

City of Pueblo



Information Technology Strategic Plan

Revision 8.0

8/17/2017

Prepared by
The
Information Technology Department

Revision History

Revision	Date	Reason for Revision	Updated by
3.0	August 8, 2009	Update of 2006 Plan Radio System Update Internet/Intranet Update	Lori Pinz Woodie Smith Ed McCandless Bob Cuomo
4.0	March 3, 2011	Update of 2009 Plan Internet/Intranet Update and Government Access Channel inclusion Inclusion of Back Up and Disaster Recovery Site Strategic Alignment with City Strategic Plan	Lori Pinz Bob Cuomo Woodie Smith IT Team
5.0	9/28/2012	Annual Review and Mission Statement Update	Lori Pinz
6.0	8/27/2013	Annual Review	Lori Pinz Brian Popp Woodie Smith Greg Robison Steve Podszus Bob Cuomo
7.0	10/21/2014	Annual Review and Incorporation of SWOT Analysis	Lori Pinz David Peterson Debra Hill Woodie Smith
8.0	8/17/17	Update	Lori Pinz Helena Smith Todd Mrotek Greg Robison Brian Popp Michael Clark

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1. Executive Summary

The City of Pueblo continues to implement 21st century technology and follow industry best practices to improve our delivery of services. It is imperative that the City government continues to leverage technology investments to improve services, but only after careful evaluation and analysis of our citizens and community's needs.

To ensure that the City of Pueblo is successfully meeting the needs of our community, the Information Technology Department's (I.T.) strategic plan focuses on strengthening our network services and infrastructure, improving our customer service for both internal and external customers, maintaining our excellent support services, optimizing internal and external partnership opportunities, facilitating innovation and promoting out-of-the-box thinking to capitalize upon our strengths, improve our weaknesses, and reduce costs. Above all, we are striving to implement IT solutions that are aligned with and meet the City's overall mission and goals:

CITY OF PUEBLO MISSION STATEMENT

We, the City of Pueblo, representing a community of diverse culture, character, and history:

- **Commit to upholding the City Charter, all City Ordinances, and the highest standards of conduct;**
- **Commit to promoting and enhancing the well-being and quality of life for Pueblo's residents, visitors, and businesses by providing excellent services in an efficient, respectful, and courteous manner;**
- **Commit to a model of professionalism that ensures respectful and complete consideration of all decisions and decrees; and**
- **Commit to strategic growth, all facets of economic development, and sustainability.**

This strategic plan will outline the current and future direction of the City of Pueblo Information Technology Department including the technology direction, strategies, funding and management process requirements, and recommendations for the next three to five years.

2. Information Technology Department Overview

The mission of the Department of Information Technology is to facilitate the seamless integration of technology solutions in a secure and cost-effective manner, provide support and maintain a reliable system and network infrastructure that enables City entities to provide superior customer service to our community and our citizens, and support the City's mission and goals by ensuring I.T. services and technology solutions align with the City's strategic plan.

To support our mission, we systematically and carefully evaluate, design, acquire, implement and support technology solutions. There are several major technological advancements that have been implemented since the last revision IT Strategic Plan in 2014:

They include, but are not limited to:

- Completed the implementation of Tyler Munis, the City's ERP (Enterprise Resource Planning), for Human Resources and Payroll processing including time entry for all employees
- Upgraded of the City's Extreme (Avaya) data and voice network infrastructure
- Implemented new security tools setting the foundation for the City to move to a zero-trust model
- Implemented new back-up and recovery system better suited for handling a virtual server environment
- Implemented Microsoft O365 cloud-services across the entire City
- Upgraded and consolidated some of the City's building video surveillance systems

- Implemented body-worn cameras and updated in-car video systems for the Pueblo Police Department
- Created and implemented a new Police Department Intranet website
- Replaced the City's storage with an all flash environment

As in all areas of the City, staffing in the I.T. department remains lean. Cost control and leveraging technology investments are vital to the I.T. departments strategic plan; therefore, we are continuing the trend of selective outsourcing and partnership building to assist in supporting the City employees and Citizen Requirements

3. Information Technology Strategic Focus

3.1. IT Policies

The establishment of IT Policies and Training services is to provide employees, third-party contractors, consultants, and temporary employees with the acceptable usage for the City of Pueblo's technology resources. Inappropriate use of resources puts the City's network systems and services at risk from attack and/or exposes the City to legal liabilities.

Recommendations:

- Continue to update and revise IT policies and procedures as required on an annual basis
- Continue to document and formalize internal IT policies and procedures. Maintain and update each year after
- Continue to revise, on an annual basis, the IT SLA document including best practices, customer service guidelines, software approval processes, and hardware approval process and vendor checklists

3.2. IT Services

The I.T. Department is responsible for facilitating the implementation and support of the technology solutions employed by the organization, including maintaining data, voice, video, and network infrastructure that enables City entities to provide superior customer service to our community and our citizens. It is our goal to provide excellent customer service to both our internal and external customers and to continually strive to improve our services.

