CITY OF ▲URORA
TECHNOLOGY STRATEGIC PLAN

Establishing and Enabling Aurora as a Regional Tech Hub and Investing in Aurora's Future through Technology Resource Planning

FY 2018-2019

CITY OF AURORA
TECHNOLOGY STRATEGIC PLAN

FY 2018-2019

PART 1 — EXECUTIVE SUMMARY

PART 2 — ASSESSMENT

PART 3 — STRATEGY

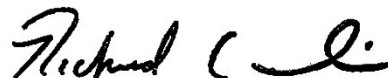PART 4 — IMPLEMENTATION

LETTER FROM
THE MAYOR

Dear Friends,

The City of Aurora is known as the City of Lights because the leaders of our city were, even in the late 1800's, implementing the latest technology when they decided to use electric street lights throughout town – making Aurora one of the first cities in the nation to do so. More than a century later, we continue that trend by leading the way in innovation, technology and enterprise. The Technology Strategic Plan presented within this document is an extension of this forward thinking.

As Mayor, my goal for the technology advancement for this city is straightforward, ambitious, and achievable – *to make Aurora the technology leader for the Fox Valley region and the State of Illinois*. I'm confident this Technology Strategic Plan continues to push our City toward this goal.

Economic development, citizen access to technology, public safety and education are global priorities for my administration. The Technology Strategic Plan supports these priorities by promoting economic growth and opportunities in our City; driving the efficiency and productivity of City Divisions, implementing the necessary technology upgrades to safety and security measures for our government operations, and building a responsive, customer service experience for our residents.

This Technology Strategic Plan provides us with a roadmap of short and long term technology initiatives aimed at building the necessary foundations to ensure that our people, processes and businesses thrive. To achieve the goal of positioning our great City as a technology and innovation leader, we must embrace new ideas and make the necessary plans to turn the initiatives into a reality. There is something incredible happening here, and I am excited to see what the future holds for the City of Lights.

All the Best,

Mayor Richard C. Irvin
City of Aurora
MayorsOffice@aurora-il.org

LETTER FROM
THE CHIEF INFORMATION OFFICER

Dear Friends,

As the City of Aurora's Chief Information Officer, I am proud to be a part of the city's inaugural Technology Strategic Plan – one that promotes a new vision for the way our city harnesses the opportunities that information technology offers. Transforming Aurora into a new technologically progressive community will serve both government agencies and constituents alike.

As a city, we need to embrace how technology can not only advance us as a society, but how it can also bring us closer together. Our guiding principles for this strategic plan are straightforward and align with Mayor Irvin's vision for our city – 1) to create and embody *One IT,* through shared products, processes, people and partners; 2) *Customer Experience*, through providing quality solutions and services that ensure customer confidence and satisfaction; and 3) *Agility & Smart Sourcing*, by using the most efficient and effective blend of resources to meet our city's ever-changing business demands.

Technology has become a vital component in our daily lives, and Aurora has a duty to grow our technology resources to support the needs of the City and our citizens and to become a leader of innovation. The initiatives proposed in this plan are intended to build a strong information technology foundation in order to create an inclusive, modernized, and smarter community – one that guarantees Aurora bridges the digital divide.

I support Mayor Irvin and his vision to make Aurora the technology leader of the Fox Valley. We are a city that has grown tremendously in the past two decades and I am positive that our growth through smart and strategic information technology will reflect the hard work of a transformed community. We aspire to reach new levels of efficiency and productivity through the strategic roadmap we have developed. We strive every day to improve our public safety systems, to streamline processes and promote continuous improvement, and to aim for excellence in our customer service experience. We are an innovative and forward-thinking City of Lights; when we work together, anything is possible!

Michael Pegues
Chief Information Officer
IT@aurora-il.org

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INTRODUCTION

Technology serves a variety of functions in a modern, 21st century community. It enables pathways toward increased engagement and collaboration. It helps protect citizens and communities; it generates business innovation and drives economic progress.

Vibrant, thriving communities understand these links between technology and progress and recognize that local government plays a role in delivering technology resources beyond City Hall. The initiatives outlined in the City of Aurora's ('the City') Technology Strategic Plan provide a roadmap for the City to advance its strategy with technology, as well as Mayor Irvin's primary technology goal: *to position the City of Aurora as a regional technology leader.*

Aurora is uniquely suited to achieve this goal based on:
- Geographic proximity to an existing technology corridor regionally;
- Existing and expanding fiber optic network; and
- Location near a growing Chicago technology job market.

Together, these provide the foundation for achieving Mayor Irvin's goal. However, the City recognizes that these factors are simply a start. Under the leadership of Mayor Richard Irvin, the City has renewed its commitment to strategic investment in technology innovation as a means to reduce costs, improve government services, and advance digital literacy within the community and across the region.

This Technology Strategic Plan outlines 58 short and long term initiatives by four Aurora-focused thematic categories – Infrastructure, Innovation Projects, Governance & Security and IT Management.

Infrastructure	Innovation Projects
Governance & Security	IT Management
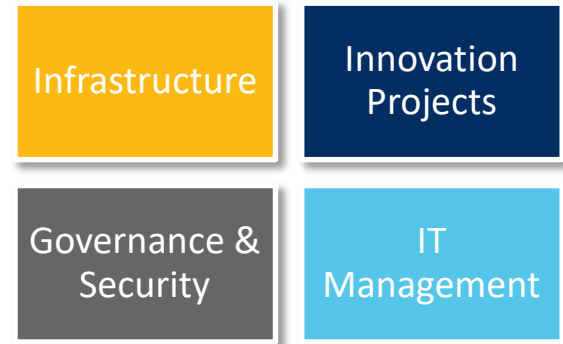
The culmination of this planning effort, results in a technology roadmap that will serve as a guide for the IT Division and City leadership team for their planning and implementation efforts.

In order to kickoff the planning process, it was essential to renew the vision and mission of the IT Division; as well as to establish the guiding principles (or *pillars*) and key business drivers. Pillars identify what is most important to the City's IT team; while the business drivers describes the team's philosophy to guide decision making. Any effort or resource spent by IT should support one or more of these pillars, and their underlying business drivers. The development, prioritization, and ordering process evaluated how each technology initiative, if implemented, aligned with these pillars and business drivers.

The following page illustrates the vision, mission, guiding principles (*pillars*) and business drivers for the City of Aurora's Technology Strategic Plan.

PART 1 – EXECUTIVE SUMMARY

VISION: *Become the strategic IT business partner for the City of Aurora and the region*
MISSION: *Deliver innovative, smart solutions, services, and provide first-class customer service*

Guiding Principles (*i.e. Pillars*):

One IT	Customer Experience	Agility / Smart Sourcing
*Shared IT **products, processes, people** and **partners** across the City and Region.*	*Provide quality solutions and services that ensures customers' confidence and satisfaction.*	*Use the most efficient and effective blend of resources – public–private partnership (PPP) to meet ever-changing business demands.*
Foster interdisciplinary cooperation and collaboration	Improve and sustain high level of service delivery	Develop agile and smart business unit (e.g. modernize)
Utilize industry best practices; define efficient, effective and measurable standards	Provide effective communication for stakeholders across service delivery lifecycle	Increase opportunities for shared services
Invest in workforce development	Maintain highly secure technology environment	Identify funding opportunities to support innovative solutions
	Provide universal system and data access (e.g. mobility)	Exercise lifecycle management strategy

Foundational Principles:
Project Management Excellence
Cyber and Data Security

PART 1 – EXECUTIVE SUMMARY

Information Technology Division – Current State Assessment

Prior to 2017, the City was decentralized in its IT structure, with separate IT teams – one embedded within the Police Department, and the other supporting City Hall and all other City Divisions. Existing staff set out on a pathway to modernize the IT Division structure by (1) centralizing all City IT operations, and (2) improving processes and inefficient work streams - within the IT Division and across city Divisions.

As part of these improvements, the City also added the following operational assets:

- A Project Management Office ('PMO') to manage projects citywide
- Business analysts / Project Managers
- Cybersecurity strategy
- Dedicated Chief Information Security Officer

Overall, these improvements have created a more sustainable technology business model that supports City needs and changes the way the City interacts with and serves the public.
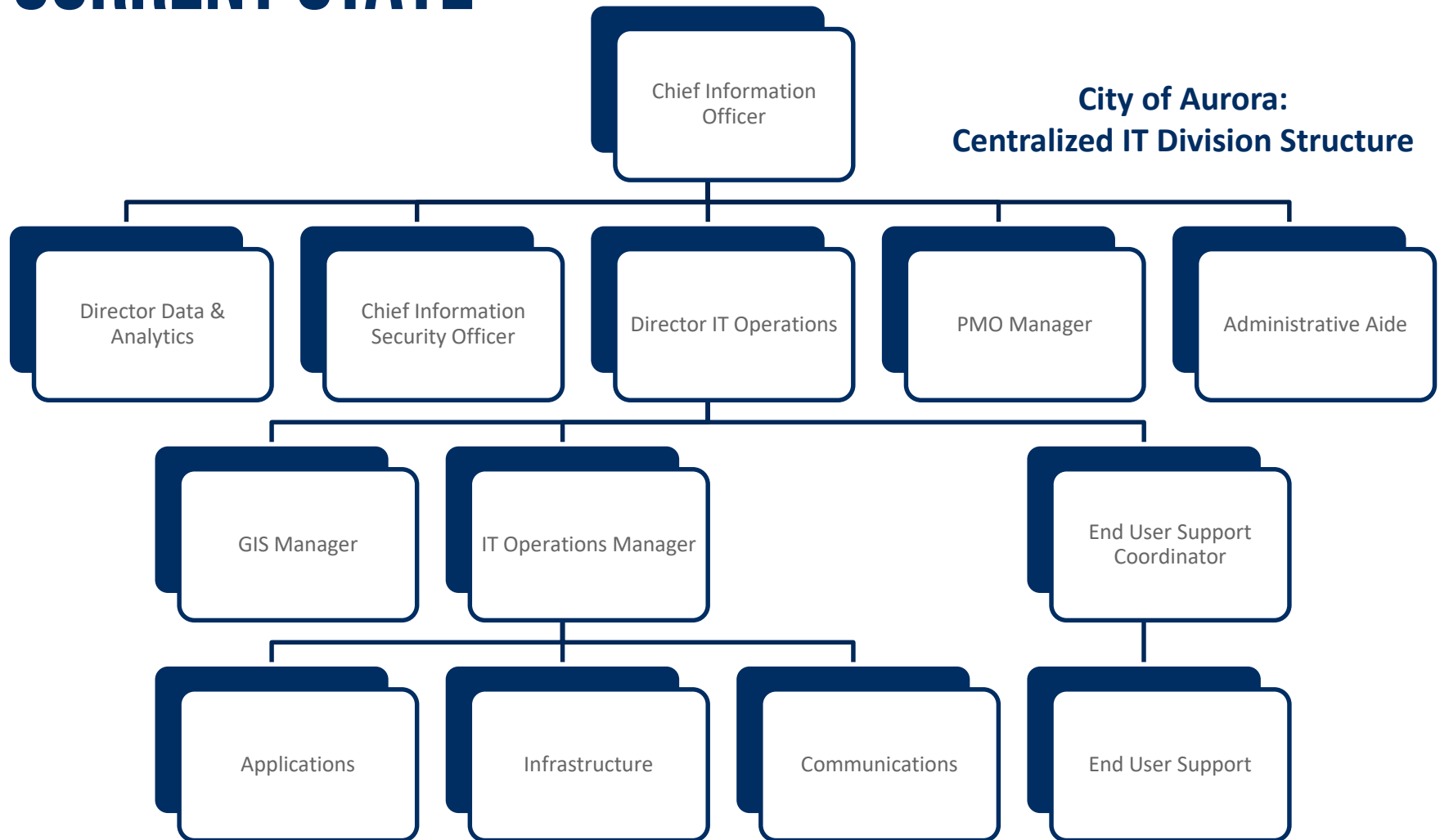
New Era for Information Technology

