# City of Fort Collins
# Information Technology
# 2014-2018 Strategic Plan

## Table of Contents

## I. Purpose:

The purpose of establishing a formal strategic plan for the City of Fort Collins Information Technology, IT, Department is to provide a clear, comprehensive document to communicate the department's technology current state, strategies, and priorities. This plan will also serve to demonstrate the connection between the City's strategic plan; mission, vision and values; BFO key results and desired outcomes; and the strategic direction of the IT Department.

## II. Acknowledgements

The City of Fort Collins wishes to thank the following individuals who actively participated in the focused development of this IT Strategic Plan and served as the IT Strategic Planning Committee (ISPC), listed below. Also, thanks go to Wendy Chretien and Mary Siero, contributing and facilitating consultants of Elert & Associates, Stillwater, Minnesota.

Ms. Wendy Williams, Assistant City Manager
Ms. Terri Runyan, Performance Excellence
Mr. Dan Coldiron, Chief Information Officer
Mr. Ken Mannon, Operation Services Director
Captain Cory Christensen, Police Information Services
Mr. Kraig Bader, Standards Engineering Manager
Mr. Mark Jackson, Deputy Director Planning, Development and Transportation

## III. Strategic Plan Process

The IT Strategic Planning Committee (ISPC) together with the consulting team reviewed the following as part of the strategic planning process:

1. IT Assessment Report developed as part of this engagement by E&A. The IT Assessment Report included an assessment of IT governance, management, technology support and staffing, and infrastructure. Also included in this report is a benchmarking analysis in which the City of Fort Collins was benchmarked against other comparable cities.
2. IT Security Assessment developed as a part of this engagement by E&A
3. City of Fort Collins Strategic Plan (dated 6/28/2013)
4. Technology trends
5. Digital Manchester (strategic plan for the City of Manchester, England)
6. City of Fort Collins IT Strengths, Weaknesses, Opportunities, Threats (SWOT) Analysis developed as part of this engagement by E&A
7. City of Fort Collins current technology initiatives

Taking all of this information into consideration the ISPC Committee then developed technology Mission and Vision statements along with a number of IT/technology objectives.

Those objectives were then combined into the draft High-level Implementation Plan, found later in this document.

## IV. Customers of the IT Department

Technology at the City was managed in a hybrid combination of centralized and decentralized services until 2006. At that time, the City began the process of centralizing technology services under the management of the IT Department. The initial effort focused on the centralization of all infrastructure staffing and resources in order to realize support and hardware efficiencies. Once that effort was completed and demonstrated to be successful, management of the remaining departmental application support staff was also centralized within the IT Department. Operations as a fully centralized department have continued since 2008.

The Information Technology Department provides services for the groups listed below:

**Citizens of Fort Collins** – users of services provided by the City through the variety of departments within the organization. This would include those services funded through the direct charge of fees, rates, etc, and those funded through taxes and other public monies.

**City Council** – responsible for serving as the legislative and governing body of the City. City Council adopts laws, ordinances, and resolutions stating City policy; holds public meetings on a variety of community issues; meets with groups and businesses; and attends local, county, regional, state and national meetings on issues that have municipal impact.

**City Manager's Office –** responsible for providing overall administration for the City in accordance with City Council policies and issues. These responsibilities include preparing and executing the City budget; special projects management; overall coordination of capital projects; tracking municipal impacts of state and federal legislations; public information; and serving as key communicators with City Council, citizens and staff. This area also includes functions of the City Clerk's Office.

**City Attorney's Office** - responsible for the general legal affairs of the City. This office provides legal representation and advice to the City Council, the City Manager, the City's Boards and Commissions, the City Department Heads and other key City Staff regarding the legal implications of contemplated policy and administrative decisions. The office also prepares and reviews various ordinances, contracts and other legal documents and conducts a variety of legal trainings and other educational programs designed to avoid lawsuits.

**Police Services** – responsible for enforcing all laws and ordinances; providing a safe environment for the residents, businesses and visitors to the community; protecting through patrol and traffic operations; case investigations; enhanced communications; interacting with the community to educate them on crime prevention, criminal activity, drug activity and awareness and traffic safety.

**Planning, Development and Transportation Services –** responsible for long-range planning and land use, transportation planning and implementation; development review and historic preservation activities; providing for safe building construction through building project review, permitting and inspection functions; neighborhood and code enforcement activities; and developing strategies for improving the overall quality of life. Also responsible for street maintenance, traffic control, bus transit systems, bicycle programs, and engineering design and project management.

**Utility Services** – responsible for managing and maintaining electric distribution, water and wastewater treatment processes; maintaining storm water infrastructure; maintaining water distribution systems and wastewater collection systems.

**Financial Services** - responsible for collecting, accounting and reporting financial information related to all City revenues and expenditures; issuing and managing City debt; collecting, auditing and enforcing City sales and use tax; managing the collection of revenues and management of investments. Services also provided by this area include: Budget, Purchasing and Risk Management.

**Community and Operation Services** - responsible for building operations and maintenance; fleet maintenance, real estate services; responsible for acquiring, designing, constructing and maintaining parks, trails and right-of-ways; operating multiple recreation centers, and golf courses; and planning and implementing programs, sports leagues, senior activities and special events; responsible for Information Technology.