Recommendations:

- Annually evaluate computer and software replacement policies. Enforcement of policy is contingent upon available budget
- Annually evaluate radio communication equipment replacement policy. Enforcement of policy is contingent upon available budget
- Recommend cost-effective and appropriate technologies solutions to facilitate work activities
- Continue to procure energy efficient data equipment for deployment throughout the City network.
- Continually evaluate alternative desktop solutions to improve performance and user satisfaction
- Continually evaluate alternatives for software distribution methods. Wherever possible, move to Windows-based or Cloud-based solutions for the various discrete applications supported throughout the City
- Leverage technology to improve collaboration and improve workflow

3.3. Public Sector Software - Other than Public Safety

The City replaced its ERP (Enterprise Resource Planning) system with Tyler Munis including Tyler Incode for the Municipal Court's case management system. The system has consolidated many of the disparate systems used previously by various departments. The system has improved business efficiencies, reduced data errors, and introduced employee, vendor and employee self-service tools. Potential expansion of our on-line service offerings is now possible.

Recommendations:

- Move to the post-implementation and support phases of the Tyler ERP implementation mid-2017
- Continue to expand employee and citizen access applications when available and as applicable
- Complete the conversion of applicable home-grown Access database systems into Tyler Munis
- Archive HTE data end of 2017 and decommission HTE production system
- Upgrade credit card machines to EMV credit card machines
- Consolidate credit card processing payment providers

3.4. Public Safety - Police

The City of Pueblo Police Department's (PD) Records Management and Computer Aided Dispatch systems are based upon client-server application architecture as well accessible via web server architecture. The Records Management System (RMS) collects and stores incident information gathered by law enforcement personnel in a centralized database for tracking cases and suspects. It can support multi-agency and multi-jurisdictional agencies and allows other City departments to stay connected to law enforcement data, as well as other cities, and counties. This functionality is currently shared with the Pueblo County Sheriff's Department and the Pueblo District Attorney's office. The Computer-Aided Dispatch system (CAD) handles dispatching and tracking calls for law, fire and medical units including AVL (Automatic Vehicle Locator) systems. The system provides a mobile application that many of the law enforcement personnel use. This mobile application provides instantaneous information to an officer who is in route or on-scene at an incident. For example, it provides, voiceless dispatch; status updates; car-to-CAD messaging; car-to-car messaging; and queries including local, state, and national warrant checks, stolen vehicle and property information, mug shots, and records management information. Application updates can be done through the wireless connection to the City's network.

The in-car video systems installed in police vehicles are being updated to wireless systems as funding allows; however, many vehicles still have obsolete equipment which need replacement. It is a proven fact that officer accountability and safety are enhanced with video. The new in-car video systems utilize strategically located wireless access points to upload video to City servers and eliminating the need for manual interaction to extract the video. The PD implemented a cloud-based body worn camera system in 2015. The use of body-worn cameras continues to expand into other areas of the Police Department and have become a vital necessity in police response.

CJIS compliance requires two-factor authentication for public safety system access. The City is implementing the implementation of two-factor authentication in 2017. The PD currently uses Panasonic CF-53's for their MDT's. In 2017, the MDT's are scheduled to be replaced.

PD utilizes internal 4G wireless cards and Netmotion to gain connectivity to the PD's RMS and other resources; therefore, it is very important to quickly troubleshoot and identify reoccurring connectivity issues for the MDTs. The City added Netmotion's Locality and Analytic products to proactively manage connectivity and application issues.

Currently, the PD Communications Center provides dispatching services and support the City of Pueblo's Police and Fire Departments. An Intrado Viper system provides the 9-1-1 call handling for all 9-1-1 calls into dispatch. With the explosion of texting and multimedia capabilities from smartphones and other mobile devices, the dispatch center must evaluate an upgrade or replacement of the current Intrado system with a Next-generation 9-1-1 (NG911) VoIP system. The use of a NG911 system will provide more flexibility and scalability for today's communication needs. The ability for voice, photos, videos, and text messages to flow seamlessly to a 9-1-1 center is inevitable. The PD Dispatch Center must upgrade or replace their current system to allow for this functionality.