Industry trends and best practice demonstrate the need for evolution of IT roles in order to deliver additional business value. Organizations are moving away from the legacy, service delivery model and redirecting its skill set to designing and building innovative platforms to transform business processes. This trend is as applicable to the public sector as it is the private sector, due to the ever-changing needs of the City's citizens, tourists and workforce. The evolution to a desired future state will allow the City to strengthen its economic development efforts and to target its efforts by ensuring return on investment, secure technological benefits for its constituents and leverage the City's resources and relationships.

The City of Aurora has embraced the evolution of the public sector IT model. Upon taking office, Mayor Irvin identified that citywide innovation and modernized Information Technology would be a key area for the City to focus. As a result, Mayor Irvin created two new officer appointments to his executive leadership team – 1) Chief Innovation Officer; and 2) Chief Information Officer.

The Mayor and his new IT leadership team embarked on a reorganization, merging the two, decentralized divisions into one new, centralized IT Division. The new structure will allow the Division to establish divisions aligned with the skillset needed for a 21st century municipal model – one that focuses on providing innovative solutions for its clients and constituents, providing the subject-matter expertise required to stay abreast of ever-changing industry trends, and providing excellent service delivery.

The following page illustrates the new organizational structure.

TECHNOLOGY STRATEGIC PLAN
CURRENT STATE

**City of Aurora:
Centralized IT Division Structure**

Chief Information Officer

- Director Data & Analytics
- Chief Information Security Officer
- Director IT Operations
- PMO Manager
- Administrative Aide

Under Director IT Operations:
- GIS Manager
- IT Operations Manager
- End User Support Coordinator

Under IT Operations Manager:
- Applications
- Infrastructure
- Communications

Under End User Support Coordinator:
- End User Support

PART 1 – EXECUTIVE SUMMARY

City of Aurora Technology Strategic Plan – FY 2018-2019

ACCOMPLISHMENTS

Accomplishments to Date

Within a short period, this reorganization has achieved a series of noteworthy accolades and accomplishments, including the following:

- The Smart Cities Council selected the City of Aurora as a finalist for the Readiness Challenge Grant. The Smart Cities Council is a leader educating and promoting the creation of smart, sustainable cities through technology. Aurora was one of eight other cities to obtain this distinction, and although Aurora did not win the final award, the City will maintain visibility within the smart city community and can leverage its finalist distinction to seek the award in 2019.

- The City has continued its Public Safety Systems modernization implementation by launching a new computer-aided dispatch system (CAD) and web-based record management system (RMS) for the Police / Fire Departments. These implementations include collaboration with nearby municipalities, such as North Aurora, in a shared platform.

- The City has implemented a new, web-based platform to manage, track and streamline all public information requests. As part of this implementation, the City reassessed and formalized all policies and procedures for public information request processing at the City. These advancements will help improve service delivery of public information requests, and increase efficiencies for City personnel.

- The City has brought cybersecurity to the forefront by creating a new Chief Information Security Officer (CISO) role. This position focuses on developing and implementing a cybersecurity plan for the City and developing data security policies. The City has already conducted penetration testing to test and address vulnerabilities.

- The City has created the foundation for increasing the City's use of data analytics by creating a new Data Analytics Director position. This position leverages the power of data analytics across City Divisions to enhance data driven decision-making and improve service delivery.

- Additionally, the City also established both the Director of IT Operations and a PMO Manager in order to establish a strong senior leadership team to drive success within its IT service provision.

- As of December 2017, the IT Division has saved the City $2.3M through contract renegotiations and other rigorous changes.

- Re-established and strengthened the partnership between the City of Aurora, Kane County and OnLight Aurora in their efforts to collaborate on resource alignment and economic development throughout the region.

TECHNOLOGY STRATEGIC PLAN
VALUE PROPOSITION

A solid Technology Plan supports the vision of the City and how it serves Aurora residents, businesses, and visitors.

By establishing a strong technology framework, the City is able to make strategic investments and implement projects that support the entire community and plan for the future, enhancing economic development opportunity, safety and security, and quality of life.

Excellence in customer service experience

Safer and more secure city

Optimizing operational efficiency

Value Proposition

Public benefits through smart community services

Modernized and effective infrastructure

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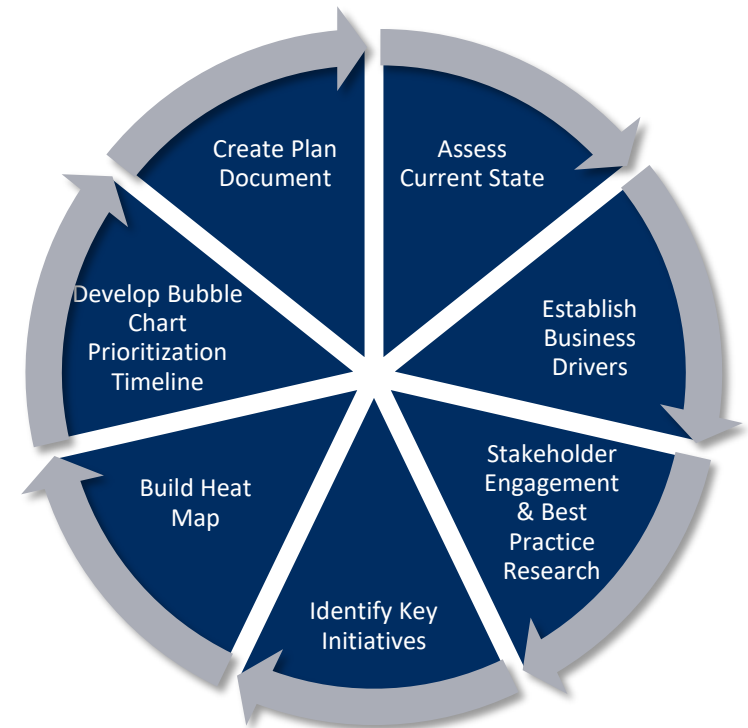
PART 2 – ASSESSMENT

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PLAN METHODOLOGY
OVERVIEW

The City of Aurora followed a multi-step approach to develop the Technology Strategic Plan as illustrated in the diagram to the right. Extensive stakeholder engagement was a critical component for developing the plan. Ultimately, this plan lays out a list of strategic initiatives and policies intended for implementation over the next three to five years. Each phase is summarized as follows:

- **Assess current state** – deep dive interview sessions with the City IT Division to provide a look at current technology initiatives, discuss current strengths and areas for improvement.
- **Establish business drivers** – identify a cohesive set of beliefs that align with overall City goals, grounded in the effective practice that will govern the actions of the Division.
- **Stakeholder Engagement & best practice research** – 1) engage with City employees from across ten core Divisions, community partners, neighboring counties, the Aldermen and Mayor Irvin to gain valuable insight to shape the direction of the plan; 2) Conduct research based on industry trends and best practices that may inform the direction of the plan. The City appreciates its partnership with Gartner to support research efforts and development of the IT Strategy framework.
- **Identify key initiatives** – based on existing current state information as well as desired future state goals and ambitions of key stakeholders.
- **Build heat map** – analytical tool used to illustrate the potential impact an initiative may have on both the key stakeholders and business drivers. Also provides a quantitative process for prioritizing initiatives.
- **Develop bubble chart and prioritization timeline** – a dimensional, analytical tool used to build on heat map results; provides a graphical illustration of the potential implementation timeline for the portfolio of strategic initiatives.
- **Create plan document** – culminating product of the strategic planning process.

Strategic Planning Process


PART 2 - ASSESSMENT

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STAKEHOLDER ENGAGEMENT

Through a combination of interviews and surveys, the City collected feedback from stakeholders to shape the short and long-term vision for technology prioritization, and to understand what is needed for the City to become a regional technology leader.
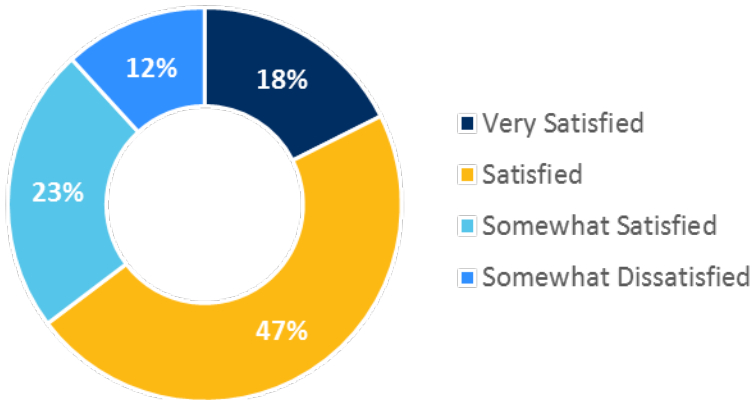
Voice of a City

The City's twelve Aldermen were invited to share their constituent-focused perspective on technology within the City of Aurora via an online survey. The Aldermen were asked how the City's current use of technology can be leveraged or improved to better meet the needs of constituents in their respective Wards, as well as the potential ways in which technology can help achieve the goals each Alderman has developed for their community area.

