

# BCIT Fiscal Year 2021 Capital Improvement Program

Thursday, January 09, 2020  
3:30 pm



# BCIT Overview



# Agency Overview

## Vision

Over the next decade engage all city departments, businesses and citizens to design, build and implement technology that creates a safe, thriving and smart city.

## Mission

The Baltimore City Office of Information & Technology will provide sustainable infrastructure and technology to support and enhance city departments, communities, businesses and mayoral goals.

## Values

- Innovation & Excellence
- Customer Focus
- Accountability & Credibility
- Respect & Inclusion
- Efficiency

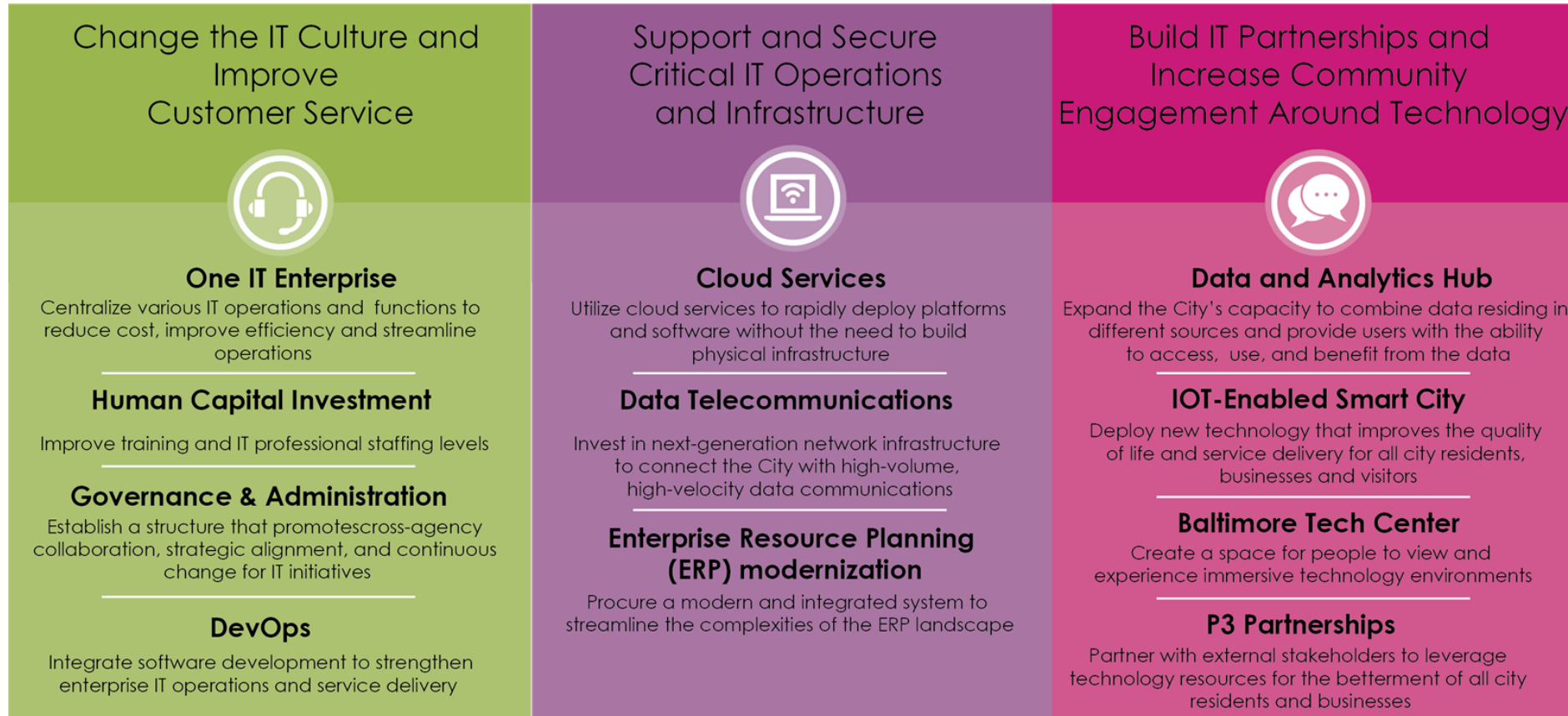
## BCIT Core Functions

- 311 Call Center
- Information Security
- Infrastructure (LAN, WAN, Storage, Data Center, Exchange, & Firewall, etc.)
- Fiber
- Dev Ops
- PMO
- 800 MHZ Radio
- GIS
- Database
- CitiWatch
- Mainframe & Legacy Systems
- Service Desk
- IT Contracts
- Financials
- IT Projects



# The 2018-2023 Inclusive Digital Transformation Strategic Plan Set the Vision for Information technology

The strategic plan outlined an aggressive vision for transforming IT



However, the Ransomware attack exposed a weak IT foundation and highlighted investments and focus necessary to rebuild and strengthen a computing foundation that can support new technologies.



