperability methodologies, technical standards, and System Development Life Cycle Standards (SDLCS) compliance. ARB's role is extremely important and valuable given the need to leverage solution platforms and processes across the enterprise and provide scalability, repeatable processes, and seamless interoperability for achieving cross agency business initiatives and County wide goals.

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 ARB 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 County agencies business sponsors, project managers, and 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 adoption and County wide implementation.

DIT also sponsors several user groups that provide for engagement of agencies in architectural and enterprise wide IT capabilities planning and related issues, awareness, and all-hands efforts. Through a variety of forums, these include:

- All IT Analysts forum
- County IT Security Coordinators
- Web Analysts and Communications
- Agencies GIS Analyst

SECTION 5

IT ARCHITECTURE & INFRASTRUCTURE FOUNDATION

IT ARCHITECTURE &
INFRASTRUCTURE FOUNDATION

5.1 ENTERPRISE ARCHITECTURE

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

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

ENTERPRISE ARCHITECTURE PROCESS MODEL

Fairfax County adapted Enterprise Architecture (EA approach) as the blue print or road map 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 road map 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 functional and infrastructure 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 as represented in the County's budget: Health and 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 supports the following Mission Statement that directs the County's information technology activities, which remains valid. Every IT effort undertaken is framed and aligned with this mission statement:

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

GOVERNMENT

BUSINESS

CITIZENS

Board of Supervisors

Fairfax County Direction

Fairfax County Strategic Plan and Business Architecture

Business Driven

| Public Safety | Human Services | Finance and Administration | Planning and Development |

POLICY

e-Government Strategy

TECHNOLOGY ARCHITECTURE

Technology Driven

Information Security

Application, Information, and Web Architectures

Platform Architecture

Security Architecture

Database

Communications Architecture

Business Requirements

Standards — DRIVES → Investment Decisions — DRIVES → Solutions

5.2 Application and Data Architecture

Application architecture defines the design of and correlations 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. Cloud-native, software defined infrastructure, containerized applications, and continuous integration (CI)/continuous deployment (CD) based DevOps which provides new innovative opportunities for Application and Data Architecture are being implemented to support the County's goal of delivering timely, efficient and cost-effective services. The migration of enterprise-wide and agency specific applications, such as intranet portal and business processing/workflows are underway from on-premise infrastructure environments to efficient, geo-redundant, high availability and resilient cloud services. New applications and application enhancements are constantly evaluated, developed or acquired, and applied as older "legacy" applications retire, and as business organizations and related functions reorganize and/or have new needs.

For custom development efforts (when there are no commercial or open source applications that are appropriate for County business processes) our goal is to use industry standard application development tools that are adaptive in web-enabled and mobile. For commercial software solutions, the goal is to implement solutions developed using industry standards and avoid propriety software architecture to the extent possible; proprietary software is used only as a last resort. The application architecture also protects the County's investment in 'classic' systems by enabling enhancements for enhanced usability, improved use of information and data analytics, search and reporting and end user controls. In addition, by keeping abreast of emerging technologies the County positions itself to take advantage of emerging opportunities offered by these as well as SaaS, mobile and cloud technologies.

As the County balances determination among Commercial-Off-The-Shelf (COTS), in-house development and cloud/software subscription services for the diverse portfolio of agencies' business systems, the DIT framework for application development is applied. The framework incorporates Software Engineering, Information Architecture, and Application Development Lifecycle Management (ALM). They are used to keep the development life cycle standards current with an emphasis on customer satisfaction, agile response, iterative improvements, and operation excellence by using the principals and tools of DevOps. 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, and continuous improvements. New applications will be built on the most supportable and stable platforms and an open architectural framework based on the IT's best practices, cloud-native infrastructure, open-source toolchains, and open industrial standards.

DevOps with Continuous Integration(CI)/Continuous Deployment (CD)/Continuous Security (CS) – Fairfax County's Application Lifecycle Management (ALM) is built on top of Azure DevOps Servers with version controls, code review workflows/ pull requests, requirement/bug/issue tracking, program management tools. The CI/CD/CS pipelines automatically build, test, deploy and secure application dependencies and resources while increasing the productivities, reducing integration errors, improve quality and agility from development to the end user. For any single line of code, it will be built by the build agent in a controlled secure environment, run through the standard set of tests and customized unit/integration tests, secured by role-based access control and network security policies, and deployed to the development, acceptance and staging environment for user testing. The dashboard shows the team's work backlogs, velocity to address the issues, and Kanban boards to manage

priorities and distribute loads among team members. Every change to the infrastructure and applications is documented, version controlled, peer reviewed, approved by CM, and deployed in a repeatable fashion. The application and its dependency are managed via containerization and build automatically as part of the CI/CD pipelines with the latest software updates and security patches. This ensures the long-term supportability and stability of the application as it evolves independently of its hosting/cloud environments. Software-based infrastructure and container-based application change management are critical to cloud-native application development and depend on mature, sound software engineering and change management processes for rapid responses to changing business needs and system loads.

Next Generation Web Farms on Kubernetes Clusters – Fairfax County is implementing next generation web server farms on Kubernetes clusters. Kubernetes is a powerful open-source system for running and orchestrating containerized applications across a cluster of machines. Instead of managing and caring individual web servers and applications, Kubernetes provides a standardized way to manage and coordinate applications for services while providing runtime abstractions and protections. It provides an easy way to spread the workload among geo-redundant, load-balanced, high available clusters while maintaining the underlying scheduling, patches, states, storage, and security policies. It allows several new use scenarios such as AB Testing, Canary Deployment, andseamless deployment with a high 24x7 service level.

Open and Service based Architecture – Development platforms such as cross platform .Net Core, open-source frameworks, toolchains, JSON standards are a key part of the strategy. The .Net platform provides the foundation for 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. Tools such as Visual Studio provides County developers with a robust and flexible development environment. Encapsulating both existing and new business logic into "services" provide the ability to expose business processes across organizational and application boundaries, within the County, other local jurisdictions, state, and federal government, as well as business partners.

