

A. IT Master Plan Update

Recommendation: This is a presentation only, no formal action will be taken.

Council Presentation

Cathedral City

Presented by

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Presenters



David Krout, CPA *(inactive)*,
Managing Partner

- 25 years Applications Procurement Experience
- Worked with over **120 agencies** (process review w/ thousands of dept. users)



Tom Jakobsen
Partner

- 40+ years IT Infrastructure / Operations Consulting
- Oversees more 10+ IT departments for other agencies
- IT Infrastructure, Virtual CIO and IT Strategy Advisory

Agenda

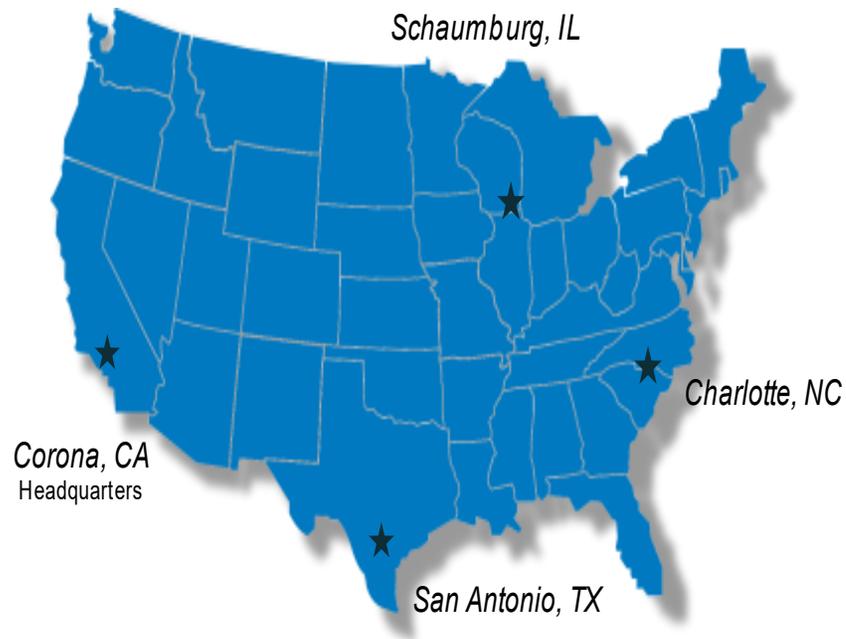
- Introductions
- Technology Plan Objective
- Planning Methodology
- Assessment
- Strategies, Goals and Objectives
- Project Budgets
- Questions



Introductions

Who We Are

National in Scope – Local in Presence



We focus on local government agencies throughout the US:

Municipalities

Counties

Utilities

School Districts

National in Scope – Local in Presence

500+

**US Agencies
Serviced**

3,500+

**Projects
Nationwide**

150+

**Technology
Assessments
and Plans**

California Agencies Served





Technology Strategic Plan Objective

Actionable Roadmap for Improvement

Technology Master Plan Purposes



**Planning makes
expenditures more
efficient**

- Align technology with the City's strategies and goals
- Identify and budget for project initiatives to:
 - Improve constituent services
 - Increase department operational efficiency
 - Reduce risk
 - Improve cybersecurity posture
 - Align IT staffing to meet City goals
 - Provide actionable multi-year roadmap
 - Includes priorities, budget estimates, and timelines



Methodology

The Process and Approach to Developing the Plan

Phased Approach





Assessment

The Current Environment

Assessment Strengths

- Dedicated, hard-working staff
- Good IT Infrastructure & cybersecurity posture
- Move to Microsoft 365 cloud strategically sound

Assessment Areas for Improvement - IT

- Develop technology governance
 - Methodology to prioritize new projects/plan changes
- Work to formalize methodologies through policies and procedures
 - Review methodologies to automate manual internal tasks.
- Expand disaster restoration capabilities
- Incident response and disaster recovery planning high priority
- Public Safety Video and facilities security improvements underway
 - Public Safety video improvements are multi-year

Assessment – Business Applications

- High demand for departmental application system improvements
- 38 application related initiatives in the Plan
- Improve reporting and workflow automation in application systems
- Reduce shadow systems and manual processes
- Major System Improvements include:

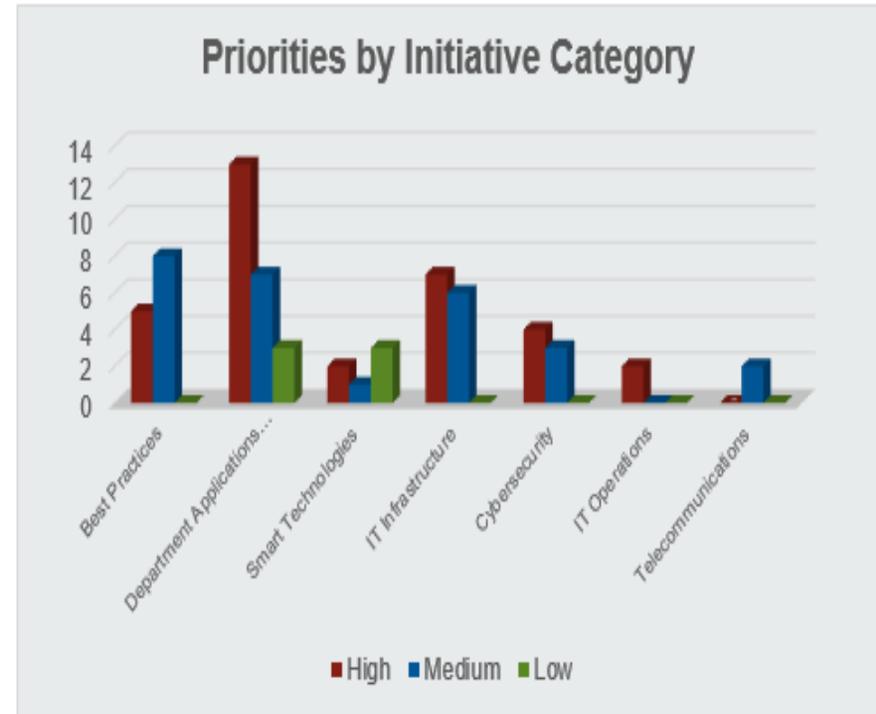
 Enterprise Resource Planning (ERP) System ongoing improvements

 Document Management system improvements and training necessary

 Enterprise Asset Management improvements and training necessary

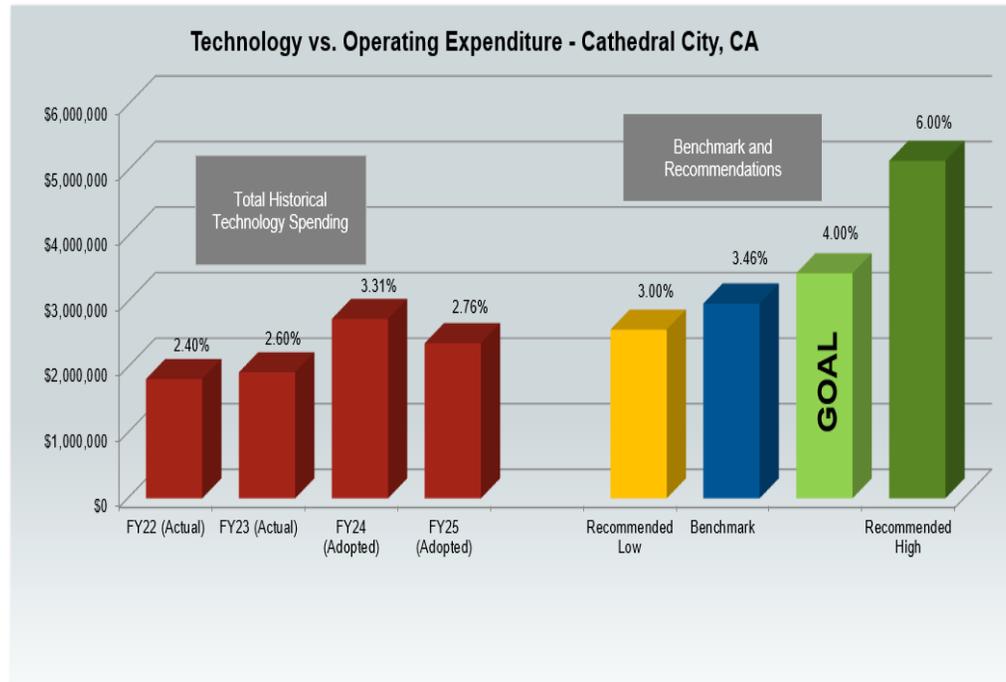
 Land Management (Permits) improvements and training necessary

Assessment – Business Applications



- Focus on training to streamline operations
- Use software assessments and process reviews to identify system improvement needs
- Follow best practices for system assessments and procurement
- Follow Applications Management and Support Best Practices

Assessment – IT Spending



- IT Spending as a percent of City operating expenditures has improved
 - Continues to be below benchmark and industry standards
- Technology deficit remains for departmental applications and IT operations
- Significant infrastructure “refresh” projects in near future



Strategies, Goals, and Objectives

The Big Picture

Technology Strategies

- Implement a Technology Governance model
- Expand staff technology training opportunities
 - Start with Office 365 – utilize the governance model to prioritize major application systems training
- Continue cybersecurity and disaster recovery improvements
- Expand IT operational toolset
 - Create IT policies and procedures
 - Focus on automation where possible



Department/Application Strategies

- Improve application utilization
 - Gain departmental operational efficiencies
 - Improve constituent services
- Ensure Ongoing training and application optimization
- Continuous process improvement through Assessment, Process Review, Software Selection, and Implementation Best Practices



IT Staffing Needs

- Staffing is slightly below benchmarks
- Significant demand for application improvements

- Needed:

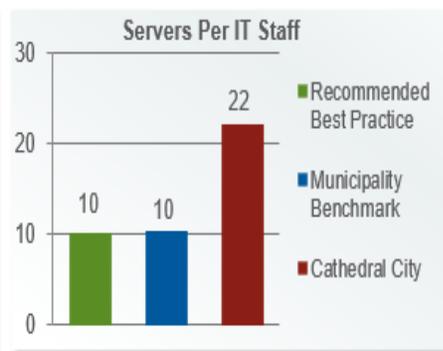
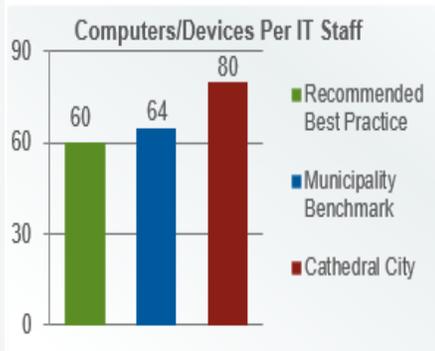
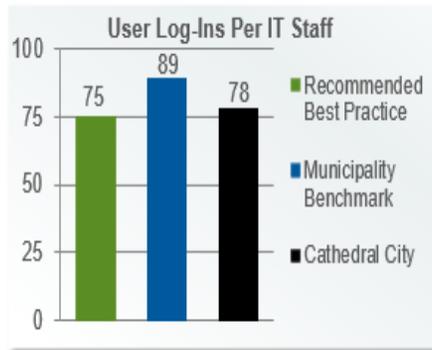
- Improved desktop support services
- Business application analysis skills
- Cybersecurity focal point

