City of Cambridge

IT STRATEGIC PLAN
JANUARY 2019 — JUNE 2022

ADOPTED, 15 NOVEMBER 2018

Contents

- A Message from the City Manager
- IT Strategic Plan
  - Introduction
  - Key Initiatives
  - Roadmap over Three Years
  - Focus Areas for Year 1, Jan 2019 — Jun 2020, 18 months
- Acknowledgements
- Appendix
  - Initiative Details

A Message from the City Manager

The City of Cambridge is dedicated to continuing to improve the quality of life for everyone in our community in an environment of excellence while maintaining a strong financial position, including awareness of the impact on taxpayers. This updated IT Strategic Plan outlines the City's information technology plan for the next three years and highlights key initiatives we are undertaking to improve the delivery of services to our residents and community.

Information and technology are an integral part of our daily lives and play a critical role in our ability to provide City services. We are committed to continuing to serve as an innovative technology leader in the community. City Departments are always looking for ways to improve customer service, streamline and enhance services, increase transparency, and deploy technology solutions that improve the publics' interactions with the City.

Over the past several years, the City has continuously invested in and improved its information and technology capabilities. Since FY15, the City has invested over $14M through the EGov process in support of projects that have enhanced the delivery of City services and increased innovation. The City is well positioned to build off current strengths and the new IT Strategic Plan to continue the effective use information and technology.

It is a great honor for me to be able to lead this City. Our City departments work diligently to accomplish the priorities and policies established by the City Council and provide the day-to-day services that are important to our community. I appreciate the work that every employee does and the dedication that they show to the people of Cambridge.

Louis A. DePasquale

City Manager

Introduction

The City of Cambridge has developed the 2018 IT Strategic Plan which serves as an update to the 2013 IT Strategic Plan.

- The 2018 IT strategic planning process involved a review of the City's IT needs and capabilities, and consideration of industry leading practices, which collectively highlighted opportunities for continued improvement and investment. As a result, eleven recommended initiatives were outlined for the City to undertake over the next three years. These initiatives include developing new information and technology capabilities as well as building onto the existing foundation.

- Implementing the initiatives will enable the City to execute on stated objectives including improving the publics access to services, ensuring a reliable, secure and safe technology environment, developing employees and workforce capabilities, and optimizing technology investments through effective decision making. While all eleven initiatives should be considered, the following priority areas will receive immediate focus:

  o Customer Centered Engagement & Innovation — Innovate and evolve to enhance customer engagement
  o Investment, Prioritization & Program Management — Align IT investments and resources to the City's top priorities, and establish a citywide Program Management Division in ITD
  o Workforce Capability & Training — Develop workforce capabilities in critical & strategic areas
  o Data & Analytics — Foster data-driven, transparent decisions for innovative solutions
  o Security — Strengthen the City's risk posture
  o IT Resiliency & Disaster Recovery — Ensure the City's ability to operate under adverse conditions
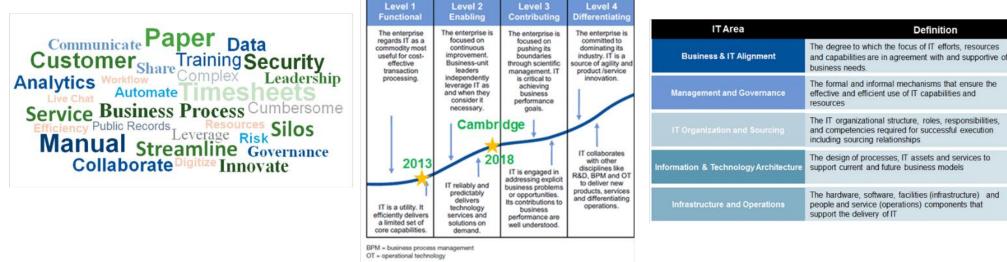
IT Strategic Planning Process

The IT Strategic Plan process involved a review of the City's IT needs and capabilities as well as consideration of industry leading practices.

- Over 210 City stakeholders and employees provided input and shared their perspectives by participating in over 20 open forums, focus groups and interviews.
- Analysis conducted across fundamental IT areas and review of industry leading practices highlighted opportunities for continued improvement and investment.