# BCIT By The Numbers

150 BCIT Employees  
(311 Call Center = 60 Employees)

\$39.9M FY20  
Operating Budget

\$7M spent on  
Ransomware  
recovery

50+ Year Old  
Mainframe  
Technology

578K calls  
processed by  
311 annually

750 camera's  
supported by  
CitiWatch

27K helpdesk  
tickets  
processed  
annually

100+ miles of  
fiber supported

Support 315  
databases

Recovered 135  
City Applications  
during  
Ransomware



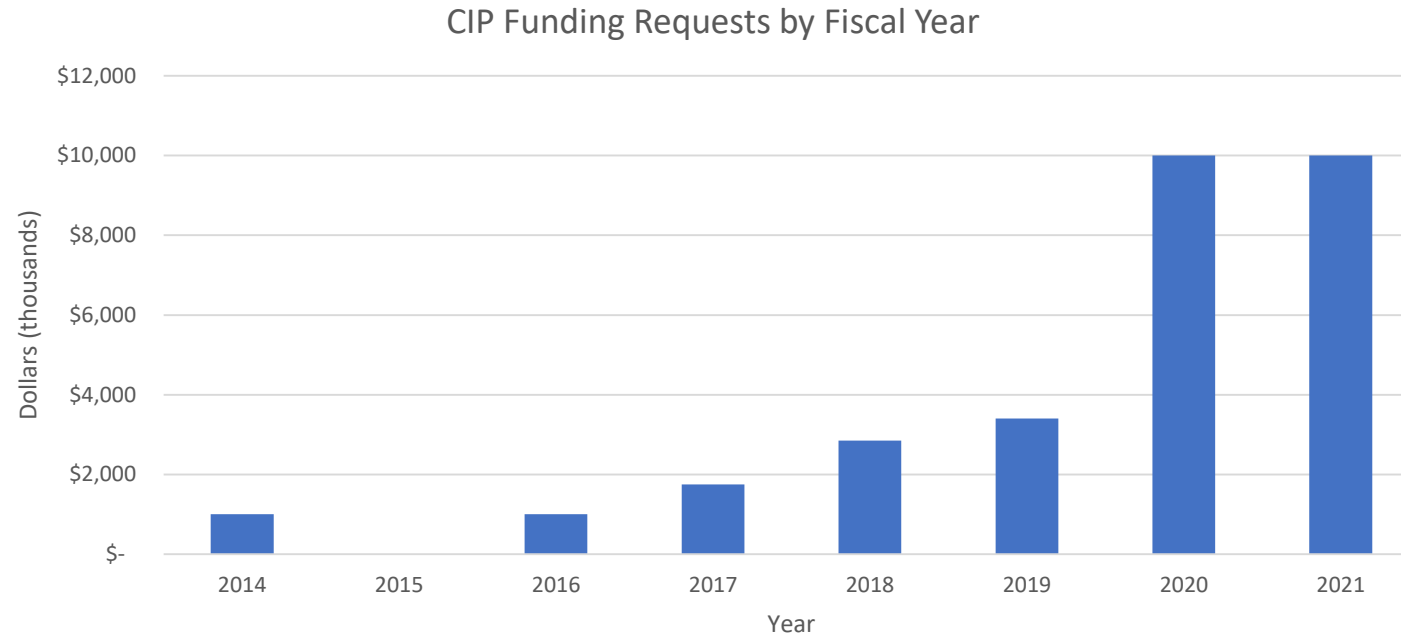
# Agency Fiscal 2020 Financial Data

Total Operating & Capital Budget	Amount Funded	Full Time Funded Employees (FTE)
Operating (FY20)	\$39.9 M	150
Capital (FY20)	\$9.7 M*	N/A
FY20 (Opex + Capex)	\$49.6 M	150

\* \$7 M of the \$9.7M in FY20 Capital funding used to covering expenses related to Ransomware Attack.