- Recommend a cautious approach to staffing

- Utilize contract subject matter experts in the near term

- Consider:

- Additional IT Support Technician
- Additional Cybersecurity Analyst





Budgets

Budget - Technology Master Plan

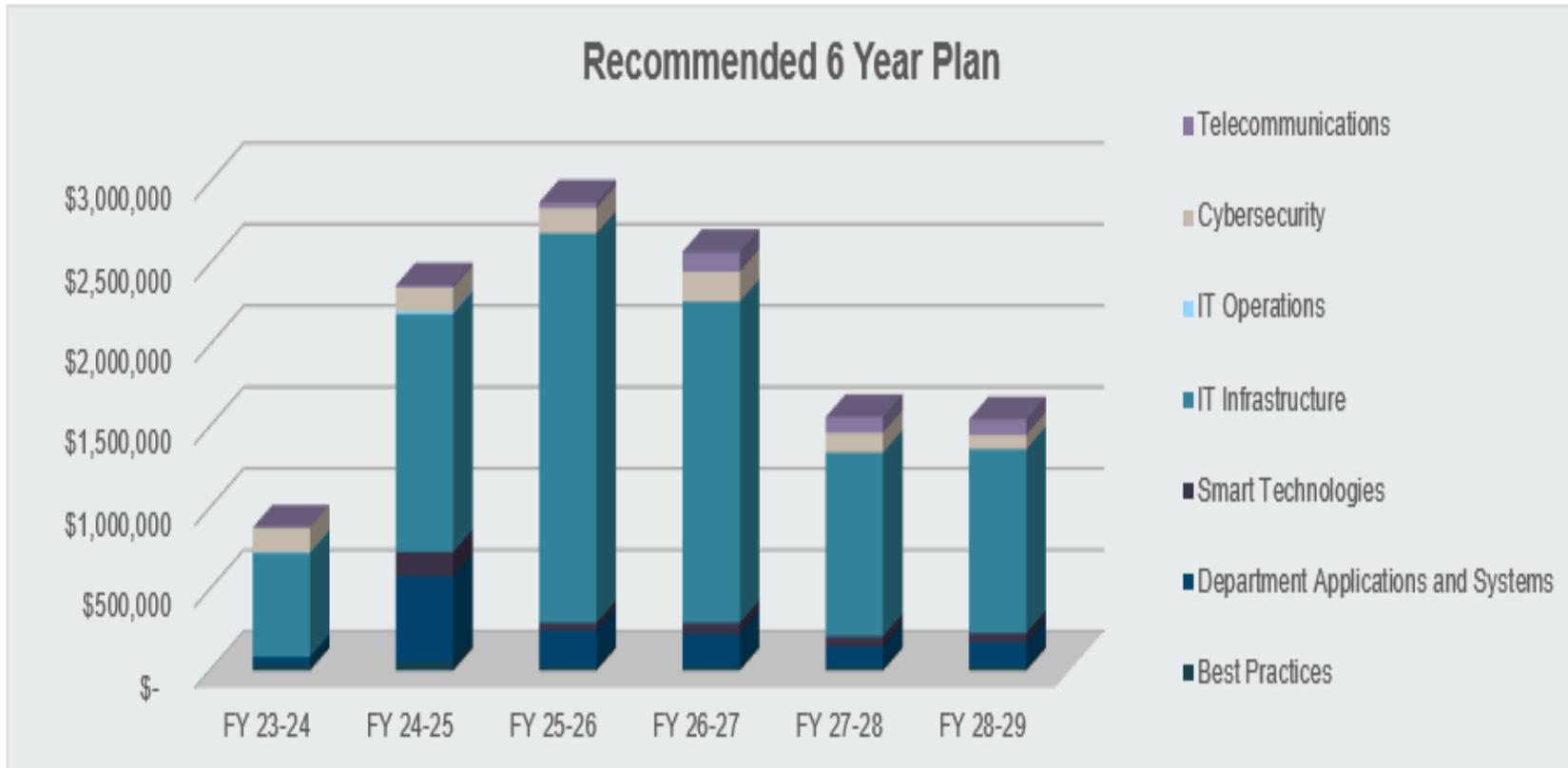
Initiative No.	Technology Initiatives	Comments	Priority	Budget Range		Funding Source(s)	FY 2023-2024	FY 2024-2025	FY 2025-2026	FY 2026-2027	FY 2027-2028	FY 2028-2029
				Low	High							
IT Infrastructure												
44	Computer Equipment Replacement Planning	PC and MDC replacement, UPS Replacement	H	\$900,000	\$1,100,000		\$152,000	\$152,000	\$152,000	\$277,000	\$152,000	\$152,000
45	Fire wall Upgrade	Cybersecurity improvements	M	\$50,000	\$75,000				\$65,000			
46	Council Chambers Audiovisual Upgrade	Improvements to council chambers audiovisual technology.	H	\$150,000	\$250,000		\$40,000	\$200,000				
47	Server Upgrades	Upgrade server operating systems and SQL. Last replacement 2021	M	\$400,000	\$550,000				\$55,000	\$450,000		
48	Network Upgrade	Improve network documentation. Increase segmentation. Last replacement 2018.	M	\$400,000	\$550,000				\$525,000			
49	Fiber Optic Master Plan	Work with Sifi to prioritize implementation of fiber connections to City facilities. Need fiber infrastructure master plan.	H	\$0	\$100,000			\$100,000				
50	Public Wireless Network (Wireless Expansion)	Replace Spectrum wireless with City-owned wireless in parks. Dependent on fiber installation.	M	\$100,000	\$200,000				\$50,000		\$50,000	\$50,000
51	Internet Bandwidth	Diversify City internet between City Hall and offsite backup location (future Disaster Recovery facility).	H	\$10,000	\$25,000			\$25,000				
52	Office 365 Software Upgrades	Upgrade to M365 G5, contract for 3rd party training, move shared directories to SharePoint. Investigate InTune for endpoint management.	H	\$500,000	\$600,000		\$93,000	\$500,000	\$500,000	\$525,000	\$525,000	\$525,000
53	Public Safety Vehicle Communications	Dual-simm modems and dual cellular service to improve field communications	H	\$250,000	\$300,000		\$73,200	\$68,700	\$31,200	\$31,200	\$31,200	\$31,200
54	Public Safety Radio System	Police and Fire are moving to Riverside County Public Safety Emergency Communications (PSEC) system.	H	\$750,000	\$1,100,000		\$268,536	\$369,545	\$370,239	\$370,965	\$371,729	\$372,532
55	Public Safety Video	Upgrades existing cameras and increase storage. Implement video at each Park.	M	\$750,000	\$1,000,000			\$50,000	\$645,000	\$320,000		
Cybersecurity												
56	Audit Logs and Log Management	Regularly monitor logs using existing tools.	H	N/A	N/A							

Collaboratively prioritized by Departments

Six-Year budget plan

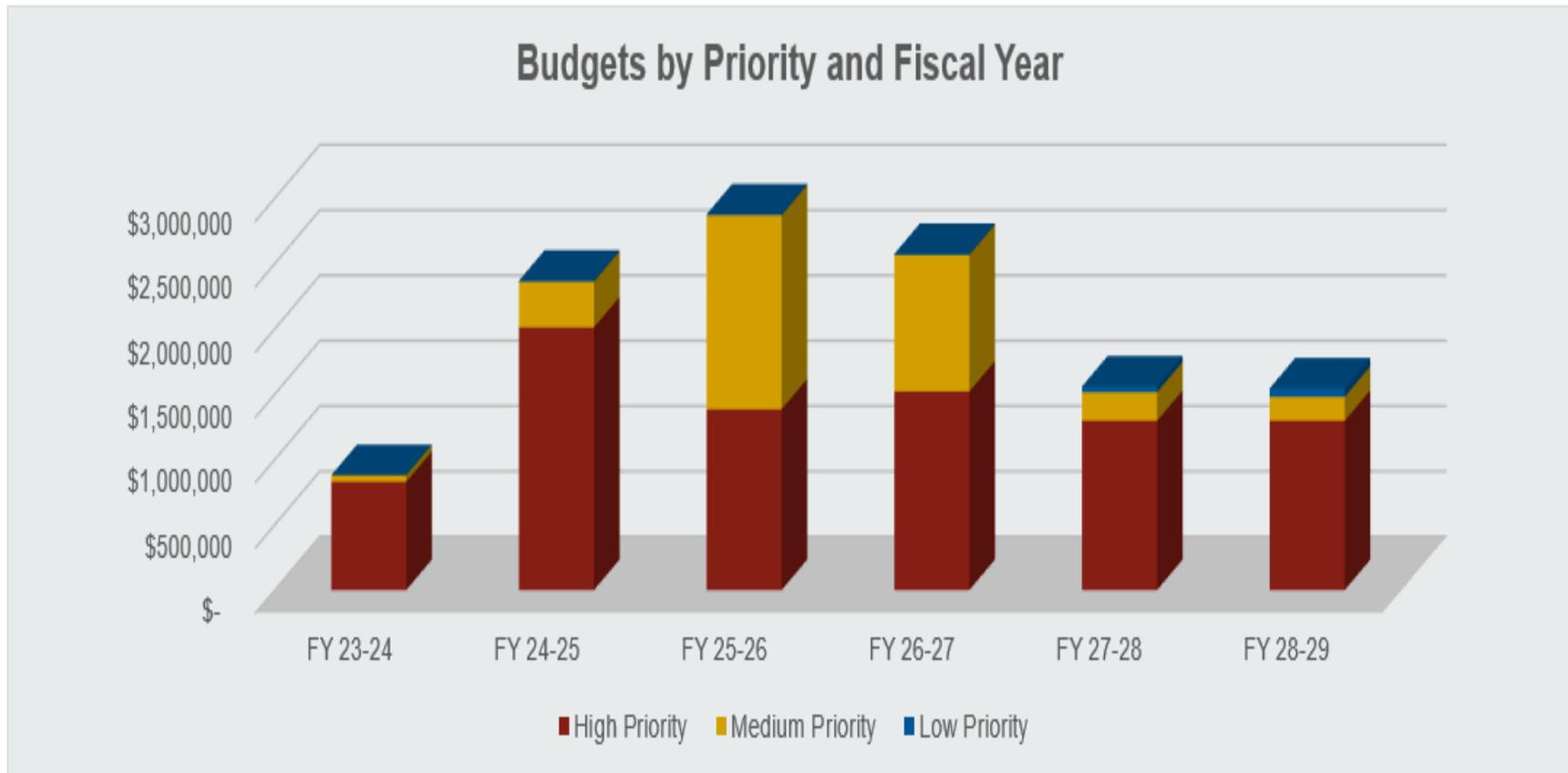
Plan designed to flex with the City's operational demands and resources

Budget - Strategic Technology Plan



74% of recommended project budgets are for IT Infrastructure

Budget - Strategic Technology Plan



50% of projects and 71% of project budgets are prioritized as **high**

Plan Budget Summary



All recommended projects will follow normal budget request and procurement policies

- Technology infrastructure improvements:
 - Continuously increase cybersecurity toolset - reduce risk
 - Add and improve IT operations tools
 - Expand disaster recovery capabilities
 - Replace phone system, data network
 - Expand Public Safety Video and Door Access
- Significant enterprise application system improvements



Questions and Answers



Thank you!

