



Department of Information Technology

The Department of Information Technology (DIT) provides enterprise data center infrastructure services, technologies in support of County department business operations, enterprise data solutions, broadband support, communication systems, and technology services to the County Government and Loudoun County Public Schools. DIT also provides radio services and Emergency Communications Center (ECC) technology support to the County's public safety agencies, and emergency medical staff. Assistance and services are also provided to the County's incorporated towns and County staff that use state-provided equipment and networks. The Department provides services 24 hours per day, seven days per week.

Department of Information Technology's Programs

Infrastructure and Customer Service

Provides support, troubleshooting and assistance to County staff, for mainframe and data center support, management of desktop performance, training, and broadband and cable TV oversight. Supports all networks providing connectivity to County staff and administration of the County's virtual infrastructure and physical data server systems. Conducts asset management and manages telephone and duplicating services for the County.

Public Safety Support

Provides server support and Computer Aided Dispatch support for public safety departments. Supports the radio system and the Emergency Communications Center (ECC).

Enterprise Systems Support

Provides support, troubleshooting, consultation, and analysis of all County enterprise application systems and data across the Software Development Life Cycle (SDLC).

Technology Services

Provides the Department with business operation services, including budget, accounting, administrative, human resources, and buyer support.

Security

Monitors and manages security, risk analysis, and vulnerability assessment for all incoming technologies, infrastructure, and data traveling through County networks.

Project Analysis and Management

Provides the Department with project portfolio analysis and strategic direction as well as training on processes and tools, including meeting with departments, to understand their technology related needs. Helps with the management of projects, including administration, reporting, and overall communication of schedule, costs, and risks.

**Information Technology****Budget Analysis****Department Financial and FTE Summary¹**

| | FY 2019 Actual | FY 2020 Actual | FY 2021 Adopted | FY 2022 Proposed | FY 2023 Projected |
|-----------------------------|---------------------|---------------------|---------------------|---------------------|----------------------|
| Expenditures | | | | | |
| Personnel | \$13,936,295 | \$15,357,204 | \$16,538,952 | \$17,440,721 | \$17,963,943 |
| Operating and Maintenance | 21,804,743 | 22,612,049 | 25,612,825 | 27,504,463 | 27,779,508 |
| Capital Outlay | 915,153 | 661,240 | 224,700 | 952,365 | 0 |
| Total – Expenditures | \$36,656,192 | \$38,630,494 | \$42,376,477 | \$45,897,549 | \$45,743,450 |
| Revenues | | | | | |
| Other Local Taxes | \$1,993,639 | \$1,953,737 | \$1,761,960 | \$1,814,000 | \$1,814,000 |
| Charges for Services | 98 | 99 | 0 | 0 | 0 |
| Miscellaneous Revenue | 794 | 111 | 0 | 0 | 0 |
| Total – Revenues | \$1,994,532 | \$1,953,947 | \$1,761,960 | \$1,814,000 | \$1,814,000 |
| Local Tax Funding | \$34,661,661 | \$36,676,547 | \$40,614,517 | \$44,083,549 | \$43,929,450 |
| FTE | 108.47 | 108.47 | 110.47 | 114.47 | 114.47 |

Department Financial and FTE Summary – Capital Projects Fund²

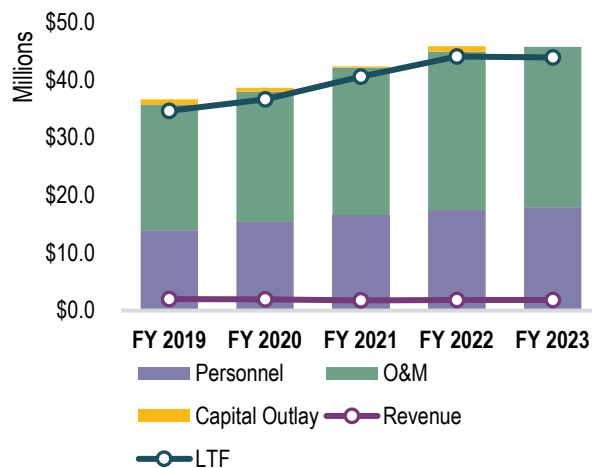
| | FY 2019 Actual | FY 2020 Actual | FY 2021 Adopted | FY 2022 Proposed | FY 2023 Estimated |
|-----------------------------|-------------------|-------------------|--------------------|---------------------|----------------------|
| Expenditures | | | | | |
| Personnel | \$0 | \$143,830 | \$179,671 | \$148,145 | \$152,589 |
| Total – Expenditures | \$0 | \$143,830 | \$179,671 | \$148,145 | \$152,589 |
| Revenues | | | | | |
| Revenue | \$0 | \$143,830 | \$179,671 | \$148,145 | \$152,589 |
| Total – Revenues | \$0 | \$143,830 | \$179,671 | \$148,145 | \$152,589 |
| Local Tax Funding | \$0 | \$0 | \$0 | \$0 | \$0 |
| FTE | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 |

