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INNOVATION & TECHNOLOGY

FY2018 Strategic Operating Plan

Building a performance-focused I&T culture
is a priority in FY2018.

Memorandum

To: Innovation & Technology Team

Subject: I&T FY2018 Strategic Operating Plan

This memo communicates the FY2018 Strategic Operating Plan (SOP) for the Innovation & Technology Department (I&T). The 2018 SOP focuses on building a performance-focused I&T culture, driving innovation, especially in the use of data driven analytics, and funding IT demand and depreciation growth.

Maintaining essential IT infrastructure, securing and protecting citywide data and technology from evolving threats, and an emphasis on project management and decision analytics are important components in the $28.46M 2018 I&T operating budget. Funding for the budget includes 144 full time equivalent positions, an increase of 6 FTE's from the previous budget year directly supporting these areas of emphasis.

The 2018 SOP highlights I&T's operational goals and challenges, how success and performance are measured, and ways to address unmet funding needs and associated risk. The context for I&T operational success is predicated on providing an outstanding customer experience. Providing an outstanding customer experience means helping our customers spend less effort and get better results by listening and promptly responding to concerns, communicating well, being an engaging partner and, easy to work with.

In order to effectively manage, prioritize, and plan the lifecycle of technology investments and to insure alignment with departmental dependencies, the CIP development process included working with City departments in updating the City's 5-Year Technology Master Plan. This technology roadmap identifies over 200 initiatives totaling over $463M. Currently, funding has yet to be identified for approximately $203M.

In FY2018, I&T will revisit creating both an internal service fund and a technology capital fund to prioritize, fund and scale capabilities to address unmet needs.

As the I&T organization continues to drive culture change, "smart cities" activities will primarily focus on the acquisition and analysis of data relative to our operational objectives. This data must be used more intensively to make better strategic decisions and to automate routine, tactical decisions and operations. It is in the systemic use of data for our everyday decision-making where the city has the most near-term opportunity to approach the ideal of a "smart city".

The FY2018 SOP is reflective of I&T's on-going dedication to innovate, secure and deliver technologies that empower our citizens, departments and agencies while continuing to position Charlotte as a "World-Class" Digital City.

Jeffrey W. Stovall

Jeffrey Stovall
Chief Information Officer
September 8, 2017

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Executive Summary

The City of Charlotte Innovation and Technology Department (I&T) has four key responsibilities:

Enabling access to and use of civic data to empower our community;

Securing and protecting citywide data and technology from evolving threats;

Delivering efficient high quality services to and on behalf of City government;

Lead the technology conversation, plans, and designs for long-term success.

Building a performance-focused I&T culture is a priority in FY2018.

I&T celebrated its third anniversary in January 2017. Over the past 18 months, significant effort has gone into creating a highly-regarded teamwork culture within the department. FY2017 saw significant advancement, but we also incurred a major blow to progress in not being able to consolidate I&T functions into a single location. The Department now anticipates consolidating the department in one location in FY2019.

In FY 2018, I&T will continue to develop a performance-focused culture, drive innovation through the use of data and analytics and develop long-term sustainable funding that meets ever increasing demand while simultaneously maintaining and preserving the current infrastructure.

Strengthening relationships at all levels - within I&T and with departments and agencies - to optimize collaboration and stimulate innovation is central to our operating culture and provides the foundation for delivering a Great Customer Experience. It is through great customer experiences that I&T will be the first-choice and sought-after technology collaborator.

ORGANIZATION

The City of Charlotte Innovation and Technology department formed in 2014 has a staff of 144 full time equivalent positions with functional responsibility for technical service areas managing high-risk infrastructure initiatives including: Information Security, Data Centers and Operating Systems, citywide data protection and management, financial management systems & procurement platforms, and Public Safety communications. Enhanced community engagement initiatives and strategic technology Investments are also funded in the 2018 operating budget and managed by I&T.