That's a wrap.

Technology Master Plan

June 2024



Cathedral City

Client Locations

Coast-to-Coast

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North Carolina

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www.clientfirstcg.com

Optimal Technology Guidance

CLIENTFIRST
TECHNOLOGY CONSULTING

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Engagement Purpose and Background

Technology Master Plan Objective

This Technology Master Plan articulates a vision for supporting the work of the City through efficient technology use. This includes ensuring the proper technical resources and organizational structure to effectively manage information technology and the applications utilized by the departments. This plan identifies strategies for developing and implementing technology initiatives and projects supporting the organization’s operational needs. The plan’s recommendations focus on improving both the City’s IT infrastructure and business applications.

Over several years, a well-documented plan guides the planning, procurement, implementation, and technology investment management for IT functions and City operational departments. It also provides strategies for resources related to operational technology and information technology service delivery.



This plan is the result of a thorough analysis of the following:

- Interviews and workshops involving all levels of the City’s operational staff, including the management team, end users, and other stakeholders, as available.
- Existing hardware and network infrastructure, staffing, funding, applications, business systems, projects, processes, telecommunications, training, and other investments and resources currently in use by the City.
- Identification and prioritization of initiatives and projects to undertake over the next five years.
- Identification of the resources required to accommodate current and future technology requirements, such as IT operations and management, legal requirements, cybersecurity requirements, service delivery, cloud computing, staffing, and more.

Deliverables

The assessment and plan includes:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Project purpose and background • Methodology for implementation and maintenance of the assessment • Current technology environment summary • Key benchmarking metrics | <ul style="list-style-type: none"> • Strategies, goals, and objectives • Technology initiatives (projects) by priority • Key issues • Timelines • Technology plan budgets |
|--|--|

Methodology and Approach

ClientFirst uses a five-phase methodology for technology master planning. This phased approach serves as the cornerstone of the project by allowing a collaborative process to shape and develop the recommendations.



Technology Assessment Summary

Overview

Technology Best Practices

Following best practices as a part of each technology project initiative is critical to ensuring the initiative's success and allowing the City to realize the potential benefits. The plan details several best practices to ensure the City's future success. Key best practices include:

- **Software Needs Assessment:** Software needs assessments identify and define the detailed needs of the City's users and stakeholders.
- **Business Process Reviews:** A business process review systematically examines an organization's business processes and workflows to identify areas where the City can improve its efficiency and effectiveness.
- **Software Selection:** Selecting the right system and technology is more critical than ever because operational efficiency and effectiveness are directly dependent on the use of business applications. Organizations that follow best practices recognize that they must take advantage of automation to meet growing constituent and staff demands.
- **User Training:** Ensuring the City's staff can utilize the available software applications is critical to ensuring maximum application utilization and adoption to promote efficiency and productivity, thereby reducing and eliminating manual processes and workarounds.
- **Project Management:** Successful implementations follow the same basic formula. As detailed in the plan, utilizing documented and proven best practices will provide the City with a solid foundation for success.

With each of these technology project initiatives, whether improvement or replacement, utilizing a best practice approach to the project will benefit the City. Key benefits include:

- **Improve Chances of Success:** Following best practices improves the chances of successful software implementation because they are based on the experience of others who have successfully implemented software.
- **Reduce Risk of Failure:** Following best practices reduces the risk of a software implementation failure by identifying and mitigating potential risks.
- **Time and Money Savings:** Following best practices streamlines the implementation process and avoid costly mistakes.
- **Improve Quality of Software:** Following best practices improves the quality of the software implemented by ensuring that the software meets the applicable user's needs and is rigorously tested.
- **Improve User Experience:** Following best practices improves the user experience of the software implemented by ensuring that the software is easy to use.

In developing this plan, ClientFirst applied a best practices approach combining decades of public sector technology experience with industry-standard best practices such as Control Objectives for Information and related Technology (COBIT), Information Technology Infrastructure Library (ITIL), and Prosci Change Management. ClientFirst utilized this experience and body of knowledge in the analysis and recommendations throughout this project and planning reports.

IT Infrastructure and Operations

The City has done a good job of leveraging a Computer Equipment Replacement plan to keep major IT infrastructure components up to date. Operational tools are available to assist with most major functions. Log review and patch management can take a significant amount of staff time. Staff have been working to improve log management and patch management tools to reduce staff time spent on these largely manual functions.

Cybersecurity

We found the City's cybersecurity defenses to be very good. Staff have dedicated a significant amount of time to considering and implementing cybersecurity tools. As noted above, these tools come with an operational cost. A move to more automated tools in some areas may reduce staff time required for maintenance and support.

Enterprise Applications

The City utilizes over 120 applications. The core systems – Enterprise Resource Planning, Human Resource Management, Enterprise Asset Management, and Land Management – are all underutilized.

- The Munis Enterprise Resource Planning (ERP) system by Tyler Technologies, used for finance, payroll, and human resources, is able to meet the City's operational needs with some improvements. Some modules within the system are owned but not yet implemented. Additionally, some staff are unable to access information directly. With regard to Human Resources, Munis is not integrated with essential Human Resources software such as NEOGOV, and automations for key processes are partially configured.
- The Tyler Enterprise Asset Management System is also capable of meeting the City's needs once it is fully configured. The Tyler system is robust, fully featured, and capable of meeting the City's needs. Adopting a best practices approach and performing needs assessments for all key users will help ensure a successful transition to the software.
- The new Land Management system is Energov by Tyler Technologies, and it replaced PermitsPlus for both Planning and Building. There are online services or workflows in use, and inspection requests are coming into voicemail.

Ongoing user training and support are needed across all departmental applications. Staff report that many systems are underutilized due to a lack of training. These gaps in user knowledge prevent the City from realizing the productivity gains and cost reductions associated with effective application utilization.

Application Systems Utilization

Over the last several years, many cities' constituents have begun demanding more efficient interaction, online transactions, and transparent information availability, increasing the need to improve enterprise business application utilization and sustain the IT infrastructure that supports them. The City will be better able to meet these demands by improving its approach to business application utilization.

Despite there being over 120 different application systems, there are still numerous examples of processes that are manual or require inefficient use of workarounds and shadow systems such as Excel. A few examples include processes related to budget, work order tracking, receivables, inspection requests, project time tracking, and more.

The City requires a Business Application Training Plan and future business application analyst support staff in the IT Division to support divisional users' ongoing needs.

Staff realize that business application process updates and improvements are necessary to meet constituents' needs. An increased desire to leverage business applications that serve constituents has resulted in a desire to increase investment in technology, leading to the creation of this plan. Over time, we recommend that the City undertake detailed assessments and process reviews to improve efficiency and resident services in most business applications.

Mobility and Collaboration

COVID-19 has also increased the demand for flexible communications, technology, and mobile computing. The demand for more flexible working arrangements remains strong. The City's existing file-sharing methodology should be updated, and staff should be trained to use tools enabling mobility and collaboration. Improving Microsoft O365 OneDrive and SharePoint adoption rates will provide staff with additional tools to improve communication and productivity.

IT Services Demand

Additional investment in improving and managing business applications is necessary to support increased communications, applications, data sharing, and reporting needs. Most major applications require assessment and improvement to provide constituents and staff with the level of service they need. The City recently added an Enterprise Systems Analyst to help the Departments improve application efficiency and utilization. To assist in the recommended improvement plans, the City has also contracted with third-party subject matter experts in some areas. Depending upon the pace of improvements, additional staff with business analyst skills may be required, along with supplemental third-party expertise.

With these many needs, technology governance will be important to the plan's successful implementation. The plan aims to affect a digital transformation in the City, reducing reliance on paper and shadow systems while increasing automation and efficiency.

The City has experienced some issues with the delivery of Help Desk support. An IT single position is dedicated to providing day-to-day support for the user community. We recommend adding additional Technical support staff to provide better IT service delivery.

Current Technology Environment

ClientFirst undertook an extensive analysis of the City's existing technology environment. Additional investments in replacing end-of-life equipment, cybersecurity mitigation efforts, disaster recovery planning, and Internet resiliency are outlined in the plan. The City has moved to Office 365. Staff training has not kept pace, causing limited utilization of the new tools provided by Office 365. Investment in staff training will reduce risk while improving collaboration capabilities and productivity.

We recommend that the City expand capital replacement planning to include all technical equipment and a long-term sustainability plan to institutionalize ongoing investment in technology.