The City has strengthened information and technology capabilities and is approaching a maturity level of "Contributing" which is the target level for most public sector organizations
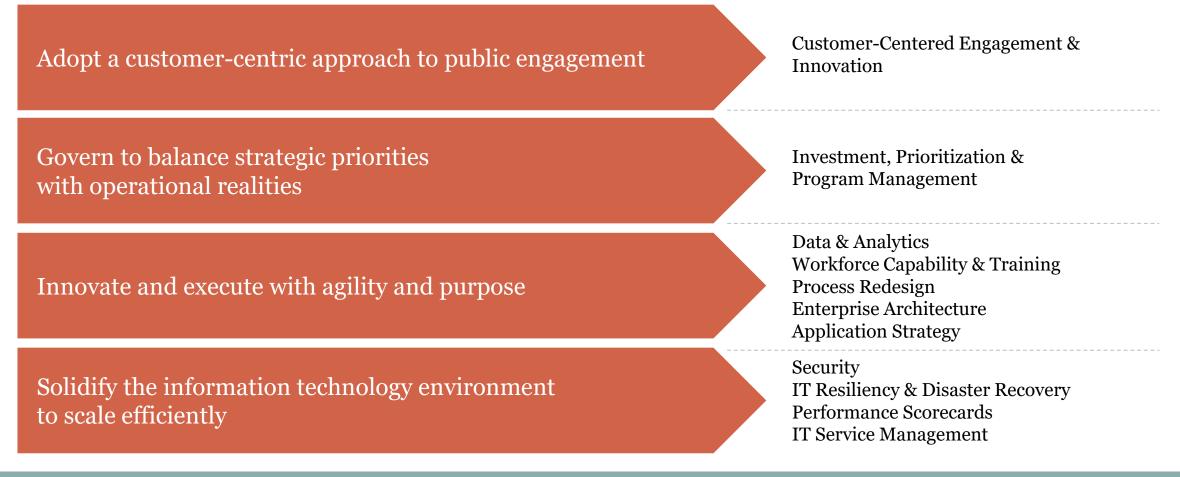

Level 1 Functional	Level 2 Enabling	Level 3 Contributing	Level 4 Differentiating
The enterprise regards IT as a commodity most useful for cost-effective transaction processing.	The enterprise is focused on continuous improvement. Business-unit leaders independently leverage IT as and when they consider it necessary.	The enterprise is focused on pushing its boundaries through scientific management. IT is critical to achieving business performance goals.	The enterprise is committed to dominating its industry. IT is a source of agility and product /service innovation.
IT is a utility. It efficiently delivers a limited set of core capabilities.	IT reliably and predictably delivers technology services and solutions on demand.	IT is engaged in addressing explicit business problems or opportunities. Its contributions to business performance are well understood.	IT collaborates with other disciplines like R&D, BPM and OT to deliver new products, services and differentiating operations.

BPM = business process management
OT = operational technology

Source: Gartner

IT Area	Definition
Business & IT Alignment	The degree to which the focus of IT efforts, resources and capabilities are in agreement with and supportive of business needs.
Management and Governance	The formal and informal mechanisms that ensure the effective and efficient use of IT capabilities and resources
IT Organization and Sourcing	The IT organizational structure, roles, responsibilities, and competencies required for successful execution including sourcing relationships
Information & Technology Architecture	The design of processes, IT assets and services to support current and future business models
Infrastructure and Operations	The hardware, software, facilities (infrastructure) and people and service (operations) components that support the delivery of IT

IT Strategic Plan Key Initiatives

Recommendations for the next one to three years build off today's strengths and address opportunities for improved services and capabilities.

Adopt a customer-centric approach to public engagement

Customer-Centered Engagement & Innovation

Govern to balance strategic priorities with operational realities

Investment, Prioritization & Program Management

Innovate and execute with agility and purpose

Data & Analytics
Workforce Capability & Training
Process Redesign
Enterprise Architecture
Application Strategy

Solidify the information technology environment to scale efficiently

Security
IT Resiliency & Disaster Recovery
Performance Scorecards
IT Service Management

Key Initiatives	Year 1 Jan 2019 — Jun 2020 (18 Months)						Year 2 Jul 2020 — Jun 2021 (12 Months)				Year 3 Jul 2021 — Jun 2022 (12 Months)			
	1	2	3	4	5	6	1	2	3	4	1	2	3	4
Solidify a Customer-Centric Approach to Public Engagement														
Customer Centered Engagement and Innovation	�													
Govern to Balance Strategic Priorities with Operational Realities														
Investments, Prioritization and Program Management														
Innovate & Execute with Agility and Purpose														
Data and Analytics														
Workforce Capabilities and Training														
Process Redesign														
Enterprise Architecture														
Applications Strategy														
Secure Information Technology Environment to Scale Efficiently														
Security														
IT Resiliency and Disaster Recovery														
Performance Scorecards														
IT Service Management														

Year 1 Focus Areas

While all initiatives are important, the City will begin in Year 1 by focusing in the priority areas listed below.

Year 1 Priority Area
Customer Centered Engagement & Innovation — Innovate & evolve to enhance Customer engagement
Investments, Prioritization & Program Management — Align IT investments & resources to City's top priorities
Data & Analytics — Foster data-driven, transparent decisions for innovative solutions and services
Workforce Capability & Training — Develop workforce capabilities in critical & strategic areas
Security — Strengthen the risk posture and security awareness across the City
IT Resiliency & Disaster Recovery — Ensure the City can operate critical functions in the event of a disruption

Future Years 2-3

Additional future activities are also important though not in the forefront for Year 1:

- Some already have activities in process and will continue.
- Others are considered as a second tier of priorities and may expand as result of activities approved and completed in Year 1.