Survey Participation

57%
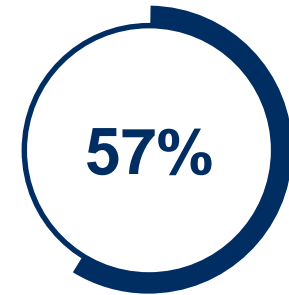
Overall Customer Service Satisfaction

- 18% — Very Satisfied
- 47% — Satisfied
- 23% — Somewhat Satisfied
- 12% — Somewhat Dissatisfied

Pilot Customer Satisfaction Survey

As part of the City's commitment to excellence in customer service, the City distributed a pilot online survey to benchmark current satisfaction with the IT service provision to City Divisions and identify any potential areas for improvement. The pilot targeted a select group of participants from within the City's leadership team and results pinpoint the key areas of strength within the IT Division while also highlighting future room for growth. While 65% of participants are "Satisfied" or "Very Satisfied" with their overall customer service experience with the IT Division, respondents also note that moving forward, Division employees hope to look to the IT Division for leadership and partnership in terms of new solution identification and additional training for their employees.

The IT Division is committed to continuous improvement. The IT Division will utilize the results of this pilot satisfaction survey to support any necessary adjustments to better serve its Division customer base. Moving forward, the IT Division can also extend this exercise to a wider audience of staff within other City Divisions. Conducting an annual satisfaction survey will be a useful mechanism within their toolkit to gauge, monitor and improve their approach to providing high quality, consistent customer service moving forward.

PART 2 - ASSESSMENT

HEAT MAP ANALYSIS

The fifth phase in the strategic planning process was to develop a heat map – an analytical tool used to illustrate the potential impact a strategic initiative may have on key stakeholders and the established business drivers (see page 7 for complete list). Heat map analysis also provides a quantitative process for prioritizing the initiatives within each of the four main categories.

The heat map's use was to help guide strategy sessions with the IT leadership team. First, leadership identified whether or not each initiative had a potential impact on key stakeholders. A score was then generated based on the initiative's potential impact to the eleven business drivers.

Higher scores are distinguished by darker colors on the heat map; therefore, the initiatives that received a potential higher priority included a clustering of more "heat" (i.e. higher business drive scores) on the map. Simply put, as the City stakeholder team worked to identify strategic goals and ideas, which became "Key Initiatives," the heat map helped prioritize and rate these based on their alignment with the City's established business drivers.

The chart to the right provides a sample excerpt from the heat map that was used for the team strategy sessions. Please refer to Appendix B for a full copy of the heat map analysis.

City of Aurora - Technology Strategic Plan Heat Map

Heat Map Rankings - Potential Impact

High (3)	Medium (2)
Low (1)	

ID	Initiative	Business Drivers Heat Score
Infrastructure		
1	Microsoft Upgrades & Migration to Cloud	29
3	Cisco Network Core Infrastructure Refresh	26
4	5G Network Optimization	26
7	Smart Street Lighting Initiative	21
Applications / Projects		
12	Citywide Digital Strategy	29
13	Open Data Portal (Pilot Programs)	28
18	NextRequest - FOIA and Public Records Software	25
21	Digital Inclusion Program	24
23	ComEd Energy Efficiency Program for Data Center	23
26	eGovernment: Increasing Online Services	23
27	Public Safety Systems	23
29	e911 Phone System Upgrade	23
31	GIS: Server Virtualization and Migration	22
32	Citywide and Library Kiosks	22
33	Automated Metering Infrastructure	22
35	Next Generation 911	21
36	AutoCAD Upgrade	20
37	Customer Service Instant Messaging	20
44	Develop Tech Incubator	18
47	Cisco Refresh Wireless APs Replacement	17
Governance / Security		
49	Develop and Implement Cybersecurity Plan	25
50	Enterprise Technology Asset Tracking and Lifecycle Management	23
IT Management		
54	ITIL Based Culture (V3):	28
56	Smart Community Advisory Board for the City of Aurora	27

Departments / Stakeholders columns: All City Departments, Constituents, City Partners, Mayor's Office, Police, Fire, Development Services, Community Development, Community Services, Finance, Human Resources, City Clerk, Information Technology, Public Works, Library, Legal

Business Drivers — One IT: Foster interdisciplinary cooperation and collaboration, Invest in workforce development. Customer Experience: Improve and sustain high level of service delivery, Maintaining a highly secure technology environment. Agility & Smart Sourcing: Develop an agile and smart business unit (e.g. modernize), Increase opportunities for shared services.

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TECHNOLOGY STRATEGIC PLAN
INITIATIVES

Adopting a more modern IT model for the City of Aurora will take time, dedicated resources and a commitment from all stakeholders. The Assessment stage of the strategic planning process identified **58 initiatives** that were grouped together in one of the following main categories – infrastructure, innovation projects, governance & security and IT management.

As demonstrated by the heat map analysis, each initiative affects the key stakeholders and business drivers in a different capacity. The following section highlights a selection of initiatives within each of the main strategic categories, as demonstrated by the diagram below:

	One IT	Customer Experience	Agility / Smart Sourcing
Infrastructure	Modernize City Systems		Next Generation Infrastructure
Innovation Projects	Smart Technology Transformation	Fiber Optimization	Digital Inclusion
Governance / Security	Cybersecurity		Asset Lifecycle Management
IT Management	Team Evolution	ITIL Based Culture	Smart Communities

For a complete list of all initiatives, please refer to Appendix A.

PART 3 – STRATEGY

MODERNIZE CITY SYSTEMS

Modernizing the City's infrastructure, including infrastructure upgrades and advancement, is the foundation of the City's information technology future. Replacing outdated and underperforming infrastructure and investing in robust and resilient technology, will be a key initiative for the City to expand and improve its service provision across Divisions.

Examples of infrastructure modernization include improving internal systems and solutions. Key upgrades such as the Microsoft Office 365 migration and the Enterprise Resource Plan migration to the Cloud will enhance performance, and provide a variety of benefits relating to mobility, collaboration and security across the City. In addition, the Network Redesign and Optimization project will improve the City's network system and ensure optimal use across the City.

In order to improve internal City capabilities for collaboration, the series of enterprise-wide applications and improvements highlighted to the right have been identified as priorities over the next 3-5 years.

These initiatives not only received high scores for potential impact to business drivers, but also were commonly referenced projects during stakeholder interviews, demonstrating the value that upgrades have to City employees. Divisions recognize the need to modernize manual processes and inefficient workflows, in order to improve and sustain a high level of service delivery with the public.

Internal Instant Messaging

- Enterprise-wide messaging system that allows for instant, online communication between Divisions.

Document Management System

- Software used to track, manage and store documents and reduce paper.

Constituent Management Tools and Resources (CRM)

- A system to track constituent contact points and concerns.

Workflow Management Platform

- A software application designed to help users in collaborating and automating processes, as well as in defining different workflows.

INFRASTRUCTURE
NEXT GENERATION

Digital Inclusion

Embracing next generation infrastructure and incorporating community-wide technology needs will be essential to modernizing the City's infrastructure. This encompasses longer-term projects such as 5G Network Access and expanding free Wi-Fi locations for the public, two initiatives that will focus on providing network access to underserved areas and disenfranchised populations in an effort to bridge the technology divide that affects the Aurora community. Being digitally competent is now a necessary part of modern life; the City of Aurora recognizes the benefits and equity involved with digital inclusion benefits for everyone.

Smart Street Lighting

The Smart Street Lighting Project is a new lighting management program that will implement technology to allow streetlights to be dimmed or brightened remotely, as needed, and will allow City crews to monitor streetlights remotely for more efficient and timely maintenance. This larger scale program will improve the quality and reliability of the City's outdoor lighting system, and includes Aurora alongside other progressive cities with similar smart lighting programs, including Chicago, New York City, Boston, Los Angeles, and Seattle.

Ring Law Enforcement Portal

The Aurora Police Department (APD) has recently partnered with RING Doorbell to obtain real-time, local crime and safety information from Aurora residents who voluntarily opt-in to sharing surveillance footage from personally-installed cameras in their homes.

Smart Community Initiatives

Next generation infrastructure supports Aurora's goal of becoming a Smart Community. According to the Smart Cities Council, a Smart City or Community is one that embodies the following values:

- Livability – providing clean, healthy living conditions without pollution and congestion. With a digital infrastructure that makes city services instantly and conveniently available anytime, anywhere.
- Workability – providing enabling infrastructure — energy, connectivity, computing, essential services — to compete globally for high-quality jobs.
- Sustainability – providing services without stealing from future generations.

Development Services Center & TRAKiT Enterprise Solution

In 2018, all Development Services related activities and were consolidated in to a centralized Development Services Center (DSC), providing a "one stop shop" for customers and improving overall customer service. In addition, Development Services recently implemented Superion's TRACKiT – a workflow and communications software. Anticipated benefits include a 10% efficiency gain at public counters and for inspector activity, a 20% efficiency gain for resubmittal reviews, and greatly expanded online self-service capabilities in addition to other benefits.

PART 3 – STRATEGY

INNOVATION PROJECTS
TRANSFORMATION

Smart Community Initiative – River Edge Smart Park

The first initiative that supports the City's distinction as a Smart Community is the building out of the City's River Edge Smart Park. River Edge Park is a vibrant, year round concert venue located along the Fox River just blocks from downtown and the train station, which boasts a river walk, bike paths and a pier.

The City has committed integrating the park's infrastructure with technology to better position city officials and staff to keep track of crowds, provide better security and monitor parking security and availability. Described by the CIO as a Gateway, the smart park will be an economic development tool to attract more people in to the City and launch even more technology initiatives throughout the city.