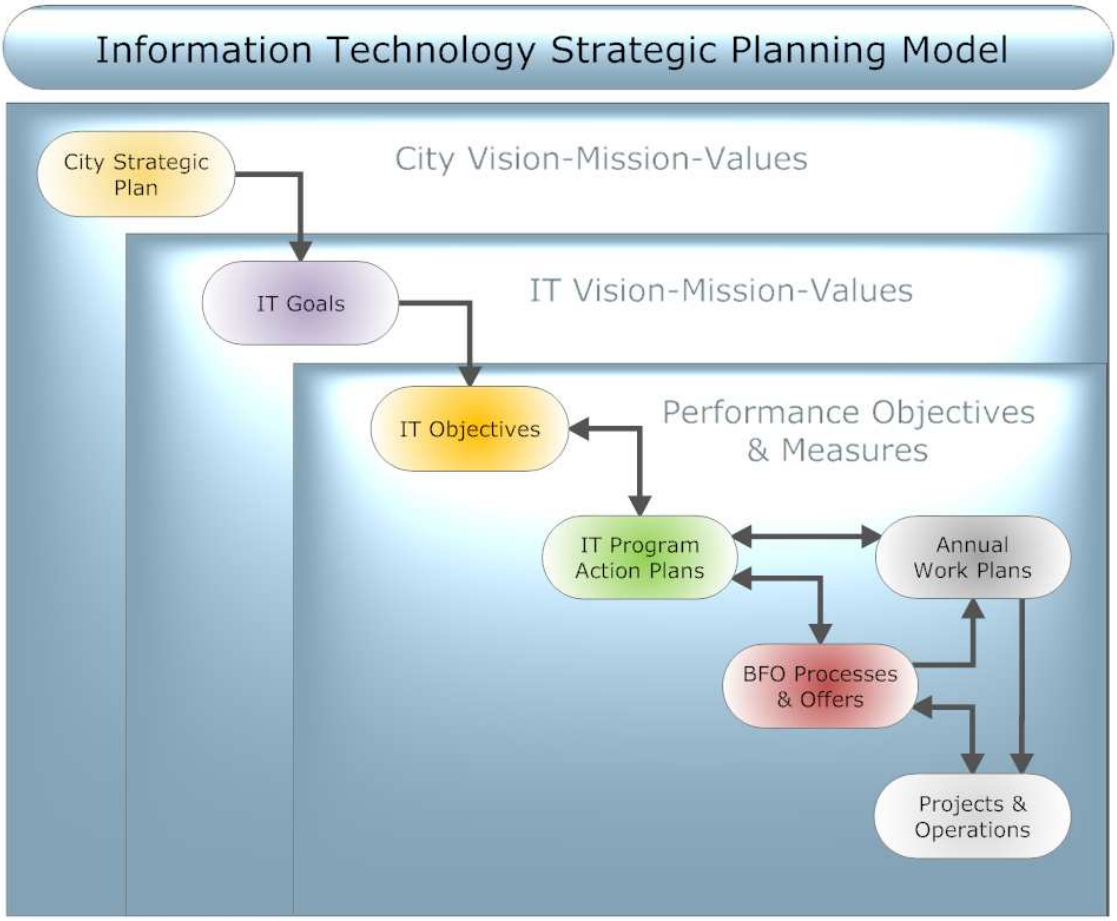
**Employee and Communication Services** – responsible for employee training and development, human resources, communication services, and video production services.

**Sustainability Services –** responsible for the management of housing and human services programs, providing strategic economic development opportunities, and environmental services programs.

**Other Agency Services** - The IT Department also provides services to a number of local and regional entities. These include: Poudre Fire Authority, Downtown Development Authority, Fort Collins Housing Authority, Larimer Emergency Telephone Authority, Poudre River Library District, and Museum of Discovery.

## V. IT Department Strategic Plan Model:

The IT Department has developed a working Strategic Plan Model, shown below, that graphically demonstrates the structure and alignment of strategies, goals, objectives, action and work plans.




As can be seen in the model, the strategic direction of the IT Department must exist and align with the strategic directions of the broader City organization. Also, the operational goals and objectives, budget, project efforts, and work plans of the department must exist and align with the strategic direction of the overall department.

By way of example, the annual work plans for individual IT programs are derived from approved budget offers and a Program Action Pan that is prepared and updated annually that outlines the practical issues, challenges and near future plan (1-3 years). The Program Action Plan is also directly aligned with the Goals and Objectives of the department, while also serving to provide as input to budget offers, informing the process of that specific program's resource needs, strategies and metrics.

## VI. Vision – Mission – Values:

Through a series of efforts within the IT Department and in facilitated sessions that engaged representatives of the department's primary customers, a vision, mission and values were developed. Key elements of the discussion were to develop statements that were broadly representative of the whole department, but were also directly and purposefully aligned with the City's statements and strategies.

**Tag Line:**

- Customer driven, operationally excellent

**Vision:**

- To be the "digital utility" for the City of Fort Collins

**Mission:**

- Provide exceptional, innovative, and customer-driven services to enable operational excellence within the City government.

**Values:**

- Service Excellence
- Innovation & Creativity
- Trust & Respect
- Integrity & Initiative
- Collaboration & Teamwork
- Accountable Stewardship
- Dynamic & Flexible

## VII. IT Department Goals and Objectives:

Well-chosen goals and objectives point an organization in the right direction and keep it on the right track. Departmental goals were developed in order to establish our intent to become, and to remain a world-class IT department that provides exceptional services. Departmental objectives were developed as a means to guide us on specific tasks and practical efforts that are necessary for us to reach our goals.

