



## 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, volunteer firefighters, 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.

#### 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. Conducts asset management and manages telephone and duplicating services for the County.

#### 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 Summary<sup>1</sup>**

	FY 2018 Actual	FY 2019 Actual	FY 2020 Adopted	FY 2021 Proposed	FY 2022 Projected
<b>Expenditures</b>					
Personnel	\$12,898,497	\$13,936,295	\$15,033,426	\$16,180,054	\$16,665,456
Operating and Maintenance	19,361,545	21,804,743	22,065,185	25,612,827	25,868,955
Capital Outlay	781,561	915,153	216,500	224,700	224,700
<b>Total – Expenditures</b>	<b>\$33,041,603</b>	<b>\$36,656,192</b>	<b>\$37,315,111</b>	<b>\$42,017,581</b>	<b>\$42,534,410</b>
<b>Revenues</b>					
Other Local Taxes	\$2,148,877	\$1,993,639	\$2,090,000	\$1,761,960	\$1,761,960
Charges for Services	338	98	0	0	0
Miscellaneous Revenue	1,543	794	0	0	0
<b>Total – Revenues</b>	<b>\$2,150,759</b>	<b>\$1,994,532</b>	<b>\$2,090,000</b>	<b>\$1,761,960</b>	<b>\$1,761,960</b>
<b>Local Tax Funding</b>	<b>\$30,890,845</b>	<b>\$34,661,661</b>	<b>\$35,225,111</b>	<b>\$40,255,621</b>	<b>\$40,772,450</b>
<b>FTE</b>	<b>106.47</b>	<b>108.47</b>	<b>108.47</b>	<b>110.47</b>	<b>110.47</b>

**Department Financial and FTE Summary – Capital Projects Fund<sup>2</sup>**

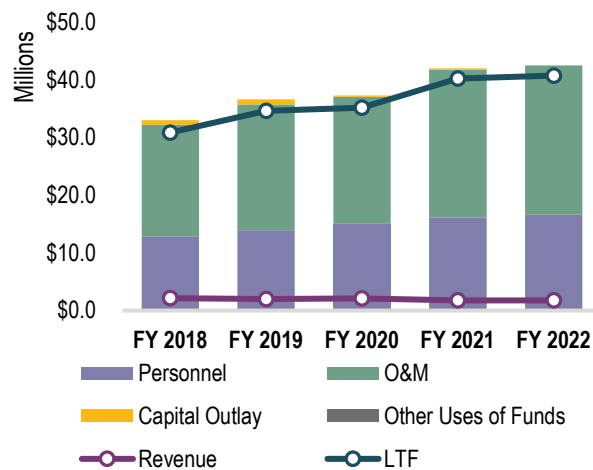
	FY 2018 Actual	FY 2019 Actual	FY 2020 Adopted	FY 2021 Proposed	FY 2022 Projected
<b>Expenditures</b>					
Personnel	\$0	\$0	\$174,438	\$179,671	\$185,061
<b>Total – Expenditures</b>	<b>\$0</b>	<b>\$0</b>	<b>\$174,438</b>	<b>\$179,671</b>	<b>\$185,061</b>
<b>Revenues</b>					
Revenue	\$0	\$0	\$174,438	\$179,671	\$185,061
<b>Total – Revenues</b>	<b>\$0</b>	<b>\$0</b>	<b>\$174,438</b>	<b>\$179,671</b>	<b>\$185,061</b>
<b>Local Tax Funding</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>FTE</b>	<b>0.00</b>	<b>0.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>

<sup>1</sup> Sums may not equal due to rounding.



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### Revenue and Expenditure History

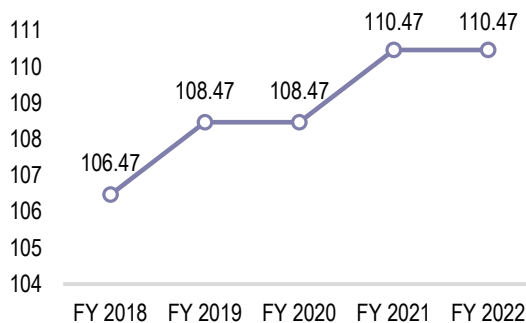


#### Revenue/Local Tax Funding

As shown, DIT is primarily funded by local tax funding (over 95 percent). Program-generated revenue consists of communication tax revenue, which 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, while personnel increases reflect a 3 percent market-based salary adjustment and a 3.5 percent merit-based increase in FY 2019, a 2 percent market-based salary adjustment and a 3 percent merit-based increase in FY 2020, adjustments in FY 2020 to reflect a new classification and compensation system approved by the Board in November 2019, and 1.00 FTE in the FY 2021 Proposed Budget.