This implementation will continue over the next 3-5 years and beyond, and will include initiatives aimed at achieving the following benefits for Aurora:

- Drive economic development
- Increase Public Safety
- Develop innovative revenue streams
- Enrich the citizen experience
- Enhance the City's identity

The following page demonstrates how integrated technology will harness the power of park data in order to enable the City to make intelligent and informed decisions.

THOMAS J. WEISNER
RIVER EDGE PARK

PART 3 – STRATEGY

City of Aurora Technology Strategic Plan – FY 2018-2019

CITY OF AURORA RIVER EDGE SMART PARK

Safety & Security

Video Analytics

Wi-Fi & Location Analytics

Smart Lighting

Integrated Transportation

Environmental sensing

Smart Parking

Revenue Share

Smart Community Initiative – Media Kiosks

The second Smart Community initiative is the Smart City Media Kiosks. Phase I of this project is already underway and will target areas within the City with high pedestrian traffic, and install interactive media kiosks that will not only connect users to vital information throughout the City; but will provide free Wi-Fi within proximity to the kiosk.

The pilot locations identified within Phase I including the following:

• City Hall
• Paramount Theatre
• Development Services Center
• RiverEdge Smart Park
• Route 25 Aurora Transportation Center
• Route 59 Train Station
• Aurora Arts Center (*under construction*)

Media kiosks will provide an exciting tool for the City to better connect with its constituents. In addition, the kiosks will be an important outlet for the City to showcase its commitment to embracing new technology and harnesses its capabilities for a wider audience.
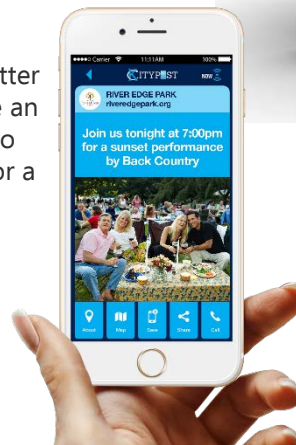
IT modernization at the City of Aurora will involve more than just smart technology improvements; it involves a changed way of thinking and commitment to progress. The following initiatives encompass Aurora's commitment to this modernized thinking and outline the innovative ways in which Aurora will continue its technology leadership within the Fox Valley region and beyond.

Digital and Analytics Strategy

Data-driven decision making is not only a modernized way of thinking in the 21st century, but should be a priority for public sector decision makers. In this spirit, the City's mission is to develop and execute a Citywide Digital Data Strategy that supports data driven decision-making and compliments the overall mission and strategic goals of the City. Short-term goals of the Data and Analytics team are to identify opportunities for improved operational efficiencies and city services and improve civic engagement with the City. Ultimately, this 5-year plan will improve ways in which the City uses data analytics to improve service provision, public safety, and overall customer experiences with the City.

Included in this strategy is the development of an Open Data Portal, a fully interactive and online tool used to share vital information with the public. The portal will provide greater government transparency and accountability, while simultaneously leveraging internal and external data sources in order to engage and empower citizens, government agencies and other private enterprises in identifying data-driven solutions.

Online Services

Online accessibility to city government services is becoming an increasingly important avenue to remaining relevant and connected to the public. Over the next 3-5 years, the City is committed to offering more online services for its employees, constituents, businesses, and visitors. Examples of these improvements include but are not limited to the following:

- An online business registration portal
- Online bill payment
- NextRequest – a public facing Freedom of Information Act (FOIA) and public records request portal
- Human Resources and Division of Finance system upgrades – purchasing, time and attendance payroll, and an online benefits enrollment portal

Increasing the City's online presence through these initiatives will provide many benefits to the City of Aurora including a more efficient return on investment, stream-lined processes and procedures, refined data tracking capabilities, quicker response and turnaround times and an overall enhanced customer service experience for both staff and the public.

FIBER OPTIMIZATION

The City's existing fiber optic network is one of Aurora's greatest assets; notably, this asset can be leveraged for both public and private benefit. In collaboration with OnLight Aurora, a local not for profit and nationally recognized municipal network model, the City seeks to provide access to a metro Ethernet network and the Internet which will offer a series of advantages to users, including significant network bandwidth and less susceptibility to interference.

Additionally, the network offers a host of potential benefits to the City, namely revenue-generating potential and connectivity benefits for local business, residents, and visitors. The City is committed to optimizing this network to capitalize on this revenue potential by attracting additional business to the area, all while simultaneously improving subscriber experience.

This long-term project begins with the continuation of the City of Aurora Fiber Optic Splice Locations and Fiber Distribution Point (FDP) implementation and updates, in addition to an Outside Plant (OSP) Infrastructure audit and general maintenance. The completion of this first step within the next two years is the foundation toward achieving this optimization of the fiber network.

The City of Aurora and OnLight Aurora appreciate their strong partnership with NTI Fiber Optics and Kane County to optimize the region's fiber capability.

Aurora's current fiber optic network maps can be found on the following pages.

> *"Fiber is the fourth utility...the fiber optic network is an asset that we have. It's a smart investment that we use less than 3% of."*
>
> -CIO Michael Pegues

> *"The City's implementation of a fiber optic network 10 years ago set the city apart, reduced costs and provided opportunities for business connection to the network."*
>
> -Alderman Mervine

PART 3 – STRATEGY

Building Legend

- OnLight Aurora Wireless
- COA/OnLight Aurora Fiber
- TIF Expansion

DOWNTOWN FIBER OPTIC NETWORK

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City of Aurora Technology Strategic Plan – FY 2018-2019

REGIONAL FIBER OPTIC NETWORK

137 Miles of
Total Fiber Assets

Interconnectivity with
Kane County &
Naperville

Capacity to support 1700+
strands of high
density fiber ribbon

COUNTY FIBER OPTIC NETWORK

Kane Fiber Optic
Kane County Fiber Optic Network
City of Aurora Fiber Loop
DuPage Business Park Fiber Loop

Legend
COA Fiber
DBP
Kane b
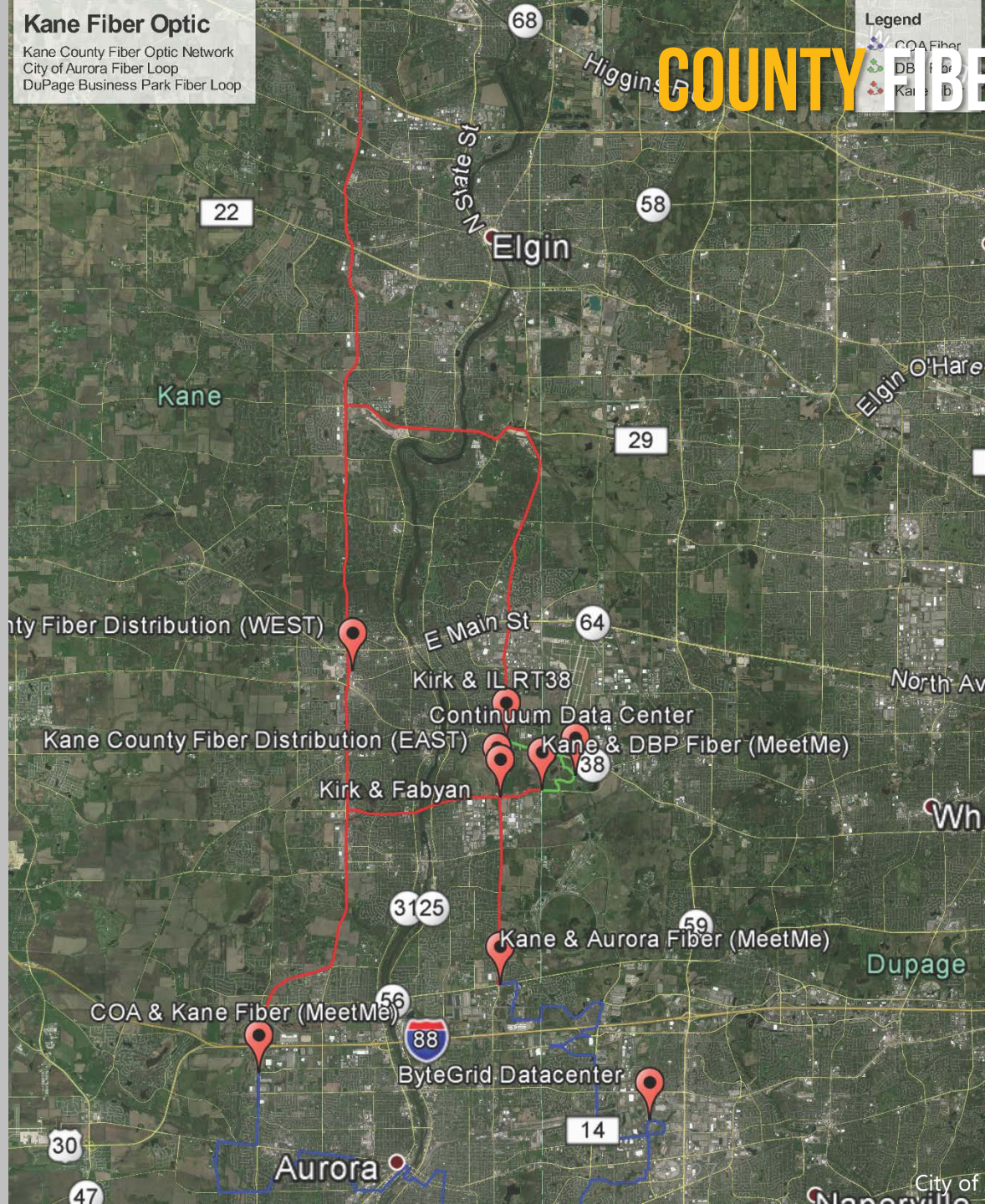
Network Concept Originated in 2005

Fiber Assets Span Over 55 miles

Enhanced Inter-Governmental Operability

Increases Disaster Preparedness

CYBERSECURITY

Every Day
7,125,940

Every Hour
296,914

Every Minute
4,949

Every Second
82

Frequency of lost or stolen data records

In 2017, government ranked second in the number of records breached across industries. Although the total number of breach incidents decreased from the prior year, it still represents an 18.7% rise in total records to 465 million. Worldwide and across industry, it is estimated that data records are lost or stolen at the following frequency.