Geographical Information System Applications (GIS) – The ArcGIS software suite provides high-end Geospatial technology, GIS tools, functionality, and presentation capability 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 the tools for analysts to gain access, visualize, and query both graphic and tabular data for better analysis and decision-making. There are multiple levels of GIS software usage within the County.   At a high level, there are both web-based GIS tools including (ArcGIS Online, ArcGIS Enterprise and Geocortex) as well as desktop software such as ArcGIS Desktop and ArcGIS Pro. ArcGIS Enterprise is a fundamental component of the County GIS that provides web map and feature data services that are used by all platforms consuming GIS data. There are three levels of licensing available of the desktop GIS software for both ArcGIS Desktop and ArcGIS Pro. The highest level, Advanced, is used by professional GIS analysts for sophisticated analysis and processes as well as multi-user editing. The standard level is used almost exclusively by data editors and publishers for maintaining enterprise wide GIS data sets. The Basic level is used by most users for creating maps and simple analysis of the County's geographic data sets. ArcGIS Pro is the newest desktop GIS software from ESRI and will replace ArcGIS Desktop completely by 2022.

ArcGIS Online, and ArcGIS Enterprise (portal for ArcGIS, ArcGIS Server) are platforms used to distribute highly customized GIS based applications through the Internet/Intranet. Additionally, Geocortex is used for publishing medium to advanced level web-based GIS applications. Internet based mapping capabilities are incorporated as appropriate for augmenting and delivering County services. Web maps and web mapping services are also integrated into business specific applications for public and

internal government access via the WEB. The County also uses Terra Explorer to serve out 3D data to both internal and external customers. See Section 2 for more information about GIS strategy.

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 enable work planning and communications.

Programming/Development Tools – New applications under development use programming languages and tools following industry recommended standards. This approach continues as web-based applications are developed, or as Commercial-Off-The-Shelf (COTS) systems or Cloud and SaaS applications are implemented. Industry standard application life-cycle methodologies are employed to define, develop and implement new systems. Expert system technology is used to incorporate complex rule based functionality into systems. New developments use full stack Microsoft technology, and/or open-source frameworks, toolchains, and cloud infrastructure, including .NET framework, ASP.NET, .NET core, MVC and related technologies. Visual Studio Code and Live Share are used for code level collaboration and container development. Pull request and code review workflows are used to ensure the high quality of code merged into the project codebase. JAVA is used depending on a specific systems' architecture and anticipated integration with other systems that use JAVA. SAP ABAP is the development language for the County's ERP system.

Since often there are no viable COTS or SaaS solutions available that meet County agencies' unique governmental business needs and related statutory requirements, software development remains relevant, thus application lifecycle management (ALM) and DevOps are incorporated into the development life cycle to provide a disciplined and consistent development approach.

The County also supports OpenText/LaserFische/REAMS imaging solutions that have been in place for many years for smaller image archival and retrieval needs in some agencies. The County and Courts use the Commonwealth of Virginia's capabilities for certain court case records.

Collaboration Tools – The County uses Microsoft SharePoint Online and Teams which includes instant messaging and web conferencing. Additionally, the County uses other video conferencing and web conferencing tools to support collaborative communications.

Database Management Systems (DBMS) – The County uses several database management platforms to support its business applications. Oracle and Microsoft SQL Server are the County's databases standards. Currently most of the Oracle and SQL databases on standard COTS development architectures are consolidated for greater cost efficiency, supportability and performance. The County IT standards call for complex, Internet-accessible or high access databases to use Microsoft SQL Server or Oracle, as appropriate. There are also "fat client "and web-based agency specific applications that are maintained separately by agencies. The standard for small agency applications is Microsoft SQL Server as the database.

Data Analytics and Business Intelligence – The County's portfolio currently contains several products used for reporting, analytic, and decision support. SQL Reporting Services is the preferred reporting tool for application development. PowerBI, Crystal Reports, SAS, SQL Reporting Services and MarkLogic are also currently supported tools for reporting, and basic ad-hoc query. The County utilizes Microsoft PowerBI for data analytics and KPI dashboards. Fairfax County's strategy is to provide shared enterprise capability and infrastructure for reporting, query, transparency and decision support. As standards are defined

for the County's enterprise solution(s), the portfolio will be rationalized into fewer products over time. This approach enables DIT to continue to modernize the existing systems portfolio while creating economies of scale for improved interoperability, search, dashboards and cost control.

Desktop Office Automation/Workstation Software – Microsoft's Office 365 is the standard for general productivity automation functions including Word, Excel, PowerPoint, Teams, Outlook, and SharePoint. Microsoft Chromium is the standard for Web browsing and is implemented with the standard image. Agencies may have other desktop-based software for special, unique requirements.

IT Service Desk Software – The IT Service Desk (ServiceNow) provides all County employees with a centralized portal for computer support using a web-based solution which us used to support the Service Desk function leveraging the ITIL framework. The IT Help Desk has a high percentage of first-call resolution.

The County supports over 1,000 State and other non-County Windows workstations hardware devices.

In FY 2015, the County implemented near-real time, active/passive solution for the systems in the County's DIT Data Center using a third party off-site facility.

The following paragraphs describe the major features of the County's platform architecture.

5.3 Platform Architecture

Platform architecture defines the technical components of the infrastructure including server and client platforms, middleware, operating systems and interfaces supported, as well as other software tools and equipment used to operate applications. With the County's server consolidation and virtualization effort in FY 2011, Fairfax County's platform architecture was reduced from over 1700 physical servers to 40 servers leveraging our virtualization application that is a 42:1 ratio, and the project continues. Servers include Nutanix Servers, UNIX (Sun Solaris) and Microsoft Cloud based servers., We are currently upgrading all Microsoft Windows Servers to 2016, and 2019 versions. Over 15,000 PC's/laptops provide end-user access to County systems. iPads, iPhones, Androids, and other mobile devices also support employee access to agency business systems. Workstations are standardized using Windows 10 operating systems.

5.3.1 PLATFORMS

LAN-based Network Servers – Fairfax County's enterprise server environment uses Intel and Unix-based servers. Enterprise-class server technology Cisco blade technology, Dell, SUN and HP-UX servers for robust, high availability applications support the County's enterprise infrastructure applications such as Exchange, Active Directory, SQL, Oracle, Zscaler, and Citrix, and major business systems such as ERP, GIS, Tax systems, Public Safety, Health and Human Services systems, Land Development and Public Works applications, Library, etc.

Desktop PCs, Workstations and Peripherals – DIT prescribes hardware platforms and desktop applications standards as well as procurement vehicles to optimize support and cost. Workstations (PCs) are replaced in accordance with the County's five year PC Replacement Program cycle using adopted standards bundled with the MS Office 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.

County PCs are used for office productivity software, enterprise e-mail and client software, Internet/Web access software. The Windows 8.1 OS transitioned to Windows 10 in FY 2020, and Windows Mobile, iPads, and Androids continue to be deployed based on business needs. Desktop and network printing is accomplished primarily through the County's enterprise multi-function copier/printer/scan/fax machine fleet. Agencies also use stand-alone desktop or work-group printers, and special use machines, i.e., plotters, etc.