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Functional Accountability & Alignment

Chief Information Officer

Deputy CIO

Business Relationship Management

Business Process Improvement

Technology Eval & Portfolio Planning

Enterprise Program Management

Enterprise Applications Officer

Enterprise Applications Services

Business Intelligence and GIS Strategy & Tools

ERP Support Center

Open Data & Civic Technology

Citizen Engagement & Mobile Initiatives

Hosted Website Vendor Management

Chief Security Officer

Security Policy & Compliance

Security Monitoring & Response

Managed Security Services

Technology Services Officer

Enterprise Services

Server & Storage Management

Network and Telephony Management

IT Services Management

Public Safety Communications

Enterprise Architect

Citywide Architecture & Standards

Solution Design & Review

Technology Master Plan

Chief Administrative Officer

Financial & Procurement Administration

IT Business Model Development

Budget & Performance Management

I&T Human Resources

Strategic Operating Plan

BLUEPRINT FOR SUCCESS

The I&T Leadership Team established a 5-year strategic and cultural "blueprint" in 2017 which serves as the framework for how the organization functions. The "blueprint" establishes the foundational pillars for I&T leadership within the City and provides the context for how we will succeed. Our seven (7) strategic pillars are:

- Providing an outstanding customer experience
- Delivering innovative solutions
- Ensuring accessible data and analytics
- Securing and protecting citywide data
- Executing with operational excellence
- Leading enterprise-wide technology planning and design
- Demonstrating a high-performing culture with effective business practices

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Innovation and Technology Strategic & Cultural Blueprint

PURPOSE
The reason we exist as a team…

STRATEGIC VISION
The future we are creating together…

STRATEGIC PILLARS
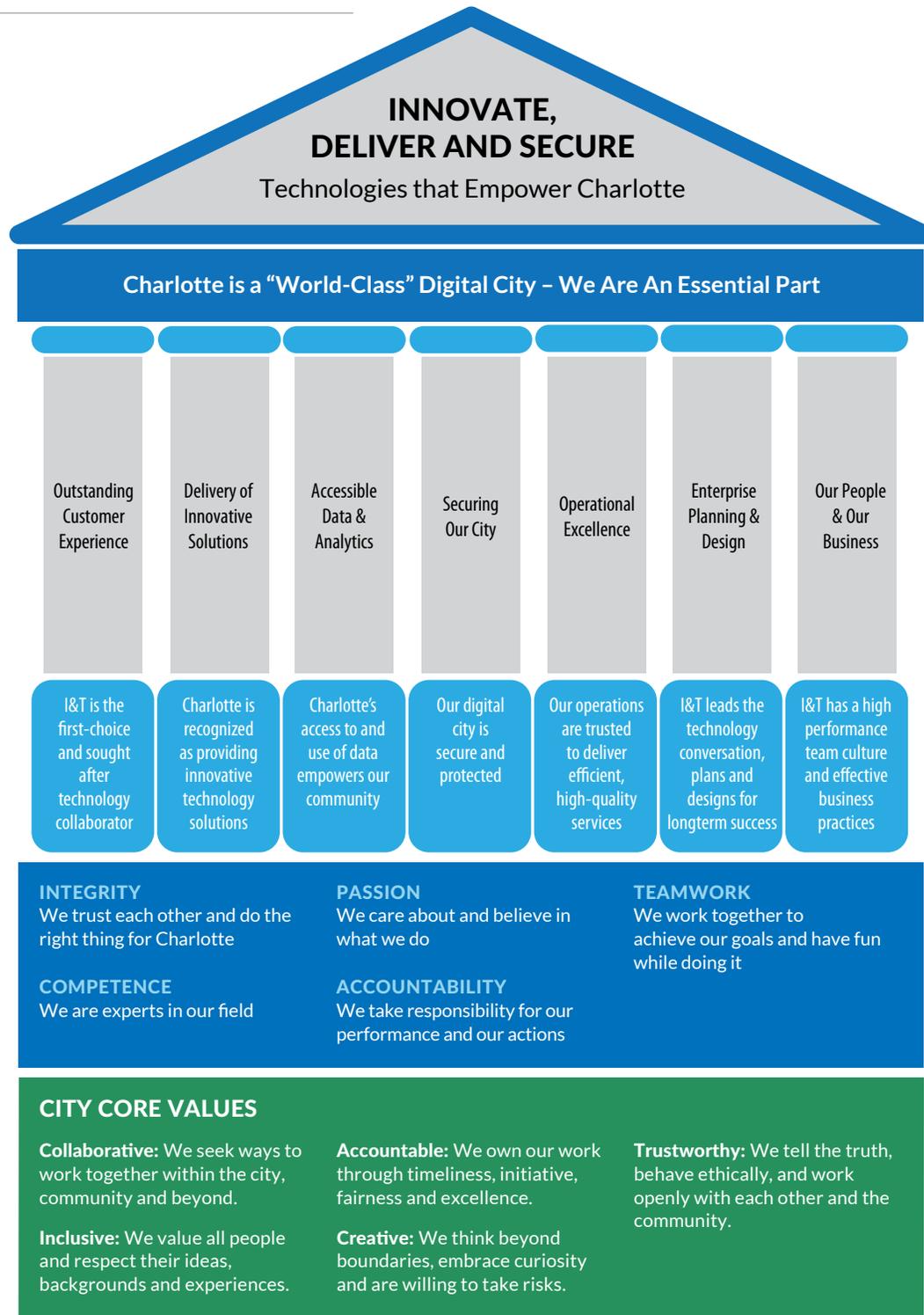The things we are focused on to achieve our strategic vision…