#### Staffing/FTE History

FY 2018: 1.00 FTE, network engineer –transfer of 7.80 FTE from Central Services Fund to support Enterprise Content Management (ECM) system

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

FY 2020: 1.00 FTE, public safety project manager (CIP funded)

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 (ERP) implemented during the past five years as well as the increasing use of technology and growth in the number of County facilities supported. 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.

The Department's revenues are solely reliant upon the communication tax, budgeted at \$1.8 million for FY 2021, 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 vacillated above and below the \$2 million mark for the past



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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 2021 Proposed Budget includes a base adjustment totaling approximately \$3.5 million for increases in technology system contracts, licensing, and costs associated with an increase in the number of users and greater connectivity. Major projects affecting the base budget increase include transitioning to a SaaS-based Microsoft O365 which will have a cost increase in FY 2021, but will save time and money in transitioning between Microsoft versions as they are phased out. Another portion of the base increase in FY 2021 is the implementation of a dark fiber Wide Area Network towards the western part of the County. This expenditure in FY 2021 will level off in future fiscal years and eventually save the County approximately \$16 million in infrastructure costs. Finally, as the radio network continues to grow and more support is needed for first responders, the radio infrastructure for the County is part of the base increase in FY 2021.

The FY 2020 Adopted Budget for DIT included funding for security consulting and 1.00 FTE for a public safety project manager for Capital Improvement Program (CIP) projects. The security consulting has helped identify risks and provided further support to the Security team. The CIP project manager position will support planned public safety projects DIT supports.

Included in the FY 2021 Proposed Budget is 1.00 FTE to support the public safety radio system, which addresses the theme of public and life safety. 1.00 FTE also is included in the Proposed Budget for a network engineer position will support the theme of Technology.

### Public and Life Safety

The FY 2021 Proposed Budget includes 1.00 FTE radio engineer and contractual support to this activity in support of the public safety radio system and the microwave networks. One radio engineer position (1.00 FTE) and contractual funds (\$250,000) 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. Staff in this activity support radio sites to include microwave links to connect public safety radio towers to the master/prime site, which hosts the processing/computing equipment and programming that allows the enterprise public safety radio system to function. This activity manages one master/prime site and a backup site and maintains portable, mobile, and control station subscriber radios, which have increased in number. As the radio system has become more complex, the Department must have highly technical staff members managing this critical system. Currently, the DIT has only 1.00 FTE supporting these systems. The radio communications engineer will perform technical tasks needed to support the microwave and radio system as the size and complexity of the system has grown. The number of radio sites and subscribers has increased and will continue to do so. DIT determined the addition of 1.00 FTE and contractual funding (needed additional contractual expertise from Motorola) will allow the Department to keep pace with the growth. In addition, the engineer and contractual support will assist with implementation of planned CIP projects such as the school radio coverage program, radio tower expansion program, handheld radio replacement program, school bus radio system replacement, and the redundant master/prime site.

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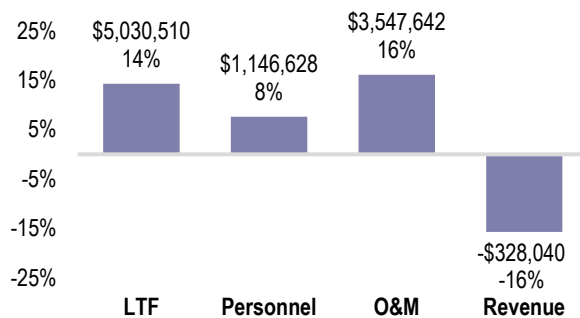
The FY 2021 Proposed Budget for DIT includes 1.00 FTE for a network engineer position to help manage the increased growth in size, complexity, and scope of the County's network, supporting the Technology theme. The County's network is the backbone for all automation and electronic communications. Sufficient staffing is needed to ensure it 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. This position will monitor, troubleshoot, design, implement, optimize, renovate, and upgrade all aspects of County network infrastructure to ensure this critical infrastructure is stable, available and