The table below summarizes the current technology environment in the City:

Item	Quantities
Number of Agency Facility Addresses	15
IT FTE(4 IT staff and 1 GIS staff)	5
Number of Employees (FT/PT/Seasonal)	229
User Logins	315
Telephones	272
Mobile Devices	91
Laptops/Desktops	90/229
Printers	96
Physical Servers	7
Virtual Servers	88
Network Devices (e.g., routers, switches, and access points)	293

The City also utilizes over 120 application systems and software modules. Major enterprise application systems include:

Application Functionality	Vendor
Financial Management	Tyler Munis
Human Resources Management	Tyler Munis
Payroll	Tyler Munis
Applicant Tracking	NEOGOV
Enterprise Asset Management (Work Orders and Asset Management)	Tyler Enterprise Asset Management
Electronic Document and Records Management	Laserfiche
Land Management System	Tyler Technologies - EnerGov
Computer Assisted Dispatch/Records Management System	Alliance by Cyrun

Key Statistics and Metrics

The following analysis provides feedback on key measurements regarding technology investments and IT support operations:

Technology Budgeting/Expenditures	Technology Spending vs. Operating-Related Budgets
IT Staffing	IT Staffing Ratios
IT Capital Replacement Schedules	Equipment Replacement Schedules

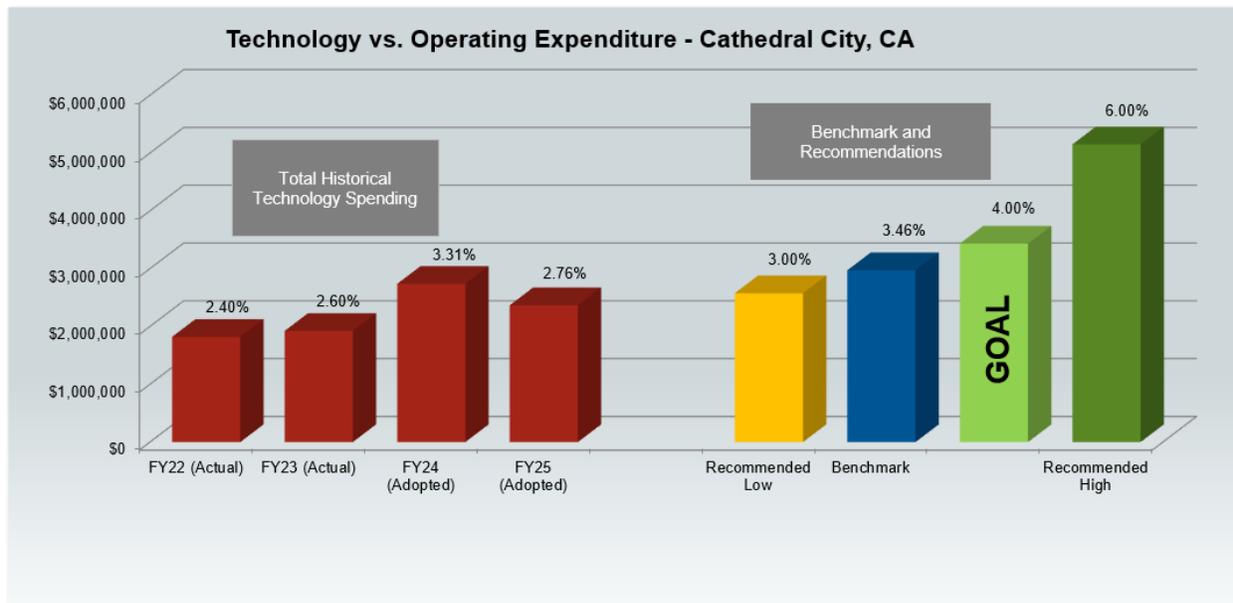
Technology Spending Comparisons

Analyzing technology spending versus operating budgets indicates whether the technology systems and IT support function receive sufficient organizational resources to provide the necessary services. Over time, underfunding typically:

- Reduces the IT Division’s ability to respond to requests
- Reduces system availability
- Negatively impacts organization-wide productivity and constituent services

The following table depicts the City’s Technology Spending versus Recommended Best Practices and a local government benchmark of 36 agencies.

City FY22 (Actual)	City FY23 (Actual)	City FY24 (Adopted)	City FY25 (Adopted)	Recommended Low	Benchmark	GOAL	Recommended High
2.40%	2.60%	3.31%	2.76%	3.00%	3.46%	4.00%	6.00%



City Operating Expenditures vs. Technology Expenditures

	FY22 (actual)	FY23 (actual)	FY24 (adopted)	FY25 (adopted)
Operating Exp.	\$75,769,399	\$73,969,399	\$82,580,713	\$85,824,382
Technology Exp.	\$1,820,081	\$1,922,253	\$2,736,440	\$2,366,378

The local government technology spending benchmark ranges from 1% to 8% of applicable agency-wide funding. Survey results of 36 agencies show an average technology expenditure of 3.46%. **The City’s technology expenditure has been below local government industry standards.**

The technology spending benchmark is the average of other agencies that utilize ClientFirst as their consultant. Most of these agencies are (or were) underfunding technology. Please note that the above benchmark is a reference point for analysis purposes, not a specific recommendation for the City.

Given the City’s unique blend of functional areas, a technology spending goal of 4% of operating expenditures is recommended.

Historically, internal and third-party resource utilization for the implementation of application software has been limited. Improved implementation and enhancement processes are in process to increase application effectiveness and user satisfaction. To close the technology gap created by past underspending, the City will need to spend significantly more than 4% over the next few years to improve legacy systems.

Some under-investment in technology is apparent throughout the City. The plan calls for increased spending on all facets of technology. Increased IT spending will:

- Provide for a cybersecurity focal point at the City
- Improve application utilization and staff effectiveness
- Improve constituent services
- Align City application system selection and implementations with best practices
- Reduce the risk of failed implementation or excessive system replacement activity
- Reduce overall cost-of-ownership by improving quality

Increasing IT expenditures to close the technology gap will result in spending above the recommended benchmark. We expect these infrastructure, cybersecurity, and application system enhancements to increase productivity throughout the City.

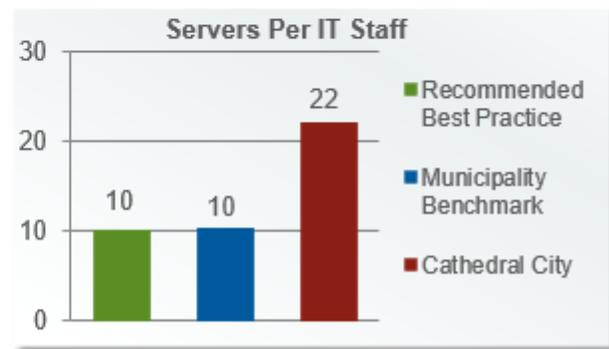
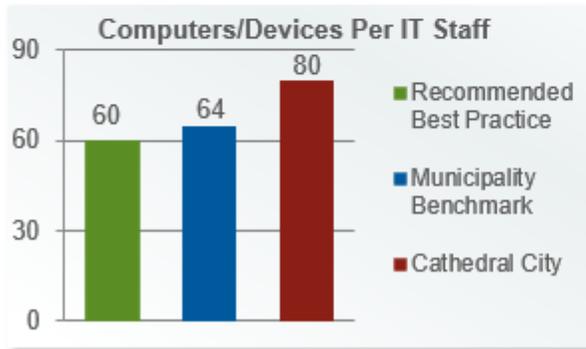
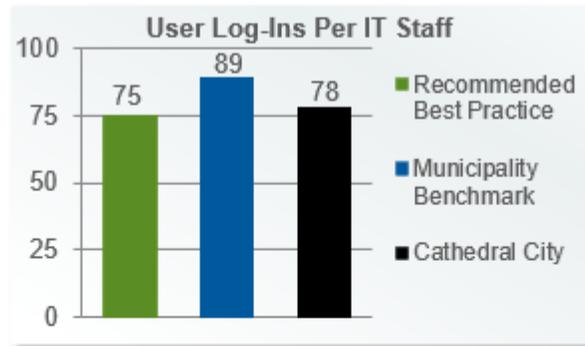
IT Staffing Ratios

The following table depicts the City’s IT Staffing Ratios using three benchmarks:

- User logins per IT Staff
- Computers/Devices per IT Staff
- Servers per IT Staff

Seventy-one (71) agencies’ data are included in the benchmark. These three benchmarks are commonly used metrics in the industry to validate staffing levels. As the number of logins served and resulting equipment increases, IT staffing levels should also increase, resulting in a smaller ratio.

	Recommended Best Practice	Municipality Benchmark	Cathedral City
User Logins per IT Staff	75	89	78
Computers/Devices per IT Staff	60	64	80
Servers per IT Staff	10	10	22



In this comparison, the City’s IT staff supports approximately 50% more servers and 25% more devices than recommended or compared to peer agencies. User logins per IT staff are near the benchmark. Overall, IT staffing is somewhat less than benchmark recommendations. Full service with Police and Fire tend to have more devices and servers than contract cities and, therefore, require slightly more IT staff overall.

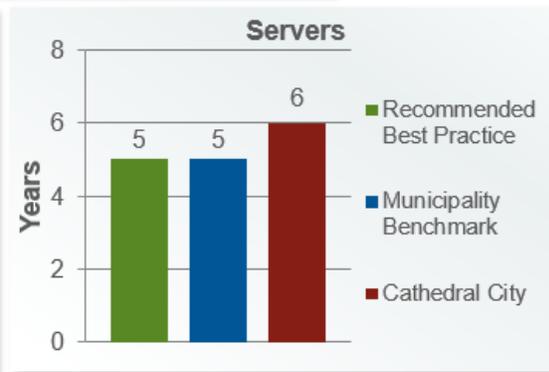
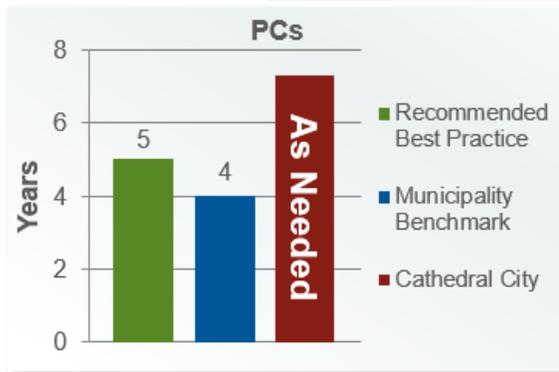
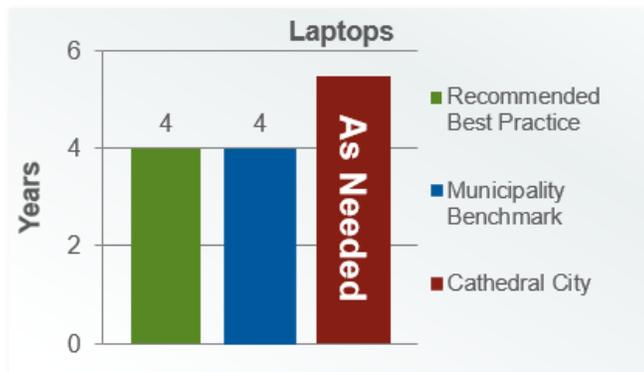
These benchmarks do not completely reflect the City’s needs related to closing the deficit created by ineffective business application implementation processes. Department demand is high for digital innovation, improved application integration, constituent service levels, and internal information flow. Staffing recommendations include expanding business systems analysis skills in the IT team to support the expanded need for business applications support (see the “Applications Management Best Practices” initiative).

Equipment Replacement

Capital equipment replacement is an important measure of the ability of the hardware to support the ongoing vendor changes to application software adequately. These changes often require additional resources and more robust hardware. Above-average capital replacement cycles can increase downtime overall and slower system response times.

The following table represents IT equipment replacement recommended best practices and a municipal benchmark of 54 agencies.

	Recommended Best Practices	Municipal Benchmark	Cathedral City
Laptops	4	4	As needed
PCs	5	4	As needed
Servers	5	5	6



The City works hard to update desktops and laptops regularly but does not have a formal replacement strategy. Servers and other technological equipment are replaced on an above-average schedule. We recommend that the City expand computer equipment replacement schedules to include all electronic devices (e.g., audiovisual, door access control, public safety video, and network devices). This report has included a list of electronic devices and their expected life cycles in the “Computer Equipment Replacement” initiative.