VISION
Our vision is that by the year 2021…

TEAM CHARACTER
The values and behaviors that make our team great…

INNOVATE, DELIVER AND SECURE
Technologies that Empower Charlotte

Charlotte is a "World-Class" Digital City – We Are An Essential Part

Outstanding Customer Experience	Delivery of Innovative Solutions	Accessible Data & Analytics	Securing Our City	Operational Excellence	Enterprise Planning & Design	Our People & Our Business
I&T is the first-choice and sought after technology collaborator	Charlotte is recognized as providing innovative technology solutions	Charlotte's access to and use of data empowers our community	Our digital city is secure and protected	Our operations are trusted to deliver efficient, high-quality services	I&T leads the technology conversation, plans and designs for longterm success	I&T has a high performance team culture and effective business practices

INTEGRITY
We trust each other and do the right thing for Charlotte

PASSION
We care about and believe in what we do

TEAMWORK
We work together to achieve our goals and have fun while doing it

COMPETENCE
We are experts in our field

ACCOUNTABILITY
We take responsibility for our performance and our actions

CUSTOMER EXPERIENCE

- Easy to Work With
- Strong Partners
- Highly Responsive
- Great Communicators
- Executing as an Aligned Team

CITY CORE VALUES

Collaborative: We seek ways to work together within the city, community and beyond.

Inclusive: We value all people and respect their ideas, backgrounds and experiences.

Accountable: We own our work through timeliness, initiative, fairness and excellence.

Creative: We think beyond boundaries, embrace curiosity and are willing to take risks.

Trustworthy: We tell the truth, behave ethically, and work openly with each other and the community.

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Innovation and Technology Blueprint Pillars

Outstanding Customer Experience

STRATEGIC INITIATIVE	BUSINESS IMPACT	MEASURES	TARGET
• Creating a well defined service catalog, including costs per orderable item (tied back to Full Cost initiative)	• Customers are clear on what services we provide, the cost, and the expected time to complete	• Start service catalog for all operations teams; publish & operate for the Technology Services team within SOP year	• Implement 3 customer facing service area catalogs by end of Q4 including what services we provide, the cost, and the expected time to complete
• Document I&T service offerings and set SLEs	• Customers are clear on what services are provided and by whom and setting expectations	• Complete for all departments by target date	• End of Q4
• Reduce the % of AD Password reset calls the Help Desk receives to 15% of the total call volume annually by end of Q4	• Empower users to reset their own password allowing the helpdesk agents to support more critical calls/needs	• Reduce call load to service desk for PW Resets	• AD Password reset call account for no more that 15% of total calls (currently it is at approx. 35%)

Delivery of Innovative Solutions

STRATEGIC INITIATIVE	BUSINESS IMPACT	MEASURES	TARGET
• Demonstrate innovation through tangible projects	• Demonstrate to our client the ability to develop creative solutions for business problems	• Complete at least one innovation project by target date	• End of Q4
• Rollout of VOIP technology	• Provides new telephony functionality for City staff and reduces long-term costs	• 75% completion of VOIP rollout by targeted date	• End of Q4
• Create, approve and publish a City-wide Technology Project Policy	• To ensure that technical projects are more likely to be delivered on time and within the scope and budget allow by following proven techniques, standards, procedures and governance in the delivery of those projects	• Obtain City Manager approval of Technology Project Policy by target date	• End of Q4