For consistency, the IT Departmental goals and objectives are also available in a document that is formatted to match the City's Strategic Plan Summary. (see Appendix A to this document)

### 1. Goal: Provide High-Quality, Valued IT Services – Achieve World-Class IT Outcomes

Objectives:

1.1. We will continually improve foundational IT Processes: Proactively plan, implement, monitor, and measure our environment of resources, systems, applications, networks, and communications to proactively maintain, adjust, repair, extend, and enhance in order to increase overall system reliability, efficiency, availability and security.

1.2. We will work to ensure access to and availability of systems as this is crucial to the organization. High system availability will be an on-going performance measure for the department.

1.3. We will replace hardware, software and network infrastructure in a planned, budgeted and scheduled manner to prevent obsolescence and reduced organization efficiency.

1.4. We will provide innovative services and solutions that take advantage of new technologies in order to ensure that the City is able to provide world class primary services to the community and staff in a manner that is aligned with the sustainability standards of the organization and community.

### 2. Goal: Provide Innovative, Creative Technology Solutions

Objectives:

2.1. We will aggressively evaluate emerging technologies to discover opportunities to enhance delivery of core services, increase organizational efficiencies, decrease cost, or support City Council priorities.

2.2. We will encourage and challenge ourselves to think outside the box, research new things, be open to new ideas, to be flexible and adaptable to different ways of accomplishing things in order to be a vital, valuable and innovative IT department.

2.3. We will maintain hardware, software, network and security standards to ensure a sustainable technology environment, while embracing new technologies and exploiting technical advances so that the City can be an innovative leader.

2.4. Current service delivery paradigms place an emphasis on Web delivery, cloud services, mobile devices, BYOD, network convergence, and a variety of virtualization opportunities. We will actively work to engage these technologies and appropriately deploy and support.

## 3. Goal: Deliver Exceptional Customer Interactions and Service

Objectives:

3.1. Customer service and satisfaction are our first priority. We will proactively track and measure our service delivery in order to monitor our performance, using the information to assess our performance and make necessary adjustments.

3.2. We will provide our customers with well understood, transparent, and efficient methods to request IT services and to provide feedback on our efforts.

3.3. We will proactively participate in the City's Internal Services Survey, using the results to adapt and align our services to best meet our customer's needs and expectations.

3.4. The IT department acknowledges the importance of communication in meeting customer service expectations. We will make exceptional and effective communication a priority element of every service delivery effort.

## 4. Goal: Proactively Align to Enhance the City's Lines of Business

Objectives:

4.1. We will embrace the BFO budgeting process and proactively develop offers that maintain current services and provide for enhancements that are aligned with the City's key results and outcomes, as well as the priorities of each result area and line of business.

4.2. We understand our mission as an internal service provider and wholly embrace the business needs of the City's primary service providers in their work to the citizens of Fort Collins.

4.3. We will frequently and proactively engage the executives, managers and staff within each line of business in order to ensure that IT services are aligned with their strategies and priorities.

4.4. The documentation of the IT department's services, plans, strategies and priorities is essential to maintain accountability and credibility within the organization. We will maintain current Program Action Plans and associated measures and metrics in order to provide this information.

## 5. Goal: Develop and Foster a Dynamic, Collaborative, and Supportive Team Environment that Technology Professionals Enjoy Working In

Objectives:

5.1. We will expend every reasonable effort to recruit, hire, train, develop and retain the most well-rounded, knowledgeable, dedicated technical staff in order to achieve sustainable technology services and outcomes.

5.2. We will participate in the Q14 survey and proactively utilize the results in order to provide a dynamic, enjoyable work environment where employees are valued, honored and engaged.

5.3. Within IT, staff will have access to the information and tools that they feel they need to be engaged and to understand how their work accomplishes City and departmental goals. To that end, we will ensure that department staff has frequent opportunities for communication and interaction.

5.4. As a team, the IT department strives to recognize the contributions of each and every member. We will look for opportunities to celebrate our differences, diversity and successes, while rallying as a team to overcome our challenges.

## VIII. Alignment with the City's Strategic Plan

One of the most important criteria for the IT Strategic Plan is that it support the strategic plan developed for the City of Fort Collins. The ISPC reviewed the City of Fort Collins Strategic Plan Draft dated 6/28/13 and identified technology initiatives either underway or future initiatives that should be undertaken to support the Key Outcomes of the City Strategic Plan.

The list of items identified by the ISPC is the product of multiple rounds of a brainstorming within that committee. The list, although covering a very wide variety of initiatives across many of the facets of business activities that the City engages in, is not considered to be all-inclusive and fully comprehensive. The intent of this original list is twofold. First, it was to create a medium and format for the capture of this information for ongoing use. Second, it was to capture a breadth of the initiatives sufficient to develop an understanding of the majority of the technology issues and opportunities ahead of the City.

Like any useful strategic plan, this list of initiatives must become more of a living document that is used broadly and updated frequently. The list will be used as a basis for further discussions between the separate lines of business and the IT Department in order to further refine the information.