Technology Decision-Making Principles

Vision / Mission Statement

The City is dedicated to providing the highest quality and cost-effective, technology-based services. It seeks to sustainably deliver services effectively and efficiently, reflecting the organization's commitment to excellent customer service. The City will maintain its information systems in an integrated, secure environment that supports its information technology advancements and fosters an open, collaborative, and unifying culture.

- The Technology Steering Committee is committed to the values of:
 - ◆ Reliability
 - ◆ Professionalism and Integrity
 - ◆ Efficiency and Effectiveness
 - ◆ Innovation
 - ◆ Excellence
 - ◆ Collaboration and Teamwork
- Given **limited IT resources**, the City will focus these resources on the most productive and cost-effective projects.
- City divisions will agree on a **collaborative long-term IT vision and strategies**, which requires active participation in setting IT priorities through an Information Technology Committee consisting of division leadership.
- The City will strive to **maximize the utilization of existing systems** and prior investments in application software, expand functionality, and seek enhancements to existing applications.
- The City is committed to ensuring **sufficient staff training and application software knowledge** of existing vendor systems.
- **Division ownership** is fundamental to achieving maximum return on investment in applications. Divisions recognize the importance of assuming responsibility for managing and implementing their specific core business applications and modules in collaboration with IT staff. City divisions are committed to taking responsibility for adapting and improving processes to integrate them with the application software.

Technology Strategies, Goals, and Objectives

Highlighted strategies for leveraging and maximizing the City’s information system utilization are listed below. Each strategy identifies initial goals and objectives. The reports appended to this Technology Master Plan provide additional strategies and details. Appended to this report are:

- **Technology Current State Assessment Report:** Findings, goals, and objectives translated into specific project initiatives
- **Budget Spreadsheet:** Budgetary costs for each initiative, prioritization, and implementation time frame

Key strategies detailed below include:

- Ensure Technology Governance
- Continue to Improve Cybersecurity
- Improve Application Utilization
- Establish a Citywide Technology Training Program
- Adopt a Best Practices Approach to Software Needs Assessments
- Adopt a Best Practice Approach to Software Selection and Implementation
- Expand Business Analysis Staffing Capabilities
- Expand Backup Systems and Implement Disaster Recovery Capabilities
- Create a Fiber Optic Master Plan
- Expand IT Staffing

Ensure Technology Governance
<p>The City does not utilize a Technology Steering Committee. A Technology Steering Committee can be an important contributor to the management of this plan.</p>
Goals and Objectives
<ul style="list-style-type: none"> • Create a Technology Steering Committee to improve technology governance. Focus committee meetings on: <ul style="list-style-type: none"> ◆ Assisting in the prioritization of technology projects and training needs. ◆ Monitoring the plan and recommending adjustments and budgetary needs on an annual basis. ◆ Improving collaboration on projects and initiatives. <ul style="list-style-type: none"> ▪ Focus on application integration across departments. ▪ Identify key business process issues and improve. • Establish training goals and develop analytical skills throughout the organization.

Continue to Improve Cybersecurity

Continued improvement in cybersecurity threat prevention will be necessary to reduce risk and maintain services and data integrity.

Goals and Objectives

- Over the last few years, cybersecurity incidents in local governments have increased dramatically.
- Cybersecurity insurance carriers are rapidly increasing base requirements for maintaining cybersecurity insurance.
- Additional cybersecurity requirements have been codified for critical infrastructure including water and wastewater.
- The City has made significant improvements in cybersecurity. Additional improvements are necessary to meet these increasing requirements.

Establish a Citywide Technology Training Program

Technology training is critical to improving efficiency and staff utilization of applications.

Goals and Objectives

- All departments requested technology training, including Microsoft Office classes and departmental software applications.
- Utilize the Technology Governance Committee to develop Citywide training priorities and create an annual budget to fund training.
- Incorporate sufficient training in business application improvement or replacement projects.

Adopt a Best Practices Approach to Software Needs Assessments

Detailed assessments are an essential step in evaluating current and future needs for application projects

Goals and Objectives

- Key considerations and resources needed to be successful include:
 - ◆ Identify the assessment objective. Understanding the “big picture” is critical to success.
 - ◆ Identify the appropriate resources/stakeholders to conduct and participate in the assessment process.
 - ◆ Determine the documentation detail level needed to communicate current and potential future needs. Possibilities include:
 - Distributing surveys or information requests to end users and compiling the results
 - Conducting workshops as a group to review the results of questionnaire feedback and identified issues
 - One-on-one interviews with Power Users and/or subject-matter experts
 - Reviewing or observing business processes
 - Documenting detail needs as described above
 - ◆ Develop a plan to implement the findings and recommendations that result from the assessment process.
 - ◆ Obtain third-party subject matter expertise and project management for large complex projects.

Adopt a Best Practice Approach to Software Selection and Implementation

Best Practice software selection, including utilization of third-party subject-matter experts, reduces implementation risk.

Goals and Objectives

- Utilize best practices for selecting and implementing business application systems.
- Focus on reducing the number of separate departmental systems to eliminate the need for custom interfaces.
- Prepare the City to select new and critical enterprise applications.
- Utilize third-party subject matter experts to assist with selecting large/complex application software.
- Consider cloud applications when appropriate.
- Assign an internal project manager for enterprise software implementations or upgrades.
 - ◆ Follow best practice project management methodologies as appropriate.
 - ◆ Increase focus on software training during implementation or major upgrades.
 - ◆ Include contingency funds where possible to meet unforeseen project circumstances.

Expand Business Analysis Staffing Capabilities

Recommended application improvements require additional Business Analyst expertise to maximize application utilization and operational efficiency.

Goals and Objectives

- Consider increasing IT staff to include at least one business systems analyst position to:
 - ◆ Assist departments with business process and procedure improvements
 - ◆ Assist with application assessments and implementations
 - ◆ Work with departments to improve business processes
 - ◆ Develop dashboards, reports, and information sources for staff and constituents
- Depending on the amount of available funding, utilize third parties to assist departments with business process-related improvements.

Expand Backup Systems and Implement Disaster Recovery Capabilities

Implement cloud-based backup and cloud-based restoration. Develop and test Disaster Recovery Plan(s).

Goals and Objectives

- Replace on-premise with cloud-based backup systems.
 - ◆ Develop cloud-based restoration capabilities.
- Create Disaster Recovery Plans with Service Level Agreements for the restoration of systems.
 - ◆ Practice portions of the Disaster Recovery Plan every six months.
- Conduct tabletop exercises with Departments for Cybersecurity Incident Response.

Create a Fiber Optic Master Plan

Create a Fiber Optic Implementation Road Map

Goals and Objectives

- Expand fiber capabilities to City parks and other locations where public safety video would be helpful.
- Expand fiber to all City facilities.
- Investigate the feasibility of fiber to the home.
- Assess broadband coverage for residences and businesses.
- Utilize fiber to support the Internet of Things (IoT).
- Consider flood monitoring devices based on Hurricane Hilary event.

Expand IT Staffing

Additional IT staff and third-party resources will be required to leverage technology better.

Goals and Objectives

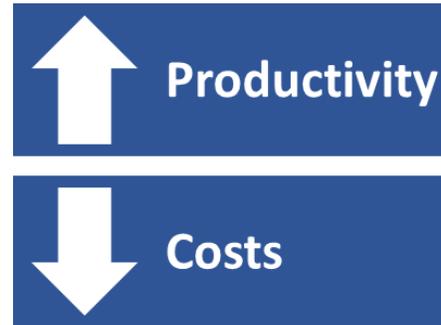
- Additional staff are necessary in all areas of IT:
 - ◆ Project Management assistance is required to manage internally staffed and third-party application improvement initiatives.
 - ◆ Business Analysts are necessary to support division application improvements.
 - ◆ Expand Help Desk Support to improve internal service to Public Safety and other departments.
 - ◆ Cybersecurity-focused staff are required to manage cybersecurity policies, tools, and vendors.
- Depending on the amount of available funding, utilize third parties to assist with many projects.

Technology Initiative Summaries

Introduction

Technology Planning includes assessing, researching, prioritizing, budgeting, and planning future technology initiatives. For example, some initiatives are ready for approval and implementation. In contrast, others require further assessment and research before the City can determine priority, resource requirements, and cost-benefit.

Productivity Improvement – Many of the plan initiatives will directly impact overall productivity within the organization. Some of these initiatives will significantly impact business processes, reducing staff time required to complete specific tasks. In contrast, others will ease or speed up the delivery of services to City constituents.



Reporting and Data Availability – Many initiatives outlined will directly impact the data available for reporting and management decision-making. New application systems and, in some cases, improvement of existing software systems are necessary before additional functionality can be made available.

IT Infrastructure Improvements – The technical initiatives focus on improving the City’s technological infrastructure to provide staff and residents with secure, reliable, and supportable network services. IT infrastructure improvements may involve equipment upgrades, cybersecurity enhancements, or operational improvements focused on efficiently and effectively delivering business applications to City users.

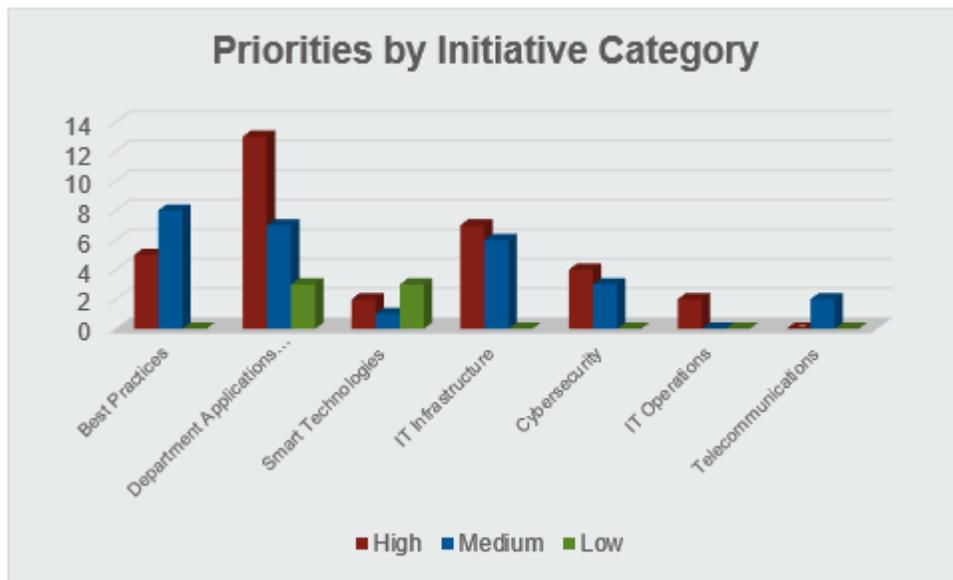
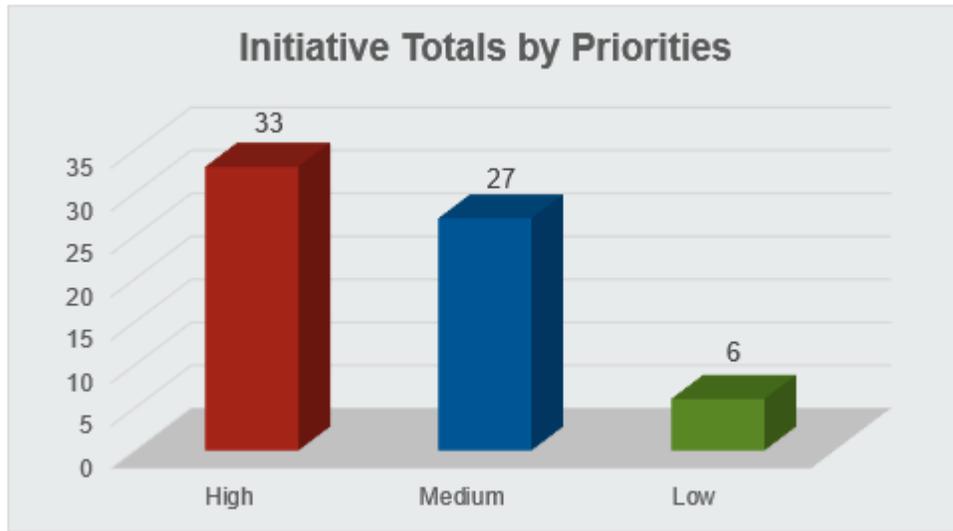
Technology Initiative Categories