5.3.2 STORAGE AREA NETWORK

A critical and required element of County IT operations is the management and storage of County data. Storage management provides capacity, timely access, and protection for the County's most important asset, its records and information. Storage management is also one of the most challenging aspects of IT operations. For each new day, County users and County agencies have data that is multiplying at an astronomical rate. Most County data is stored and backed up electronically. This may include customer and agency data, partner data, financial records, analytics, and more. Critical data must be protected and recoverable if it becomes inaccessible to the users. Each Fairfax County government end user needs to protect data and information, it is therefore, imperative that end users remain mindful of the location of their data for better support.

DIT is focused on delivering a multi-level storage infrastructure, based on a low-cost foundation, which provides a set of storage solutions for the most common needs across the County's computing environment. These are areas where a central service can provide the maximum benefit for the least cost, leveraging economies of scale.

These storage solutions are available within a range of pricing, security, reliability, and availability that can be matched to the requirements of the data being stored. DIT's Storage Management Service provides Fairfax County with a centralized and secured storage platform to retain and store County data. It is DIT's mission to ensure Storage Area Network (SAN) service is scalable, redundant and cost effective.

Fairfax County implemented its first Storage Area Network (SAN) in 2002. 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, which has since then been retired. As a replacement for these retired storage infrastructure components, the County implemented NetApp and IBM XIV storage systems, which positions the County for future growth and the ability to meet strategic initiatives for Data Lifecycle Management. The total data storage requirement has grown from 394 gigabytes in 1998 to the current total of over 3.4 petabytes. The primary storage environments are NetApps and IBM XIV.

Storage Management requirements addressed by the Storage Area Network (SAN) are:

- Scalable storage capacity that allows users to increase storage as needed.
- Modular, adaptive architectures which allow users to deploy storage in a variety of centralized and distributed environments with re-deployment capabilities as needed.
- Highly available architectures to minimize/prevent downtime.
- The storage solutions provide a range of cost savings. Using NetApps for virtualization standard storage platform is cost effective because of built-in features such as de-duplication, which help to control the storage needed for the County's growing server requirements.

- The new XIV storage provides the high volume input/output operations required by the County's high volume database and email systems.

- Higher levels of performance to support the ever-growing volume of online data.

- Higher performance backup and restore operations using snapshot technology.

- 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 views a strong, viable communications infrastructure as a vital to the overall IT strategy of maintaining its successful deployment of cost-effective solutions that optimize business goals. The County's enterprise network architecture is built upon its' dedicated fiber optic infrastructure coupled with various carrier provider services to enable secure, reliable, and robust communications throughout the County's enterprise data network.

The overall architecture of this network is complex but designed to be agile in providing secure, responsive, reliable and cost-effective carrier class services of voice, video, and data while meeting the business and technology requirements of the 53 county agencies, multiple public safety groups, neighboring jurisdictions and the visitors of the public.
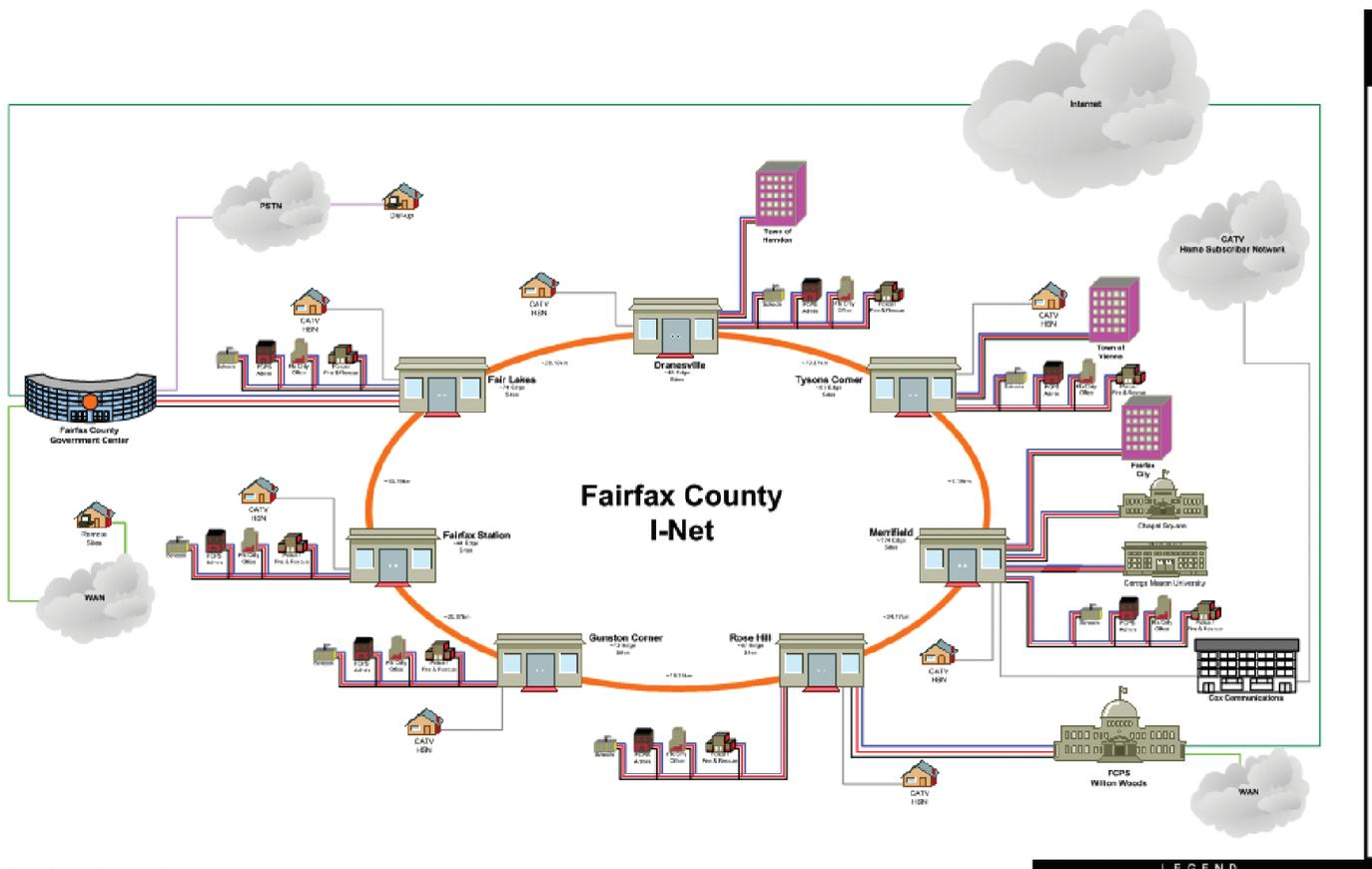
Fairfax County I-Net Map