# BCIT Historical Capital Allocations



Baltimore must change the paradigm regarding continuous information technology investment. IT investment can provide cost savings opportunities, process improvements and efficiencies, and faster and comprehensive service to Baltimore City Residents.



# BCIT's Equity Statement

Although BCIT's primary function is internal, supporting other City governmental departments rather than the public directly, BCIT is committed to ensuring equity in its practices, policies and investments. Our direct impact on Baltimore residents is through our operation of the 311 Call Center which is open to anyone who wishes to submit a service request and provides multiple methods (phone, internet, app) by which a request can be initiated.

BCIT is committed to equity in our internal practices as evidenced by the following:

## **Equity Milestones:**

- Provided diversity and inclusion training to BCIT leadership
- Incorporated equity into Agency Core Values
- Updated agency procedures to provide consistency and standardization for internal workplace EEO issues
- Reflect equity in the establishment and review process of salaries by focusing on function and experience
- Instill equity practices throughout the hiring process by seeking diverse recruitment sources
- Additional diversity and inclusion training to all BCIT staff scheduled for the first quarter of CY 2020





# Need for Funding Technology



# Why Information Technology Funding

Lack of continuous IT funding leads to the realization of operational, security, and customer service risks

Needs	Impact to Baltimore Residents	Example
Unsupported Aging Application and Infrastructure Systems	Prevents the City from providing timely and accurate critical services to City residents	Cash processing, dispatching of City work crews and first responders
Investments in emerging technologies to leverage efficiencies, cost savings and better services for City residents	Residents and employees benefit from more efficient software systems and increased availability of critical services.	Office 365, ERP system
Protection against cyber security-related threats	Mitigates against destructive malware from stopping or halting city services and/or data.	Ransomware
Better understanding of our data and processes	Provides transparency to residents for their usage of city services and data	Data Warehouse (i.e. Open Baltimore), GIS

Continuous investment in IT also offers provide cost savings opportunities, process improvements and efficiencies, and faster and comprehensive service to Baltimore City Residents.



# Overview of Capital Needs



BCIT's capital needs are required for supporting the City's IT operations & maintenance, modernization and enterprise solutions.

---



BCIT supports City agencies in driving their business outcomes through technology.

---

- Supports underlying computer and application services.
  - Consulting on IT related programs.
- Providing IT resources for help desk and service desk.
- Managing city technology infrastructure and design supporting applications such as databases, applications, 311, CCTV, Fiber and 911 emergency dispatch.



BCIT's request only covers a small portion of the capital needs to modernize IT across the city government.