In addition to facing the threat of malicious outsiders and hackers, organizations responsible for warehousing an extensive volume of sensitive data are also susceptible to the accidental loss of this data. As such, implementing comprehensive citywide security-focused policies and procedures, and ensuring they are adhered to, is paramount.

The City of Aurora has built its first line of defense for managing these inevitable cybersecurity risks by creating a Chief of Information Security Officer position. This critical position is charged with developing, implementing and assessing the City's information technology security and governance plans.

The next line of defense for governance and security, and arguably the most important, will be for the City to establish and maintain a Cybersecurity Plan. This initiative affects all stakeholders; therefore, planning efforts need to be comprehensive, and will include the following actions:

- Perform a security baseline assessment
- Determine business requirements and mission compliance requirements
- Design, build and implement a governance framework
- Define and implement information security policies, standards and procedures
- Define and implement user awareness program and training
- Transition to a hybrid operating model utilizing third party managed security services

PART 3 – STRATEGY

CYBERSECURITY

For many years, individual City Departments and Divisions were left to select and purchase their own security systems as needs arose and/or sites were brought on-line in the City. As a result, the City ended up with a wide variety of both card access and camera security systems with varying degrees of functionality and support.

Over the past few years, the City has continued to consolidate these various facilities' security systems into a single Genetec platform.

Additionally, City personnel have made recent efforts to catalog major City facilities in need of new or updated security systems. These facility upgrades have been prioritized and will continue to be refined based on facility assessments.

This process will require several more years due to the cost and complexity of the project. Certain systems will be phased out over time as they age and as funds are available.

Benefits of this single platform consolidation include:

- City staff (including both end user and support staff) only need to learn and maintain one system

- The City leverages volume pricing levels for hardware, software licensing and services

- The Police Department can utilize a single system to access all City cameras for surveillance and investigative purposes

- Access control and video camera access can be combined into a single system for ease of administration and reduced costs

- Video storage can be managed and maintained more efficiently

- The City avoids "one-off," low quality system installations

ASSET MANAGEMENT

Asset management extends beyond tracking hardware and software inventory to include tracking asset usage and productivity, ensuring compliance, and providing the data analytics to project future capital needs. This combined approach provides a powerful management tool for strategic IT decision making.

Adopting asset lifecycle management practices will enable the IT Division to ensure that the City:

- Efficiently utilizes budgetary resources
- Improves its overall IT operational administration
- Can track and demonstrate a return on capital investment
- Manage IT assets, vendors, and overall software/hardware asset portfolio

The foundation for successful IT asset management depends on well structured and closely managed processes. As the City looks toward implementing these practices, we will lean heavily on best practice research to formally institutionalize asset management at the City. As part of this process, the City will also utilize IT asset management tools to help ensure that tasks and activities are performed on time and in the correct sequence.

Asset Management Lifecycle

- Plan
- Procure
- Deploy
- Maintain & Support
- Decom-mission
- Renew / Replace

IT MANAGEMENT
TEAM EVOLUTION
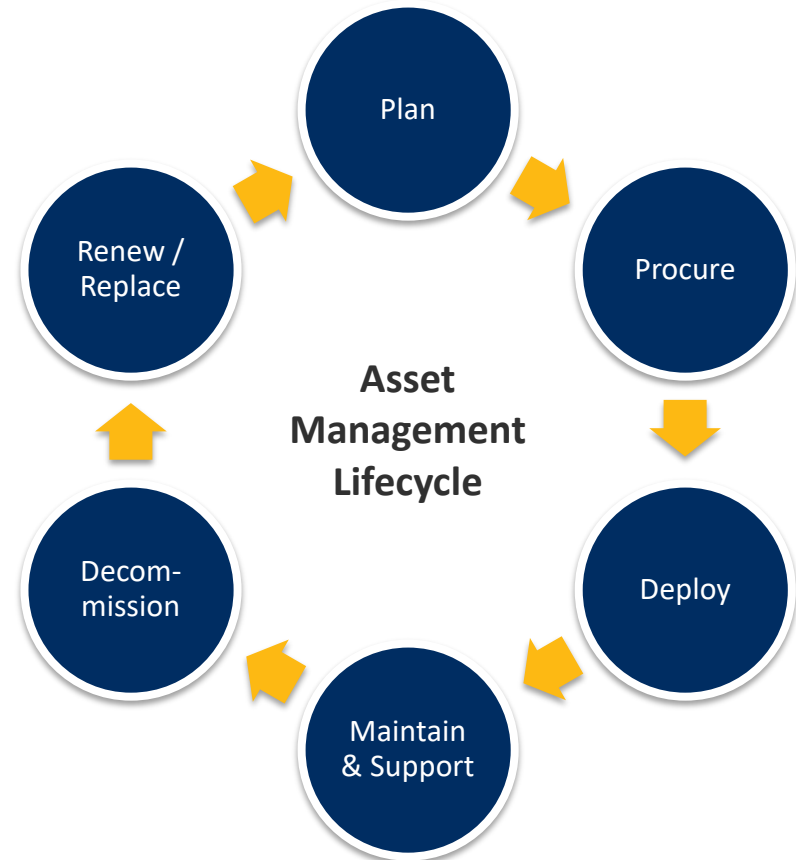
> "Successful innovation is greater than just technology alone. It requires the ability to generate ideas and the proven capacity to implement them."
>
> *-Mayor Irvin*

One of the guiding principles of the new, centralized IT Division is to embody a concept known as "One IT." This idea is based on a series of business drivers that utilize industry best practices to foster a more cooperative and collaborative environment. Two critical management methodologies that will support the Division's principle include:

1. Establishing a project management office (or 'PMO') model
2. Utilizing a capability maturity model (or 'CMM')

Establishing a PMO
This is an important step for the IT Division, as it will enable the team to establish a consistent customer experience methodology, standardize processes and increase the success rate of implementing strategic initiatives.

There are a number of different approaches to establishing a PMO, therefore it will be critical that the IT Division identifies and chooses the appropriate PMO model in order to ensure that it will deliver value to the City and the Division's customer base.

Utilize a Capability Maturity Model
Additionally, the IT Division will utilize a CMM – a performance management tool that assesses an organization's maturity level or its effectiveness at performing tasks and implementation project, an idea commonly referred to as Project Portfolio Management ('PPM'). The CMM tool is a change model designed to continuously improve workforce practices. There are five phases in total, as outlined in the chart on the next page.

The CMM will not only help to define the Division's current state, but will provide guidance for how to mature or move from one level to the next. There is a direct relationship between a PMO and CMM, as the PMO can be a catalyst for increasing the PMM as well as an indication that the Division is ready to adopt a more strategic, organizational view of its service delivery.

Additional benefits of using a CMM include the following:
• Positive return on performance improvement investments
• More timely delivery and an increased quality of solutions
• More rapid response to issues and risks
• Meeting or exceeding customer needs and expectations
• Lower employee turnover

PART 3 – STRATEGY

City of Aurora Technology Strategic Plan – FY 2018-2019

Information Technology Capability Maturity Model

MATURITY LEVEL 5	Optimizing	**Stable and flexible.** Organization is focused on continuous improvement and is built to pivot and respond to opportunity and change. Stability provides platform for agility and innovation.
MATURITY LEVEL 4	Quantitatively Managed	**Measured and controlled.** Organization is data-driven with quantitative performance improvement objectives that are predictable and align to meet the needs of all stakeholders.
MATURITY LEVEL 3	Defined	**Proactive rather than reactive.** Organization-wide standards provide guidance across projects, programs and portfolios.
MATURITY LEVEL 2	Managed	**Managed on the project level.** Projects are planned, performed, measured and controlled.
MATURITY LEVEL 1	Initial	**Unpredictable and reactive.** Work gets completed but is often delayed and over budget.

PART 3 — STRATEGY

ITIL BASED CULTURE

In addition to utilizing management best practices, the City of Aurora's IT Division aims to build an ITIL-based culture and rethink the way the Division delivers its services.

The ITIL (short for Information Technology Infrastructure Library) v3 framework focuses on integrating business and IT by aligning IT services with the needs of business. The ITIL framework is a management approach designed to manage risk, strengthen customer support, establish cost-effective practices and build an overall stable IT environment. The five core service lifecycle stages include:

- Service strategy
- Service design
- Service transition
- Service operation
- Continuous service improvement

When combined, these five stages create a systematic and professional approach to IT service delivery.

An integral part of implementing both project management and service delivery initiatives will be to ensure that the methodologies are complimentary throughout the IT Division and for their customer base.

SMART COMMUNITIES

> *"I would like to see the City as the hub of technology for the northern Illinois area. It can be the home for many technology firms containing young workers who create the atmosphere that makes Aurora "the place to be" in Illinois."*
>
> -Alderman At-Large Jenkins

SmartCities**Council**
LIVABILITY | WORKABILITY | SUSTAINABILITY

The City of Aurora aims to be a technology leader for the Fox Valley region. One initiative that will support the City on this journey is to *build a smart community* – one that will continually seek out best practices and be on the edge of new technology in order to drive Aurora forward.

The City was selected as a finalist for the Smart Cities Council Readiness Challenge Grant in 2018. The Smart Cities Council is a leader educating and promoting the creation of smart, sustainable cities through technology. Aurora was one of eight other cities to obtain this distinction; one that recognizes cities that are ready to take action on their smart city visions. If awarded, the Council provides the cities with the knowledge, mentoring support, products and services to help aid in vision plan implementation. Although Aurora was not chosen as a 2018 award recipient, the City will maintain visibility within the smart city community and can leverage its finalist distinction to seek award in 2019. The city also maintains its access to a growing, international expertise in smart cities technology.