¹ Sums may not equal due to rounding.² Sums may not equal due to rounding.



Information Technology

Revenue and Expenditure History



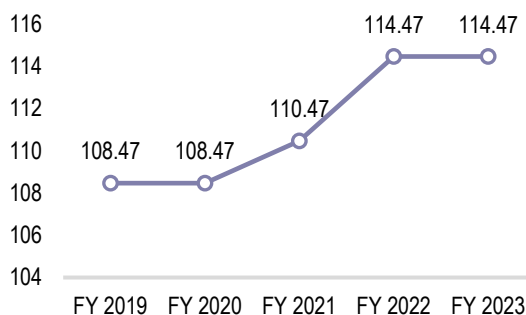
Revenue/Local Tax Funding

As shown, DIT is primarily funded by local tax funding (over 95 percent). Program-generated revenue consists of communication tax revenue., which while increasing slightly for FY 2022, has been steadily decreasing.

Expenditure

The majority of the Department's expenditure budget is dedicated to operating and maintenance costs. The increase in operating and maintenance reflects the increasing cost of contracts and consulting services. Major drivers of personnel increases are additional staffing as outlined in the Staffing/FTE History section, market and merit increases in each fiscal year, adjustments in FY 2020 and 2021 to reflect a new classification and compensation system approved by the Board in November 2019, and a 3.5 percent merit increase for FY 2021.

Staffing/FTE History



FY 2019: 2.00 FTE, junior systems engineer and cable TV/video franchise technician

FY 2020: 1.00 FTE, public safety project manager (Capital Projects Fund)

FY 2021: 2.00 FTE, radio engineer and network engineer

The Department of Information Technology's (DIT) expenditures have increased primarily due to operating and maintenance costs associated with the operationalization of several large enterprise systems implemented during the past five years, the increasing use of technology and growth in the number of County facilities, and costs associated with the Board of Supervisors' Body-Worn Cameras priority¹. Operating and maintenance costs make up most of the Department's expenditures. Specific cost increases are attributable to the contracts used to provide enterprise systems and services to Loudoun County Government and to Loudoun County Public Schools. Large contracts with Microsoft and its licensing, the Oracle Enterprise system, and Motorola services for public safety make up a large portion of the Department's operating expenditures. As the County grows and staff increasingly uses available technology products, licensing fees correspondingly increase each year.

¹ For more information regarding resources included in the FY 2022 Proposed Budget for Body-Worn Cameras, please see the Board of Supervisors' narrative in the General Government section.



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The Department's revenues are solely reliant upon the communication tax, budgeted at \$1.8 million for FY 2022, which the Commonwealth distributes to each locality based on a determined percentage. This revenue is split between DIT, Loudoun County Fire and Rescue (LCFR), and the Sheriff's Office. The state sales and use tax is 5 percent of the amount billed for taxable services which includes landline, wireless, and satellite telephone services; cable and satellite television; and satellite radio. DIT's portion of communication tax revenue has been below the \$2 million mark for the past several fiscal years, with an overall downward trend as these services have declined. This revenue continues to decline as consumers transition away from landline telephones, traditional cable video services, and prepaid telecommunications.

The FY 2022 Proposed Budget includes a base adjustment totaling approximately \$1.3 million for increases in technology system contracts, licensing, including an increase for LCFR volunteer Microsoft licenses, and costs associated with an increase in the number of users. Certain licensing increases are associated with an increase for Fire and Rescue volunteers Microsoft licenses upgrades and to allow for continued teleworking for the County workforce. General contract increases relate to vital public safety systems among other needs to continue services.