---



# FY 2021 Capital Request



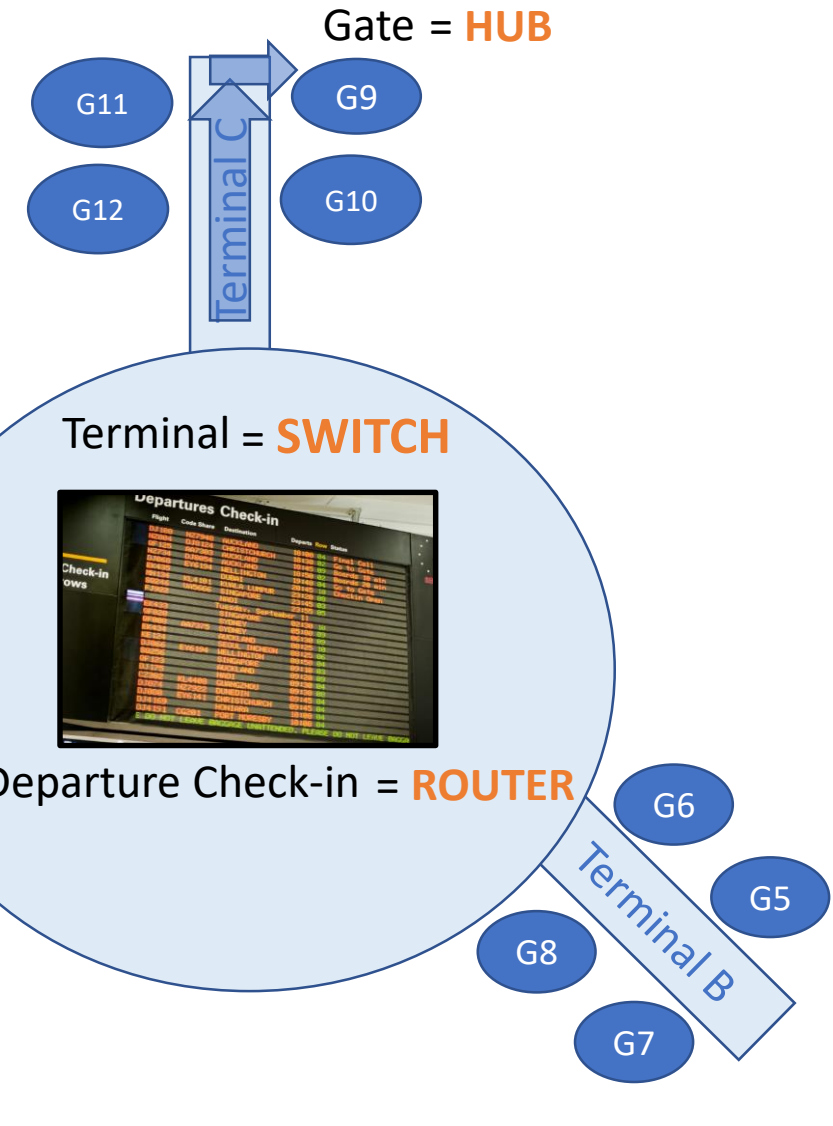


# Technology Translation

People = **DATA**



TSA Checkpoint = **FIREWALL**



# BCIT 2021 Spend Request Summary by Category

The level of Security and infrastructure investments reflect focus on improving the security posture of Baltimore City's computing environment

Capital Spend Category	<u>FY21 Budget</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>
Infrastructure	\$ 3,650,000	\$ 1,600,000	\$ 1,600,000	\$ 1,600,000	\$ 1,600,000	\$ 1,600,000
Network	\$ 1,700,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000
Security	\$ 4,350,000	\$ 2,750,000	\$ 2,750,000	\$ 2,750,000	\$ 2,750,000	\$ 2,750,000
Data	\$ 300,000	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total</b>	<b>\$ 10,000,000</b>	<b>\$ 5,000,000</b>	<b>\$ 5,000,000</b>	<b>\$ 5,000,000</b>	<b>\$ 5,000,000</b>	<b>\$ 5,000,000</b>

As new leadership forms within BCIT, we expect slight changes to strategy and investment priorities. However, we do not expect and cannot afford reductions in investment.



# BCIT Infrastructure Related Investment Request

The current state of Baltimore City's computing infrastructure requires planned and deliberate replacement of aging components

#	Project Name	Description	FY21 Budget	2022	2023	2024	2025	2026
<b>Subtotals -</b>			\$ 3,650,000	\$ 1,600,000	\$ 1,600,000	\$ 1,600,000	\$ 1,600,000	\$ 1,600,000
117-026	City Wide Agencies Uninterrupted Power (UPS) Supply Upgrade	Install APC uninterruptible power systems (UPS) to prevent & protect the City's email, internet, City financials & telephone systems from electrical power outages	\$ 500,000					
117-041	City Wide Agencies Network Cabling Wiring Upgrade (courts, landfill, etc.)	BCIT will modernize fiber and copper cable in various locations to accommodate new technologies, increased network capacity and throughout requirements.	\$ 1,650,000	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000
117-048	Removal and Migration from Unmanaged Network Hubs, including cable and switches	Replace select unmanaged network devices across the City that are currently in production.	\$ 1,000,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000
117-049	Replace Wireless Controllers and Access Points	Replace existing wireless network components to improve security & performance.	\$ 500,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000

Updates to infrastructure management and supporting processes and procedures are a must and are currently in progress



# BCIT Network Related Investment Request

In order for Baltimore City Residents to transact with city agencies and services, a robust, fault tolerant, and reliable network is a must for residents and citizens alike

#	Project Name	Description	FY21 Budget	2022	2023	2024	2025	2026
<b>Subtotals -</b>			\$ 1,700,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000	\$ 650,000
117-019	City Wide Network Upgrade - completion of switch refresh	Refresh network switches no longer vendor supported. Switches provide end user access to Citi-Watch, email and all other internet services and applications.	\$ 600,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000
117-030	ISP / Internet Core Hardware Upgrade	Enhance the ISP & core network capabilities to increase internet bandwidth across the City. Ensure City's infrastructure users are able to perform network & internet based transactions efficiently without degradation.	\$ 350,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000
117-046	BCIT Fiber Tierpoint and Divergence Project	Implement redundant network connectivity to the City's data centers.	\$ 750,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000

As a result, BCIT must remediate aging, end of life network components that reduce operational and security risks to the City's computing environment





# BCIT Security Related Investment Request

A complete IT Security overhaul is needed and in progress!