As part of this initiative, the City seeks to establish a *Smart Community Advisory Board* made up of key stakeholders from within Aurora and extending to neighboring cities, counties and townships. The goal of the board will be to establish a platform for stakeholders to do the following:

- Exchange best practice knowledge
- Identify opportunities for shared services
- Establish key public/private relationships
- Foster communication and collaboration
- Build sustainable communities through embracing technology

CITY OF AURORA
TECHNOLOGY STRATEGIC PLAN

FY 2018-2019

PART 1 – EXECUTIVE SUMMARY

PART 2 – ASSESSMENT

PART 3 – STRATEGY

PART 4 – IMPLEMENTATION

IMPLEMENTATION
TECH ROADMAP

Bubble Chart & Prioritization Timeline

As part of the strategic planning process, the City of Aurora developed a Bubble Chart and Prioritization Timeline. Bubble Charts are a dynamic, analytic tool used to visually highlight the following layers of information: 1) the resource "lift" associated with each initiative (this is demonstrated by bubble size and includes both personnel and financial resources); 2) the estimated implementation timeline for each initiative; and 3) whether the initiative in question has revenue-generating potential, will have a budgetary impact, or has a primary objective of cost-savings or cost-optimization.

The resulting visualization provides an implementation timeline, or *technology roadmap* for use in conjunction with the heat map, during strategic conversations with the IT Division and the City's Executive Leadership team. The roadmap also displays the initiatives within four quadrants (as illustrated to the right) based on their overall heat map potential impact / priority rating.

Aurora's Technology Strategic Plan bubble chart and prioritization timeline (or *Technology Roadmap*) is highlighted on the next page, and the entire list of initiatives can be found in Appendix A.

Quadrant 1
High impact, with shorter timeframe to implement
(i.e. Quick wins)

Quadrant 2
High impact, with longer timeframe to implement

Quadrant 3
Low impact, with shorter timeframe to implement

Quadrant 4
Low impact, with longer timeframe to implement
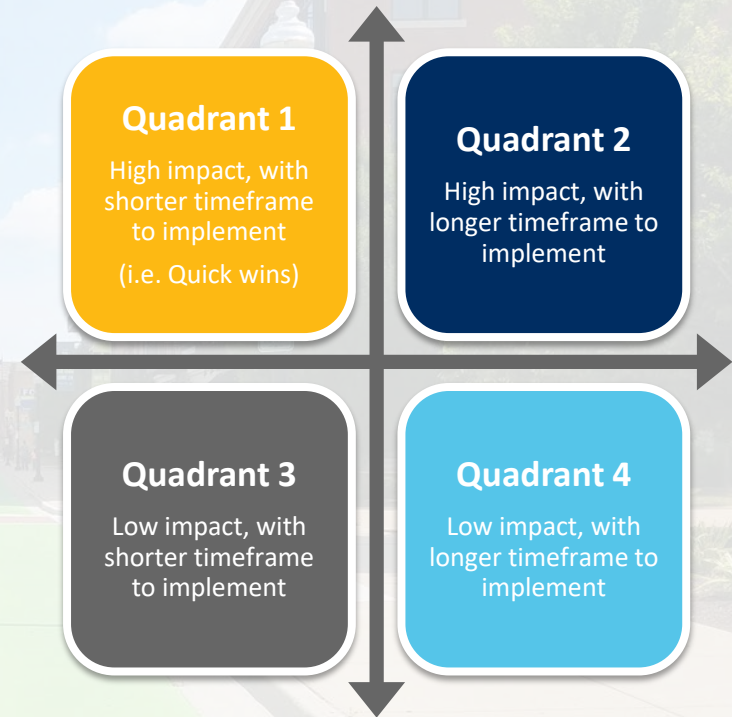
City of Aurora Technology Strategic Plan: Bubble Chart & Prioritization Timeline

Comparing Initiatives by Impact (Vertical Axis), Timeline to Implement (Horizontal Axis), and Resource Implications (Bubble Size)
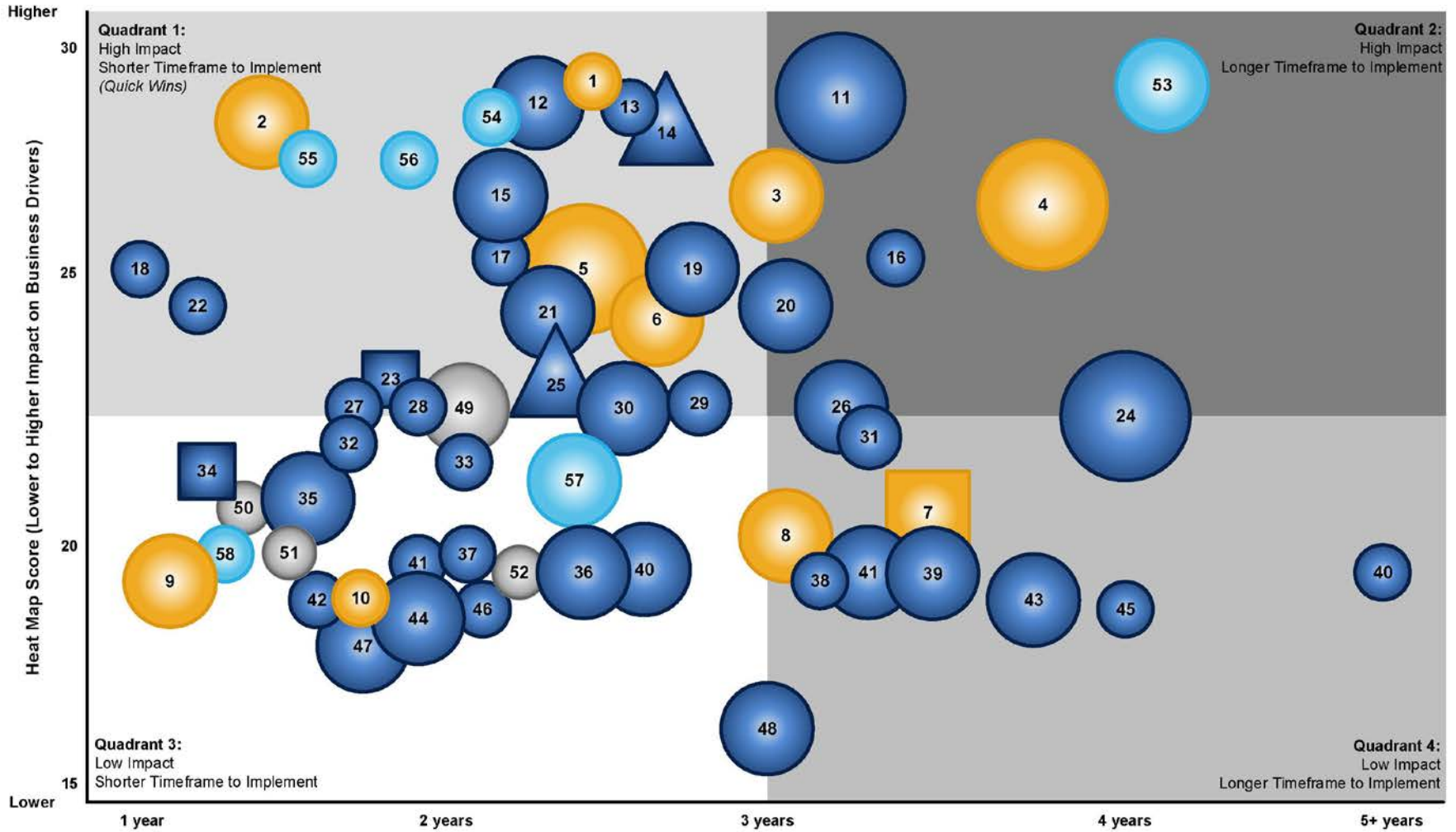
City of Aurora Technology Strategic Plan – FY 2018-2019

IMPLEMENTATION
CONSIDERATIONS

Measuring Success

The City acknowledged that it would be successful when it effectively addresses the following:

- Creates a "One IT" organization
- Improves and sustains a high level of customer services and simultaneously improving citizen engagement
- Becomes an agile and smart business unit
- Improves and continues building its citywide rapport and regional partnerships
- Optimizes costs by maximizing and achieving operational efficiencies without significantly increasing operational budget, and making smart, strategic investments

To measure success of these initiatives, the City will identify individual metrics within each initiative theme area, to be measured at 1, 2, and 3 year cycles. They will measure and report on progress, with a transparent dashboard available to stakeholders.

Governance

Implementing the Technology Strategic Plan should involve intentional governance structure and activities to avoid implementation failure.

The City will launch the Plan with the Governance components illustrated in the diagram at right.

Policy
- Establish policy and supporting procedures for implementation
- Continued confirmation of priorities to support City mission, vision, and business drivers

Advisory Oversight
- Citywide Technology Plan Advisory Board
- Engage implementation stakeholders
- Revisit and revise initiatives and priorities

Communicate
- Intentional and organized communication plan
- Reporting channels both internal (City Divisions, leadership, officials) and external (public)

Measure
- Regular reporting mechanism to update progress to milestones and measure Return on Investment
- Ability to continuously reassess, reprioritize, and revisit, to allow for new initiatives as they arise
- Web tool reporting dashboard real-time, including ability to regenerate the Heat Map and Bubble Chart

IMPLEMENTATION
CONSIDERATIONS

Long Term Challenges

Conducting a strategic planning process for the future of Aurora's information technology is a transformational step in securing a more viable, secure and sustainable environment for City government to thrive; however, the plan is not without challenges that extend beyond the confines of City Divisions. As the City progresses with the implementation of the strategic initiatives included within this plan, they face three major challenges or long-term considerations: 1) building inclusive public technology, 2) providing free public Wi-Fi access, and 3) ability to bridge the digital divide.

The Brookings Institution identifies inclusion as one of the three main pillars of successful economic development. Combined with growth and prosperity, Brookings uses these three dimensions to track the economic progress of metropolitan areas across the United States over time. They define inclusion as such – "inclusion indicators measure how the benefits of growth and prosperity in an economy (e.g. employment and income) are distributed among individuals. Inclusive growth enables more people to invest in their skills and to purchase more goods and services. Inclusive growth can increase human capital and raise aggregate demand, boosting prosperity and growth. Ensuring that all people can contribute to and benefit from growth and prosperity also helps sustain widespread support for the policies on which growth and prosperity depend."

Aurora faces the same challenge as many other cities across the US – to bridge the digital divide that persists within lower-income households. It is estimated that nearly a third of households with incomes below $30,000 a year do not own a smartphone and almost 50% do not have broadband service.

Whereas, two-thirds of higher-earning households not only have broadband service, but utilize multiple devices such as smartphones, laptops and tablets.