5.4.1 INSTITUTIONAL NETWORK (I-NET)

The County's I-Net is a "super highway" of dedicated fiber optic infrastructure serving as the foundation of the County's enterprise network providing the "on ramps" to the 400+ Fairfax County Government and Public Schools locations. The I-Net was originally provided and continues to be maintained through the Cable Franchise Agreements. The I-Net is comprised of over 4,000 km of Single Mode Fiber (SMF), in a ring, hub and spoke topology. This private fiber optic infrastructure enables the enterprise network to virtually scale "unlimited" bandwidth provisioning as demand continues for higher speed data for services such as Voice over IP (VoIP), broadcast video, video conferencing, streaming video, collaboration and distance learning. Fairfax County's I-Net is one of the largest and most complex private local government network infrastructures in operation.

The fiber optic plant is digitally documented within a geographical cable plant documentation system with real-time monitoring and alerting. This system enables the County to track the fiber assets that are in use and those that are available for onboarding new locations at lower costs. In addition, the system provides immediate insight to the health of the fiber and in the event of a damage it alerts staff with near precise GPS location coordinate of the damage by which increases the mean time for repair.

Although broadband service is available through telecommunication companies, these come at a monthly recurring cost, provider network dependency as well as loss of flexibility and insight. The virtually "unlimited" bandwidth capabilities 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.

5.4.2 ENTERPRISE DATA COMMUNICATIONS NETWORK

Fairfax County's Enterprise Data Communications Network is the communications backbone providing county-wide access to the Internet and County resources. Internet services are provided from 3 ISPs utilizing 4 redundant high-speed connections strategically homed at 3 diverse County key resource locations. All systems connected on the enterprise network are monitored 24x7x365 with alerting and are based on well-recognized, open standards; compliance with published standards is required for any network-connected device or system.

The wired LAN backbones are gigabit delivering 100Mbps to the interconnected 14,000+ County managed devices. (PCs, servers, multi-function printer/scanner/copier device fleet, the mainframe and wireless access points). In addition, LAN services include secure public network access at various County locations such as libraries and recreational centers for visiting citizens to access Internet resources.

The wireless LAN (WLAN) is available in most County buildings serving Wi-Fi public access to visitors and secure access to County staff. The larger facilities have been upgraded from 802.11n to 802.11ac. As other facilities' equipment ages they will be outfitted with 802.11ac or possibly even 802.11ax (Wifi-6).

The Wide Area Network (WAN) is delivered via carrier provider services at locations without County I-Net fiber. The WAN services provided at these locations are either high-speed broadband layered with secure VPN technology or Transparent LAN Services (TLS).

The Metropolitan Area Network (MAN) is also referred to as the I-Net. The network core of the I-Net consists of 7 hub sites networked via a resilient 10 gigabit DWDM mesh backbone. Each of the 200+ locations outfitted with fiber are provided

1GB WAN links utilizing MPLS (Multiprotocol Label Switching)/VRF (VPN Routing & Forwarding) enabling secure prioritized communications of multiple logical networks (enterprise, public access, public safety, or voice over IP).

5.4.3 MOBILE DATA NETWORK

To support operations of the various public safety agencies, the County is transitioning from Commercial Wireless Broadband service to FirstNet, the First Responder Nationwide Public Safety Broadband network that has a dedicated secure core and provides priority and preemption service for public safety; providing for high availability and additional spectrum to support public safety. Use of mobile data provided by AT&T and Verizon Commercial Wireless Broadband service was implemented in 2007 to allow the response vehicles of the Police, Fire and Rescue, and Sheriff's departments to access the County's Computer-Aided Dispatch (CAD) system, the Law Enforcement Incident Management system, and various databases maintained by the Commonwealth of Virginia and Federal law enforcement. This Public Safety system consists of more than 1500 Mobile Computer Terminals (MCTs). Both commercial carriers are used to support a growing portfolio of mobile applications including Public Works and Environmental Services, Zoning, Health Department, and various Human Services agencies consisting of a user base of over 1,000 mobile devices.

To enhance the County's goals for mobility, telework, operational cost efficiency, Continuity of Operations Planning, and environmental stewardship 'green' IT, a major component of the enterprise technology infrastructure includes Enterprise Mobile Device Management (MDM) has been incorporated into the enterprise network and platform infrastructure. MDM allows use of smart-phones, and tablets including Apple and Android (for example). Given the County's mature 'private' enterprise cloud, this technology was adopted and integrated with the enterprise network. Air Watch is utilized for the Mobile Device Management (MDM) architecture, however efforts are in process to transition to Microsoft InTune as the principle MDM solution for the County.

5.4.4 I-NET VIDEO NETWORK

The I-Net Video Network is a private scalable integrated radio frequency (RF) 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 broadcast television needs. The I-Net video network transport has two distinct communication links: Coarse Wave Division Multiplexing (CWDM) is the transport technology which 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.

5.4.5 VOICE COMMUNICATIONS NETWORK

The County's current voice telecommunications architecture is the Avaya enterprise-wide VoIP capable platform. The solution uses the latest technology that includes VoIP/SIP and the County's fiber-optic network for connecting County facilities. Using the County's fiber backbone (I-Net) greatly reduces the total costs of providing telecommunications services. The evolution of the Avaya communications platform on a fully integrated broadband network synchronizes and leverages communications capabilities, security and will help meet the present and future IT and County agencies' business needs to complement cost

saving advantage of using the I-Net for calls between locations. Session Initiation Protocol (SIP) Trunking was initiated to further reduce the cost of the connection to the carrier network. DIT is currently in the process of upgrading the existing Avaya PBX platform to a full IP-based, converged solution. By upgrading to the Avaya PodFX solution, which is a vendor supported platform that utilizes virtual machine (VM) environments, the footprint of Avaya equipment Countywide will be significantly reduced.