Future Year Priorities

Process Redesign — Automate and streamline City processes and user experience for residents, visitors, and employees

Enterprise Architecture — Adopt a base of technology principles, standards and governance to drive innovation and manage technology diversity

Applications Strategy — Establish a portfolio of digital solutions across the City

Performance Scorecards — Use key metrics for greater transparency, accountability and continuous improvement

IT Service Management — Continue to improve IT efficiency, productivity, and quality services while reducing operating risk

Year 1 Focus Areas

CUSTOMER CENTERED ENGAGEMENT & INNOVATION

INVESTMENTS, PRIORITIZATION & PROGRAM MANAGEMENT

DATA & ANALYTICS

WORKFORCE CAPABILITY & TRAINING

SECURITY

IT RESILIENCY & DISASTER RECOVERY

Customer Centered Engagement & Innovation

Description: Adopt a citywide customer-centric mindset that drives innovation and delivery of city services and customer interactions, and unifies the operations, data, technology solutions across all departments.

- Value/Desired Outcomes:
  - Improved customer service.
  - Streamlined processes and integrated data.
  - Greater alignment of IT investments to most important customer-centric needs and priorities.
  - Routine sharing of experiences, best practices and opportunities to improve.

- Year 1 Activities:
  - Understand and address Customer needs (e.g., what does good look like, define gold standard).
  - Identify priority data, analytics and process redesign/automation needs.

Investment, Prioritization & Program Management

Description: Align IT governance and decision making to provide citywide direction and oversight on IT investments, prioritization, portfolio management, and resource management to achieve strategic benefits.

- Value/Desired Outcomes:
  - Ensure IT investments and resources are committed and aligned to City priorities.
  - Approved projects are scoped, planned, prioritized, resourced and executed within set schedules and budgets.
  - IT governance approach is effective in making recommendations to present to the City Manager for decisions and providing direction to Departments and IT project teams.
  - Lessons learned are used to improve the planning and execution of projects and to continuously refine the IT decision making and governance process.

- Year 1 Activities:
  - Revise IT governing groups for investment, resource, prioritization decisions.
  - Provide insight into how projects are categorized, prioritized and selected.
  - Implement a system to improve transparency and real time project tracking/implement early course corrections when necessary.
  - Provide stakeholders with instant visibility to key performance indicators across the entire project portfolio.

Data & Analytics

Description: Leverage data and analytics to improve transparency, efficiency, and innovation so that Cambridge becomes an even better place to live, visit, work, and do business.

- Value/Desired Outcomes:
  - Analyze data to improve service delivery.
  - Reach stakeholders more effectively.
  - Allocate resources more efficiently and equitably.
  - Improve data accessibility and transparency.

- Year 1 Activities:
  - Begin implementing Data Analytics and Open Data Strategic Plan.
  - Conduct predictive modeling project with What Works Cities and Johns Hopkins University.
  - Pilot internal data sharing system.
  - Deploy new data trainings and project resources.

Workforce Capability & Training

Develop and strengthen capabilities and knowledge of new and existing information, technology and security topics to address the evolving needs of Residents and the City.

- Value/Desired Outcomes:
  - Develop and acquire key capabilities required to execute the City's strategic initiatives.
  - Strengthen workforce professional development and career paths with expanded capabilities, roles and responsibilities.
  - Build collaborative inter-department teams with diverse and complementary capabilities, skills and knowledge operate in an innovative, agile and customer-centric manner.

- Year 1 Activities:
  - Formalize citywide training plan.
  - Implement training (e.g., security, core technologies & applications, collaborative teams).
  - Establish new roles (e.g., security, data, PMD, process redesign, consulting).

Security

Formalize security activities at the City through the establishment of a dedicated role, an adopted framework and defined policies and procedures.

- Value/Desired Outcomes:
  - Ability to prove that a minimal standard of due care is being met, when required to do so by auditors or regulators.
  - Build an effective security program and strengthen the City's risk posture.
  - Avoid an over-reliance on short-term vulnerability assessments and technical mitigations.
  - Develop and communicate policies so City employees and stakeholders are "risk-aware".

- Year 1 Activities:
  - Formalize security role & dedicate security resource(s).
  - Assess & remediate known risks.
  - Instill a risk aware culture (e.g., citywide mandatory security training).
  - Develop security plan and begin to implement security program.

IT Resiliency & Disaster Recovery

Improve the resiliency of key IT assets and invest in an overall IT Disaster Recovery strategy for the City, as well as IT Disaster Recovery planning to keep the City working in the event of a disruption. This effort needs to be integrated with the City's Business Continuity Program which will provide the resources and processing needed to resume critical business.

- Value/Desired Outcomes:
  - A recovery strategy and solution that will ensure the City's operational resilience before, during and after a disruption or disaster.
  - Ensure the City is able to continue critical business function processing in the event of a disaster.
  - Avoid lost resident trust and preserve the City's reputation.
  - Minimize economic, health and safety impacts to resident and businesses in the event of a disaster.

- Year 1 Activities:
  - Assess & remediate known risks.
  - Develop disaster recovery management plan and begin to implement program.

Acknowledgements

Special thanks to our City leadership, participating departments, City Manager's Advisory Board and other partners for participating in the development of this strategy document.