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resilient. The supported networks include local wired networks, staff and public wireless networks, VPN networks for remote sites, microwave and fiber backbone networks, circuits for connectivity to all sites, and internet circuits. The Network Services team provides support for all of the physical cabling required to support the network, including copper and fiber for site connectivity, cabling for user systems and phones, network closets, core network and server connectivity. This activity performs project management for addressing new employees, building renovations, and/ or new facilities that require cabling and network services. From 2014 to 2019, the number of facilities on the Wide Area Network (WAN) increased by 14, the network ports managed by this team tripled, and internet bandwidth increased by tenfold. Over the next year to two years, the Network Services team will complete the implementation of the Technology Roadmap – architecting the network for a resilient data center architecture, migrating the County’s existing WAN to a Segra/Lumos leased dark fiber solution, and complete other projects including renovations and improvement of wireless network coverage at all County facilities. The increased growth in the size, complexity and scope of the County’s network as well as the anticipated and ongoing projects have resulted in the Department identifying the network engineer position as a resource needed in the FY 2021 Proposed Budget.

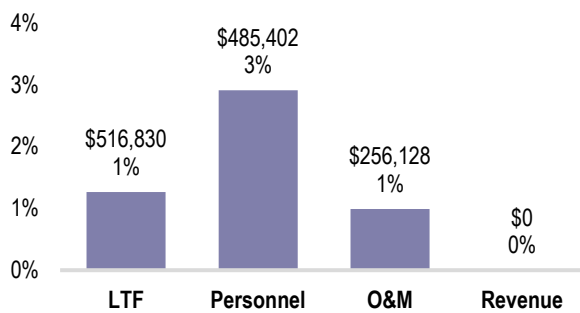
### Percent Change from Adopted FY 2020 to Proposed FY 2021



#### Reasons for Change:

**Personnel:** ↑ 2.00 FTE, general pay changes ||  
**O&M:** ↑ base adjustments for enterprise systems, licensing, and dark fiber project and contractual support for radio communication || **Revenue:** ↓ decrease in communication tax revenue

### Percent Change from Proposed FY 2021 to Projected FY 2022



#### Reasons for Change:

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

**Information Technology****FY 2021 Proposed Resource Requests<sup>1</sup>**

Priority 1: Public Safety Communications and Engineering Support						
<b>Personnel:</b> \$115,757	<b>O&amp;M:</b> \$272,504	<b>Capital:</b> \$52,265	<b>Reallocation:</b> \$0	<b>Revenue:</b> \$0	<b>LTF:</b> \$440,526	<b>FTE:</b> 1.00
Details			Overview			
<b>Service Level:</b>	Current Service Level Request		<ul style="list-style-type: none"><li>• One radio engineer and contractual funds will allow for maintenance of current service levels for the public safety radio and microwave system and will support planned CIP and department projects. This position will provide much needed bench depth in this critical area.</li><li>• The radio system supports communications for first responders (LCFR and Sheriff's Office) as well as interoperability across jurisdictions. Necessary staffing is vital to provide coverage and availability of the system, which helps keep Loudoun residents and first responders safe.</li><li>• In addition, the radio communications engineer will assist with implementation of previously approved CIP projects and department projects:<ul style="list-style-type: none"><li>• School Radio Coverage Program</li><li>• Handheld Radio Replacements</li><li>• Redundant Master/Prime Site</li><li>• Radio Tower Expansion Program</li><li>• School Bus Radio System Replacement</li></ul></li></ul>			
<b>Mandates:</b>	Federal/State Mandate					
<b>PM Highlight:</b>	Number of subscriber radios per engineer, Number of radio sites per engineer					
<b>Program:</b>	Public Safety Communications and Engineering Support					
<b>Theme:</b>	Public and Life Safety					
<b>Positions:</b>	1 Radio Engineer					
<b>One-time Costs:</b>	\$61,100					
<b>Recurring Costs:</b>	\$379,426					

<sup>1</sup> 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.