Recommendations:

- Continue expansion of wireless access points throughout the City as funding allows.
- Assist the Police Department in the creation of a separate network that will be utilized for operational surveillance and high-activity location surveillance as funding allows

- Upgrade remaining in-car video systems as funding allows
- Complete the rollout of two-factor authentication in 2017
- Evaluate and replace MDT's in all required vehicles late 2017 or early 2018
- Upgrade or replace the PD's 9-1-1 call handling system by end of 2017

3.5. Public Safety - Fire

The City of Pueblo's Fire Department Records Management system is end-of-life and must be replaced by the end of 2017. The new system will need to be a complete and fully-integrated system comprised of three core modules; Incident Reporting, Life Safety, and Human Resource Management. A one-way interface between the Fire Department Records Management system, the CAD system, and a direct interface to the LifePak defibrillator systems used by the department will be required. The new RMS system needs to provide more robust functionality, especially for mobile use.

Currently, the Fire Department has standardized on and installed Panasonic Ruggedized Toughbooks for their apparatuses, and currently has 14 mobile computers (MDT) install in their fleet. These MDT's connect via internal 4G cellular cards and Netmotion. The MDT's are scheduled for replacement in 2017, early 2018, and may include the use of two-factor authentication.

Recommendations:

- Continue expansion of the wireless access points in preparation of wireless upload capabilities with new RMS system.
- Replace its mobile computer fleet including the use of two-factor authentication, if warranted.
- Replace the HighPlain's Record Management System, including OS and SQL server, by the end of 2017
- Expand the use of the CAD AVL system for all applicable Fire apparatuses

3.6. Document Imaging

The City utilizes three different imaging systems. Optiview is the citywide imaging system deployed across all city departments. Optiview houses documents from the City's retired ERP and court systems as well as documents not kept in the City's new ERP system, i.e. maps, memos, letters etc. The City Clerk's office uses LaserFiche which also has a web-based component allowing online access to City Ordinances and Resolutions.

The City continues to use Agenda Center as its agenda management system. This system allows for departmental collaboration on agenda creation and management without the need for paper. Items are added to the agenda and supporting documentation is directly attached to the agenda in the new browser based system. All forms, staff reports and back-up materials are now available on-line for anyone to obtain without having to come to the Clerk's office and requesting the material. This ability supports the City's transparency efforts.

Recommendations:

- Continue to expand on-line access to other City documents and services via the City's Internet page
- Implement technology to provide user-friendly access on mobile devices

3.7. Specialized applications

Just as the City has specialized departments, the City has requirements for several specialized applications. There are several engineering or transportation-related applications that are not "mainstream", but are nonetheless essential to City Staff. Currently, the I.T. Department installs such applications on an ad hoc basis,

which does not allow for even cursory testing or comparison with similar products that may be a better fit for the user.

Recommendations:

- Continue to follow formal procedure for evaluating and securing specialized software for inclusion within the City Standards including the end-user responsibilities for installing, testing and securing, and supporting such specialized software.

3.8. GIS Strategic Plan

GIS services and data resources are managed within the I.T. Department through the GIS Division. The GIS Division currently comprises of two (2) FTEs. GIS staff work closely with every department of the City. Additionally, staff routinely collaborates with several regional partners including Pueblo County, Pueblo Regional Building Department, and the Pueblo Board of Water Works to support the exchange of accurate mutually beneficial information. The GIS Division is responsible for developing and supporting all GIS data vital to maintaining efficient and effective day-to-day business operations. Our goals for the next 1-5 years are as follows:

Recommendations:

- Architect and implement the City's first enterprise agreement (EA) with Environmental Systems Research Institute (ESRI). Complete full deployment of enterprise ready GIS software and physical hardware infrastructure by September 2017.
- Re-establish and re-negotiate intergovernmental agreement (IGA) with Pueblo County for GIS 'data sharing'.
- Send all GIS staff to attend the 2018 ESRI all user-conference in San-Diego, California to continue to develop required staff skills necessary for supporting a fully operational next-generation ready enterprise GIS solution.
- Assist and support map based software implementation for various City Departments notably for Fire via ImageTrend and for Police via next generation electronic 9-1-1 systems.
- Update physical property addressing policies and regulations to adopt new standards and create mechanisms to better monitor and track mixed land-use issues.
- Further align and integrate GIS infrastructure with critical business systems of the City. Increase data mining capabilities and interoperability with new consolidated and streamlined relational database management records systems (RDBMS). Standardize all next generation map system and data development utilizing ESRI software and data formats to maximize information system interoperability and integration where and when able to do so.
- Continue to pursue and fully integrate next-generation easy to use GIS and mobile mapping friendly software and physical hardware infrastructure. Further work to adapt data resources and systems to support efficient public works asset management and increased analytical public safety needs.
- By 1st quarter 2019 hire a permanent full-time GIS Analyst to assist with increased mandated authoritative City map records management and regulatory compliance responsibilities.
- Establish process supporting Tyler MUNIS Central Address and Property record maintenance and upkeep.
- Increase 'City of Pueblo' GIS data and map information accessibility and foot-print on the web. Expand branded 'City of Pueblo' publicly accessible and downloadable data. Improve inter-departmental coordination and collaboration for GIS data.
- Prepare for the development and creation of the 2020 United States Census. Coordinate record development and releases with the United States Department of Commerce, Census Bureau, and regional governmental partners.
- Research amending or establishing new resolutions or ordinances of the Pueblo Municipal Code updating authoritative mapping and land-surveying requirements.
- Establish new memorandums of understanding (MOUs) and or IGAs for GIS 'data sharing' with regional governmental partners including, but not limited to: Pueblo Board of Water Works, Pueblo West