Over 20 focus groups, interviews and open forums were conducted across the City with internal and external stakeholders on a variety of topics:

- **Analytics/Geo Spatial** — DPW, Traffic, ITD, PIO, CDD
- **Boards and Commissions/Small Departments** — ITF, Historical, Peace, Human Rights, Disability, City Manager, Election, Animal, Family
- **Buildings/Facilities/Security Systems/Cameras/Privacy** — Traffic, ITD, PSIT, DPW, DHSP, Library, Schools, Electrical, Capital Construction
- **Community Development/Traffic/Water/DPW** — ITD, Water, CDD, DPW, Traffic
- **Customer Service/Community Engagement** — PIO, Library, PS PIO
- **Cybersecurity/Data/Privacy** — ITD, Library, Schools, PSIT, DHSP
- **Finance and Human Resources** — ITD, Finance, Budget, Purchasing, DPW, HR, Fiscal, Auditing, Library
- **Governance** — EGov Executive Committee, IT Strategic Plan Working Group
- **IT Division/Public Safety IT** — I&O, Data & Analytics, Cybersecurity/Disaster Recovery/Business Continuity
- **IT Division/Public Safety IT/Infrastructure** — ITD, PSIT, Electrical
- **Law Department**
- **Leadership Committee** — Public Safety, DHSP, CDD, Budget, PIO, Law, HR, Traffic, Executive Office, CHA, Equity and Inclusion, ITD, Finance
- **Multi Service Site Departments** — DHSP, Library, ITD
- **Productivity/Permits/License, Document Management, CRM** — CDD, ISD, ITD, License, Traffic, DPW
- **Public Safety/ECC/Fire/Police** — ITD, PSIT, Public Safety, Fire, Police, ECC
- **Public Works**
- **System Managers** — ITD, PSIT, DHSP, Library, CDD, DPW

Our IT Strategic Plan project was conducted in partnership with Gartner, Inc.

Appendix

INITIATIVE DETAILS

Initiative Details: Assumptions and Definitions

- Assumptions
  - The activities outlined are expected to occur over a 3 year period and are not all expected to start in Year 1.
  - Estimates related to the duration of tasks assume the initiative is approved and started with appropriate resources.

- Initiative Details Layout and Definitions
  - Description — Provides an overview and summarizes why the City should complete the initiatives including goals, outcomes and benefits.
  - Key Activities — Outlines the key steps required to complete the initiative.
  - Value/Desired Outcomes — Expected results and benefits to be realized from completing the initiative.
  - Critical Success Factors — Characteristics, conditions, capabilities and activities that are required and enable the effective development and deployment of a project or process.

Customer-Centric Engagement & Innovation

Adopt a citywide customer-centric mindset that drives innovation and delivery of city services and customer interactions, and unifies the operations, data, technology solutions across all departments.

Key Activities:

1. Formalize the Customer-Centric Engagement and Innovation functions by designating a lead with a citywide role to ensure an integrated, consistent, targeted plan to implement a citywide customer-centric, innovative approach.
2. Confirm customer segments and prioritized needs:
   a. The CRM project as well as other customer-facing projects are capturing some of this information.
   b. Combine, reconcile and prioritize customer needs from a citywide perspective
3. Define and/or implement key initiatives/projects to address high priority customer needs. Work in collaboration with the Program Management Division (PMD) to reconcile the project portfolio:
   a. Review existing and planned customer-centric projects
   b. Develop one prioritized list of new, existing and planning projects for the City
   c. Adjust and/or request funding to implement high priority projects (e.g., stop low priority projects, realign planned investments for high priority projects)
4. Adopt a concierge, "ambassadors" model to provide near-term, high-touch assistance for top priority customers & needs
5. Identify high potential business processes to redesign as end-to-end business processes to create a more customer-centric experience and integrate multi-department data and processes:
   a. Identify business process owners, data stewards and department sponsors. Work in collaboration with Data & Analytics team & Chief Data Officer (CDO).
   b. Formalize redesign initiative and plans in an existing or new project. Work in collaboration with the PMD.
6. Establish and track metrics on customer-centric outcomes (e.g., response times, completion times)
7. Engage external parties (e.g., resident advocacy groups, Council members, business owners) on a regular basis to participate in and provide feedback to city initiatives.
8. Define the innovation process and make it an integral part of Customer Engagement:
   a. Clarify innovation objectives — why does the City want to innovate
   b. Consider innovation options and experiment with the innovation process (e.g., Smart City Corridor, entrepreneurial and educational technology collaborative programs)
   c. Formalize activities and commit resources to sustain innovation
9. Serve as the lead customer-centric advocate and assist City leaders in driving organizational change to instill a customer-centric mindset across the City.