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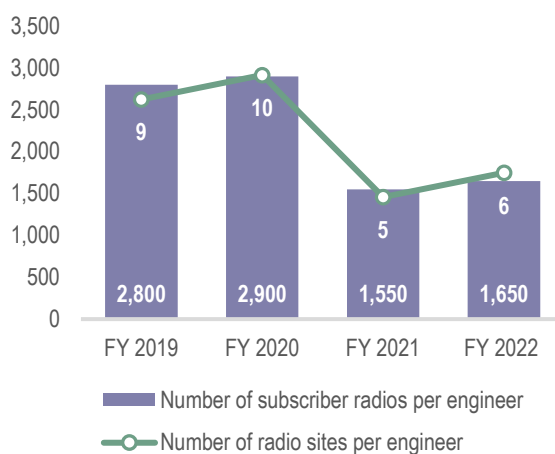
### Priority 2: Network Engineer

Personnel:	O&M:	Capital:	Reallocation:	Revenue:	LTF:	FTE:
\$115,757	\$12,459	\$0	\$0	\$0	\$128,216	1.00

Details	Overview
<b>Service Level:</b> Current Service Level Request <b>Mandates:</b> Not mandated <b>PM Highlight:</b> Core backbone availability, Number of devices on network per engineer <b>Program:</b> Network Services <b>Positions:</b> 1 Network Engineer <b>Theme:</b> Technology <b>One-time Costs:</b> \$5,740 <b>Recurring Costs:</b> \$121,157	<ul style="list-style-type: none"> <li>This position would support the Network Services activity, which maintains networks providing connectivity to County facilities. This engineer would monitor, troubleshoot, design, implement, optimize, renovate and upgrade all aspects of County network infrastructure.</li> <li>The number of facilities on the Wide Area Network (WAN) increased by 14 since 2014. The network ports managed tripled, and the internet bandwidth increased tenfold. In order to maintain current service levels with the increasing demand, the department needs this engineer.</li> <li>In addition, the network engineer will assist with implementation of already committed CIP projects as well as department projects that have already been approved:             <ul style="list-style-type: none"> <li>Implementation of the Technology Roadmap architecting the network for a resilient data center architecture</li> <li>Migration of the County's existing WAN to a Lumos-leased dark fiber solution</li> <li>Improvement of wireless network coverage at County facilities</li> <li>30+ facility adds/renovations</li> </ul> </li> </ul>

Department Total	Personnel:	O&M:	Capital:	Reallocation:	Revenue:	LTF:	FTE:
	\$231,514	\$284,963	\$52,265	\$0	\$0	\$568,742	2.00

### Key Measures<sup>1</sup>



**Objective:** Maintain minimum number of radio engineers per category.

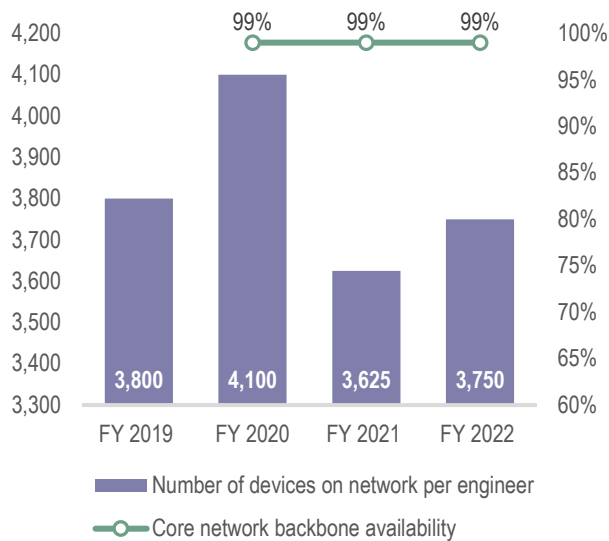
**Measure:** Number of subscriber radios per engineer, Number of subscriber radio sites per engineer.

*Public safety subscriber radio ratio per engineer will remain below the target of 3,000 per engineer with 1.00 FTE for the radio engineer in the Proposed Budget, maintaining system availability and responsiveness. The number of radio sites per engineer also would be maintained.*

<sup>1</sup> For key measures that relate to resources included in the Proposed Budget, FY 2021 and FY 2022 data reflect the estimated impact of these resources.