The FY 2021 Adopted Budget for DIT included a radio engineer and a network engineer for a total of 2.00 FTE. Due to the unclear economic picture resulting from the COVID-19 pandemic, when the Board of Supervisors adopted the FY 2021 budget, most new expenditures, including new positions, were frozen until revenues are determined available to support those expenditures. The Board unfroze both positions with the initial release of frozen expenditures and positions on December 15, 2020. The engineer position will allow for maintenance of current service levels for the radio system and will support planned CIP and department projects. The public safety radio and microwave system supports communications for the Loudoun County first responders (LCFR and Sheriff's Office) and interoperability across jurisdictions in the National Capital Region including the counties in the central and Shenandoah regions, as well as nearby counties in West Virginia and Maryland. The network engineer position will help manage the increased growth in size, complexity, and scope of the County's network. Sufficient staffing is needed to ensure the County's network is responsive and reliable. Staff supporting the network supports connectivity to County facilities through hardware and software support, and configuration for all County network equipment.

Included in the FY 2022 Proposed Budget are three positions (3.00 FTE) to address the themes of support to the CIP and technology. A GIS systems administrator will support a project in the CIP to expand the Office of Mapping and Geographic Information's GeoHub to include a Public Safety portion. Two positions for security staffing – a cybersecurity policy, risk and compliance analyst and junior security analyst – will help continue to keep the County safe from cyber threats and attacks. One project manager position will help ensure that all components of the project are being addressed by all needed DIT divisions and staff at the appropriate time.

Support to the CIP

DIT's FY 2022 Proposed Budget includes a GIS systems administrator position (1.00 FTE) to support the increase in servers resulting from the CIP project expanding the GeoHub for Public Safety. This expansion will support first responder needs and access to a separate portion of the GeoHub. The GeoHub is estimated to grow by 138 servers over the next five years. With the increase in support for implementation, operations and maintenance, this position is needed to focus on the GIS systems. The systems administrator will allow for a higher level of support and responsiveness as one individual would be the point of contact and work closely with the Office of Mapping and Geographic Information to assist with the design, architecture, and growth of the system. This activity supports administration of the County's virtual server infrastructure and physical server systems. The team provides public and private cloud system architectural design and management. The team manages virtual computer, memory, network, and storage services for virtual systems. This activity also manages the County's storage environment which is significant in size and complexity. Staff maintain backups for all County data and systems stored on the County's enterprise server and storage infrastructure. Though the need for this position is driven by the expansion of servers due to the CIP project, this position is intended to add capacity to the entire team and will not be



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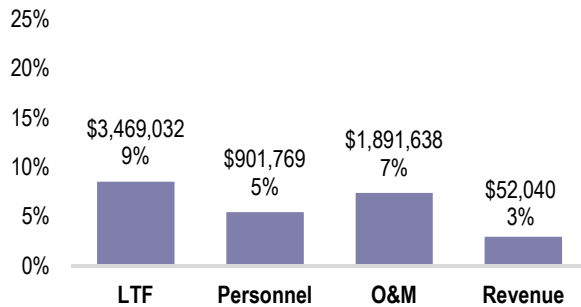
exclusively dedicated to these GIS servers; the position is not proposed to be charged to the CIP and is therefore funded with LTF in the General Fund.

Technology

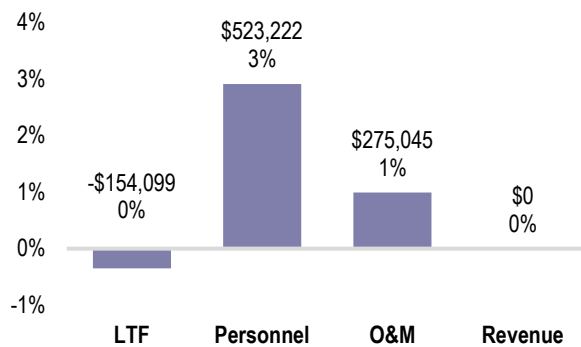
The FY 2022 Proposed Budget includes two positions (2.00 FTE) to address security staffing needs – a cybersecurity policy, risk, and compliance analyst and a junior security analyst. As the County's network continues to grow in both size as well as complexity, and the number of threats continue to rise, there is a corresponding need to ensure sufficient staffing to monitor the County's security infrastructure and the tools that monitor and control network access. These two positions continue the progression of DIT's security needs for several fiscal years, which have included increased staff, contractual support, and security tools. The cybersecurity policy, risk, and compliance analyst will ensure that security policy, compliance, and awareness are sufficiently managed. The junior security analyst position will assist senior security analysts in maintaining the security of County network systems, applications, services, and data and compliance with federal, commonwealth, and industry regulations.