DIT is in the process of transitioning from Skype for Business to Microsoft Teams (Teams). As a direct response to the COVID-19 pandemic, the vast majority of the Fairfax County workforce was transitioned nearly instantaneously to a remote workforce. As such, the PBX functionality is being added to the Teams platform. This added functionality will provide the opportunity to remove a significant amount of legacy telephone equipment from the desks of County personnel. This reduction of equipment will also reduce the overall cost of ownership and direct support for those devices. Teams provides the necessary flexibility and functionality to support a geographically decentralized workforce through the use of a secure messaging platform, video conferencing, and collaboration solution.

The voice system design will move the two main Fairfax County government sites – the Courthouse Complex and the Government Center Campus - as the "core" into the new "Pods" that are in an active-active state, thus ensuring failover that is transparent to the end user. A streamlined dialing plan has enabled more efficiency and less cost for agencies that have a geographically dispersed footprint. The Core + Edge configuration has yielded much tighter voice communication integration between locations and highly fault tolerant network. Avaya collaboration applications, such as the Call Center Elite/1X Agent application, allow agencies to have call center agents geographically dispersed across the County, yet they appear as a single work group from a citizen facing standpoint. This has been heavily utilized in the Continuity of Government during the COVID-19 pandemic where the majority of County employees are teleworking from remote locations.

The system architecture is also integrated with a new Call Management System (CMS) solution from Avaya. This solution's capability greatly improves the collection of necessary statistics used by Contact Center Managers to evaluate the County's responsiveness to citizens and constituents. Microsoft Teams will also be utilized as a direct replacement for some of the call centers as many of the features that are part of the Avaya solution can be transitioned to the Teams environment.

Additional efforts are being made to incorporate conference calling onto Teams. While this transition is in its early stages, a number of early successes can be tied to the response to the COVID-19 pandemic and it has been demonstrated that Teams is a viable solution for the County's teleconferencing needs.

5.4.6 PUBLIC SERVICE AND PUBLIC SAFETY RADIO NETWORKS

The County has two 800 MHz radio systems; the Public Safety system on newer technology supporting all the public safety responder agencies and the Public Service system, a legacy 800 MHz radio system serving the general government agencies and Fairfax County Public Schools. The Public Safety Radio system was initially upgraded in FY 2014 to the new P25 digital/IP technology (this system is supported in the DIT Operating part of the E911 - Fund). Further upgrades and enhancements were made in FY 2017 and 2018 to replace the dispatch consoles in the primary and secondary Public Safety Answering Points (PSAPs) for Fairfax County and upgraded the PSAPs for Fairfax City, and the Towns of Herndon and Vienna. Additional console replacements for the Office of Emergency Management and the Sheriff's Office were also completed. A Geographic Prime Site and Dynamic System Resiliency (DSR) enhancement was also implemented to provide an additional level of hardening and

resiliency to the public safety radio system that allows for full functionality should the main prime site fail to operate. The Public Safety system underwent two system upgrades in FY 2017 and again in FY 2018 to bring it in line with other National Capitol Regional radio systems. Plans are in place to undergo another upgrade of the Public Safety Radio System in FY 2021, which will continue to keep the radio system at the appropriate system operating level within the NCR. In FY 2021, the Public Safety Radio System will also receive an added ASTRO Stand Alone Repeater (ASR) site in the McLean area to address a historically poor radio frequency (RF) coverage area due to topography. This new site will provide better communications for public safety personnel operating in the field. The Public Service system is over 15 years old and is using proprietary technology developed in the 1990's and based on the older circuit-switched analog technology which lacks sufficient call processing capacity to meet current end user requirements, and has high maintenance costs. At the end of 2018, the manufacturer (Motorola) declared it would no longer support it, thus the system must be decommissioned as it can no longer be reliable for critical communications.

Currently, all but Fairfax County Public Schools and the Department of Transportation have moved their communications from the Public Service System to a commercially available Push-To-Talk (PTT) platform. In FY 2021 the Department of Transportation is migrating to a VoIP communications platform for the transit bus fleet also agencies have made plans to transition to to Push-to Talk; during this period interoperable communications will be maintained using Radio over Internet Protocol (RoIP) and Inter Sub-System Interface (ISSI). Once the transitions are finalized, interoperable communications will be maintained through the ISSI connection and the Public Service system will be decommissioned. County staff also serve as the Regional Coordinator for the entire National Capitol Region's ID management program to ensure regional radio interoperability.

Fairfax County continues to leverage FirstNet capabilities and since each agency within Fairfax County has an Emergency Support Function (ESF), efforts have been made to transition PTT users over to FirstNet as Extended Primary Users. This classification allows users of FirstNet to receive the benefit of priority and preemption over the standard commercial user, thus preventing the commercial users from causing reduction in bandwidth consumption and impacting FirstNet subscribers. Public Safety agencies are working towards migrating their cellular phone users over to FirstNet.

5.4.7 NATIONAL CAPITAL REGION NETWORK (NCR-NET)

 NCR-Net is a high-speed carrier class network interconnected over local jurisdiction's existing fiber optic network infrastructure delivering secure interoperable communications and resource sharing to all first responders and public safety agencies within the MWCOG jurisdictions. The County is a major participant in the NCR-Net providing five County managed and monitored interjurisdictional interconnects.

5.5 INTERNET ARCHITECTURE

Fairfax County's Internet architecture supports the County's E-Government program which utilizes emerging Web technologies to make County services and information readily accessible and available to the public, with interactive services to conduct business (e.g., pay taxes, apply for permits, etc.), and searchable access to data (real estate assessments, Human Services resources, etc.). The E-Government architecture defines the standards, guidelines, technologies, development tools, templates, and governance for public access, and requirements for conducting on-line business with county agencies, state agencies and outside entities. Recognizing mobile technology and cloud computing are key to promote digital transformation, the County's

E-Government program has taken the initiative to provide expansive mobile access and cloud-native computing platforms that enables greater interaction and service delivery.

The County's internet architecture is comprised of the following:

- **High Speed Connection to the Internet** – The County's multiple 10GB connections to the Internet provide internet access for County staff as well as outside access to the County's Web server(s) to residents, business, and others via the Internet.