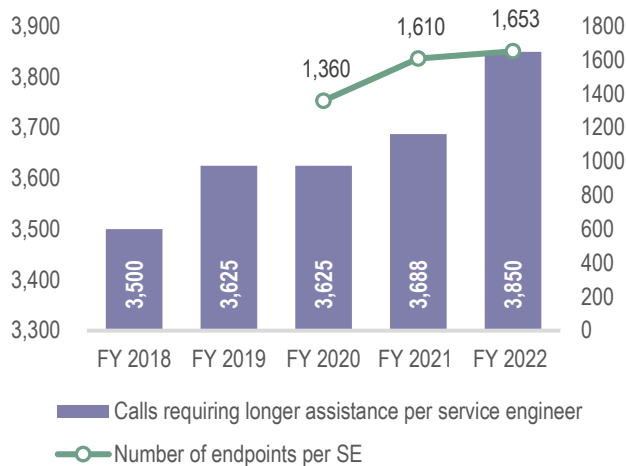
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**Objective:** Maintain minimum ratio of engineers/project managers per category. Maintain 99 percent operational availability of core network systems.

**Measure:** Number of devices on network per engineer, Core network backbone availability.

*There has been an increase in demand on the network, with the number of devices on network per engineer increasing correspondingly. With the addition of the network engineer in the Proposed Budget, DIT can continue maintain service levels for backbone availability. This position also keeps devices per engineer at a sustainable level.*



**Measure:** Number of calls requiring longer assistance per service engineer, number of endpoints per service engineer (Help Desk).

*With a projected 28 percent increase in calls per engineer over 5 years and a 21 percent increase over 3 years in endpoints per service engineer, DIT will struggle to maintain current service levels on the Help Desk.*



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### Department Programs

#### Department Financial and FTE Summary by Program<sup>1</sup>

	FY 2018 Actual	FY 2019 Actual	FY 2020 Adopted	FY 2021 Proposed	FY 2022 Projected
<b>Expenditures</b>					
Infrastructure and Customer Service	\$12,197,108	\$14,830,915	\$13,783,146	\$15,653,267	\$15,755,338
Enterprise Systems Support	11,083,969	12,086,739	11,633,795	12,442,068	12,676,052
Public Safety Support	6,633,064	6,287,929	7,356,331	9,142,145	9,227,095
Technology	3,120,737	3,449,481	2,765,291	2,909,490	2,986,609
Security	0	0	1,611,548	1,705,611	1,722,667
Project Analysis and Management	0	0	165,000	165,000	166,650
<b>Total – Expenditures</b>	<b>\$33,041,603</b>	<b>\$36,656,192</b>	<b>\$37,315,111</b>	<b>\$42,017,581</b>	<b>\$42,534,410</b>
<b>Revenues</b>					
Infrastructure and Customer Service	\$1,882	\$794	\$0	\$0	\$0
Enterprise Systems Support	0	98	0	0	0
Public Safety Support	2,148,877	1,993,639	2,090,000	1,761,960	1,761,960
Technology	0	0	0	0	0
Security	0	0	0	0	0
Project Analysis and Management	0	0	0	0	0
<b>Total – Revenues</b>	<b>\$2,150,759</b>	<b>\$1,994,532</b>	<b>\$2,090,000</b>	<b>\$1,761,960</b>	<b>\$1,761,960</b>
<b>Local Tax Funding</b>					
Infrastructure and Customer Service	\$12,195,226	\$14,830,120	\$13,783,146	\$15,653,267	\$15,755,338
Enterprise Systems Support	11,083,969	12,086,739	11,633,795	12,442,068	12,676,052
Public Safety Support	4,484,187	4,294,290	5,266,331	7,380,185	7,465,135
Technology	3,120,737	3,449,481	2,765,291	2,909,490	2,986,609
Security	0	0	1,611,548	1,705,611	1,722,667
Project Analysis and Management	0	0	165,000	165,000	166,650
<b>Total – Local Tax Funding</b>	<b>\$30,890,845</b>	<b>\$34,661,661</b>	<b>\$35,225,111</b>	<b>\$40,255,621</b>	<b>\$40,772,450</b>
<b>FTE</b>					
Infrastructure and Customer Service	44.07	48.07	48.07	45.07	45.07
Enterprise Systems Support	37.60	32.60	32.60	35.40	35.40
Public Safety Support	10.80	10.80	10.80	11.00	11.00
Technology	14.00	17.00	17.00	12.00	12.00
Security	0	0	0.00	4.00	4.00
Project Analysis and Management	0	0	0.00	3.00	3.00
<b>Total – FTE</b>	<b>106.47</b>	<b>108.47</b>	<b>108.47</b>	<b>110.47</b>	<b>110.47</b>

<sup>1</sup> Sums may not equal due to rounding.