Metropolitan District, Pueblo Conservancy District, and the State of Colorado Governor's Office of Information Technology GIS Department, Black Hills Energy Corporation, and Xcel Energy Corporation.

3.9. Application and Report Development

The City has decreased its use of home-grown applications with the implementation of the City's ERP system. When necessary, the IT department can provide application development using Microsoft Access as the front-end to a Microsoft SQL back-end database; however, lack of staffing in this area limits the IT Department's ability to be agile in this area. A home-grown system will only be developed if an off-the-shelf solution cannot be found. However, with the explosion of mobile devices, it is may be necessary for the City to evaluate its long-term approach to mobile apps and the development of those apps if they are not readily available via a 3rd party. In the future, it may be necessary to add application development staff to the IT department; however, outsourcing this development should be evaluated.

Recommendations:

- Utilize off-the shelf solutions as much as possible
- Monitor the need for application development personnel to be added to the IT Department
- Train existing staff in Microsoft Access and Microsoft SQL to develop and support home-grown systems when needed

3.10. E-mail and Office Applications

The City has standardized on Microsoft products and migrated to Microsoft O365, a cloud-based subscription solution for e-mail and other Office products. There are other non-Microsoft products that the City has standardized upon, but generally not in areas where Microsoft offers a good solution. Examples of this include publishing and antivirus software.

City employees, if authorized, can check their e-mail and calendars from any Internet connection (at home, on vacation, etc.). I.T. has installed and currently maintains VPN (virtual private network) access into the City's network allowing employees complete access to City resources outside of O365.

Recommendations:

- Continue current methodology

3.11. Server Environment

The City's datacenter houses much of the City's technology. This data center has surplus power and energy efficient cooling as well as generator back up. The datacenter supports a very strong virtualized server environment. In 2016, the City implemented it first all-flash storage device which supports 95% of the city applications and storage needs.

The IT department increased staffing in system administration which has improved our focus on stabilization of our server environment. IT continues to work automating manual IT processes or tasks for user account creation, improve management and system performance monitoring and evaluate and establish I.T. as a service to empower end-user to manage a portion of their I.T. needs.

Recommendations:

- Virtualize individual and departmental file servers to maintain data and security separation by end of 2017
- Upgrade Active Directory to improve single sign on and multifactor authentication abilities by end of 2017
- Expand DR storage performance to increase the number of VMs we can fail to DR site by end of 2017
- Evaluate whether a virtualized desktop environment would benefit the City by end of 2018

3.11.1. Desktop Computers and Mobile Devices

The City is a Dell shop for all desktop computers. However, as mobile devices become mainstream the desktop landscape will be changing. It is completely feasible to provide a Windows tablet and a docking station to a user as their one and only computer. As we move forward in the next 1 – 2 years, having a mixed environment, desktop and tablet (tablet or 2-1) may become the norm. The City will standardize on a Windows devices. The IT department uses a mix of tablet and/or 2-1 solutions, with connectivity to the City's network provided through Net Motion.

The City has implemented Blackberry Technology for mobile device management. Although, this system can support BYOD (Bring Your Own Device) capabilities, the City only allows this capability on a very limited basis and only on I-devices. The IT Department may consider replacing its current MDM in 2018 to tighten security controls and improve access control for mobile devices.

Recommendations:

- Reevaluate whether GOOD by Blackberry is still the right MDM for the City by the mid-2018
- Implement cloud-based next generation malware protection so non-domain systems can be better protected and monitored.

3.11.2. Printing strategy

The I.T. Departmental standard for printers are:

- HP Lasers (networked)
- Minolta or Canon multifunctional network copiers
- Printers are assigned via Active Directory organizational units and augmented with specific installations as required.

3.12. Network and Security

The City's network backbone is comprised of its own fiber optic cable, franchised fiber, and leased CenturyLink services. The City's fiber infrastructure provides connectivity for 98% of the City's departments and provides connectivity to several County offices through joint partnerships. The remaining 2% of the departments are connected to the City's network via leased T-1 lines from CenturyLink. The City owns all the rights-of-way necessary for this campus-like implementation additionally, the City has access to much existing underground conduit for specific City purposes. It also has the rights necessary to use utility poles throughout the City, if the use is for some clearly defined municipal services. The City's fiber backbone has expanded tremendously with over 90 miles of fiber aerially or in the ground. The City's fiber network topology has evolved from a "star" topology and has been positioned to provide a redundant and highly available "ring".