#	Project Name	Description	FY21 Budget	2022	2023	2024	2025	2026
<b>Subtotals -</b>			\$ 4,350,000	\$ 2,750,000	\$ 2,750,000	\$ 2,750,000	\$ 2,750,000	\$ 2,750,000
117-029	City Wide Cyber-Security Systems Upgrades	Increase & enhance Cyber -Security technologies on workstations, laptops, tablets, etc. to protect the city from on-going Cyber security threats.	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
117-050	Adaptive security appliance firewall upgrade	Replace security hardware to improve security & performance for remote user access to City applications.	\$ 350,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000
117-051	Enhanced Identity Management	Implement new tool that centralizes user access to applications to meet security requirements.	\$ 300,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000
117-052	SIEM - Splunk 500 Gig/day	Implement a City owned Security Information & Event Management (SIEM) system. Cyber warfare can be detected by SIEM with accuracy, discovering both attackers & victims & provide risk mitigation options.	\$ 700,000					
117-054	Remediation of end of life systems	This project will replace end-of-support systems in order to mitigate operational, security & cost risks as these servers are no longer supported by the vendors.	\$ 2,000,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000

Ransomware attack highlighted gaps that need to be filled.



# BCIT Data Related Investment Request

Most data related funding is covered within O&M budgets

#	Project Name	Description	FY21 Budget	2022	2023	2024	2025	2026
		<b>Subtotals</b>	\$ 300,000	\$ -	\$ -	\$ -	\$ -	\$ -
117-039	BCIT Data Warehouse Project	Upgrade the City data warehouse to the cloud and manage siloed data, improving data quality & making it accessible in one place, for city residents and employees.	\$ 300,000					

Investment is to build the asset. Maintenance will be funded through the O & M budget.



# Recent CIP Accomplishments & Current Workload



# Recent CIP Project Highlights

## 117-025 Expand Storage Capabilities

- Expand Storage hardware to support City critical business applications and services
- Status: *Completed* – but post implementation is still in progress
- Fiscal 2019 Funding: \$2,000,000

## 117-050 Upgrade Firewall

- Replaced end of support external facing firewalls
- Status: *Completed*
- Fiscal 2019 Funding: \$350,000

CIP	Capital Project	Business outcome1	Business outcome2	Business outcome3
117-025	Expand Storage	Capture	Protection	Recovery
117-050	Upgrade Firewall	Protection	Identification	Quarantine



# Sample of BCIT Current Workload

Late fiscal year 2019 through early 2020 consumed with Ransomware remediation and as a result BCIT's focus centered on improving and securing Baltimore City's computing environment:

## Current Activities:

- Implementing Security related projects (various)
- Office 365 implementation
- Remediation of end of life systems (cloud)
- Security awareness training for employees



Questions?



# Appendix



# BCIT 2021 Capital Improvement Plan

The table below summarizes BCIT's plan over the six year time period

<u>2021 Plan Item</u>	<u>Project Name</u>	<u>FY21 Budget</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>
117-019	City Wide Network Upgrade - completion of switch refresh	\$ 600,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000
117-026	City Wide Agencies Uninterrupted Power (UPS) Supply Upgrade	\$ 500,000					
117-029	City Wide Cyber-Security Systems Upgrades	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
117-030	ISP / Internet Core Hardware Upgrade	\$ 350,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000
117-039	BCIT Data Warehouse Project	\$ 300,000					
117-041	City Wide Agencies Network Cabling Wiring Upgrade (courts, landfill, etc.)	\$ 1,650,000	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000
117-046	BCIT Fiber Tierpoint and Divergence Project	\$ 750,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000
117-048	Removal and Migration from Unmanaged Network Hubs, including cable and switches	\$ 1,000,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000
117-049	Replace Wireless Controllers and Access Points	\$ 500,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000
117-050	Adaptive security appliance firewall upgrade	\$ 350,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000
117-051	Enhanced Identity Management	\$ 300,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000
117-052	SIEM - Splunk 500 Gig/day	\$ 700,000					
117-054	Remediation of end of life systems	\$ 2,000,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000
<b>Totals</b>		\$ 10,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000

Investment in IT is paramount to mitigating security, operational, and customer service risks