- **Public Access Web Farm** – The County's Public Access Web Server farm provides internet users with a vast amount of information made available by various agencies. 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 farm acts as the distribution or collection point for information obtained from or provided to enterprise databases via "Application Servers". The Farm is designed to contain multiple web servers distributed in different locations to provide high availability, high fault tolerance, and high bandwidth throughput capabilities. The architecture is designed in such a flexible way so that the farm can easily scale out to meet constituents' needs in the event of sudden increase of web traffic. It intends to consolidate public facing web applications throughout the agencies in the County, which would eliminate the needs to set up separate servers for each web application and as a result leads to significant cost-savings. As the County becomes more digitized each day, more and more County's services and information are transformed into web applications and added to our public access web farm to serve citizens with gradual integration of more cloud resources for better performance, higher availability, and more robust services

- **Intranet Web Farm** – The County's Intranet (FairfaxNet) Web farm provides a portal to access County information and applications for agency and employee use. The Intranet Farm provides a platform allowing County employees and administrators to manage back-end data for the large number of public facing web application. The farm is integrated with Microsoft SharePoint Online cloud service for content management, page publishing, project collaboration an document management. It is the County's business processing platform for digital forms and workflows supporting many aspects of the daily operations. It also hosts a large number of web applications from various agencies and projects.

- **Mobile Application Infrastructure** – iPhone Application, iOS as well as Android versions, allows mobile users to access County's web contents and interact with various County e-services. SDK environment, application template, standards, and App Store distribution channel have been developed to further enable the County to provide m-government services. The architecture is designed in a flexible way that would enable developers from other County agencies to develop their own modules separately. These modules would later be added to the original package to ensure the app would continuously grow and improve with contributions from the entire community of developers.

- **Interfaces** – The County's application servers and 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: Oracle, SQL, and MS Access. The interfaces are comprised of "Application Program Interfaces" (APIs), Open Database Connectivity (ODBC), Service Oriented Architecture (SOA), and other standards that enable the access layer of the web architecture.

5.6 Cyber Security Architecture

The Information Security Office defines and enforces the security standards and policies necessary to protect the County's information assets and technology infrastructure. IT Security continues to be a fundamental component of the County's enterprise architecture and e-Government strategy. The security architecture fuses best practice security principles with a hardware and software infrastructure, supported by policies, plans, and procedures. This layered 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 to yield an overall reduction in risk.

The objectives of the information security program is to ensure confidentiality of information, integrity of data, systems and operations, technical compliance with legal mandates such as Health Insurance Portability and Accountability Act (HIPAA) and Payment Card Industry (PCI), privacy and availability of information processing resources. The information security program utilizes a multi-faceted approach to meet these objectives, an approach that includes threat reduction techniques, technology and management solutions, and the vigorous implementation of awareness activities. The basic elements of identification, authentication, authorization, access control, and monitoring of information processing activities are employed throughout the enterprise.

The Information Security program follows a Defense in Depth and slow transformation to Zero Trust approach to detect and stop threats where data moves inside and outside the network. Defense in Depth adds multiple controls, enforcement and monitoring points that creates layers of security to slow down attackers as it adds intricate defenses from the perimeter all the way to the protected resources. Zero Trust security is a practice that no user, app, device is automatically trusted even in a trusted network. These elements must pass safety checks and authentication using technologies such as Identity Access Management, Multi Factor Authentication, encryption, analytics, endpoint security and so on before gaining access to parts of the network. Users are only given specific access entitlements to effectively do their jobs, nothing more and nothing less. This approach drastically minimizes the attack surface and security risks from breaches and data exfiltration.

The County's rising adoption and use of Cloud-based services plays another big role to securing user data as they move between untrusted to trusted networks. In this architecture, modular infrastructure building blocks are deployed to better shield important resources within the network. The Next Generation Cyber architecture was developed and deployed to divide the network perimeter into the following five business groups: E-Commerce, Internet Access, Partners, Emergency Operations, and Public Access.

The County's modern data center is rapidly evolving and has a robust Server Virtualization infrastructure. The traditional approach to data-center network security uses strong perimeter-based defense and does not address protection inside the perimeter where server to server communications are not controlled. Lateral spread of threats is the new risk. Part of a Zero Trust model is Micro-segmentation.

We are living in unprecedented times of pandemics and natural calamities. Organizations are now forced to work remotely, with a majority of employees teleworking. Fairfax County is well prepared and positioned to securely support remote access given NextGen Security solutions implemented proactively by the Cybersecurity program. The use of Software Defined Perimeter technologies is another Zero Trust Authentication scheme for more granular enforcement based on identity, user centric access control, device inspection check approach ensures that users are only authorized to access specific subset of applications and systems in all areas of the network whether internal or external Cloud hosted Fairfax services. Remote access via secure VPN 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 for two factor authentication. Additionally, DIT implemented a mobile device management and security solution which can address the challenges of data loss prevention and security on mobile devices, such as tablets and smartphones, which may access County data from remote networks.

The County uses identity management modules to provide a software platform of shared services that includes reduced sign-on, authentication management (to validate who you are), and entitlement management (to authorize what you are allowed to do on the site) for web-based applications. Expansion of secure identity management capabilities will continue to provide a secure access and an end-user authentication platform for internal and external users.

Intrusion Detection System (IDS) detects intrusions within the network, and the Intrusion Prevention Systems (IPS) 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 log and alarm data generated by firewalls and sensors, a specialized application to support the role of correlation and alerting has also been 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.

Mandates such as HIPAA and the Payment Card Industry Data Security Standard (PCI-DSS) have increased system monitoring and policy enforcement requirements. IT security awareness programs and activities have been implemented to affect a culture change for all employees. Through security conscious employees, realization of the return on investment in security technologies can be leveraged further as the overall risk to data and systems is reduced.

Fairfax County Government is dedicated to the protection of its IT assets and the data/information in its custody, as well as ensuring that no unauthorized access or use of such data/information occurs. Fairfax County currently maintains a robust vulnerability and risk management program to continuously assess and validate our organization's security posture and to ensure compliance with Federal, Commonwealth, and industry regulation and best practices. In addition, DIT has invested in advanced technologies such as Data Loss Prevention and next-generation application-layer firewalls and endpoint protection to meet the evolving threats to hosted and cloud-based applications and resources.

Fairfax County's Next Generation Security Program, a blend of cutting edge detection and prevention technologies, secure network and systems architecture, awareness outreach activities, continuous monitoring through security event correlation

and assessments has been nationally recognized by the National Association of Counties (NACo), and received the Virginia Governor's Technology Award in 2014 and the CSO50 Award for 2016. In addition, Michael Dent, the CISO of Fairfax County, won the 2015 ISE North America Executive Award for the Public Sector for the development of a County-wide comprehensive IT security risk and privacy program; he was also awarded the Cyber Security Leader of the Year by StateScoop News organization in 2019.