These two positions will allow the security team to continue to consistently address cybersecurity and data compliance requirements and assess departmental and Countywide technology initiatives. The cybersecurity policy, risk and compliance analyst would convert a temporary position to a regular, permanent position. DIT's current temporary position has proven to be a highly valuable position within DIT. Without this position, the County will be at risk for insufficient staffing to support security compliance, assessment, and monitoring activities on the County's network. The junior analyst will focus on more routine security tasks, allowing senior level security staff to focus on higher level policy issues. The IT Security Office anticipates needing increased assistance from the junior analyst in the following areas: Multi-factor authentication support, Office 365 security and compliance administration, risk assessment analysis, robust security, security awareness training platform administration, network segmentation support, and standards and documentation creation.

Additionally, the FY 2022 Proposed Budget includes a project manager position (1.00 FTE). Currently, DIT has 1.00 FTE (regular) and 0.79 FTE (temporary) on the Project Management Team and has relied on its skilled technical staff to provide ad hoc project management. Oftentimes, projects do not have one staff member or team ensuring that all components of the project are being addressed by all needed DIT divisions and staff at the appropriate time. Ad hoc project management is not effective and can lead to delays and project issues, and technical staff should be focused on the conducting their technical IT work. The amount of internal coordination and the development of stakeholder groups for projects requires a significant level of effort that compounds an already heavy workload for DIT technical resources. A project manager will allow technical staff to focus on their work and will improve the efficiency and quality of project work. An additional project manager will improve internal and external department coordination, which is crucial to ensure all components of the project are managed effectively and on time. The project manager will focus on critical operational initiatives working across the internal divisions of DIT and with departmental stakeholders. This position will coordinate with staff dispersed across multiple teams and departments to ensure all needs of the project are addressed at the appropriate time.

**Information Technology****Percent Change from Adopted FY 2021 to Proposed FY 2022****Reasons for Change:**

Personnel: ↑ 4.00 FTE, general pay changes ||
O&M: ↑ base adjustments for enterprise systems, licensing, and || **Revenue:** ↑ increase in communication tax revenue

Percent Change from Proposed FY 2022 to Projected FY 2023**Reasons for Change:**

Personnel: ↑ 3 percent || **O&M:** ↑ 1 percent
|| **Revenue:** ↔



Information Technology

FY 2022 Proposed Resource Requests¹

| Support to the CIP: GIS Systems Administrator ² | | | | | | |
|--|---|------------------------|---|------------------------|--------------------------|---------------------|
| Personnel: \$127,650 | O&M: \$16,855 | Capital: \$0 | Reallocation: \$0 | Revenue: \$0 | LTF: \$144,505 | FTE: 1.00 |
| Details | | | Overview | | | |
| Service Level: | Enhanced Service Level Request | | <ul style="list-style-type: none">• The GIS system will be expanded to include a Public Safety GeoHub, which will require resources to support the critical first responder needs for this information. The GeoHub is estimated to grow by 138 servers over the next 5 years.• With the increase in support required for implementation, operations, and maintenance, DIT will need a position focusing on the GIS systems. This position will allow for the level of support and responsiveness needed to work closely with the Office of Mapping and Geographic Information to assist with the design, architecture, and growth of the system.• This activity supports administration of the County's virtual server infrastructure and physical server systems. The team manages virtual computer, memory, network, and storage services for virtual systems. MAGI's request for the Public Safety Portal will greatly add to this team's workload, triggering the need for this position. | | | |
| Mandates: | Not mandated | | | | | |
| PM Highlight: | Number of virtual servers per engineer (60) | | | | | |
| Program: | Data Center Services | | | | | |
| Positions: | 1 GIS Systems Administrator | | | | | |
| One-time Costs: | \$7,710 | | | | | |
| Recurring Costs: | \$8,400 | | | | | |

¹ The requests presented display total cost, including the acquisition of vehicles, technology, and office furniture (as applicable). Funds for these items are shown in the Non-Departmental section, page 6-2.