Value/Desired Outcomes:
- Improved customer satisfaction and public perception in line with the City's priorities (e.g., responsive, high quality, innovative)
- Improved time and cost efficiencies with streamlined processes and integrated data
- Greater alignment of IT investments and resources to most important customer-centric needs and priorities
- Routine sharing of experiences, best practices and opportunities to improve customer engagement and city services

Critical Success Factors:
- Executive commitment to adopt a customer-centric mindset and approach across the City
- Sufficient resources to achieve tangible milestones and outcomes
- Transparency and accountability of customer outcomes

Investment, Prioritization & Program Management

Align IT governance and decision making to provide citywide direction and oversight on IT investments, prioritization, portfolio/program/project management, resource management, and achieved benefits.

Key Activities:

1. Revise City IT governance and decision making structures, roles, responsibilities and processes to better align to current needs to provide citywide direction and oversight.
2. Establish a citywide Program Management Division (PMD) in ITD with Program lead. Develop a charter to formerly define the PMD's mission, organization, and responsibilities. Begin by addressing IT projects, with the potential in the future to address a broader set of projects across the City. Develop and/or adopt templates and tools to effectively manage citywide IT portfolio, programs and projects. Ensure project documents are developed and approved — for example, charters that detail the scope, objectives, expected benefits, approach/work plan, resource needs, budget requirements, schedule, key risks and dependencies.
3. Provide ongoing program and project management oversight during the execution of projects.
4. Identify and recommend changes such as project scope, schedule, solutions, products, resources needs and budget requirements during the planning and execution of each project. This will include reprioritization, rescheduling and change in resource recommendations. A likely process is for the PMD to make recommendations to the IT governing bodies (e.g., City Manager, Prioritization & Review Committee, Investment Committee) for decisions.
5. Assess, manage and mitigate project level issues and risks.
6. Report the status of each project to IT governance groups (e.g., City Manager, leadership groups).
7. Use the PMD to schedule and facilitate meetings of IT governance groups (e.g., City Manager, leadership groups, supporting committees) to aid in decision making and oversight of IT investments, programs and projects. Provide reports and data to aid decision making.
8. Review IT governance approach on a quarterly basis and make necessary improvements.

Value/Desired Outcomes:

- IT investments and resources are committed and aligned to City priorities
- Portfolio of investments, programs and projects are balanced to achieve expected benefits
- Approved and prioritized IT and non-IT projects are scoped, planned, prioritized, resourced and executed within approved schedules and budgets
- Results & return on investments are achieved, transparent, reported
- IT governance approach is effective in making recommendations to present to the City Manage for decisions and providing direction to Departments and IT project teams
- Lessons learned are used to improve the planning and execution of projects and to continuously refine the IT decision making and governance process.

Critical Success Factors:

- Strong executive support for citywide IT governance and decision making, IT investments, prioritization, portfolio/program/project management and oversight, and resource management
- Transparency and accountability of project details and outcomes

Data & Analytics

Solidify the Open Data and Data Analytics function to achieve the City's defined mission: "Help the City of Cambridge leverage data to improve transparency, efficiency, and innovation so that Cambridge becomes an even better place to live, visit, work, and do business."

Key Activities:

1. Refine and Publish the Open Data and Data Analytics Strategy and Roadmap for FY2019-FY2021. Clarify the scope and value proposition of the Open Data and Data Analytics function, and determine the need for a Chief Data Officer and additional resources, roles.
2. Institutionalize the Open Data and Data Analytics Program. Formally establish the Program and include key activities to develop foundational deliverables (e.g., steering committee and governance group charter, policy development process, data asset registration policy, analytics tools and repository policy) and policies needed to expand the Program from open data to ultimately include both open and proprietary data as well as analytics.
3. Develop the Data Model and Asset Catalog. This will establish the technical artifacts that are critical prerequisites for stewardship work, improvement of overall data quality, and ensuring appropriate use of data for analytical purposes. This will promote self-service and improved transparency.
4. Formalize the Data Stewardship Roles and implement a repeatable and ongoing data quality process. This will improve data quality and increase adoption.
5. Develop Operational Data Governance Group and establish key "set up" activities needed to execute the operational governance function (e.g., analytics request intake, prioritization and selection, portfolio management).
6. Formalize Collaboration Forum and Training for analysts to share experiences, best practices and lessons learned. Also establish a repeatable approach to identify business and technical training requirements and other needs.
7. Mature Technical Infrastructure for data management and data analysis. This will result in robust data management and increased data accessibility, reusable high quality data, and usable analytics and also promote self-service.

Value/Desired Outcomes:

- Clarify Data & Analytics Program scope and value proposition
- Confirm executive sponsorship and buy-in
- Align expectations and reduce uncertainty
- Ensure deployment of right capabilities and resources
- Improve data accessibility, transparency and self-service
- Robust data management, reusable and high quality data

Critical Success Factors:

- Formal endorsement and broad acceptance for a sustainable Data & Analytics Program
- Clear, explicit description and agreement of scope and value of Program in terms of recipient (e.g., residents, departments, developers), data (open, proprietary) and delivery (e.g., access, forms of analysis)

Workforce Capability & Training

Develop and strengthen capabilities and knowledge of new and existing information, technology and security topics to address the evolving needs of Residents and the City.