Accessible Data & Analytics

STRATEGIC INITIATIVE	BUSINESS IMPACT	MEASURES	TARGET
• Reduce risk and number of Personally Identifiable Information (PII) records that the City maintains	• Minimize the risk associated with storing and maintaining PII records	• Complete discovery of City PII record information	• End of Q2
• Publish the Data Governance Policy	• Establishes the initial City-wide data governance practices for electronic data	• Data Governance Policy is approved and published by target date.	• End of Q4
• Publish BI Tool Standard for the City	• Defines the standard BI toolset recommended for specific Business Analysis use	• The first BI Tool Standard is approved by STAT and published by the target date	• End of Q1

Securing Our City

STRATEGIC INITIATIVE	BUSINESS IMPACT	MEASURES	TARGET
• Increase endpoint security	• Minimize the risk by detecting security threats by behavior rather than signature	• Deploy endpoint security measures 100% by targeted date	• End of Q2

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Innovation and Technology Blueprint Pillars

Operational Excellence

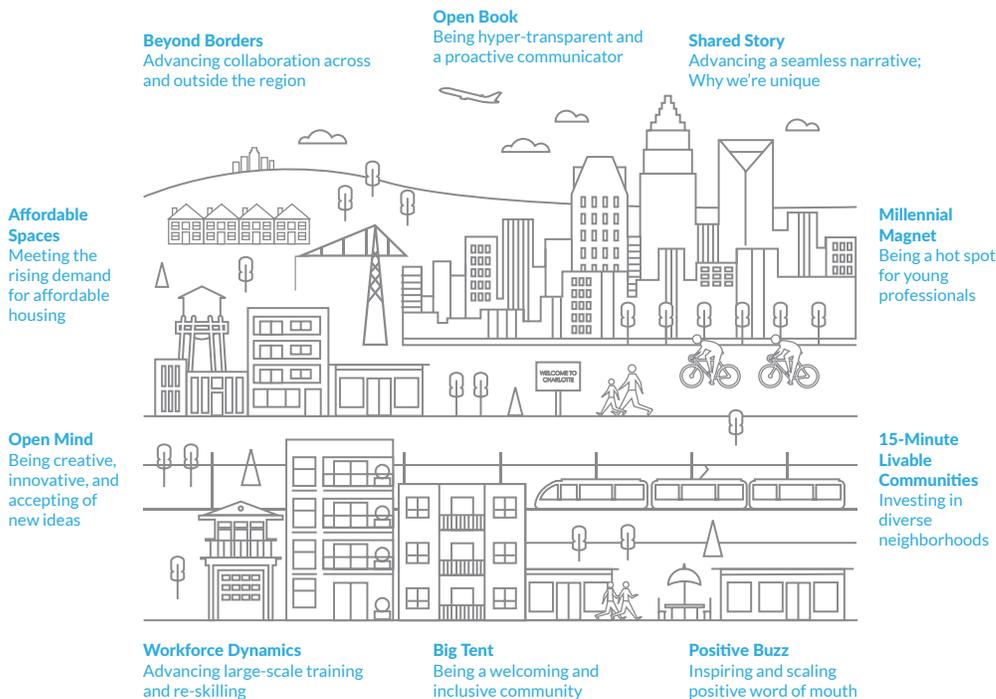| STRATEGIC INITIATIVE	BUSINESS IMPACT	MEASURES	TARGET
• Streamline firewall rule changes	• Improves cycle time of moving something into production thereby improving operational performance, the customer experience and employee morale	• The result of streamlined firewall rule changes is an increase in production of firewall changes from two per week (104 per year) to 1 per day (260 per year). To increase the number of changes per year we will decrease the amount of time taken per change	• 60% increase in productivity of firewall change requests as measured by Mean Time To Implementation (MTTI)
• Maintain the high standards of availability for the City's core systems	• Keeps core systems up and available to City users for business needs	• Core systems availability	• Down less than 24 hours per year
• Maintain the high standards for availability for the Public Safety Communications network	• Keeps Public Safety entities operational and the public safe	• Availability of Public Safety Communications network	• Down less than 1 hour per year
• Enable customers to interact with I&T service areas more easily	• Allows for greater visibility into I&T service areas so that customers can understand what is being worked on	• Implement new ITSM tool, Cherwell by target date	• End of Q3
• Software Asset Management (SAM)	• Effectively predict software licensing costs to avoid budetary impacts	• Publish an RFI by target date	• End of Q3