We use network segregation methodology to provide traffic control and optimize performance. As funding allows, the data and voice network will be implemented with SPBM (Shortest Path Bridging) and 10GIG topology for voice and data back up and redundancy. The SPBM protocol allows for edge programming eliminating cross network administration reducing staff time, and provides a robust platform to accommodate transport for today's emerging technologies. As the City has a fully converged network with data, voice, and multimedia traffic being pushed across it, this SPBM assists with reducing staff time, simplifies device configurations, and allows the City's small I.T. staff to nonetheless build out the voice and data network within a well-designed architecture. IT will need to evaluate and implement a network access control solution to control device access for both our wired and wireless networks.

Extreme (Avaya) equipment is the standard of choice for the City's network infrastructure. This standardization allows for a flexible, responsive and stable network that we can manage and easily modify parameters through Extreme's (Avaya) embedded tools. Extreme's (Avaya) platform allows the City to utilize software define networking to improve the stability, security and reduce infrastructure costs.

The City is reevaluating its wireless infrastructure and manufacturer standardization. Currently, the City is using two platforms Aruba Networks and Fortinet for WLAN access to the City's network. Access to our network is controlled through two wireless controllers which we provide guest and employee access.

As the demand for online services and mobile access grows, the City's current DMZ infrastructure is being strained. The City needs to stabilize the DMZ and improve its performance of citizen facing applications as well as enhancing internal local area network security.

Event collection has been optimized to ferret out specific threat-types. Threat analysis has been improved. For example, a sandbox was added to analyze the files that enter the network. Scripts were created to examine systems the sandbox listed as having received dangerous files. Next-generation malware detection software is being deployed throughout the City to thwart zero-day threats, crypto-attacks, and to record threat behavior (which processes were used, which other systems were reached out to, what artifacts were created...) should malicious code make it onto a system. Vulnerability scanning, both in terms of patches/updates and in terms of system configuration, has been layered by employing multiple products. The City has employed shortest path bridging as a means of shielding core assets. We are working to shield assets on a need-use-basis. TAA appliances and extensive secured Wi-Fi is being deployed. We adopted an always on/off the LAN policy for City devices. An enforced VPN keeps our other devices LAN-safe wherever they roam. By end of 2017 our certificate infrastructure will be updated. Computers will not be able to talk to domain systems if they do not have the correct certificate. The City continues to harden infrastructure and to maintain as many layers of defense as possible to mitigate any exposure. Improved auditing remains a key goal for 2018. Our current measures are too labor intensive. We are working towards a more universal and administrator friendly approach.

Recommendations:

- Evaluate other Wi-Fi equipment manufacturers to stabilize our wireless environment by mid-2018
- Continue to expand the wireless access points to meet the City's needs as funding allows
- Evaluate network access control and plan to implement by 2018
- Work with PD to establish wireless video surveillance roadmap when applicable
- Complete redesign plan of DMZ by the end of 2018 and prepare to implement if budget allows by end of 2019
- Continue to expand our Software Defined Networking strategy as an on-going goal and as budget allows.
- Improve threat detection and eradication to detect and removed compromised City systems. This is an on-going goal
- Actively keep abreast of the ever-evolving threat landscape
- Continue to expand City fiber and eliminate T-1 lines for remaining City departments
- Evaluate and plan to implement a zero-trust model for network security. This move will be a high priority budget item over the next few years. Full implementation of this model will be based upon available funding and staffing
- Implement true/exploiting scan technologies to improve vulnerability scanning by end of 2019
- Implement a continuous monitoring program as well as tightening scripting and analysis programs and tools by end of 2020
- Apply firewalls, HIDS and certification infrastructure to all system by end of 2017
- Implement Network Infrastructure Security Management software by end of 2019

3.12.1. Telephone System

The City replaced its Avaya CS1000 and voicemail system with an Avaya IP office in 2016. All sites are now capable of VoIP; however, digital and analog capabilities are still utilized in some areas due to functional requirements or poor wiring. All City departments are on the telephone system. This upgrade has provided the City with some unified communication features, i.e. voicemail via e-mail, find-me-follow

me, twinning etc. However, we have not integrated the new system with our Microsoft O365 environment so we are unable to implement “Presence” between our Skype for Business environment and the phone system.