² Though the need for this position is driven by the expansion of servers due to the CIP project, this position is intended to add capacity to the entire team and will not be exclusively dedicated to these GIS servers; the position is not proposed to be charged to the CIP and is therefore funded with LTF in the General Fund.



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Priority 1: Security Staff

| | | | | | | |
|-------------------|-----------------|-----------------|----------------------|-----------------|-------------|-------------|
| Personnel: | O&M: | Capital: | Reallocation: | Revenue: | LTF: | FTE: |
| \$214,476 | \$25,134 | \$0 | \$0 | \$0 | \$239,610 | 2.00 |

| Details | Overview |
|---|---|
| Service Level: Current Service Level Request Mandates: Not mandated PM Highlight: Manage vendors and associated systems to achieve 100 percent of vendors audited, contracts evaluated, and vendor annual reviews. Program: Security Positions: 1 Cybersecurity Analyst, 1 Junior Engineer Theme: Technology One-time Costs: \$10,460 Recurring Costs: \$229,150 | <ul style="list-style-type: none"> • These two positions continue the progression of DIT's security needs for several fiscal years, which have included increased staff, contractual support, and security tools. The cybersecurity policy, risk, and compliance analyst will ensure that security policy, compliance, and awareness are sufficiently managed. The junior security analyst position will assist senior security analysts in maintaining the security of County network systems, applications, services, and data and compliance with federal, commonwealth, and industry regulations. • The cybersecurity policy, risk, and compliance analyst would convert a temporary position to a regular, permanent position. DIT's current temporary position has proven to be a highly valuable position within DIT. Without this position, the County will be at risk for insufficient staffing to support security compliance, assessment, and monitoring activities on the County's network. • The junior security analyst position will provide an opportunity for senior staff to pass routine security tasks to an IT professional interested in expanding their skillset to cybersecurity and compliance-related tasks. |

Priority 2: Project Manager

| | | | | | | |
|-------------------|-----------------|-----------------|----------------------|-----------------|-------------|-------------|
| Personnel: | O&M: | Capital: | Reallocation: | Revenue: | LTF: | FTE: |
| \$116,867 | \$12,568 | \$0 | \$0 | \$0 | \$129,435 | 1.00 |

| Details | Overview |
|---|---|
| Service Level: Enhanced Service Level Request Mandates: Not mandated PM Highlight: None Program: Project Management / Implementation Positions: 1 Project Manager One-time Costs: \$5,230 Recurring Costs: \$124,205 | <ul style="list-style-type: none"> • Currently, DIT has 1.00 FTE (regular) and 0.79 FTE (temporary) on the Project Management Team and has relied on its skilled technical staff to provide ad hoc project management. Oftentimes, projects do not have one staff member or team ensuring that all components of the project are being addressed by all needed DIT divisions and staff at the appropriate time. Ad hoc project management is not effective and can lead to delays and project issues, and technical staff should be focused on the conducting their technical IT work. • A project manager will allow technical staff to focus on their work and will improve the efficiency and quality of project work. An additional project manager will improve internal and external department coordination, which is crucial to ensure all components of the project are managed effectively and on time. |

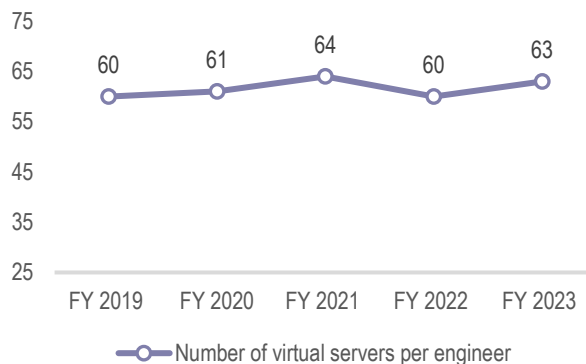
Department Total

| | | | | | | |
|-------------------|-----------------|-----------------|----------------------|-----------------|-------------|-------------|
| Personnel: | O&M: | Capital: | Reallocation: | Revenue: | LTF: | FTE: |
| \$458,993 | \$54,557 | \$0 | \$0 | \$0 | \$513,550 | 4.00 |