### a. Key Outcome One: Community and Neighborhood Livability

*Strategic Goal: Provide a high quality built environment and support quality, diverse neighborhoods*

| Strategic Objective | Technology Initiative | Implementation Year[1] |
|---|---|---|
| 1.3 | Tracking online applications for developers and property owners for Historic Preservation | 2 |
| 1.4 | Title Six translation capabilities | 1 |
| 1.5 | Overcome limitations of SB 152 | 2 |

[1] Year 1 is 2014; Year 2 is 2015, etc.

## b. Key Outcome Two: Culture and Recreation

*Strategic Goal: Provide diverse cultural and recreational amenities*

| Strategic Objective | Technology Initiative | Implementation Year |
|---|---|---|
| 2.4 | Develop mobile application to replace kiosk at Old Town Square | 3 |
| 2.5 | Museum expansion | 5 |

## c. Key Outcome Three: Economic Health

*Strategic Goal: Promote a healthy, sustainable economy reflecting community values*

| Strategic Objective | Technology Initiative | Implementation Year |
|---|---|---|
| 3.1 | Ultra high broadband for better business connectivity | 4 |
| 3.5 | Technology to support flexible office space at business center | 5 |

## d. Key Outcome Four: Environmental Health

*Strategic Goal: Promote protect and enhance a healthy and sustainable environment*

| Strategic Objective | Technology Initiative | Implementation Year |
|---|---|---|
| 4.2 | Add digital workflows; potentially via implementing a business process management application | 1 |
| 4.2 | Support for alternate vehicles | 2 |
| 4.5 | Virtualization | 1 |

## e. Key Outcome Five: High Performing Government

*Strategic Goal: Deliver and efficient, innovative, transparent, effective and collaborative city government*

| Strategic Objective | Technology Initiative | Implementation Year |
|---|---|---|
| 5.1 | Conduct formal, comprehensive business continuity and disaster recovery planning | 2 |
| 5.1 | Implement testing of BC/DR plan, either in proof-of-concept mode or on actual DR infrastructure | 3 |
| 5.1 | Implement risk tracking and investigation capabilities | 4 |
| 5.2 | Consolidate City FOB systems | 2 |
| 5.4 | Implement streamlined onboarding and off-boarding | 3 |
| 5.4 | Provide for video interview capabilities | 3 |
| 5.6 | Create CSU technology internships | 2 |
| 5.6 | Develop opportunities for CSU technology sharing | 2 |
| 5.7 | Expand secure access for outsiders to city network | 1 |
| 5.7 | Implement automated password reset capabilities | 2 |
| 5.7 | Purchasing workflow approval | 1 |
| 5.7 | Project work approval | 3 |
| 5.7 | Implement single sign-on capabilities | 3 |
| 5.7 | Unified communications | 3 |
| 5.7 | Build out mesh network | 3 |
| 5.7 | Implement single phone number that follows employees | 4 |

## f. Key Outcome Six: Safe Community

*Strategic Goal: Provide a safe place to live, work, learn and play*

| Strategic Objective | Technology Initiative | Implementation Year |
|---|---|---|
| 6.2 | Expand implementation of in-vehicle and on-body cameras | 2 |
| 6.2 | Implement HALO cameras | 5 |
| 6.2 | Implement mobile HALO cameras | 5 |
| 6.3 | Implement Two Factor Authentication (TFA) for system access. Note: this is a State of Colorado mandate for police services. | 1 |
| 6.3 | Implement Security Incident and Event Management technology | 2 |
| 6.3 | Video camera outsourcing | 2 |
| 6.4 | Implement Disaster Recovery site | 2 |
| 6.4 | Anomaly mapping software for special events | 3 |

## g. Key Outcome Seven: Transportation

*Strategic Goal: Provide for safe and reliable multi-modal travel to, from, and throughout the city*

| Strategic Objective | Technology Initiative | Implementation Year |
|---|---|---|
| 7.1 | Expand usage of AVL technology | 2 |
| 7.1 | Mobile mapping for bike trails | 2 |
| 7.1 | Crowd source mapping for bike trails | 3 |
| 7.2 | Real time traveler information | 1 |
| 7.2 | Implement technology to count bikes and pedestrians | 3 |
| 7.2 | Implement “intelligent” or “on the fly adapting” traffic | 5 |
| 7.3 | Automated bike share program | 2 |
| 7.5 | Track and schedule vehicles | 1 |

# IX. Environmental Scan - Technology Trends

An environmental scan is meant to identify the opportunities, issues and current thinking that may influence decisions, priorities and long range objectives. During its July planning sessions, the Information Technology Strategic Planning Committee discussed many technology trends and considered how those trends should be reflected in the City's planning.

The ISPC made a determination for each technology trend listed below regarding whether it should be *Mandated, Supported, Encouraged or Tabled* according the definitions below.

1. *Mandate* the technology - implement it regardless of available funding
2. *Support* the technology – implement it and provide funding for it where appropriate
3. *Encourage* the technology – implement it if desired, but do not necessarily allocate funding for its implementation
4. *Table* the technology- consider implementation of it at a future date

## a. Technology Trends to Mandate:

An Those technology trends identified as *Mandated* by the ISPC were so identified because of their importance in achieving the strategic objectives as identified by the City, their penetration and proliferation into the marketplace, and technology initiatives already underway which require those technologies to be successful.