Recommendations:

- Evaluate integration between Skype for Business and Avaya IP Office by end of 2018

3.13. Disaster Recover and Back up Site

3.13.1. Backup System

The I.T. department uses Veeam and Exagrid as its backup and archiving solution for the City’s data. This system utilizes two Exagrid units for back-up and replication of the main City servers and data on a predefined schedule. In the event data on a main server or user needs to be selectively restored due to data corruption or accidental deletion, the appropriate backup data is copied from the Exagrid to the target server or user. In the event of a major server failure, the backup data from the Exagrid can be restored to a replacement server in a matter of a few hours. The Exagrid appliances are located at the City’s Data Center and the disaster recovery site that is not likely to be simultaneously subjected to the same perils as the main data center (for example: fire, tornado, flooding, acts of terrorism, etc.).

The goal of this robust backup strategy is for the City to be able to restore business critical data to rebuild or replacement servers in the event of main server failure, which is in line with our Business Continuity goals. This offsite location is home to the City’s DR site and houses an Exagrid for replication of the Data Centers Exagrid. The DR site houses many of our redundant mission critical systems; however, additional power improvements are necessary to ensure up-time during an event.

Recommendations:

- Continue to expand and relocate mission critical systems to the City’s backup site in the event of a major catastrophe
- Create redundant and geographically dispersed virtual host of select critical systems for immediate failover by end of 2017
- Snap-shots of critical systems allowing for quick bare-metal restorations housed off-site by end of 2017
- Create hardware architecture that supports rapid failover and reduces the risk of an individual system causing a catastrophic failure of critical and the public safety systems by end of 2017 or as funding allows
- Install generator power to site by the end of 2019 or as funding allows

3.13.2. Data Archives

Archives are achieved by replication of the Data Center Exagrid to the Exagrid located at the DR site.

Recommendations:

- Continue with existing archive strategy

3.14. Internet and Intranet

3.14.1. Web site

There are several e-government models that organizations can measure and align their e-government initiatives. These models can vary in their number of phases; however, each model’s final phase is seamless

or full integration across all services and functions of the organization. Gartner, the largest of the I.T. consulting firms, categorizes an agency's progress regarding e-Government into four phases:

- (1) Presence. Characterized by static content; informational only.
- (2) Interaction. E-mail enabled to allow communication, search engine or other tools imbedded to help users navigate amidst more voluminous information.
- (3) Transaction. Registration, form submission, and/or payments via the Web
- (4) Transformation. E-government solutions are considered as a facet of every organizational initiative.

The City of Pueblo is focusing on the transformational phase of e-government. In the next 3 to 5 years, it is anticipated that a citizen's ability to interact and communicate with the City of Pueblo will be available on-line and/or available via mobile applications. The speed to which the City will be able to meet this demand will be constrained by budget and staffing.

3.14.2. Web site: www.pueblo.us

The City website (www.pueblo.us) is hosted by CivicPlus, a 3rd party e-Government Company specializing in website development and content management for local, county and state governments. The Web site is Section 508 compliant, and is currently being redesigned to improve citizen engagement and website mobility. The content management system allows the City to disperse the ability to manage content of departmental pages to content providers across the organization. This allows IT staff to focus on development and outreach efforts. This has been a very economical arrangement since City's IT department is understaffed to support a Web server or the accompanying software. CivicPlus specializes in website development for local government and focuses on interactive citizen-focused engagement tools including a solid connection with social media sites.

Recommendations:

- Leave the responsibility for managing all the City's Web initiatives within the Information Technology department, to ensure adherence to Section 508 compliance and maintaining a unified Web look and feel
- Continue with the strategy of making departments responsible for the currency and quality of the material they choose to publish on the City's website
- Continue departmental process to obtain fresh and updated content for the City websites
- Continue to utilize CivicPlus as our hosting and content management system provider
- Complete the redesign of the City's website utilizing Responsive Web Design to improve our online and mobile presence by end of 2018
- Support economic and revitalization efforts for the City of Pueblo by depicting the positive, "feel-good" aspects of our local government and community
- Continue to pursue and expand e-Government services focusing on citizen engagement, transparency, open data, and online services and communications as applicable
- Continue to provide 24 x 7 streaming of Government Access Channel
- Implement post-production closed-captioning of the Government Access Channel by the end of 2019 or as funding allows
- Improve transparency while maintaining network security by leveraging new technologies and existing Web resources
- Design and implement websites specifically focused on drawing visitors and business to the City by the end of 2018 or as funding allows
- Expand the website team by 2 FTE's to keep up with the growing demand of online services and information by end of 2018

3.14.3. Social Media

The integration of social media tools is a necessity of any good government website. It provides the platform to allow citizens to interact and collaborate with their City government along with the ability to retrieve governmental information and data. Implementing social media gives citizens the ability to engage with their government on a 24 x 7 basis.