Enterprise Planning & Design

STRATEGIC INITIATIVE	BUSINESS IMPACT	MEASURES	TARGET
• Create web/mobile strategy	• Improve citizen access to city services and information	• Define and implement the City's web/mobile strategy by targeted date	• End of Q3
• Update technology master plan	• Transparency and awareness of City wide IT investments over the next 5 years	• Complete Technology Master Plan updates and publish by the targeted date	• End of Q2
• Utilizing business value-based prioritization allows for better ROI on IT projects	• Able to make informed comparisons and decisions related to portfolio management	• Business-value-based criteria added to prioritization criteria/process by target date	• End of Q2
• • Create a plan to greater utilize open-source software	• Seek to provide cheaper alternatives to the growing body of proprietary products in our environment	• Sponsor 2 proposals for shifts away from proprietary to open-source software (Examples: DB and alternate server OS)	• Complete one proposal by end of Q2 and second proposal by Q4

Our People & Our Business

STRATEGIC INITIATIVE	BUSINESS IMPACT	MEASURES	TARGET
• Replace the ITFM tool with a more agile and sustainable tool	• Get a real handle on costs that the current tool does not provide. Customers are clear on what services we provide and the cost to provide	• Define the tool requirements that will meet I&T needs by targeted date • Implemented new tool and migrate data by target date	• Selected by Q1 • Implemented by Q4
• Resolve the I&T real estate long-term plan	• To address I&T space issues that are impacting I&T's ability to build strong teams and deliver services	• Define a long term I&T / real estate plan that address the space needs for I&T staff	• End of Q2
• Implement the One Team culture throughout the I&T Dept.	• To maximize departmental performance all individuals need to be acting as one team	• Review One Team Modules 1 through 4 by targeted date	• End of Q3

Strategy and Planning

The City, along with I&T, is looking at how we strategize and plan for the future through a new lens called "10 Traits of a Winning City" that was recently introduced to the organization.

Beyond Borders
Advancing collaboration across and outside the region

Open Book
Being hyper-transparent and a proactive communicator

Shared Story
Advancing a seamless narrative; Why we're unique

Affordable Spaces
Meeting the rising demand for affordable housing

Millennial Magnet
Being a hot spot for young professionals

Open Mind
Being creative, innovative, and accepting of new ideas

15-Minute Livable Communities
Investing in diverse neighborhoods

Workforce Dynamics
Advancing large-scale training and re-skilling

Big Tent
Being a welcoming and inclusive community

Positive Buzz
Inspiring and scaling positive word of mouth

Data & Analytics
Data and the anlytics to translate that data into a form that is quickly understandable is becoming more critical for business decision making and discovery.

Security
The need for strong and continually evolving information security tools and practices are essential to protecting that data our Citizens trust us with.

Cloud
There has been a market shift to cloud-based technologies to save money. We will continue to explore these investments where secure and cost effective.

Operations
As technology is added, costs to operate that technology grows. Developing for continuous delivery (DevOps) and increasing automation helps.

The master planning process continues to be a collaborative effort from all the Departments, with inputs coordinated by I&T staff. Through various governance and partnership mechanisms, all Departments are continually encouraged to consider both their business and the enterprise as a whole when planning technology, and this master plan is a reflection of that.

The total 5-year technology investment captured in this year's Technology Master Plan is $463 million, with $203 million captured as unfunded need. This is compared to last year's 5-year total of $383 million, with $136 million captured as unfunded need. This increase can be accounted for not only as increased focus on digitizing and automating City business, but also an increased emphasis on the master planning process itself. With more visibility, Departments came to the table with more projects and more detail than in the first master plan gathering.