These trends are:

### i. Mobile Apps and City-Owned Tablet Computing

Mobile applications and tablet computing are exploding in the marketplace. According to Gartner research, shipments of mobile PCs and tablets will increase 50% from 2013 to 2016 (from 400 million to 600 million), user interfaces will get more sophisticated beginning in 2014 and integration with other consumer impacting technologies and trends will continue to increase.

The drivers for this growth include the tremendous growth of smartphones and tablets, improvements in mobile applications, browsers and search capabilities, and the evolution of wireless networks which have become faster and more

reliable. Generation Y workers have grown up in and live a mobile/wireless lifestyle and they are demanding access to increase their productivity.

At the City of Fort Collins, mobile devices and City-owned tablets have already permeated the workforce with the demand for more applications of these technologies steadily on the rise.

For these reasons, the ISPC decided to Mandate these technology trends for future initiatives beginning in Year 1.

### ii. Collaboration

Collaboration technology began as document management and sharing. It's continued evolution to include social networking (within a business context) and project or task management for teams has made it an increasingly effective tool for organizations. While this trend towards integration may seem to imply an increase in the complexity of the technical environment, the most successful solutions will prevent that from happening.

The success of collaboration is rooted in usability, where a satisfying user experience will drive adoption and daily use by the end users. Collaboration leads to better communication among employees which in turn leads to faster and higher-quality work, which, in turn, drives increased productivity. By enabling employees to work smarter, collaboration technologies provide important context for decisions and actions. Problems are likely to be identified sooner and fixes are more reliable. Collaboration technology changes everything and allows the sharing of information with anyone, from anywhere, at any time, from any device.

For these reasons, the ISPC decided to Mandate these technology trends for future initiatives beginning in Year 1.

### iii. "Big Data" Analytics

Data is growing at unprecedented rates without regard to budgets or available resources to manage it; this is what is referred to as Big Data. It is demand-driven and more access creates more data creating a never-ending cycle. Big Data analytics provides the capability to explore granular details of business operations and customer interactions that haven't always been available in traditional data warehouse solutions or standard reports. It includes unstructured data (i.e. data coming from sensors, devices, third parties, Web applications, and social media) which is typically presented in real time and on a large scale**.** Big Data analytics provides tools to perform predictive analytics, data mining, statistics, and natural language processing so businesses can understand the current state of the

business and track evolving aspects such as customer behavior. Analytics, pattern recognition, and social awareness are key components of a Big Data Analytics implementation.

At the City of Fort Collins the Police Department uses some of these tools in crime analysis, much of it with a tool called Crime View (from Omega). For the Police Department data is key to their success, so much so that the monthly meeting is now called Data Driven Policing.

The IT Department is currently maturing their analytic capabilities in efforts to provide more trending data to various departments.

For these reasons, the ISPC decided to *Mandate* these technology trends for future initiatives beginning in Year 1 in terms of implementing the infrastructure to support Big Data Analytics (data marts, systems to manage performance metrics for community reporting and AMFC data).

In Year 2 the initiatives are to provide an ETL (Extract, Transform, Load) tool to enable making data available out of operational systems.

In Year 3 the initiative is to implement analytics for decision support and business intelligence.

In Year 4 the initiative is to expand Big Data Analytic capabilities into new service areas.

## b. Technology Trends to Support:

### i. BYOD – Bring Your Own Device

"Bring Your Own Device" is generally thought of as a policy which permits employees to bring personally owned devices (smartphones, tablets, PCs, etc.) into the workplace and to use them to access privileged company information and applications. The 2013 Horizon Watching Trend Report indicates that many workers today carry three devices (smartphone, tablet, laptop) from a variety of manufacturers. Given a growing desire on the part of workers to determine the devices that make them most productive, IT departments are challenged with putting an infrastructure in place to support these workers and their devices while at the same time protecting the organization from security breaches. This new corporate work style must be aligned with business priorities through the implementation of police, management tools and appropriate application access.

The City of Fort Collins IT Department is providing limited support today on smartphones and iPads from the aspect of connectivity only. They are providing

limited troubleshooting or problem resolution for BYOD. Some of the problematic aspects of supporting this technology at the City include using policy based control only and placing agents on personally owned devices. The City Attorney has stated that policies and notifications are enough. Today, support is by individual role at the City only but there is more pressure to expand this concept more globally to all City workers.

For these reasons, the ISPC decided to *Support* these technology trends for future initiatives beginning in Year 1 in terms of implementing a policy and a limited implementation of Mobile Device Management (MDM) technology.

### ii. Cloud Computing

Cloud computing has already seen significant adoption in the business environment despite the fact that it has yet to achieve maturity in the marketplace. Key benefits are that it facilitates anytime/anywhere access, provides rapid scalability, often provides improved security, and supports or improves disaster recovery strategies. While limitations still exist, the movement to cloud computing is accelerating in many industries.

While it began as a single concept, cloud computing has evolved into three separate offerings. Software as a Service (SaaS) which provides web-based access to applications, Infrastructure as a Service (IaaS) which provides remote hardware maintenance, support and scalability and Platform as a Service (PaaS) which provides a platform for software developers to use in the development of applications.

A new trend toward hybrid cloud computing, where organizations combine the usage of cloud computing with on-premise solutions offers the best of both worlds to many organizations.