Many of the City departments rely heavily on the use of social media to market services, promote events, publish alerts and engage citizens. For example, the Pueblo Police Department (PPD) uses Facebook and Twitter to post pictures of wanted criminals, to ask for assistance on criminal activity, and to alert citizens to crimes in progress. They use YouTube to post training videos for both internal and external employees. Almost every department in the City feeds a social media site to disseminate information.

Recommendations:

- Facilitate the use of social media to improve citizen engagement through more productive dialogue that is timely, responsive, and relevant
- Create and consolidate all relevant videos to our YouTube channel
- Evaluate and utilize “BIG DATA” tools to improve our social media outreach
- Establish a social media strategy for two-way communication

3.15. Audio/Video

3.15.1. Video Conferencing

The City uses Life-Size video conferencing units in many of its conference rooms. Recently, we have replaced our multipoint bridging unit with Zoom, a cloud-based hosted solution. This solution has multi-vendor interoperability and allows participants to join a conference through a variety of means, i.e. iPhones, iPads, H.323/Sip room units, desktop systems etc. It eliminates IT support and security concerns for external video conferences and expands face-to-face collaboration abilities. Utilizing this type of architecture will allow the City to expand video conferencing capabilities easily and more cost effectively.

Recommendations:

- Implement desktop to desktop conferencing to those end-users that will benefit from this technology
- Expand video-conferencing to other departments as necessary and as funding allows
- Continue to utilize Zoom as the hosting solution for video conferencing

3.15.2. Electronic Whiteboards

The City uses Hitachi Starboards and ClickShare wireless presentation and collaboration systems in its conference rooms. With the ClickShare system, the City will reduce the use of electronic whiteboards except where necessary. ClickShare also provides a mobile device application which allows anyone to share content from any device.

Recommendations:

- Implement wireless presentation and collaboration systems instead of Starboards

3.15.3. A/V Systems

The City utilizes View Sonic, LG and Sony LCD’s high-definition televisions throughout the City. Many of these televisions are controlled using AMX Touch Panel Control Units and are attached to Bosche video switchers driving content display such as cable news channels, video conferences, council meetings, training, DVD playback, computer display, and remote video cameras. The Police Department relies on

this technology in its emergency operations center and its tactical response rooms. Municipal Court utilizes the system to for video arraignment, City Hall for council meetings and meeting overflow and Memorial Hall utilizes the technology to display scheduled events such as shows and concerts.

The system in the Justice Center provides the backbone for expansion to the entire City. Other departments will be able to attach to the system with minimal expense.

Recommendations:

- Continue to expand the system Citywide as funding is available and requirements exists

4. Government Access Channel and Public Information

The Information Technology Department is responsible for managing the City's dissemination of public information on-line, via media outlets, and broadcasted over the Government Access Channel, Pueblo 17. The City partners with Pueblo Community College for all broadcasting needs including program scheduling and content creation such as public service announcements. The City can broadcast in high-definition; however, we must work with the Public Access Channel provider to move to a high-definition channel.

Recommendations:

- Continue to add fresh content to our government access channels. This is an on-going goal.
- Develop a mechanism to obtain community feedback on what type of programming would be valuable for them to watch and create the content to meet these needs by end of 2017
- Produce future content in digital and high-definition format as funding allows
- Promote and explore collaborative partnerships with other agencies to promote the City of Pueblo. This is an on-going goal.
- Expand staffing by 1 FTE to assist with writing and production public affair programming including specialized targets by end of 2018
- Continue to expand and improve the quantity and quality of public information distribution from the City. This is an on-going goal
- Implement live streaming of boards and commission meeting, special events, press conference, etc. as funding allows
- Increase programming blocks on Pueblo 17 from a 6 hr. to a 12-hr. rotation

5. Radio System

The City partners with the State of Colorado and Pueblo County to provide radio services for all city departments. The City is connected to the zone controller located in Pueblo County. We partnered with the State and the County to create a simulcast site which will expand resources in Pueblo County, including the City of Pueblo, as well as for southeastern Colorado. The City will continue to cooperate and remain on the Statewide Radio System at least through 2027.

Recommendations:

- Establish fiber ring to all Radio Towers for backup and redundancy as funding allows
- Continue to participate in the partnership with Pueblo County and the State of Colorado in the DTR system

6. IT Staffing

The I.T. Department currently consists of 18 regular employees and 2 temporary employees. Local college interns and temporary employees are sometimes utilized for short duration and special projects assisting regular employees.

All areas of I.T. are understaffed and the IT department currently has 1 vacant position which has been unfunded due to budget constraints. The number of customers utilizing technology continues to grow as well as the extent of and dependence on technology.

Most City I.T. employees occasionally cross over into other areas of expertise, some more often than others. One of the FTEs normally supporting Networks and Servers routinely supports the helpdesk activities, which falls under PC/Network Support. This happens often and the many scenarios of crossover are too numerous to go into detail.