I&T's strategic vision, Charlotte is a *"World-Class" Digital City – We Are an Essential Part"*, applies not only to I&T, but to technology efforts across the organization. To provide direction for this vision and this master planning process, the City is actively pursuing four technology themes to modernize our environment and improve efficiencies. Evidence of the themes described below can be found throughout the FY18-FY22 plan.

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2018 Project Delivery and Risk Mitigation

The I&T organization provides executive leadership for the City's enterprise technology investments working collaboratively with cross-department technology teams.

Technology projects/initiatives were established and detailed in the Technology Master Plan – further categorized by risk mitigation assessment. Key factors considered in establishing overall risk classifications were likelihood of a threat occurring and the business impact if the potential threat does occur.
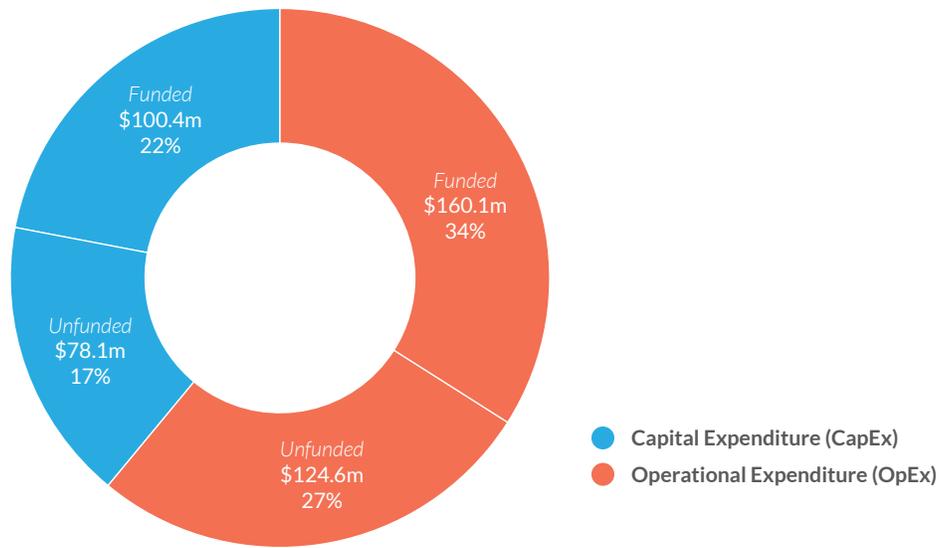
Risk is assessed as follows:

High (red)

The risk being addressed has both a high likelihood of occurring and a high impact to the business

Projects identified in this classification tend to be those which support the continuation of existing core technology platforms and services. Many of these projects are focused on maintaining infrastructure that either has a large impact on public safety or on the City as a whole.

Medium (yellow)

The risk addressed has a mixed likelihood of occurring and a mixed impact to the business

Projects in this classification primarily address the replacement of equipment approaching the end of its life-cycle. Also included are projects upgrading systems to meet growing digital demands and those ensuring alignment with current business needs.

Low (green)

The risk has a (relatively) low likelihood of occurring and a (relatively) low business impact

Projects in this classification are necessary in positioning the City to innovate for more efficient and effective systems. Continual innovation is key to Charlotte being a Smart City and provides for excellence in service delivery and resource optimization.

Highlighted Projects

Departmental projects that were highlighted due to organizational importance

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Summary of Technology Master Plan Funding

This section summarizes roadmap plans across all City Departments.

The current <u>Technology Master Plan</u> identifies a 5-year (FY 2018-22) City-wide investment need of $463.2M. The graphic and table below show the annual breakdown of funded and unfunded projects as well as a comparison of operating versus capital expenses over the next 5 years.