A combined study conducted in 2012 by The Cloud Services Alliance (CSA) and the Information Systems Audit and Control Association (ISACA) to determine the maturity of cloud service offerings predicted that cloud maturity will occur in 2015.

For these reasons, the ISPC decided to Support these technology trends for future initiatives beginning in Year 1 in terms of implementing enabling technology and controls for SaaS and IaaS type offerings.

In Year 3 initiatives should support implementations of major cloud service offerings.

### iii. Virtual Desktop Interface (VDI)

Virtual desktops create a user-centric environment. This concept shares compute-intensive resources among users by separating the physical computer from the computer desktop environment. In other words the display is not tied the hardware on which it is used. Drivers for this technology include increased business agility, increased user productivity with easy and uniform access to systems and data from multiple devices, reduction in operating costs, higher IT operational efficiency, improvement in capabilities for business continuity and security and compliance, and the ability to provide ubiquitous anytime anywhere capabilities for end users.

The City of Fort Collins already has a Virtual Desktop Interface infrastructure in place.

For these reasons, the ISPC decided to Support these technology trends for future initiatives beginning in Year 1 on a limited basis.

In Year 3 a larger implementation of VDI Technology should be considered.

## c. Technology Trends to Encourage:

### i. Voice Interface (Speech Recognition)

Voice recognition technology has not followed the adoption curve that other new technologies have followed. Although it has existed in some form or another since the 1950s (Bell Labs "Audrey" system which could only understand numerical digits), many companies have introduced voice recognition with varying levels of success. Dragon Dictation was the first speech recognition software designed for the PC. Soon after, the telecom industry introduced voice portals, or Integrated Voice Response (IVR) systems which were intended to replace customer service representatives. Despite advances, consistent and reliable voice recognition interfaces have struggled.

Success has recently emerged beginning first with the automotive industry and Ford's SYNC feature that debuted in 2007. In 2011 the exceptional voice recognition capability of IBM's Watson was credited as a key success factor when Watson defeated "Jeopardy" champ Ken Jennings and also that year Apple launched Siri on the iPhone 4S. Siri was groundbreaking in that it linked machine learning to natural

language bridging the gap between how computers speak to one another and how humans speak to one another. The contextual voice recognition capabilities of Siri resulted in a system with the ability to understand and interpret language.

Siri and the "Siri-like" applications developed by Android and others, set the stage for a new generation of applications that can be controlled by the sound of your voice and the potential to move away from keyboards, mice and even touchscreens.

For these reasons, the ISPC decided to *Encourage* these technology trends for future initiatives beginning in Year 3.

### ii. The Internet of Things (Machine to Machine) and Location-based Integration

The Internet of Things is not a single technology but rather a concept enabled by advances in many technologies. The miniaturization of "smart objects" or sensors has enabled them to be embedded almost anything, delivering an "Always On" society. From a social and business perspective the impact is one of situational decision support and learning coupled with delivery of remote sensing services as part of connected products.

From a municipal perspective there are systems that "sense" lightning on golf courses and alert golfers as well as many applications in the transportation sector.

For these reasons, the ISPC decided to *Encourage* these technology trends for future initiatives beginning in Year 1 with AMFC projects.

In Year 3 when the penetration of these technologies is even greater, additional projects using these technologies should be considered.

The companion technology of location-based integration (based on the same concepts of the Internet of Things) presents some opportunities in the traffic control systems and should be *Encouraged* beginning in Year 4.

### iii. Game-based Learning/Simulation

The Digital Gamification or Game-based learning movement has been gaining momentum for the past several years. It taps into the generation that grew up with video games and uses the technology as a driver to develop technical and social

skills, including problem solving, sharing, and collaboration. It has the benefits of providing motivation (higher incidence of self-driven learning), it facilitates mastery by allowing mistakes which has the potential to develop higher-order thinking skills such as analysis, it allows for consistent standards, and can provide laser like focus on the topic learned, resulting in personalized learning.

For these reasons, the ISPC decided to *Encourage* these technology trends for future initiatives beginning in Year 5.

#### iv. Gesture-based Computing

The 2002 film Minority Report introduced the world to gesture based computing. While the technologies that allow for interaction with devices through gestures have mostly found they're home in game systems like the Nintendo Wii, this technology has the potential to be truly transformative and disruptive in the area of human computer interfaces. Maturation and penetration of this technology is predicted in about 2015 at the earliest.

The technologies for gesture based input continue to expand. Evoluce has created a touch-screen display that responds to gestures and the MIT Media Lab has developed DepthJS which combines technologies to allow users to interact with the Chrome Browser through gestures. Gesture based computing offers the compelling capability to move through three-dimensional visualizations taking training to the next level.

For these reasons, the ISPC decided to *Encourage* these technology trends for future initiatives beginning in Year 4.

### d. Technology Trends to Table:

The ISPC decided to Table the following technology trends:

**Open Stack:** A cloud computing project using free and open source software to provide Infrastructure as a Service (IaaS).

**Visual Data Analysis or Visual Analytics:** "The science of analytical reasoning facilitated by visual interactive interfaces."

**Simple Augmented Reality (e.g., Google glasses):** A live, direct or indirect, view of a physical, real-world environment whose elements are augmented (or supplemented) by computer-generated sensory input such as sound, video, graphics or GPS data.