Another adverse side effect of the digital divide is the homework gap, or the gap between school-age children who do and do not have access to high-speed internet at home. The City has already made efforts to remedy this crisis locally, through providing free web access technology locations in public buildings throughout the city, as well as through technology programs and access offered through the Aurora Public Library.

Yet City leaders know that these efforts are not enough to fully meet the needs of all of its constituents, regardless of their socio-economic situation. Aurora is committed to working with community partners and market leaders to identify a solution that will provide free public Wi-Fi access for all of its constituents.

City of Aurora Technology Strategic Plan – FY 2018-2019

IMPLEMENTATION
CONSIDERATIONS

In Conclusion

American cities today are embarking on an exciting path to harness the power of technology to improve the way they do business. Those cities who resist this movement, run the risk of falling victim to debilitating economic side effects of the digital rust belt. Aurora will not be one of them. The City of Lights has a history for leading the way through new technology; and Aurora is on the verge of continuing this trend. The City recognizes that there's room for improvement, that it won't be easy and that it is going to take a lot of coordinated effort to achieve success; but in the words of Mayor Irvin "*Come on Aurora. There's something happening here, I can feel it! Can you feel it? We are one Aurora. We will endure as one Aurora.*"

CITY OF AURORA
TECHNOLOGY STRATEGIC PLAN: APPENDIX

FY 2018-2019

APPENDIX A: LIST OF INITIATIVES & KEY

APPENDIX B: HEAT MAP ANALYSIS

APPENDIX C: GLOSSARY

APPENDIX D: REFERENCES

APPENDIX E: LIST OF CONTRIBUTORS

APPENDIX A
INITIATIVES & BUBBLE CHART KEY

The following list reflects all 58 initiatives evaluated and proposed in the Technology Strategic Plan. Initiatives are grouped by category (i.e., Infrastructure, Innovation, Governance / Security, IT Management) and are listed in order of highest to lowest heat map score within each category.

ID	Infrastructure Initiatives
1	Microsoft Upgrades
2	ERP Migration to the Cloud
3	Cisco Network Core Infrastructure Refresh
4	5G Network (Public Act 100-0585)
5	Video Surveillance and Access Control Citywide
6	Fiber Optic Splice Locations
7	Smart Street Lighting Initiative
8	Network Redesign and Optimization
9	Police Department Video Surveillance and Access Control
10	Checkpoint Firewall Replacement - Police Department

ID	Innovation Initiatives (Applications / Projects)
11	Enterprise-Wide Applications and Improvements
12	Citywide Digital Strategy
13	Open Data Portal (Pilot Programs)
14	Optimize Utilization and Build Capacity of Fiber Optic Network
15	HR and Finance Automation Project
16	Civic Engagement and Brand Management
17	Development Services Technology Transformation
18	NextRequest: FOIA and Public Records Software
19	Business Registration Program
20	GIS: Drone Technology
21	Digital Inclusion Program
22	"Fusion Center"/ Safety and Emergency Management Upgrades
23	ComEd Energy Efficiency Program
24	River Edge Smart Park Implementation
25	Tower Revenue Project
26	eGovernment: Increasing Online Services
27	Public Safety Systems - CAD and RMS
28	Public Safety Traffic Signal Pre-emption System
29	e911 Phone System Upgrade
30	GIS: Utility Network Mapping
31	GIS: Server Virtualization and Migration
32	Citywide and Library Kiosks
33	Automated Metering Infrastructure
34	Technology Contract Review Analysis Cost Optimization
35	Next Generation 911 (Expanding Capabilities of 911 System)
36	AutoCAD Upgrade
37	Customer Service Instant Messaging (Public-facing)
38	GIS: Water Service Layer
39	GIS: ArcGIS Geo-Event Server
40	GIS: Aerial Photo Refresh

ID	
41	Explore Possible Refresh for Legislative Management System
42	Expanding 'HTE Capabilities to Business and Liquor Licenses
43	GIS: Streetlight Account Audit
44	Develop Tech Incubator
45	SCADA Software Upgrade
46	GIS: AS400 Data Migration
47	Cisco Refresh Wireless APs Replacement
48	Public Safety Equipment Updates

ID	Governance / Security Initiatives
49	Develop and Implement Cybersecurity Plan
50	Enterprise Technology Asset Tracking and Lifecycle Management
51	Content Management Governance
52	Email Retention Policy Implementation

ID	IT Management Initiatives
53	PMO Maturity Model
54	ITIL Based Culture (V3)
55	IT Strategic Planning Process
56	Smart Community Advisory Board for the City of Aurora
57	Workforce Development (Recruiting, Training, Retention)
58	Tech Education Meeting Group: Training and Knowledge Share

Potential Resource Implication:
The resource (personnel and financial) lift estimated for implementation and/or ongoing management

Low

Medium

High

○ = Initiative has budgetary impact

△ = Initiative has revenue-generating potential

□ = Initiative has a primary objective of cost savings / optimization

City of Aurora Technology Strategic Plan – FY 2018-2019

HEAT MAP ANALYSIS

City of Aurora - Technology Strategic Plan Heat Map

Heat Map Rankings - Potential Impact

- High (3)
- Medium (2)
- Low (1)

Departments / Stakeholders: All City Departments, Constituents, City Partners, Mayor's Office, Police, Fire, Development Services, Community Development, Community Services, Finance, Human Resources, City Clerk, Information Technology, Public Works, Library, Legal

Business Drivers:

One IT: Foster interdisciplinary cooperation and collaboration. | Utilize industry best practices; define efficient, effective and measurable standards. | Invest in workforce development.

Customer Experience: Improve and sustain high level of service delivery. | Provide effective communication for stakeholders across service delivery lifecycle. | Maintaining a highly secure technology environment. | Provide universal system and data access (e.g. mobility).

Agility & Smart Sourcing: Develop an agile and smart business unit (e.g. modernize). | Increase opportunities for shared services. | Identify funding opportunities to support innovation solutions. | Exercise lifecycle management strategy.

Score: Business Drivers Heat Score

Infrastructure

ID	Initiative	Business Drivers Heat Score
1	Microsoft Upgrades: 1. SharePoint 2016 2. Microsoft Office 365 Migration	29
2	Enterprise Resource Plan (ERP) Migration to the Cloud	28
3	Cisco Network Core Infrastructure Refresh	26
4	5G Network (Public Act 100-0585): 1. Access to underserved areas 2. Access to disenfranchised populations 3. Targeted Free Wi-Fi Locations	26
5	Video Surveillance and Access Control Citywide	25
6	City of Aurora Fiber Optic Splice Locations & Fiber Distribution Point (FDP), Outside Plant (OSP) Infrastructure Audit and Maintenance	24
7	Smart Street Lighting Initiative: 1. Luminaires 2. Central Management System (CMS) 3. Backhaul Communications Network 4. Field Devices	21
8	Network Redesign and Optimization	20
9	Police Department Video Surveillance and Access Control	19
10	Checkpoint Firewall Replacement - Police Department	17

HEAT MAP ANALYSIS

City of Aurora - Technology Strategic Plan Heat Map

Heat Map Rankings - Potential Impact

High (3)	Medium (2)
Low (1)	

The table below maps Initiatives against Departments / Stakeholders and Business Drivers.

Departments / Stakeholders columns: All City Departments, Constituents, City Partners, Mayor's Office, Police, Fire, Development Services, Community Development, Community Services, Finance, Human Resources, City Clerk, Information Technology, Public Works, Library, Legal

Business Drivers:
- **One IT:** Foster interdisciplinary cooperation and collaboration; Utilize industry best practices; define efficient, effective and measurable standards; Invest in workforce development.
- **Customer Experience:** Improve and sustain high level of service delivery; Provide effective communication for stakeholders across service delivery lifecycle; Maintaining a highly secure technology environment; Provide universal system and data access (e.g. mobility).
- **Agility & Smart Sourcing:** Develop an agile and smart business unit (e.g. modernize); Increase opportunities for shared services; Identify funding opportunities to support innovation solutions; Exercise lifecycle management strategy.

Score: Business Drivers Heat Score

Applications / Projects

ID	Initiative	Departments / Stakeholders (checkmarks)	Business Drivers Heat Score
11	Enterprise-Wide Applications and Improvements: 1. Instant Messaging (internal) 2. Deployment of Everbridge (Policy, Processes and Procedures) 3. Document Management System 4. Constituent Management Tools and Resources (CRM) 5. Workflow Management Platform 6. Printer Optimization Deployment	All City Departments, Constituents, City Partners, Mayor's Office, Police, Fire, Development Services, Finance, Information Technology, Public Works, Library, Legal	30
12	Citywide Digital Strategy (Data and Analytics Strategic Plan goals): 1. Expand upon the use of the City's Software as a Service provider 2. Identify and document the City's data and information resources into a centralized data library 3. Extract the most usable data elements from the City's disparate systems for centralized storage 4. Expose the data collected to 3rd party systems and external interested parties	All City Departments, Constituents, City Partners, Mayor's Office, Community Services, Information Technology	29
13	Open Data Portal (Pilot Programs)	All City Departments, Constituents, City Partners, Mayor's Office, Community Services, Information Technology	28
14	Optimize Utilization and Build Capacity of Fiber Optic Network through Onlight Aurora Collaboration	All City Departments, Constituents, City Partners, Mayor's Office, Information Technology	28
15	Human Resources and Finance Automation Improvement Project: 1. Time and Attendance Software 2. Payroll Improvements 3. Online Employee Open Benefits Enrollment 4. Purchasing Improvements	All City Departments, Mayor's Office, Police, Finance, Human Resources	27
16	Civic Engagement and Brand Management: 1. Brand Management 2. Dynamic website refresh 3. Social Media Expansion 4. City of Aurora Web and Mobile App	All City Departments, Constituents, City Partners, Mayor's Office, Information Technology	25

HEAT MAP ANALYSIS

City of Aurora - Technology Strategic Plan Heat Map

Heat Map Rankings - Potential Impact

- High (3)
- Medium (2)
- Low (1)

Departments / Stakeholders: All City Departments, Constituents, City Partners, Mayor's Office, Police, Fire, Development Services, Community Development, Community Services, Finance, Human Resources, City Clerk, Information Technology, Public Works, Library, Legal

Business Drivers:
- *One IT:* Foster interdisciplinary cooperation and collaboration. / Utilize industry best practices; define efficient, effective and measurable standards. / Invest in workforce development.
- *Customer Experience:* Improve and sustain high level of service delivery. / Provide effective communication for stakeholders across service delivery lifecycle. / Maintaining a highly secure technology environment. / Provide universal system and data access (e.g. mobility).
- *Agility & Smart Sourcing:* Develop an agile and smart business unit (e.g. modernize). / Increase opportunities for shared services. / Identify funding opportunities to support innovation solutions. / Exercise lifecycle management strategy.