5.7   COMPLIANCE ARCHITECTURE

As a public entity in the Commonwealth of Virginia, Fairfax County government must comply with the provisions of the Virginia Public Records Act and other applicable statutes and regulations that govern the lifecycle, accessibility, and/or disposal of public records, produced or maintained by its departments and offices. The steady transition to managed repositories and applications with functionality that provides controls and capabilities for identifying, organizing disclosing, storing, and disposing of both record and non-record digital objects within and across lines of business supports complying the county's public-record keeping responsibilities. Current and planned investments in application integrations and tiered storage offerings will reduce duplication and costs while still enabling access to retired content and institutional knowledge as needed. Machine-learning applications will further enhance the county's ability to assess and implement needed actions across vast quantities of public records, allowing their business value and compliance requirements to inform storage, recovery, and availability needs and priorities.

SECTION 6

APPENDIX

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AWARDS

Over the years, Fairfax County Government's IT organization has earned numerous awards and recognitions, including:

2020

- o Recipient of a Special Achievement in GIS Award from Environmental Systems Research Institute (ESRI). This award was given in recognition of Fairfax County's broad based, innovative and enterprise approach to GIS that has resulted in significant benefits to County agencies and residents.

2019

- o Michael Dent was awarded the Cyber Security Leader of the Year by StateScoop News organization.

- o The National Association of Counties (NACo) awarded Fairfax County a 2019 Achievement Award and 2019 Virginia Association of Counties (VACo) awarded Fairfax County with an Achievement Award for "Stream Critter Cube Lab". The Lab connects students with freshwater ecologists to learn how local scientists determine stream ecosystem health through monitoring the diversity of life found in each stream.

- o The National Association of Counties (NACo) awarded Fairfax County a 2019 Achievement Award for "Service Gap Analysis Interactive Map: Older Adults". The system assists Older Adults & Persons w/Disabilities in Fairfax County's Long Term Care Coordinating Council (LTCCC) with its mission to identify needs and promote solutions that enhance the lives of older adults, adults with disabilities, and caregivers so that all can participate fully in the community.

- o Fairfax County was honored with the Governor's Technology Awards in the category "IT as Efficiency Driver - Government to Government" at the 2019 Commonwealth of Virginia Innovative Technology Symposium (COVITS).

2018

- o The National Association of Counties (NACo) awarded Fairfax County a 2018 Achievement Award for "Taking a Citizen First Approach to Website Redesign". This achievement demonstrates how the newly imagined Fairfax County Website leverages technology, design and collaboration with all stakeholders (internal and public) to bring the strengths of modern web applications to bear upon the needs of a wide array of users. The DIT e-Government division under the leadership of Anita Rao, working with the Office of Public Affairs designed and successfully launched the new Website, a massive undertaking.

- o The National Association of Counties (NACo) granted Fairfax County a 2018 Achievement Award for "Customizing Data for Health and Human Services Planning". The County GIS was the data foundation for this application collaborating with the Department of Management and Budget.

- o Fairfax County's Chief Technology Officer, Wanda Gibson, was selected to join a distinguished group of women: State Scoop's Top Women in Technology 2018. This is an elite group of the women across the State and local government community who are constantly working to improve government and the lives of those governed. Ms. Gibson was selected for her innovative spirit, leadership, service to the public sector community, and the impact she has had on the use of technology in government.

- o Fairfax County Website received two "Award of Distinction" awards from the Academy of Interactive & Visual Arts (AIVA) for "Overall Government Website" and for the County "Website Redesign Project".

- o Fairfax County received the Commonwealth of Virginia's Innovative Technology Symposium (COVITS) Award for Next Generation Cybersecurity and for the Freedom of Information Act Office.

- o In the 2018 Digital Counties Survey, sponsored by the Center for Digital Government in partnership with National Association of Counties (NACO) ranked Fairfax County among America's top three jurisdictions with populations of 1,000,000 or greater.

- o Public Technology Institute (PTI) recognized Fairfax County with their 2018 Solutions Awards. The following programs were recognized for their achievement:

- Geographic Information Systems (GIS) recognized for National Capital Region (NCR) Regional GIS Data NG9-1-1 Preparation Project

- Public Safety and Emergency Management, Community Resiliency recognized for a regional, locally managed identity management solution for public safety in the National Capital Region

- Significant Achievement - WEB recognized for leveraging open source web Content Management System (CMS) which offers unlimited opportunities.

2017

o   The Integrated Justice Information Systems (IJIS) Institute 2017 Innovation Award was presented to Fairfax County's Broadband Interoperability Team. The Innovation Award recognizes technical innovation that has contributed significantly to the advancement of integration and interoperability in a justice, public safety, or homeland security project or program.

o   Received the National Association of Counties (NACo) 2017 Achievement Award in the category of Information Technology for Mobile Connected Courtrooms. Fairfax County Courts and DIT's Courtroom Technology Office, researched, designed and implemented a new digital courtroom platform to allow users to wirelessly connect their personal devices to the existing courtroom evidence presentation system, known as CTMS (Courtroom Technology Management System).

o   Center for Digital Government (CDG) 5th place recognition of the 2017 Digital Counties Survey recognizing leading examples of counties using information and communications technology.

2016

o   Received CS050 Award for Next Generation Security Program for Fairfax County Government and National Capital Region (NCR).

o   Received Public Technology Institute (PTI) Award in recognition of the Next Generation Security Program.

o   Center for Digital Government (CDG) 2nd place recognition of the 2016 Digital Counties Survey recognizing leading examples of counties using information and communications technology.

o   The Virginia Association of Counties (VACo) recognized Fairfax County Courtroom Interpreting Control System with the Achievement Award recognizing model local government programs.

2015

o   Center for Digital Government (CDG) 1st place recognition of the 2015 Digital Counties Survey recognizing leading examples of counties using information and communications technology.

2014

o   Received National Association of Counties (NACo) Achievement Award for Emergency Damages Assessment Tracking in the category of Information Technology; Fairfax County Department of Information Technology.

o   Received National Association of Counties (NACo) Achievement Award for Next Generation Security Program in the category of Information Technology; Fairfax County Department of Information Technology.

o   IT Security Director was honored as a top finalist in the ISE® North America Executive Award in the Academic/Public Sector category.

o   Center for Digital Government (CDG) 3rd place recognition of the 2014 Digital Counties Survey recognizing leading examples of counties using information and communications technology.

o   Received two COVITS recognitions in the local government category for the IT as an Efficiency Driver G2C (Government to Citizen) for Paying Taxes Using Smartphone, Mobile App and Tax Bill QR Codes and Cross-Boundary Collaboration for the National Capital Region Identity and Access Management Service.