Key Activities:

1. Develop plans to reskill current resources and/or acquire new hires and/or externally source of contractors/consultants. Key roles include:

   a. Security — primarily focus on cyber/information security, and work in close collaboration with physical security, disaster recovery, and business continuity plans and capabilities.

   b. Data, Privacy and Analytics — establish and expand the city's Data & Analytics capabilities and advise on the principles, policies, procedures and programs.

   c. Enterprise Architecture — establish architectural and technical principles and standards to guide city-wide business and technology solutions and decisions. Ensure risks are addressed.

   d. Business Relationship Management — provide consultative assistance to departments and IT groups to ensure the value of technology is realized across the City

   e. Portfolio Program and Project Management — balance the IT portfolio and investments, provide programmatic focus on prioritized projects, and oversee new technology adoption and the IT governance process.

   f. Training and Talent Management — provide learning resources and professional growth opportunities for individual employees to develop and strengthen their technology and security knowledge and skill set.

2. Build competency in critical areas and skills in collaboration, agility, innovation, and new ways of working.

Value/Desired Outcomes:

- Develop and acquire key capabilities required to execute the City's strategic initiatives
- Strengthen workforce professional development and career paths with expanded capabilities, roles and responsibilities
- Build collaborative inter-department teams with diverse and complementary capabilities, skills and knowledge operate in an innovative, agile and customer-centric manner

Critical Success Factors:

- Executive support to lead organizational change across the City that reflects a customer-centric mindset and fosters innovation, collaboration, efficiency and effectiveness
- Ability to hire and/or outsource skills that cannot be developed in-house

Security

Formalize security activities at the City through the establishment of a dedicated role, an adopted framework and defined policies and procedures.

Key Activities:

1. Assign a full time person in charge of security responsibilities for the City. This should be a dedicated role.
   a. The person who occupies this role is functionally the Chief Information Security Officer (CISO). Other commonly used titles are Manager of Security, Director of Security.
2. Determine the reporting structure for the full-time security role. For example, reporting to IT, reporting to Finance, reporting to City Manager.
   a. At other organizations, most continue to report into the enterprise IT organization at some level, but a significant minority now report into higher "corporate" levels outside of the IT organization –all based on the maturity of the enterprise security program
3. Select a comprehensive framework such as NIST or ISO 27001. Compliance frameworks are not enough on their own.
4. Build an operational security plan around the selected framework and establish the desired state of the security program.
5. Develop a current-state assessment of the security posture including:
   a. Commission an independent vulnerability assessment and/or security audit.
   b. The extent to which there is a clear set of policies that dictate what security should look like. Consider both information security (i.e., the handling of the information asset) and IT security (that is, the reliability of the platform on which those information assets are created, stored and processed)
   c. The existence of controls to implement the policies outlined in the previous point and any major deficiencies in those controls
   d. The intra-organizational relationships and activities that verify whether security controls are working
6. Establish City-wide formal policies and processes for security
7. Draft, socialize and publish an enterprise information security charter
8. Include operational technology and physical security and digital risks
9. Continue to improve security awareness and instill a "risk-aware" culture across the City, ensuring that key personnel fully understand the risk implications associated with their IT assets
10. Implement procedures to ensure cybersecurity requirements are reflected in third-party and vendor agreements

Value/Desired Outcomes:
- Ability to prove that a minimal standard of due care is being met, when required to do so by auditors or regulators
- Build an effective security program and strengthen the City's risk posture
- Avoid an over-reliance on short-term vulnerability assessments and technical mitigations
- Develop and communicate policies so City employees and stakeholders are "risk-aware"

Critical Success Factors:
- Full-time person in charge of security. This should be a dedicated role and held by someone with hands-on IT skills and knowledge of City government
- Improving security leadership and governance is arguably more important than developing technology tools and skills
- Developing a security aware culture across the City

IT Resiliency & Disaster Recovery

Improve the resiliency of key IT assets and invest in an overall IT Disaster Recovery strategy for the City, as well as IT Disaster Recovery planning to keep the City working in the event of a disruption. This effort needs to be integrated with the City's Business Continuity Program which will provide the resources and processing needed to resume critical business.

Key Activities:
1. Identify and remediate known risks that are within IT control such as:
   a. Replace City Hall router
   b. Determine where UPS and/or generators should be added and/or replaced
   c. Evaluate redundant internet service providers
   d. Diversify the geographic footprint of production workload by leveraging a solution that does not share the same risk profile
2. A methodology to develop a comprehensive Disaster Recovery Management Program includes the following:
   a. Launch an initiative to develop a Program by first identifying the executive sponsor and DR program manager.
   b. Develop a governance structure that includes key stakeholders from both IT and key City departments.
   c. Conduct a Business Impact Analysis to identify and prioritize business functions and supporting IT services and components
   d. Leveraging the results of the BIA (specifically the RTO/RPOs), develop and/or validate a supporting infrastructure that will meet the defined objectives.
   e. The DR strategy should include the following components: 1) data protection (RPOs), 2) workload recoverability (RTO), and 3) a sourcing strategy (i.e., colocation, cloud) for recovery.
   f. Develop a runbook and disaster recovery plan that outlines key processes and recovery procedures. Involve city departments and IT groups.
   g. Create disaster recovery plans and runbooks to reliably recover critical IT services and components
   h. Validate the DR strategy, plan and processes via tabletops and testing.
   i. Develop metrics to assess the Program's effectiveness.