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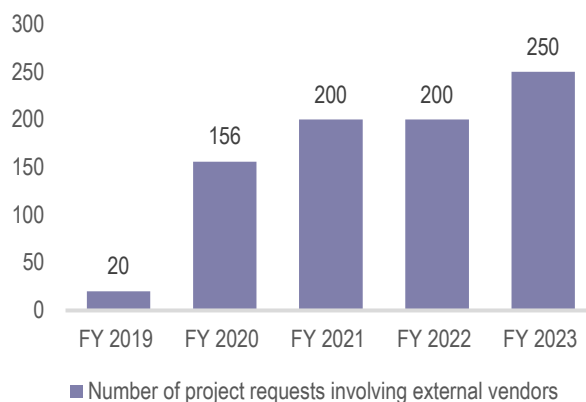
Key Measures¹



Objective: Maintain minimum number of engineers per category (60 virtual servers per engineer).

Measure: Number of virtual servers per engineer.

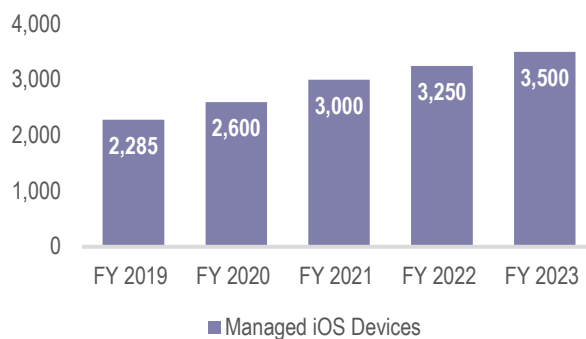
The GeoHub will grow by 138 servers over the next several years, driving the need for a dedicated GIS systems administrator to support implementation, operations, and maintenance of the GIS. With this systems administrator, the ratio of 60 virtual servers per engineer will be maintained.



Objective: Assess and manage vendors and associated systems to achieve 100 percent of vendors audited, contracts evaluated, and vendor annual reviews.

Measure: Number of project requests involving external vendors.

This cybersecurity policy, risk and compliance analyst position will allow for continued assessment and management of vendors and associated systems through audits, contract evaluation, and annual reviews of vendors as the number of vendors increases.



Objective: Maintain mobile device related threats.

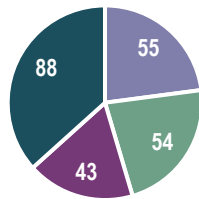
Measure: Number of managed iOS devices.

The junior security analyst position will assist senior security analysts with routine technical and administrative tasks (such as managing iOS devices) to allow senior analysts to focus on high-level planning and project work to enhance security.

¹ For key measures that relate to resources included in the Proposed Budget, FY 2022 and FY 2023 data reflect the estimated impact of these resources.



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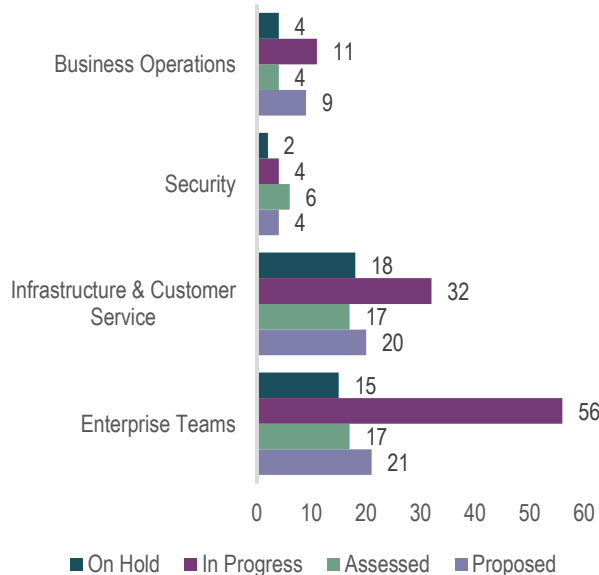


- Maintenance and operational projects
- DIT Projects
- CIP Projects
- Departmental Projects

Objective: Deliver approved projects in accordance with established IT Project Management Program and schedule.