**Software Defined Networking (SDN):** A new way to operate data networks by moving the control plane from the devices to a central control. Today the companies doing this are all start-ups but this technology is on the roadmaps for all of the major networking vendors. It has cost savings potential for future purchases.

## X. SWOT Analysis:

The intent of this section is to identify City of Fort Collins specific Strengths, Weaknesses, Opportunities and Threats with regard to information technology. After each section we have listed the projects either underway that support these findings, or planned that would improve or remediate these findings.

### a. Strengths (maintain, build and leverage):

i. City administration is forward looking and understands the importance of technology in providing services to citizens
ii. Fort Collins has a fiber backbone connecting most City buildings
iii. IT achieved good customer satisfaction ratings in 4 of 7 City of Fort Collins Service Areas in the 2013 NES survey
iv. Recognition of the need for a customer service approach to providing IT services
v. Fort Collins IT Department is well resourced in comparison to peer cities
vi. There are pockets of high customer satisfaction and business alignment within IT

### b. Initiatives to support maintain, or enhance Strengths

i. Online application forms - business licenses, permits, etc.
ii. Digital presence to attract applicants - portal development activities
iii. Formulate a deliberate plan to communicate to the public the technology services that have been implemented and future services that will be available
iv. Discuss the digital utility aspect of what Fort Collins is providing
v. Consider extending fiber backbone to all City buildings
vi. Continue progress in changing customer service focus, whereby conversations are safe to have and there are collaborative explorations that result in how things can be accomplished in the best interest of all

### c. Weaknesses (remedy or exit)

i. Lack of documented and communicated IT strategic focus and goals
ii. Lack of change management process
iii. IT does not effectively implement the technology refresh plan resulting in delayed replacements of end user computing devices
iv. User departments do not view IT as a strategic partner as evidenced by low ISS score for "anticipating your department's needs"
v. Dissatisfied customers with regard to troubleshooting and problem resolution particularly in the area of provision of network services – especially in Police Services, Utility Services, and Planning, Development & Transportation Services
vi. In certain areas systems are not kept on the most current software and hardware platforms which results in lack of feature/functionality to end user, this is most evident with respect to network upgrades.

### d. Initiatives to Remedy Weaknesses

#### i. Year 1 Initiatives

- Document and communicate IT Strategic Plan
- Improve efficiency of desktop deployments (2 new temporary staff added); funding has been made available for software licensing and spares inventory to improve readiness
- Telecomm has added a network engineer, that combined with three major deployments winding down should move Telecomm to a manageable state
- Servers team has added a systems engineer, that combined with major deployments winding down should move Server team to a manageable state
- Formalized implementation of customer service strategy
- Implement new help desk software
- Begin to formalize change management processes
- Educate IT staff regarding problem solving and root cause analysis
- Standardize equipment configurations and versions as appropriate—consider tools to assist as appropriate
- Educate users regarding the "Best Buy" effect.

#### ii. Year 2 Initiatives

- Consider a process or product to ensure consistent problem solving and root cause analysis

- Consider funding in next budget cycle to alleviate the problem of systems being on older versions of software and hardware where appropriate.

## e. Opportunities (prioritize and optimize)

i. Enhance customer service through a new help desk package that allows users to serve themselves when convenient for them, and provides data to better track performance
ii. Identify and implement IT operational metrics that are in line with the formalized customer service strategy
iii. Increase participative governance for departments/users of key applications (e.g., through Steering Committees)
iv. Utilize outside resources more often for one-time/initial or niche type installations, to reduce employee workloads and shorten implementation timelines
v. Improve user productivity by replacing wireless networking system at Police Department
vi. Implement a best practice, formalized, and documented disaster recovery planning effort to include identification of critical systems and a business impact analysis to ensure recovery and continuity technologies are in line with business needs. As part of this the DR site implementation should be completed
vii. Implement project management to improve timely completion of projects, cost management and better understanding of resource needs
viii. Optimize the centralized management structure for IT; the department has been centralized in reporting structure only, not from an operational process perspective.

## f. Initiatives to prioritize and optimize Opportunities

### i. Year 1 Initiatives

- Implement new Help Desk Software
- Develop and implement IT service metrics
- Replace wireless networking system at Police Department (funding is in place)
- Conduct a Business Impact Analysis to guide Disaster Recovery efforts.

### ii. Year 2 Initiatives

- Identify and implement appropriate recovery and continuity technologies based on results of the Business Impact Analysis

- Implement project management training and processes to better control implementations

#### iii. Year 3 Initiatives

- Re-evaluate project management training processes to better control implementations

### g. Threats (counter)

i. Lack of training for users and IT staff reduces efficiency and effectiveness, and could lead to cyber security breaches
ii. Users "working around" IT can result in duplicated efforts, extra costs and reduced efficiency
iii. Lack of grounding in telecommunications spaces can damage equipment and be a shock hazard to workers when in those areas
iv. High IT staff turnover lessens effectiveness and increases response times

### h. Initiatives to counter Threats

#### i. Year 1 Initiatives

- Develop and implement safe computing training program;
- Technology training for IT folks - Ongoing
- Develop continuous proficiency training on technology for end-users
- Develop and implement new hire technology usage and security training
- Redesign IT processes to increase efficiency and output (streamline)
- Utilize outside vendors for niche and capacity issue projects
- Utilize Steering Committees to communicate and prioritize IT projects
- Instill customer service strategy in IT department
- Improve IT alignment with the business
- New hires with customer service strategy
- Process redesigns and outsourced activities will alleviate employee work hours stress concerns

#### ii. YEAR 2 Initiatives

- Have an electrical engineer design proper grounding for spaces
- Utilize licensed electrician to implement recommendations

## XI. High-level Implementation Plan (see Appendix B)

As expected, after combining all of the objectives discussed by the IT Strategic Planning Committee (ISPC) there are a large number of potential initiatives, which may be confusing presented only in narrative form. The high-level implementation plan presents and summarizes this information to more easily communicate the extent of the planned initiatives.