Value/Desired Outcomes:
- A recovery strategy and solution that will ensure the City's operational resilience before, during and after a disruption or disaster
- Ensure the City is able to continue critical business function processing in the event of a disaster
- Avoid lost resident trust and preserve the City's reputation
- Minimize economic, health and safety impacts to residnets and businesses in the event of a disaster

Critical Success Factors:
- Executive sponsorship for the DR Program
- Define critical business recovery requirements across city departments
- Ensure the infrastructure is designed to meet the defined RxOs.
- Comprehensive testing to ensure the plans and infrastructure are operational when needed.

Enterprise Architecture

Formalize enterprise architecture and technology risk management to ensure technology principles, standards, selections and solutions are aligned to meet City department needs and technology risks are being addressed.

Key Activities:
1. Establish a head Enterprise Architect role and citywide Technology & Risk Management Group consisting of participants across departments to define and recommend enterprise architecture, technology, security and privacy direction, principles, and standards that address the needs of the city.
   a. This group should include members that represent the complexity and diverse needs required across the City (e.g., Schools, DHSP, Library, multi-sites, Public Safety, Public Works, Traffic)
   b. This group formalizes the ITD and multi-department IT system managers workgroup that is in place today.
   c. This group will ensure compliance with security and regulatory requirements and that risks are being addressed.
   d. This group will work in partnership with other city IT governance groups.
   e. This group will be chaired by the individual in the lead enterprise architect role.
2. The group will define the principles, direction and standards in an Enterprise Technology Architecture (ETA) document which will address key categories of technologies, data, applications and solutions.
3. The group will update and maintain the ETA.
4. The group will review and act on requests for clarification and recommend exceptions to standards defined in the ETA.
5. The group and related activities will be incorporated into the City's IT governance approach.

Value/Desired Outcomes:
- Ensure customer/resident, City and department needs are met
- Improve architectural planning to deliver more comprehensive, consistent and cost efficient technology services and solutions
- Instill a base level of technology standards and governance to support innovation and manage technology diversity
- Clarify roles and responsibilities in order to set technology direction and make technology decisions to achieve City' goals

Critical Success Factors:
- Strong executive support to follow standards and principles established to achieve City goals
- Strong architecture leadership to manage architecture and risk review process and appropriately escalate issues
- Transparency and accountability of outcomes

Application Strategy

Develop an application strategy to underpin decision making and process redesign. An application strategy should identify gaps between capabilities necessary to support the City strategy and those of the existing portfolio. This results in a set of recommended changes, guided by principles, to plug the gaps. This is an ongoing process, which identifies new requirements for assessment of the application portfolio and new projects to be considered in the project portfolio. Without an applications strategy, the City will have to react to requests from many entities based on politics or funding sources, without city-wide consensus on priorities.

Key Activities:
1. Expand current activities that relate to application planning, modernization, retirement.
2. Baseline the current application portfolio health. Gather an accurate inventory of department systems that includes:
   a. Business capability the applications support
   b. Technical condition of applications
   c. Usefulness and degree to which applications support business needs
   d. Identification of systems of record, department/mission differentiation and innovation
   e. Level of effort to support as well as level of effort to modernize
3. Use the portfolio baseline to identify gaps to City strategic goals and to rationalize the current portfolio. identify quick wins and targets for replacement or retirement
   a. Redundant systems providing the same business capability to different departments
   b. Applications with limited business value and/or application health concerns
   c. Applications with external factors such as vendor support (e.g., PeopleSoft)
   d. Identify barriers to application retirement and develop a decommissioning strategy to address them
4. Determine the business capabilities that need to be improved by a business process transformation or City strategic initiative, and prioritize those and related capabilities- this will define the goals and objectives of the application strategy
5. Establish an ongoing application strategy and planning process. This is a joint effort with departments and City leadership. The application strategy has three major inputs:
   a. Clarity on the City's strategic goals — does the City want to prioritize residnet access, increase automation, etc. Identify code of ordinance constraints
   b. Defined applications specific principles — these are the preferred approaches to acquiring and operating applications and preferred architectural and technical platforms
   c. Evaluate the existing portfolio

Value/Desired Outcomes:
- A portfolio with the right applications to run the City
- An application busion strategy that sets direction for the City
- Increased communication on the value of streamlining and improving current technology complexities
- Integrate ongoing architectural improvements and definitions within the portfolio review activities
- Limit customizations

Critical Success Factors:
- Participation from Department and City leadership
- Agreement on City goals and priorities

Process Redesign

Implement a process redesign program that focuses on streamlining the customer and user experience for residents, visitors, and employees. Use business process redesign to identify automation opportunities, increase adoption of technology. Improve technology decisions and prioritize projects.