2013

o The Association for GIS Professionals, URISA's Exemplary Systems in Government (ESIG) recognized the National Capital Region Geospatial Data Exchange (NCRGDX) as a Distinguished System.

o Received COVITS recognition in the local government category for the Innovative Use of Technology in Local Government FINALIST: Emergency Data Gathering Repository (EDGR); Fairfax County Department of Information Technology.

o Center for Digital Government (CDG) 3rd place recognition of the 2013 Digital Counties Survey recognizing leading examples of counties using information and communications technology.

2012

o Wanda M. Gibson, CTO, was nominated for 13th Annual Leadership Award, a prestigious award sponsored by the Women in Technology Organization.

o National Information Exchange Model (NIEM) Award recognized the CAD 2 CAD implementation, a key initiative in Northern Virginia that enabled data sharing and views of critical screens on key resource dispatch status between the disparate Computer Aided Dispatch Systems in Fairfax County, City of Fairfax, City of Alexandria, and Arlington County.

o Received COVITS Award in the local government category for the e-Gov team's "Placing Government in the Palm of Your Hand."

o Public Technology Institute (PTI) recognized the significant achievement on Mobile Applications: Government in the Palm of Your Hands.

o VACo (Virginia Association of Counties) Achievement Awards Program recognized Fairfax County among 11 winners throughout the Commonwealth of Virginia for the 'Court Technology Model: Coordinated County and Courts'.

o MarkLogic recognized Land Development Services' (LDS) with the MarkLogic Excellence Award for the "Big Data" Initiative.

o Government Computer News (GCN) recognized LDS with an Honorable Mention Award at the GCN Awards Gala for the County's Land Use "Big Data" Initiative.

o Center for Digital Government (CDG) 1st place winner of the 2012 Digital Counties Survey recognizing leading examples of counties using information and communications technology. Fairfax County earned first place in the IT Leading Initiatives 500,000 or more population category.

o The Mid-Atlantic Association for Court Management (MAACM) awarded the Court Scheduling System its 2012 John Neufeld Award which recognizes individuals or teams for the development and implementation of significant and unique court management systems in the Mid-Atlantic region.

2011

o Wanda M. Gibson, CTO, was nominated as a finalist for 2011 prestigious Women in Technology (WIT) Leadership Award sponsored by the Women in Technology Organization.

o Public Technology Institute (PTI) Web 2.0 State and Local Government Awards for Excellence. The awards recognized innovative use of Web 2.0 applications and social media tools to engage citizens, improve efficiency and increase accountability.

o Industry Green IT Award recognized Fairfax County for successful IT Infrastructure and power management projects that decreased the County's carbon footprint, achieved enterprise wide IT efficiencies and cost savings.

o Fairfax County GIS Manager elected to Board of Directors for The Urban and Regional Information Systems Association (URISA), a premier association for GIS professionals to share ideas and solutions for using spatial information technologies to solve government challenges and improve the quality of life in urban and regional environments.

o Ranked among America's top five in the 2011 Digital Counties Survey, which recognizes leading examples of counties using information communication technology.

o   The Center of Digital Government ranked Fairfax County website as one of the finalist in the Best of Web Awards.

o   Intergraph ICON Award recognized Fairfax County for a multi-agency collaborative effort between the Department of Information Technology and Fairfax County public safety agencies for successful implementation of a new Computer Aided Dispatch (CAD) and related public safety systems as part of the Public Safety Architecture Modernization Project. The project was initiated and enabled through the County's IT Governance model and managed by the County's Department of Information Technology.

2010

o   Wanda M. Gibson, Chief Technology Officer (CTO) was selected as one of the top 25 Doers, Dreamers and Drivers for 2010 by Government Technology Magazine.

o   Achievement Awards from the National Association of Counties – Department of Information Technology (DIT) teams participated in the following programs recognized by NACo:

- Fairfax County Budget Public Input Process - Management & Budget (DIT e-Gov participation).
- Electronic Accounts Payable System – Finance (DIT Finance and HR Branch).
- New CAD System – DIT/Public Safety agencies (DIT-Public Safety Branch, Technology Infrastructure
- Branch, and Network Services)

o   Commonwealth of Virginia's Innovative Technology Symposium (COVITS) Award for Regional CAD Interoperability; and Virtual Fairfax GIS application.

o   Fairfax County's IT Security Director – was one of a select group of nominees at the state and national level to receive the Cyber 7 Award at the 2010 Federal IT Security Symposium for advancing and promoting IT Security.

o   Cybertrust Certification Award by Verizon Cybertrust Enterprise Security Management Program.

o   DIT's Director of Courtroom Technology was awarded the Fairfax Bar Association 2010 President's Award for leadership in implementing courtroom technology that has delivered efficiencies in court proceedings.

2009

o   NACo Achievement Awards- Courtroom Technology Management System (CTMS).

o   Fairfax County received Virginia Coalition for Open Government's Freedom of Information Award in the government category.

o   Fairfax County's site took first place in the Best of the Web County Web portal category.

o   Digital Counties Survey selected Fairfax County as the fourth-place winner in the 500,000 or more population.

2008

o   Third Place Digital County Survey Winner – Center for Digital Gov't and NACo.

o   NACo Award for Information Technology Security Awareness.

o   NACo Award for Information Technology Project Management Training Program.

2007

o   Wanda M. Gibson named Most Influential Female CIO – Government Technology Magazine

o   First Place County Portal Jurisdiction Population – Best of Web.

o   Fourth Place Digital County Survey Winner – Center for Digital Gov't and NACo.

o   Computer World – Best Place to Work in IT (one of two governments out of 100 organizations).

2006

- o Second Place Digital County Survey Winner – Center for Digital Gov't & NACo.

2005

- o First Place Digital County Survey Winner – Center for Digital Gov't & NACo.
- o Second Place County Portal Jurisdiction Population – Best of Web.
- o Enterprise GIS Integration – FOSE Trade Show.
- o 2005 Governor's Award – E-Government Program.

2003

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

2002

- o Governor's Technology Award.
- o Achievement Award, National Association of Counties (NACo).
- o Citizens using GIS in Redistricting – NACo.
- o Finalist County Portal Jurisdiction Population – Best of the Web.
- o Deputy County Executive CIO named top "25 Doers, Dreamers, and Drivers of IT in US Government."
- o Bertelsmann Foundation of Germany – County's e-Gov Program recognized as one of top 4 pace setters in the world.
- o A+ Government Performance Project – Governing Magazine.

2000

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

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