I.T. services fall into 5 major areas:

Technical Support

- Helpdesk Support
- PC Hardware installation and repair
- PC Software installation and support
- Networks – Fiber and copper network infrastructure
- File and Application Server support
- Security and Business Continuation – Perimeter protection, exploit protection, event analysis and access monitoring
- Telephone system support – analog, digital and VoIP
- Video Conferencing and Audio/Visual equipment
- Mobile Device management, support and repair
- Wireless Communication management and support
- Printer Support

Application System Support

- 3rd party application software and hardware systems support
- GIS development, application integration and support
- Web site development and operation
- Limited mobile application development
- In-house application development and ongoing enhancements/maintenance
- Imaging system support

Radio Communications

- Mobile and base radio communications installation and repair
- Radio Tower management
- DTR system management, design, and support
- Fiber optic infrastructure management, implementation and support

Project Management and other support

- Project identification used to determine the organizational technological needs of the City
- Management of project implementation, quality standards and budget control

Media Development and Public Information

- Responsible for dissemination of public information including press releases, speech preparation, social media engagement for City Departments
- Responsible for video production, i.e. public service announcements, of Government Access Channel programming

6.1. Technical Support

- I.T. has 6 FTE's and 1 temporary employee assigned in this area. This group supports over 600 desktop computers, 120 notebook computers, 100 servers (physical and virtual), 210 I-devices and numerous miscellaneous peripheral devices and provides Help Desk support.

- There are 3 FTE assigned to desktop support. Desktop and notebook computers require rebuilding or replacement depending on the severity of the failure. Standard supported software is generally imaged to load a new PC or a PC that has had its hard drive contents compromised. Imaging allows I.T. to return PCs to the customers in less time than loading individual software packages and applying subsequent patches and upgrades. It also allows I.T. to maintain software standards that have been set.
- The Help Desk (1 part-time temporary employee) provides first level contact with internal customers experiencing technical issues. Many problems are resolved at this level. Those that cannot be resolved are referred to technicians via a Work Order. I.T. utilizes an automated work order system to assign technicians and track the progress of the Work Order from entry to completion.
- 2 FTE in this area is responsible for implementing security policies, protecting computers from malicious cyberspace attacks by keeping antivirus and firewalls up-to-date, and actively monitoring unauthorized attempts to access the City's network. Staff is also responsible for setting up authorized access to the City's network from other agencies and internal customers needing remote access to the network.
- 2 FTEs assigned to this area are responsible for expanding and maintaining the electronic network infrastructure, application software and associated servers. This includes managing the design of the fiber optic network as well as back up installation. The servers include those that support the Public Safety system data and software applications, general and application specific shared folders and email. 1 of the FTEs has the responsibility for maintaining the City's O365 environment.

6.2. Application Systems Support

I.T. has a 3.5 FTE's. These FTEs generally specialize in areas of support such in-house database systems development, GIS system development and support, Web services development, and 3rd party application system acquisition and ongoing support.

6.3. Radio Communication Systems

I.T. has 3 FTEs assigned to Radio Communication Systems. These FTEs are responsible for installing and maintaining the City's mobile radios and associated centralized equipment, antennas and towers that are used by Public Safety and Public Works departments. This includes three Digital Trunked Radio sites, with interconnecting microwave systems that are capable of up to 90 days of self-sustained power, and an emergency Police and Fire Dispatch center with eight dispatch positions. The Radio Communication division is also responsible for the installation and maintenance of the City's fiber network infrastructure, installation and support for city AVL systems, in car video systems utilized by the police department, and automated alerting system for the Fire department.

6.4. Project Management and Other Services

- 2 FTEs assigned to project management for City technology projects

6.5. Media Development and Public Information

- 1 FTE assigned as Public Information Officer for non-public safety departments
- 1.5 FTE assigned to video development and access channel management

6.6. I.T. Administration

- 1 FTE, the Director, is assigned to the overall management of the department
- 1 FTE is acting as interim Assistant IT Director as well as fulfilling the role in project management
- 1 temporary employee is assigned the administrative duties in the department

Recommendations:

- Invest in I.T. resources to sustain and improve upon the excellent customer service that is expected from internal customers
- Continue to enforce Hardware and Software standards that will allow limited I.T. resources to perform tasks in an efficient and effective manner as possible
- Expand the area of Internet based services to reduce manpower requirements for Public Services than can be offered via the Internet
- Increase staffing by 2 FTEs in the Web development and 1 in Network Administration
- Fill open unfunded positions as soon as possible

7. Plan Revision

This plan should be reviewed and updated annually. The City's Information Technology Department should coordinate the process of gathering new requirements and proposing new recommendations, based on the input solicited from the user community.