The assessment process resulted in 66 major initiatives, projects, and hundreds of recommendations. There are hundreds of findings and recommendations throughout the report, which are included at the end of this document. ClientFirst classified the major initiatives into eight categories, including:



The following are the total initiatives by priority and initiative category, including sub-initiatives that are budgeted separately.

Categories	Priority			Total
	High	Medium	Low	
Best Practices	5	8	0	13
Department Applications and Systems	13	7	3	23
Smart Technologies	2	1	3	6
IT Infrastructure	7	6	0	13
Cybersecurity	4	3	0	7
IT Operations	2	0	0	2
Telecommunications	0	2	0	2
Total	33	27	6	66



Key Issues and Initiatives

The key issues and initiatives identified during the planning process could also be considered high priority. Each initiative listed below either provides long-term building blocks for the plan’s success or mitigates risk. Therefore, the City has noted these as the initiatives from this plan to keep at the forefront during the future implementation of this plan.

<p style="text-align: center;">Enterprise Resource Planning (ERP)</p>	<ul style="list-style-type: none"> • The ERP system is the set of core applications used to operate the City’s most common accounting, financial, and human resources operations. • The plan recommends consulting with a third-party subject matter expert and working with Tyler Technologies to develop an improvement plan that captures the City’s functionality gaps and additional requirements. • Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine which automation improvements will eliminate or reduce those processes and/or shadow systems and result in labor efficiencies. <ul style="list-style-type: none"> ◆ This process should also include: <ul style="list-style-type: none"> ▪ Inventorying all reporting requirements ▪ Identifying all integration/interface requirements with other applications ▪ Identifying any requirements that the vendor is not capable of providing • Conduct the implementation of the improvements per best practices. Follow the guidelines in the “Application Implementation Project Management Best Practice” initiative.
<p style="text-align: center;">Enterprise Asset Management Replacement (EAM)</p>	<ul style="list-style-type: none"> • An EAM system comprises a suite of modules in a software application that manages work orders, preventative maintenance, and asset management of City infrastructure, including real property, facilities, streets, sidewalks, parks, trails, bridges, drainage, culverts, and so on. • Asset management systems are one of a municipality’s five most complicated systems. The City will reduce risk by contracting with a subject matter expert to assist in the assessment and business process reviews. • Conduct a comprehensive gap analysis to identify EAM system needs and develop an improvement plan to close gaps between the current state and desired functionality. <ul style="list-style-type: none"> ◆ Utilize Best Practices enterprise system assessment methodologies ◆ Determine whether the current system can be improved or must be replaced • Work with each impacted division to implement improvements through: <ul style="list-style-type: none"> ◆ Business process revisions ◆ Configuration changes, including all required functionality and fields needed ◆ Reporting ◆ Improved GIS integration ◆ Staff training ◆ Documentation improvements ◆ Other techniques for application utilization improvements • Conduct the implementation of the improvements per best practices. Follow the guidelines in the Application Implementation “Project Management Best Practice” initiative.

<p>Land Management Improvements</p>	<ul style="list-style-type: none"> • A Land Management System (LMS) is a software suite comprising several applications that manage the creation, issuance, and tracking of development-related activities commonly associated with planning and zoning, permitting, inspections, licensing, code enforcement, and parcel/address management. • Land management systems are complicated systems. The City will reduce risk by contracting with a subject matter expert to assist in the assessment and business process reviews. • Conduct a comprehensive gap analysis to identify LMS needs and develop an improvement plan to close gaps between the current state and desired functionality. <ul style="list-style-type: none"> ◆ Utilize Best Practices enterprise system assessment methodologies ◆ Determine whether the current system can be improved or must be replaced • Work with each impacted division to implement improvements through: <ul style="list-style-type: none"> ◆ Business process revisions ◆ Configuration changes ◆ Improved GIS integration ◆ Staff training ◆ Documentation improvements ◆ Other techniques for application utilization improvements • Conduct the implementation of the improvements per best practices. Follow the guidelines in the “Application Implementation Project Management Best Practice” initiative.
<p>Electronic Content Management System</p>	<ul style="list-style-type: none"> • An Electronic Content Management System (ECMS) is a software system for managing and storing different types of digital media. For example, documents, images, videos, and more can all be stored in an ECMS. • The City needs to scan boxes of historical paper, move plans and permit related information, and other final permanent document storage to Laserfiche. • The plan recommends an assessment and process review to scope the needed improvements properly. It also recommends following a best practices approach to implementing all improvements. • Conduct the implementation per best practices. Follow the guidelines in the Enterprise Applications Implementation Project Management Best Practices Initiative.
<p>Microsoft Office 365</p>	<ul style="list-style-type: none"> • Microsoft Office 365 is a subscription service that is part of the Office product line and is focused on enterprise customers. • Work with a third-party subject-matter expert to develop an MS 365 Improvement Plan and project statement of work (SOW) that captures all the City’s requirements. • It is recommended that the current Office 365 deployment be expanded. • Conduct the implementation of the improvements per best practices. Follow the guidelines in the “Application Implementation Project Management Best Practice” initiative.

<p>GIS Improvements</p>	<ul style="list-style-type: none"> • Geospatial Information Systems (GIS) are a key strategic component of enterprise asset management, land management, and smart City applications. • GIS also provides critical information and data elements that benefit many of the City’s operations, including future Smart Technologies. • GIS systems can be integrated with asset and document management applications to improve field-based information storage and retrieval. <ul style="list-style-type: none"> ◆ Expanded integration with the City’s enterprise applications will improve application effectiveness.
<p>Website Improvements</p>	<ul style="list-style-type: none"> • For each department, follow the guidelines in the “Software Needs Assessment Best Practice” initiative to identify and catalog the overall website functionality and training needs for the City. • Develop content management policies and procedures, which may vary by department. • As part of the content management policy, implement standard practices and make website maintenance a component of the Technology Steering Committee’s responsibilities to ensure the site is maintained regularly and remains relevant and up to date for the public.
<p>Cybersecurity</p>	<ul style="list-style-type: none"> • Cybersecurity threats continue to expand, requiring additional tools to maintain the security and integrity of resident and staff data. • An extensive revision of the Criminal Justice Information System standard focused on securing Police data becomes effective in October 2024. We expect additional revisions that further tighten cybersecurity requirements for the Police Department. • The additional tools and associated monitoring of those tools require additional staff for ongoing support. • The continued expansion in requirements and necessary cybersecurity tools has created the need for a cybersecurity analyst to provide continued focus on cybersecurity improvements.

Summary Plan Budget Analysis

The Technology Master Plan budget is not an entirely new set of spending requirements. The plan encapsulates City information technology issues and divisional needs. Departments themselves typically fund some project initiatives, and some may already have capital reserves set aside, while others are part of the normal annual IT budgeting process. These are estimated budgets for each project initiative. All project approvals will follow standard City annual budget requests and procurement policy and procedure requirements.

Budgets by Initiative Category

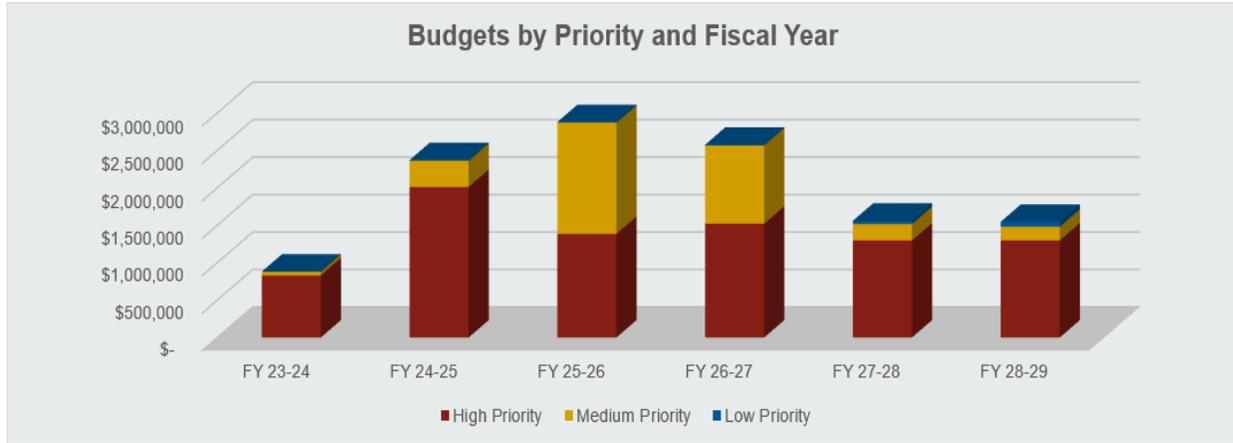
Categories	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29	Totals
Best Practices	\$ 35,000	\$ 50,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 185,000
Department Applications and Systems	\$ 50,000	\$ 530,500	\$ 220,500	\$ 200,500	\$ 125,500	\$ 150,500	\$ 1,277,500
Smart Technologies	\$ -	\$ 147,500	\$ 47,500	\$ 67,500	\$ 59,500	\$ 54,500	\$ 376,500
IT Infrastructure	\$ 638,736	\$ 1,465,245	\$ 2,393,439	\$ 1,974,165	\$ 1,129,929	\$ 1,130,732	\$ 8,732,247
Cybersecurity	\$ 150,000	\$ 145,000	\$ 155,000	\$ 185,000	\$ 122,500	\$ 87,500	\$ 845,000
IT Operations	\$ 5,000	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ 20,000
Telecommunications	\$ -	\$ 15,000	\$ 35,000	\$ 121,000	\$ 96,000	\$ 96,000	\$ 363,000
Totals	\$ 878,736	\$ 2,368,245	\$ 2,876,439	\$ 2,573,165	\$ 1,558,429	\$ 1,544,232	\$ 11,799,247



In the initial years of the plan, IT Infrastructure is the largest spending category. IT infrastructure spending is necessary to close an existing technology gap. In the later years of the plan, as staffing reaches appropriate levels, departmental application improvements may become the largest spending category.