- Funded $100.4m 22%
- Unfunded $78.1m 17%
- Funded $160.1m 34%
- Unfunded $124.6m 27%

● Capital Expenditure (CapEx)
● Operational Expenditure (OpEx)

FUNDING SUMMARY

Category	FY18	FY19	FY20	FY21	FY22	Total
Unfunded vs. Funded						
Unfunded	36.6M	41.4M	32.6M	40.0M	52.1M	**202.7M**
Funded	64.2M	53.9M	53.2M	45.6M	43.6M	**260.5M**
TOTAL OF UNFUNDED & FUNDED 463.2M						
CapEx vs. OpEx						
CapEx	53.8M	43.0M	29.0M	25.2M	27.5M	**178.5M**
OpEx	47.0M	52.3M	56.8M	60.4M	68.2M	**284.7M**
TOTAL CAPEX & OPEX 463.2M						
FY Totals	**100.8M**	**95.3M**	**85.8M**	**85.6M**	**95.7M**	

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Technology Master Plan vs Community Investment Plan* FY2018 – FY2022

I&T PORTION OF TECHNOLOGY MASTER PLAN

Master Plan Project Name	Master Plan 5-Year TCO	Near-Term (FUNDED)	Mid-Term (UNFUNDED)	Long-Term (UNFUNDED)
Telephony Service Migration to CISCO VOIP (FY18-19)	$4,500,000	$2,000,000	$2,500,000	
Replace Hand Held Radios (FY18)	$2,150,000	$2,150,000		
Field Service Vehicles (FY18)	$170,000		$170,000	
Replace Critical Platforms (SQL 2008, Win Server, Windows 10)	$790,000	$610,000	$180,000	
Integration Framework Updates (FY18-19)	$530,000		$530,000	
Business Intelligence Tooling (FY18-19)	$610,000		$610,000	
Disaster Recovery/Business Continuity Plan (FY18-19)	$950,000		$950,000	
Expand server Virtualization FY18-19)	$270,000		$270,000	
Firewall Refresh (FY18-22)	$1,110,000		$500,000	$610,000
Radio Management (FY19)	$1,890,000		$1,890,000	
Additional Projects	$5,770,000			$5,770,000
High Risk Total	**$18,740,000**	**$4,760,000**	**$7,600,000**	**$6,380,000**
Office Space Construction (FY21-22)	$5,700,000			$5,700,000
Enterprise Data Center (FY21-22)	$12,000,000			$12,000,000
Anti-hacking Technologies (FY18-19)	$220,000			$220,000
Enhance Email Security (FY18)	$890,000			$890,000
Microsoft Office Upgrade (FY18-19)	$230,000			$230,000
Enterprise Mobile App Upgrade (FY18)	$250,000			$250,000
Application Performance Monitoring (FY18)	$340,000			$340,000
Cloud-based Disaster recovery (FY18-22)	$690,000			$690,000
Additional Projects (FY17-21)	$22,770,000			$22,770,000
Medium Risk Total	**$43,090,000**	**$-**	**$-**	**$43,090,000**
Big Data Opportunity Analysis (FY18-19)	$440,000			$440,000
Cloud Server and Database Deployment (FY18-19)	$360,000			$360,000
Next Generation Networking (FY18-19)	$1,200,000			$1,200,000
Microsoft Exchange Upgrade (FY19)	$130,000			$130,000
Security Operations Center (FY19-21)	$4,000,000			$4,000,000
Migrate Sites to City-owned Fiber (FY19-22)	$15,430,000			$15,430,000
Additional Projects	$19,340,000			$19,340,000
Low Risk Total	**$40,900,000**	**$-**	**$-**	**$40,900,000**
ERP Improvements (FY18-22)	$7,870,000	$7,870,000		
Highlighted Projects Total	**$7,870,000**	**$7,870,000**	**$-**	**$-**
Grand Totals	**$110,600,000**	**$12,630,000**	**$7,600,000**	**$90,370,000**

NOTE: HIGH RISK INFRASTRUCTURE UNFUNDED PROJECTS - $13,980,000
INNOVATION & TECHNOLOGY LONG-TERM UNFUNDED PROJECTS - $83,990,000

* While there is no new funding, in this CIP, work continues on PeopleSoft System improvements.