Key Activities:

1. Conduct a current state assessment of the targeted processes — consider a zero-based approach that redesigns processes holistically, with a "clean sheet of paper" and from the ground up
   a. Start with defining the activities that deliver what stakeholders value
   b. Determine the relationship of the process to strategic goals as well as regulatory and compliance requirements
   c. Map the procedural steps required to deliver the process
   d. Look for opportunities that simplify, automate and digitize
   e. Don't overlook small improvements such as database cleanup
2. Identify a small set of business processes to review and target for improvement. Prioritize processes where there are negative customer and internal staff impacts occurring and/or processes important to strategic goals. For example, program registration, applicant tracking, multiple payments for permitting and paper-intensive processes (e.g., timesheets) are possibilities
3. Use process redesign assessment findings to inform technology decisions and confirm business cases for new solutions. Examples include:
   a. Determine where enterprise solutions can work — such as an enterprise content management system or a customer relationship management system — and determine how to redesign business processes to take advantage of new functionality to improve department results and customer satisfaction.
   b. Identify city-wide "low hanging fruit" improvements such as:
      1) An improved Time and Attendance solution which would significantly improve operations, time management and reduce costs across all City departments
      2) An Improved Applicant Tracking solution which would positively impact all City departments
4. Incorporate process evaluation and redesign activities into the project request process to allow process design to take place before technology decisions are made and implemented
   a. Train staff and invest in process design skills development
   b. Consider outside resources to lead and design initial activities and assist with change management

Value/Desired Outcomes:
- Streamline processes for residents and employees, prioritizing enhancement of the customer and user experience
- Establish a discipline to include process improvement in future projects
- Address pain points that negatively impact residents, visitors, the business community and City employees
- Improve adoption of technology solutions by avoiding business process conflicts

Critical Success Factors:
- A mandate for process change from leadership
- Select the right resources and commit time to the effort
- Communication plan that fosters open communication, reassuring staff and soliciting feedback
- Track improvements in key metrics (e.g., decreased cycle times for customers, increased transaction volume, decreased use of paper)
- Lead organization change across departments

Performance Scorecards

Increase citywide focus on outcomes and performance by measuring and tracking customer-facing and internal key metrics to achieve greater transparency, accountability and continuous improvement.

Key Activities:

1. Review and assess current metrics, report and scorecards/dashboards used to measure and track IT performance and IT projects. Include a review of baseline information on IT activities, workload, IT project status and other performance indicators for key activities and results.
2. Identify additional customer performance indicators and internal IT metrics that align with priorities and needs of internal and external city and IT customers
3. Identify the next generation of project metrics to track project delivery performance. The PMD will lead this effort and work in collaboration with IT and departments (see examples on following pages)
4. Baseline the metrics selected and publish initial scorecards/dashboards.

Value/Desired Outcomes:

- Increase transparency and accountability of strategic initiatives and IT contributions
- Improve communication and measure of IT value to customers, external and internal
- Increase ability for ITD to identify and track service and operational improvements

Critical Success Factors:

- Input from leadership team and stakeholders on any IT and project measures that would be meaningful to them.
- Use of metrics, scorecards and objectives to set specific and time bound improvement goals
- Consistent and accurate data capture of key metrics in scorecards

IT Service Management

Evolve IT service management to improve IT efficiency and productivity, continue to provide service quality to customers and reduce operating risk.

Key Activities:

1. Move from reactive to proactive support using process improvement
   a. Target event management, knowledge management, problem management and root cause analysis
2. Automate tasks that are high-volume, that place large demand on staff and are not dependent on systems having complicated architecture. Event management, patch management and standard service requests are a good starting point for this exploration
3. Integrate data from the system and network monitoring tools into operational processes with measures for continual improvement
4. Gather information from tools such as Track IT along with time tracking to measure time spent on IT activities (projects, support etc.) to understand trends and data
5. Measure the impact of multi-tasking and fire-fighting on productivity
   a. For example, someone working two projects is at best 80% efficient, and only 50% efficient if working on four projects and incidents (determine the multi-role factors)
6. Reduce direct contact of senior staff handling routine tasks (using senior staff raises the cost per transaction compared to other resolution methods)
7. Explore the service desk support options that appeal to customers — discuss options with customers and build strategy from there
   a. Review self-service options and determine if users would adopt self-service
   b. Walk-in, guru bar, productivity center approach
   c. Mobile
8. Establish more formalized points of accountability within IT for ensuring processes are in control and IT services are managed end-to-end for delivery/improvement
9. Agree on a small set of metrics for data-driven approach (internal IT key performance indicators and external Department-facing metrics)

Value/Desired Outcomes:

- Impact customers through faster response times including possible self-service contact channels
- Reduce direct contact with senior IT staff for routine issues
- Improve operational efficiency through better resource allocation, less task switching
- Reduce risks through fewer emergency changes, ability to complete compliance requirements
- Use metrics to enable data-driven decision making (internal and external department-facing metrics)

Critical Success Factors:

- Management commitment for the process ownership role and resources to support ongoing process improvement
- Dedicating time to the effort
- Consistent use of, and reporting from, service tracking tools (Track IT), with service level metrics