Measure: Number of projects by type.

Most IT projects require work across divisions, necessitating a project manager to coordinate this work to ensure all timelines are met and all components of the projects are addressed effectively by the appropriate team members.



Objective: Deliver approved projects in accordance with established IT Project Management Program and schedule.

Measure: Number of projects by division and status.

The chart indicates the status of projects by division. In order to communicate and coordinate work for these projects across DIT, a project manager is needed. Currently, ad hoc project management is causing delays and preventing streamlining of processes.



Information Technology

Department Programs

Department Financial and FTE Summary by Program¹

| | FY 2019 Actual | FY 2020 Actual | FY 2021 Adopted | FY 2022 Proposed | FY 2023 Projected |
|-------------------------------------|---------------------|---------------------|---------------------|---------------------|----------------------|
| Expenditures | | | | | |
| Infrastructure and Customer Service | \$14,830,915 | \$15,268,212 | \$15,792,340 | \$16,470,743 | \$16,580,990 |
| Enterprise Systems Support | 12,086,739 | 12,175,998 | 12,568,790 | 13,188,543 | 13,435,352 |
| Public Safety Support | 6,287,929 | 6,495,554 | 9,180,818 | 9,619,649 | 9,707,263 |
| Technology | 3,449,481 | 3,493,528 | 2,963,918 | 3,049,411 | 3,130,575 |
| Security | 0 | 1,061,789 | 1,705,611 | 3,287,335 | 2,602,247 |
| Project Analysis and Management | 0 | 130,304 | 165,000 | 281,868 | 287,024 |
| Total – Expenditures | \$36,656,192 | \$38,630,494 | \$42,376,477 | \$45,897,549 | \$45,743,450 |
| Revenues | | | | | |
| Infrastructure and Customer Service | \$794 | \$210 | \$0 | \$0 | \$0 |
| Enterprise Systems Support | 98 | 0 | 0 | 0 | 0 |
| Public Safety Support | 1,993,639 | 1,953,737 | 1,761,960 | 1,814,000 | 1,814,000 |
| Technology | 0 | 0 | 0 | 0 | 0 |
| Security | 0 | 0 | 0 | 0 | 0 |
| Project Analysis and Management | 0 | 0 | 0 | 0 | 0 |
| Total – Revenues | \$1,994,532 | \$1,953,947 | \$1,761,960 | \$1,814,000 | \$1,814,000 |
| Local Tax Funding | | | | | |
| Infrastructure and Customer Service | \$14,830,120 | \$15,268,002 | \$15,792,340 | \$16,470,743 | \$16,580,990 |
| Enterprise Systems Support | 12,086,641 | 12,175,998 | 12,568,790 | 13,188,543 | 13,435,352 |
| Public Safety Support | 4,294,290 | 4,541,817 | 7,418,858 | 7,805,649 | 7,893,263 |
| Technology | 3,449,481 | 3,493,528 | 2,963,918 | 3,049,411 | 3,130,575 |
| Security | 0 | 1,061,789 | 1,705,611 | 3,287,335 | 2,602,247 |
| Project Analysis and Management | 0 | 130,304 | 165,000 | 281,868 | 287,024 |
| Total – Local Tax Funding | \$34,661,661 | \$36,676,547 | \$40,614,517 | \$44,083,549 | \$43,929,450 |
| FTE | | | | | |
| Infrastructure and Customer Service | 48.07 | 48.07 | 45.07 | 46.07 | 46.07 |
| Enterprise Systems Support | 32.60 | 32.60 | 35.40 | 35.40 | 35.40 |
| Public Safety Support | 10.80 | 10.80 | 11.00 | 11.00 | 11.00 |
| Technology | 17.00 | 17.00 | 12.00 | 12.00 | 12.00 |
| Security | 0.00 | 0.00 | 4.00 | 6.00 | 6.00 |
| Project Analysis and Management | 0.00 | 0.00 | 3.00 | 4.00 | 4.00 |
| Total – FTE | 108.47 | 108.47 | 110.47 | 114.47 | 114.47 |

¹ Sums may not equal due to rounding.