### a. Implementation Plan Elements

This document was developed in spreadsheet format, allowing City of Fort Collins to sort by the various columns as desired.

The 1st column (A) contains a brief description of the potential objective or initiative.

The 2nd column (B) describes where the objective fits into the overall City of Fort Collins Strategic Plan.

The 3rd column (C) lists the implementation year assigned by the ISPC during its planning sessions. As currently shown, there are probably too many designated for Year 1 (2014), even if the City of Fort Collins uses some outside resources. The ISPC could shift some of these to later years based on available resources.

The 4th column (D) provides the consulting team's estimate of relative amounts of money ($ = lower, $$$ = higher) that the City of Fort Collins would need to spend to implement each objective/initiative.

## XII. Next Steps

a. Develop a RACI matrix for all initiatives. [The ISPC could designate resources to develop this matrix.]
b. Develop metrics regarding what constitutes completion and how success will be measured for each initiative that is approved for Year 1 (2014). [The ISPC could designate resources to develop the metrics.]
c. IPSC to review the RACI matrix and metrics.
d. Obtain approval/sign-off from appropriate office(s) and allocate needed funds.
e. Assign resources and begin implementation.

## XIII. Future Updates to the IT Strategic Plan

The City of Fort Collins IT planning group (whether the current ISPC or a newly formed IT Steering Committee) should re-examine the IT Strategic Plan every year. Recommended steps in the update process:

a. The IT Department should provide a brief summary of each designated objective/initiative completed in the past year, including its success as measured by the approved metrics, as well as a status update regarding any initiatives that are currently underway.
b. The planning group should revisit and update the Environmental Scan and the SWOT Analysis. Utilize available resources such as the Horizon, Gartner and Forrester Reports.
c. In light of the foregoing, re-evaluate the initiatives planned for the upcoming year. Some may no longer be necessary and others may need to be postponed.
d. Review initiatives planned for later years. Some of these may have moved up in importance due to changes in technology or the current situation at the City of Fort Collins
e. As a group agree upon and designate the specific objectives/initiatives that are to be completed in the upcoming year.
f. Have metrics and a RACI matrix prepared for these initiatives.

## XIV. IT Program Action Plans

An important implementation element of the IT Department's Strategic Planning Model is the development and maintenance of Program Action Plans. These plans are instrumental in documenting the effective management of technology within individual specific programs and services. Program areas include: Enterprise Resource Planning, Electronic Document Management, Systems and Storage, Network Services, Voice Services, Geographic Information Services, Utilities Customer Information System, Computerized Maintenance Management Systems, Credit Card Processing, and Internal Communications, among others.

The IT Program Action Plans document the current state of each program or service, while also fully exploring the opportunities, challenges, risks and trends that will impact service delivery during the next 3 years. The plans describe the governance of each program and the state of staffing and resources. The action plans also document the appropriate measures and metrics that are necessary to adequately monitor and manage the program.

Finally, there is coordination between the action plans and the City's BFO budgeting processes. During preparation for an upcoming BFO process, the IT Department uses the current action plans to develop offers. This allows the department to produce offer requests for funding that will maintain the appropriate service levels, address risks, recognize upcoming trends and upgrades, while also providing for the maintenance and tracking of the related measures and metrics.

Once the BFO process is completed, the funded offers included within the adopted budget are then used to update each program action plan. Updates include: service level adjustments, staffing and resource changes, and inclusion of enhancements. At the end of each year, program action plans are updated and then used to develop yearly work plans.

Individual Program Action Plans can be provided (not all have been developed at this time):

- Enterprise Resource Planning, ERP (JDE – Finance and HR)
- Enterprise Reporting and Data Warehousing
- Network Services
- Voice Services
- Systems and Storage
- eGovernment (FCGOV, CityNet and associated services)
- Client Services (Helpdesk, PC's and Mobile Devices)
- Customer Information System, CIS (Utility billing system)
- Meter Data Management
- Web Portal and Demand Response
- Computerized Maintenance Management System (Utilities asset management system)
- Utilities Applications Portfolio
- Geographic Information Services (GIS)
- Electronic Document Management System (Sire)
- Credit Card Processing
- E911 and Records Management
- Police Applications Portfolio
- Land Management System (Accela)
- Parking Management System
- Transportation Asset Management System (Cityworks)
- Advanced Traveler Information System
- Bus & Fleet Management System
- Recreation Management System (RecTrac)
- Gold Management System (GolfTrac)
- Fleet Management System
- Facilities Management System
-

## XV. Appendix A – IT Strategic Plan Summary (see attached)

## XVI. Appendix B – High Level Implementation Plan (see attached)