Score: Business Drivers Heat Score

Applications / Projects

ID	Initiative	Score
17	Development Services Technology Transformation: 1. Electronic permit and workflow system (TrackIT Land Management Software) 2. Electronic plan review process (Bluebeam Electronic Plans Review Software) 3. Physical space transformation and modernization by consolidating departments into the new Development Services Center	25
18	NextRequest - FOIA and Public Records Software	25
19	Business Registration Program Implementation (Policies, Procedures, and Technology)	25
20	GIS: Drone Technology	24
21	Digital Inclusion Program: 1. Bilingual website access 2. Support for students outside school hours	24
22	"Fusion Center"/ Safety and Emergency Management Upgrades: 1. Community Emergency Response Team 2. Video Surveillance and Access Control 3. Upgrade Video Wall 4. Situational Intelligence	24
23	ComEd Energy Efficiency Program for Data Center	23
24	River Edge Smart Park Implementation	23
25	Tower Revenue Project (Management of Cellular Antennae Leases at City-owned Facilities)	23
26	eGovernment: Increasing Online Services (e.g. online payment for all needs)	23
27	Public Safety Systems - Computer Aided Dispatch (CAD) and Record Management System (RMS) systems	23
28	Public Safety Traffic Signal Pre-emption System	23
29	e911 Phone System Upgrade	23
30	GIS: Utility Network Mapping	22
31	GIS: Server Virtualization and Migration	22
32	Citywide and Library Kiosks	22

Heat map analysis is continued on the next page.

APPENDIX B
HEAT MAP ANALYSIS

City of Aurora - Technology Strategic Plan Heat Map

Heat Map Rankings - Potential Impact

- High (3)
- Medium (2)
- Low (1)

ID	Initiative	Business Drivers Heat Score
	Applications / Projects	
33	Automated Metering Infrastructure	22
35	Next Generation 911	21
36	AutoCAD Upgrade	20
37	Customer Service Instant Messaging	20
38	GIS: Water Service Layer	19
39	GIS: ArcGIS Geo-Event Server	19
40	GIS: Aerial Photo Refresh (Establish Schedule: Every Two Years)	19
41	Explore Possible Refresh for Legislative Management System (Granicus)	19
42	Expanding HTE Capabilities to Business and Liquor Licenses	19
43	GIS: Streetlight Account Audit	18
44	Develop Tech Incubator	18
45	SCADA Software Upgrade	18
46	GIS: AS400 Data Migration: 1. Water Taps 2. Work Order 3. Hydrant Data (W17)	17
47	Cisco Refresh Wireless APs Replacement	17
48	Public Safety Equipment Updates: Tablets, License Plate readers, Harris Radio System, NICE Digital Voice Recording System Upgrade (Word Systems)	16

Departments / Stakeholders columns: All City Departments, Constituents, City Partners, Mayor's Office, Police, Fire, Development Services, Community Development, Community Services, Finance, Human Resources, City Clerk, Information Technology, Public Works, Library, Legal

Business Drivers:

- **One IT**: Foster interdisciplinary cooperation and collaboration. / Utilize industry best practices; define efficient, effective and measurable standards. / Invest in workforce development.
- **Customer Experience**: Improve and sustain high level of service delivery. / Provide effective communication for stakeholders across service delivery lifecycle. / Maintaining a highly secure technology environment. / Provide universal system and data access (e.g. mobility).
- **Agility & Smart Sourcing**: Develop an agile and smart business unit (e.g. modernize). / Increase opportunities for shared services. / Identify funding opportunities to support innovation solutions. / Exercise lifecycle management strategy.

Heat map analysis is continued on the next page.

APPENDIX B
HEAT MAP ANALYSIS

City of Aurora - Technology Strategic Plan Heat Map

Heat Map Rankings - Potential Impact

- High (3)
- Medium (2)
- Low (1)

ID	Initiative	Departments / Stakeholders	Business Drivers — One IT	Business Drivers — Customer Experience	Business Drivers — Agility & Smart Sourcing	Score (Business Drivers Heat Score)
Governance / Security						
49	Develop and Implement Cybersecurity Plan: 1. Perform a security baseline assessment 2. Determine business requirements and mission compliance requirements 3. Design, build and implement a governance framework (e.g., NIST Cyber Security Framework) 4. Define and implement information security policies, standards and procedures (e.g. privileged account security software) 5. Define and implement User Awareness Program / Training 6. Transition to a hybrid operating model utilizing third party managed security services	All City Departments ✓, Constituents ✓, City Partners ✓, Mayor's Office ✓, Information Technology ✓, Legal ✓				25
50	Enterprise Technology Asset Tracking and Lifecycle Management	All City Departments ✓, Finance ✓, Human Resources ✓, Information Technology ✓				23
51	Content Management Governance	All City Departments ✓, Constituents ✓, Mayor's Office ✓, Information Technology ✓				21
52	Email Retention Policy Implementation	All City Departments ✓, Mayor's Office ✓, Human Resources ✓, City Clerk ✓, Legal ✓				19
IT Management						
53	PMO Maturity Model: 1. Assess the maturity level of the Project Portfolio Management (PPM) through ITScore for PPM 2. Identify and choose the PMO Model that delivers value 3. Adapt the PMO to support digital business strategy 4. Enterprise Project Portfolio Management Platform	All City Departments ✓, Mayor's Office ✓, Information Technology ✓				29
54	ITIL Based Culture (V3): 1. Service Strategy 2. Service Design 3. Service Transition 4. Service Operation 5. Continual Service Improvement	All City Departments ✓, Mayor's Office ✓, Information Technology ✓				28
55	IT Strategic Planning Process	All City Departments ✓, Constituents ✓, City Partners ✓, Mayor's Office ✓, Information Technology ✓				27
56	Smart Community Advisory Board for the City of Aurora	All City Departments ✓, Constituents ✓, City Partners ✓, Mayor's Office ✓, Information Technology ✓, Legal ✓				27
57	Workforce Development (Recruiting, Training, Retention)	All City Departments ✓, Human Resources ✓, Information Technology ✓				22
58	Tech Education Meeting Group: Training and Knowledge Share	All City Departments ✓, Constituents ✓, City Partners ✓, Information Technology ✓, Legal ✓				20

Business Drivers columns — One IT: Foster interdisciplinary cooperation and collaboration.; Utilize industry best practices; define efficient, effective and measurable standards.; Invest in workforce development. — Customer Experience: Improve and sustain high level of service delivery.; Provide effective communication for stakeholders across service delivery lifecycle.; Maintaining a highly secure technology environment.; Provide universal system and data access (e.g. mobility). — Agility & Smart Sourcing: Develop an agile and smart business unit (e.g. modernize).; Increase opportunities for shared services.; Identify funding opportunities to support innovation solutions.; Exercise lifecycle management strategy.

Departments / Stakeholders columns: All City Departments, Constituents, City Partners, Mayor's Office, Police, Fire, Development Services, Community Development, Community Services, Finance, Human Resources, City Clerk, Information Technology, Public Works, Library, Legal

APPENDIX C
GLOSSARY

The following glossary provides definitions for commonly used terms found within the Technology Strategic Plan.

Agile: An iterative and incremental process model that focuses on process adaptability and customer satisfaction by rapid delivery of a product.

Business Drivers: Builds on guiding principles and proves a manual to detail how an organization envisions implementing a desired future state.

Baseline Cybersecurity Assessment: Designed to provide a measurable and repeatable process to assess an institution's level of cybersecurity risk and preparedness.

Bubble Chart & Prioritization Timeline: A dimensional, analytical tool used to build on heat map results; provides a graphical illustration of the potential implementation timeline for the portfolio of strategic initiatives.

Capability Maturity Model ('CMM'): A performance management tool that assesses an organization's maturity level or its effectiveness at performing tasks and implementation project, an idea commonly referred to as Project Portfolio Management ('PPM').

Cybersecurity: The practice of protecting systems, networks and programs from digital attacks; aimed at accessing, changing or destroying sensitive information, extorting money from users, or interrupting normal business processes.

Digital Inclusion: Activities necessary to ensure that all individuals and communities have access to and use of information and communication technologies.

Enterprise Resource Plan (ERP): Business process management software that allows an organization to use a system of integrated applications to manage the business and automate many back office functions related to technology, services and human resources.

Fiber Optic Network: Refers to the medium and the technology associated with the transmission of information as light impulses along a glass or plastic wire or fiber. OnLight Aurora is the local community fiber services provider in Aurora, IL.

Guiding Principles (i.e. 'Pillars'): Cohesive set of beliefs, grounded in effective practice that govern the actions of a group.

Heat Map: A tool used to illustrate the potential impact an initiative may have on both the key stakeholders and business drivers; it also provides a quantitative process for prioritizing initiatives.

Information Technology Infrastructure Library (ITIL): A framework that focuses on integrating business and IT by aligning IT services with the needs of business.

OneIT: A concept based on a series of business drivers that utilize industry best practices to foster a more cooperative and collaborative environment; a concept where technology products, processes, people, and partners are shared seamlessly, collaboratively, and productively across the City and Region.

Mobility: In information technology, refers to an approach to work in which employees can do their jobs from anywhere using a variety of devices and applications; typically refers to the use of mobile devices such as smartphones and tablets for business purposes.

Project Management Office ('PMO'): A Project Management Office, abbreviated to PMO, is a group or department within a business, agency or enterprise that defines and maintains standards for project management within the organization.

Smart City or Community: A City or community that uses data and technology to create efficiencies, improve sustainability, create economic development and enhance quality of life factors for people living and working within. The Smart Cities Council is the governing body of smart city/community efforts.

Smart Sourcing: Systems or applications that have an ability to generate revenue.

APPENDIX D
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APPENDIX E
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