Budgets by Priority and Fiscal Year

Categories	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29	Totals
High Priority	\$ 828,736	\$ 2,010,745	\$ 1,383,939	\$ 1,519,665	\$ 1,295,429	\$ 1,296,232	\$ 8,334,747
Medium Priority	\$ 50,000	\$ 350,000	\$ 1,485,000	\$ 1,046,000	\$ 218,500	\$ 183,500	\$ 3,333,000
Low Priority	\$ -	\$ 7,500	\$ 7,500	\$ 7,500	\$ 44,500	\$ 64,500	\$ 131,500
Totals	\$ 878,736	\$ 2,368,245	\$ 2,876,439	\$ 2,573,165	\$ 1,558,429	\$ 1,544,232	\$ 11,799,247



Next Steps

Moving Forward

Moving forward over the next 18 to 24 months, the key focus areas for information technology include developing disaster recovery plans to take advantage of cloud-based restoration capabilities, implementing technology governance, and expanding the use of Microsoft 365 and Teams.



The software ecosystem in the City encompasses many untapped resources. Underused modules, manual workarounds, and siloed data restrict the efficiency and transparency the City requires to be effective. High-priority improvements are necessary for the Enterprise Resource Planning, Enterprise Asset Management, and Land Management systems. Increased utilization of the ERP system and completing configuration of the EAM and Land Management systems will all propel the City forward to serve its constituents more efficiently.

The City has recently reorganized IT and existing resources and is working with the vendor on continued system improvements. Numerous other applications, as detailed in the *Current State Assessment Report*, will require additional focused resources over the next several years.

This report contains ambitious and costly technology objectives for the City. If the City chooses to implement these systems rapidly, organizational change management and strategic oversight will be critical to the City’s success. We often continue to work with agencies on these issues during assessment, planning, and implementation. We have found that slow and steady progress following best practice methodologies leads to an improved likelihood of success, higher quality implementations, and improved staff utilization and data management of new systems.

We expect the projects outlined in this report will result in improved productivity, customer service, resiliency, and sustainability.

Cybersecurity – As additional cybersecurity tools are implemented, resource demands increase, requiring dedicated staffing to maintain operational efficiency. Developing policies and procedures, expanding the City’s cybersecurity toolset, and improving resiliency and recoverability are important components of a cybersecurity program that will reduce the risk of compromise and improve recoverability.

Application Utilization – City divisions want to improve their core business processes and fully utilize their applications. Therefore, the City should work to encourage a sense of application ownership and continuous improvement by the divisions. Improved application utilization is the most effective way to increase data availability, facilitate staff productivity, and improve customer service.

IT Staffing – City IT staff have many responsibilities. Expanding business analysis and project management skillsets among staff over time will provide IT staff with additional tools necessary to assist divisions in making business process and application improvements.

Third-party subject-matter experts will be helpful for projects that are high priority, beyond the scope of City skill sets, and/or lacking internal resource availability.

Maintaining the Plan

The City should review and update the plan annually, using an abbreviated version of this assessment and planning methodology. In this way, the plan will be a vehicle to guide the City's information technology activities. Plan updates should be synchronized with the annual budget process to represent technology initiative costs properly.

Benefits

The completed plan is a dynamic tool to be revised and updated as business conditions and requirements change. Objectives may change as the organization and its environment evolve. The City will not realize certain objectives and benefits if the planning function is not ongoing.

Implementing this Technology Assessment and Plan should realize significant benefits, including:

- Increased collaboration and communication on technology projects within the organization
- Transformation of the organization's overall understanding, knowledge, and stewardship of information technology
- Clear direction for IT operations and technology projects for the next several years, focused on meeting the organization's needs
- Citywide division consensus and understanding of all technology initiatives and their priorities
- A roadmap for the selection, implementation, and improvement of business applications to better serve residents and staff

Immediate Next Steps

We recommend that the City establish a technology steering committee to begin work by reviewing the plan and budget and advising on priorities. Next, the City should assign lead and participatory resources to the top-priority technology and other high-priority initiatives. Finally, initiative leaders should report status updates for active initiatives to the technology steering committee as part of each meeting agenda.

The Committee should discuss significant issues for each initiative by providing general feedback, collaboration, and lessons learned, as many initiatives cross departmental boundaries.

We also recommend developing a training seminar series for key division stakeholders and system users to improve application utilization, management, and support. This is an effective way to maintain momentum and kick off the tremendous change that is to occur in enhancing operations and constituent services.

Technology Master Plan Capital Budget

The following section provides the five-year master planning budget detail by project initiative. Please note that these subtotals are not the annual IT Division operating budget. Instead, these are estimated budgets for each project initiative. All project approvals will follow standard City annual budget requests and procurement policy and procedure requirements.

Technology Current State Assessment (Project Initiatives)

The following section contains the Technology Current State Assessment documentation in its entirety. The assessment resulted in 66 major technology initiatives and projects with hundreds of additional recommendations.

Technology Master Plan Budget

Initiative No.	Technology Initiatives	Comments	Priority	Budget Range		FY 2024-2025	FY 2025-2026	FY 2026-2027	FY 2027-2028	FY 2028-2029
				Low	High					
Best Practices										
1	Technology Governance	Establish IT Governance mechanism to assist in managing implementation of this Plan.	H	\$0	\$10,000	\$10,000				
2	Applications Management Best Practices	Identify application owners and champions within the Departments to lead improvement efforts.	H	N/A	N/A					
3	Software Needs Assessment Best Practices	Utilize software needs assessment methodology to identify gaps in application functionality for improvement.	H	N/A	N/A					
4	Business Process Reviews	Business process reviews are key to understanding existing processes and identifying ways to improve or make them more efficient.	M	N/A	N/A					
5	Software Selection Best Practices	Best Practice focused on reducing risk and improving software selection outcomes while maximizing value through a competitive selection process.	M	N/A	N/A					
6	Enterprise Applications Implementation Best Practices	Follow PMI based project management principles for all larger or complex projects	M	N/A	N/A					
7	IT Project Planning and Implementation Best Practices	Follow PMI based project management principles for smaller, less-complex projects	M	N/A	N/A					
8	Enterprise Reporting Best Practices	Best practices approach and methods to utilizing different reporting and business intelligence tools with enterprise application systems	M	N/A	N/A					
9	User Training and Support	Develop a Business Applications Training Plan, then ongoing Office, GIS and Departmental training budget year-over-year. Recurring budget item. Training requested by many departments.	H	\$0	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000

Technology Master Plan Budget

Initiative No.	Technology Initiatives	Comments	Priority	Budget Range		FY 2024-2025	FY 2025-2026	FY 2026-2027	FY 2027-2028	FY 2028-2029
				Low	High					
10	Cloud Computing	Continue to move enterprise applications to the cloud. Consider moving Laserfiche to the cloud. Tyler will sunset on-premise versions of their ERP product in this decade.	M	N/A	N/A					
11	Data Availability and Management Solution Best Practice	Best practice for managing data collection and storage.	M	N/A	N/A					
12	Dashboard Preparation and Automation	Review, assessment, and selection of performance dashboard needs.	M	N/A	N/A					
13	Centralized Land and Parcel Data Management	Maintaining consistent data and integrations with GIS.	H	N/A	N/A					
Departmental Applications and Systems										
14	Enterprise Resource Planning (ERP)	Budget for additional vendor support to close functional gaps, implement new modules (if necessary), and end-user training.	M	\$100,000	\$250,000	\$50,000	\$100,000			
15	Human Resources System	Budget for additional vendor support to close functional gaps, implement new modules (if necessary), and end-user training.	H	\$25,000	\$50,000		\$25,000	\$25,000		
16	NEOGOV Improvements	Budget for additional vendor support to close functional gaps, implement new modules (if necessary), and end-user training.	M	\$25,000	\$50,000		\$25,000	\$25,000		
17	Transient Occupancy Tax/Short-Term Vacation Rentals	Implementation in progress to better track Transient Occupancy Tax and Short-Term Vacation rentals.	H	N/A	N/A					
18	Land Management System Improvements	Budget for additional vendor support to close functional gaps, implement new modules (if necessary), and end-user training.	H	\$25,000	\$100,000	\$50,000				
19	Code Enforcement Software	Budget for a needs assessment to close functional gaps.	L	\$25,000	\$50,000					\$25,000
20	Work Order/Asset Management System Improvements	Budget for additional vendor support to close functional gaps, implement integrations (if necessary), and end-user training.	M	\$50,000	\$100,000	\$50,000	\$50,000			

Technology Master Plan Budget

Initiative No.	Technology Initiatives	Comments	Priority	Budget Range		FY 2024-2025	FY 2025-2026	FY 2026-2027	FY 2027-2028	FY 2028-2029
				Low	High					
21	Fleet Reservations Management Software	Needs assessment and implementation of a new Fleet Reservation Management system.	H	Ongoing	Ongoing	\$15,000	\$5,000	\$5,000	\$5,000	\$5,000
22	Police CAD/RMS Improvements	Budget for additional vendor support to close functional gaps, implement new modules (if necessary), and end-user training.	L	\$25,000	\$50,000				\$25,000	\$25,000
23	Police Cellphone Analysis Software Replacement	Budget for a needs assessment to close functional gaps.	M	\$11,000	\$50,000		\$30,000	\$11,000	\$11,000	\$11,000
24	Police Ticketing/Citation System Improvements	Budget for a needs assessment to close functional gaps.	H	\$20,000	\$25,000		\$20,000			
25	Digital Evidence	Needs assessment and implementation of new Digital Evidence Software.	L	\$40,000	\$100,000			\$60,000		
26	Fire RMS Improvements	Budget for additional vendor support to close functional gaps, implement new modules (if necessary), and end-user training.	H	\$20,000	\$45,000	\$45,000				
27	Fire Pre-Planning Software	Software to pre-plan building fires and track inspections.	H	\$30,000	\$60,000	\$40,000				
28	Electronic Content Management System (ECMS)	Citywide document management and records management system. Budget for consultant support to assist the City with transforming its records into digital storage.	H	\$150,000	\$500,000	\$100,000	\$50,000	\$50,000	\$50,000	\$50,000
29	Agenda Management	Support the ongoing implementation of OneMeeting.	H	\$25,000	\$50,000	\$50,000				
30	Contract Management Software	Needs assessment and implementation of new Contract Management System.	M	\$25,000	\$50,000			\$40,000		
31	Digital Signatures Software	Annual subscription and integration. Working to expand digital signature use based on policy.	L	N/A	N/A					
32	New Parks Reservation Software	Needs assessment and implementation of a new Parks Reservation System.	H	\$10,000	\$30,000			\$25,000		