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FY 2018 Operating Budget Summary

	FY2015 Actual/ Positions	FY2016 Actual/ Positions	FY2017 Revised/ Positions	FY2018 Budget/ Positions
Administration	**2,196,774**	**2,388,355**	**2,520,039**	**2,724,057**
Leads initiatives for Relationship Management, Process Improvement, Governance, Enterprise Architecture and Financial Management services	17.00	17.00	17.00	18.00
Enterprise Project Management	**621,542**	**769,023**	**1,122,734**	**1,686,650**
Provides project management and resource management for all City projects that have an IT component	4.00	4.00	4.00	7.00
Information Security	**1,350,242**	**1,670,632**	**2,529,715**	**2,805,143**
Administers the Corporate Security Program and complete management and oversight for IT security operations	4.00	4.00	6.00	7.00
Enterprise Applications	**5,703,972**	**6,666,414**	**7,793,516**	**8,530,648**
Builds, maintains, and operates the City's financial management, budgetary, and procurement platforms necessary for the City to conduct daily business	47.00	44.00	46.00	45.00
Operations and Service Management	**7,049,027**	**7,451,750**	**7,212,752**	**7,215,378**
Administers and maintains IT service management system which includes ordering, storage, configuration and delivery of customer end user computing assets	24.00	22.00	22.00	22.00
Network and Telecommunication Operations	**3,235,580**	**3,925,401**	**5,478,763**	**4,587,421**
Provides City-wide support of Enterprise data networks used for computers, voice, video, and infrastructure support devices	7.00	7.00	7.00	9.00
Facilities and Data Services	**1,608,996**	**1,990,783**	**2,857,588**	**2,874,107**
Provides hardware installation and management of Windows and Unix Servers, Storage Area Networks (SAN) and locally attached storage arrays	12.00	12.00	12.00	12.00
Public Safety Communications	**6,082,074**	**6,260,019**	**5,114,299**	**5,271,714**
Maintains the radio and data infrastructure for all public safety and public works agencies throughout the City, Mecklenburg County, and several surrounding counties and municipalities	19.00	20.00	24.00	24.00
Departmental Charges	**(5,436,594)**	**(5,020,193)**	**(7,562,184)**	**(7,229,361)**
Total Budget	**22,411,613**	**26,102,184**	**27,067,222**	**28,465,757**
Total FTEs	**134.00**	**130.00**	**138.00**	**144.00**

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FY2017
Accomplishments

Rolled out the "seven pillars" I&T strategy and culture blueprint with a significant focus on the "Outstanding Customer Experience" pillar,

I&T's annual customer satisfaction rating showed an over 18% increase as compared to last year's rating.. Continued to significantly improve help desk operations – with an average speed of answer (ASA) at 13 seconds (65% reduction from last year) and reduced abandoned to less than 1.5% of all calls from August 2016 to August 2017, a 62% improvement. Major incidents have dropped over a 24 month period from 137 to just 14 in all of FY 2017, a 90% reduction.

Continued to improve upon cross-departmental IT project management and oversight capabilities

Improved IT project management has had a positive impact on City business. Completed a major migration to PeopleSoft 9.2 supporting citywide payroll and HR operations as well as completing a major update to the City's MUNIS system supporting citywide procurement and financial operations. I&T oversaw the initiation and review of 123 investments totaling over $26.8M in support of departmental and enterprise-wide needs.

Enhanced operational processes, services and systems to increase reliability, improve outdated systems and better meet the on-going technology needs of our customers

Deployed a new Housing and Business Services code inspection system using an outsourced partner to replace a 10+ year old home-grown system and to drive increased inspector productivity. Contracted with our new managed security service provider (MSSP) to expand services to include a citywide Network Operations Center (NOC) covering over 2600 devices and a hosted security incident & event management system (SIEM) to provide cost savings and greater scalability for the increasing number of security events. Achieved record levels of reliability (99.9999% up-time) in the Public Safety radio system which supports Police, Fire and MEDIC and is one of the most reliable public radio systems in the country.

Responded to key cybersecurity events and initiated major improvements to the City's cybersecurity program to protect sensitive information.

Managed information security during last year's protest following an "officer-involved" shooting such that no City system was breached and we provided a brand new constituent video access system that enabled millions to access the video provided by CMPD independent of City networks. Thwarted over 100 million security events without a breach. Employed new threat detection software which captured 32% more potential threats before they could negatively impact City operations. Implemented a new distributed denial of service (DDoS) prevention system to further protect City systems from Internet attack, especially during times of social protest. Smoothly deployed a new mobile device management platform that increased mobile device security and reduced the number of help desk calls versus the prior product.

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