Technology Master Plan Budget

Initiative No.	Technology Initiatives	Comments	Priority	Budget Range		FY 2024-2025	FY 2025-2026	FY 2026-2027	FY 2027-2028	FY 2028-2029
				Low	High					
33	Project Management Software	Needs assessment and implementation of new Project Management Software.	M	Ongoing		\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
34	Contact Management Software	Needs assessment and implementation of a new Contact Management System.	H	Ongoing		\$500	\$500	\$500	\$500	\$500
35	Microsoft Office 365 and Teams	Budget for additional vendor support to close functional gaps and end-user training.	H	\$50,000	\$125,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Smart Technologies										
36	Website Improvements	Budget dollars included for this initiative is for additional services and/or functionality to improve the overall citizen experience and train staff.	L	\$25,000	\$50,000	\$50,000				
37	Request Management Software	Needs assessment and implementation of a Request Management system.	L	\$25,000	\$50,000				\$12,000	\$7,000
38	E-Filing Systems - Public Access	Assessment of needs and potential new software to meet City e-filing and Form 700 needs.	L	Ongoing		\$7,500	\$7,500	\$7,500	\$7,500	\$7,500
39	Mass Outbound Communications System	A mass outbound communication system is recommended to improve communications for reverse-E911 and non-emergency events.	H	Ongoing		\$25,000	\$25,000	\$26,000	\$26,000	\$27,000
40	E-Billboards	Needs assessment and implementation for eBillboards.	H	\$125,000	\$140,000	\$130,000	\$25,000	\$25,000	\$25,000	\$25,000
41	Centralized HVAC Monitoring/Management System	Needs assessment and implementation of a Centralized HVAC Monitoring system.	M	\$50,000	\$100,000			\$20,000		
IT Infrastructure										
42	Building, Door, and Gate Access Control	Needs assessment and standardization across the City.	M	\$15,000	\$60,000		\$40,000	\$40,000	\$40,000	\$40,000
43	Computer Equipment Replacement Planning	PC and MDC replacement, Telco/Server UPS Replacement	H	\$900,000	\$1,100,000	\$152,000	\$152,000	\$277,000	\$152,000	\$152,000
	EOC laptops, EOC projector setup	EOC laptop replacement and projector	M	\$40,000	\$75,000		\$45,000			
44	Firewall Upgrade	Cybersecurity improvements	M	\$50,000	\$75,000			\$65,000		

Technology Master Plan Budget

Initiative No.	Technology Initiatives	Comments	Priority	Budget Range		FY 2024-2025	FY 2025-2026	FY 2026-2027	FY 2027-2028	FY 2028-2029
				Low	High					
	Managed Detect and Response	Cybersecurity improvements	H	\$106,000	\$150,000	\$109,000	\$86,000	\$86,000	\$86,000	\$86,000
45	Council Chambers Audiovisual Upgrade	Improvements to council chambers audiovisual technology.	H	\$150,000	\$250,000		\$350,000			
46	Server Upgrades	Upgrade server hardware, operating systems and SQL. Last replacement 2021	M	\$400,000	\$550,000		\$55,000		\$450,000	\$60,000
47	Network Upgrade	Improve network documentation. Switches, Routers, Wi-Fi. Increase segmentation. Last replacement 2018.	M	\$400,000	\$600,000			\$580,000		
48	Fiber Optic Master Plan	Work with third-party to prioritize implementation of fiber connections to City facilities. Need fiber infrastructure master plan.	H	\$0	\$200,000	\$150,000				
49	Public Wireless Network (Wireless Expansion)	Replace Spectrum wireless with City-owned wireless in parks. Dependent on fiber installation.	L	\$100,000	\$200,000				\$50,000	\$50,000
50	Internet Bandwidth	Diversify City internet between City Hall and offsite backup location (future Disaster Recovery facility).	H	\$10,000	\$25,000		\$25,000			
51	Office 365 Software Upgrades	Upgrade to M365 G5, move shared directories to SharePoint. Investigate InTune for endpoint management.	H	\$500,000	\$600,000	\$175,000	\$175,000	\$200,000	\$200,000	\$200,000
52	Public Safety Vehicle Communications	Dual-simm modems and dual cellular service to improve field communications	H	\$250,000	\$300,000	\$79,200	\$68,700	\$31,200	\$31,200	\$31,200
53	Public Safety Radio System	Police and Fire are moving to Riverside County Public Safety Emergency Communications (PSEC) system.	H	\$750,000	\$1,100,000	\$369,545	\$370,239	\$370,965	\$371,729	\$372,532
54	Public Safety Video	Upgrades existing cameras and increase storage. Implement video at each Park.	M	\$750,000	\$1,000,000	\$50,000	\$645,000	\$320,000		
	Laserfiche SaaS	Migrate to Laserfiche Cloud	M	\$60,000	\$150,000		\$90,000	\$60,000	\$60,000	\$60,000

Technology Master Plan Budget

Initiative No.	Technology Initiatives	Comments	Priority	Budget Range		FY 2024-2025	FY 2025-2026	FY 2026-2027	FY 2027-2028	FY 2028-2029
				Low	High					
	Tyler SaaS	Migrate Tyler Systems to SaaS	M	\$200,000	\$300,000		\$210,000	\$210,000	\$215,000	\$215,000
Cybersecurity										
55	Audit Logs and Log Management	Regularly monitor logs using existing tools.	H	N/A	N/A					
56	IT Cybersecurity Best Practices	Engage third-party SME to assist in implementing Network Access Control solution.	H	\$10,000	\$25,000	\$15,000				
57	Backups	Implement cloud-based backup solution.	H	\$200,000	\$300,000	\$60,000	\$60,000	\$60,000	\$66,000	\$66,000
58	Disaster Recovery Planning and Business Continuity Pa	Update disaster recovery plans. Develop business continuity plans. 1) Utilize secondary City site for PD. 2) Cloud based recovery City Hall.	M	\$10,000	\$40,000	\$40,000				
59	Disaster Recovery Site Implementation	Implement PD secondary site DR.	H	\$175,000	\$300,000	\$100,000	\$75,000	\$100,000		
60	IT Security Assessment	Best Practice to conduct IT Security Assessment every 3 years.	M	\$50,000	\$70,000	\$25,000			\$35,000	
61	Records and Data Retention	Investigate Email archiving options and procure. Eliminate use of .PST files and zip files for off-boarded accounts.	M	\$150,000	\$200,000	\$30,000	\$30,000	\$30,000	\$32,500	\$32,500
IT Operations										
62	Identity and Access Management	Develop city-wide policies and procedures for onboarding/offboarding. Expand use of single sign on. Expand use of MFA.	H	\$0	\$10,000	\$5,000				
63	IT Policies and Procedures	Develop library of IT policies and procedures.	H	\$10,000	\$15,000	\$15,000				
Telecommunications										
64	VoIP Phone Improvements	Functionality improvements and training.	M	\$10,000	\$15,000		\$15,000			

Technology Master Plan Budget

Initiative No.	Technology Initiatives	Comments	Priority	Budget Range		FY 2024-2025	FY 2025-2026	FY 2026-2027	FY 2027-2028	FY 2028-2029
				Low	High					
65	VoIP System Upgrade	Conduct RFP and move VoIP to cloud.	M	\$300,000	\$400,000		\$35,000	\$130,000	\$96,000	\$96,000
						\$2,052,745	\$2,944,939	\$2,935,165	\$2,102,429	\$1,699,232

*Other Funding Sources (Funded, Planned and/or Estimated)										
PEG Fund	Offset Council Chambers AV Upgrade						350,000	-	-	
Permit Technology Fees	Use for Land Management related improvements.						210,000	210,000	215,000	215,000
IT Budget	Backup system					60,000	-	-	-	
Website Improvements	Funded					50,000				
PD Budget	PSEC Radios					325,893	-	-	-	
Agenda Management	Funded					25,000	-	-	-	
						\$460,893	\$560,000	\$210,000	\$215,000	\$215,000
						\$1,591,852	\$2,384,939	\$2,725,165	\$1,887,429	\$1,484,232
									5-Year Totals	\$10,073,618

Technology Current State Assessment

June 2024



Cathedral City

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Best Practices are methods recognized as consistently providing better results than other methods. The following best practices will enhance the City’s ability to select, procure, and maintain more effective solutions in the future and improve overall staff productivity.

1. Technology Governance
2. Applications Management Best Practices
3. Software Needs Assessment Best Practices
4. Business Process Reviews
5. Software Selection Best Practices
6. Enterprise Applications Implementation Best Practices
7. IT Project Planning and Implementation Best Practices
8. Enterprise Reporting Best Practices
9. User Training and Support
10. Cloud Computing
11. Data Availability and Management Solution Best Practices
12. Dashboard Preparation and Automation
13. Centralized Land and Parcel Data Management



1. Technology Governance

Background

Technology Governance

Traditionally, key technology decisions are made by IT professionals and a select few organization managers. This approach does not always ensure the most effective delivery of technology to stakeholders (all departments and constituents). Modern technology governance can provide a collaborative forum for major decisions, planning, internal communication, and department staff training. Technology governance can also provide a methodology for stewardship of technology resources on behalf of the stakeholders who demand a benefit.

Steering Committee

A Technology Steering Committee is composed of a group of employees and managers representing a cross-section of the organization's leadership, departments, and disciplines who assist in providing long-term direction for an organization's technology resources. This committee can assist and facilitate the prioritization and focus on the development of organizational concepts and planning. Some specific responsibilities may include:



- Identifying and developing technology initiatives and projects
- Assisting with prioritization of technology initiatives
- Monitoring the Technology Master Plan and projects' progress
- Providing a forum for lessons learned during the implementation of technology projects
- Conducting an initial review of technology-related projects requested by individual departments
- Reviewing and providing feedback on long-term, unresolved Help Desk issues
- Reviewing and assisting with the implementation of technology standards and policies
- Providing support for technology across the organization

Implementation of a technology governance methodology can be an effective forum for departments to become more knowledgeable about technology and how it can be used to enhance customer service, ensure the effective use of technology and the organization's technology budget, and create efficiencies throughout the City's business processes.

Findings and Observations

- Prioritizing projects across departments will be critical to the success of IT.
- The implementation of the committee structure will provide an opportunity for City departments to collaborate on future technology use and application needs that will improve their day-to-day operations and constituent services.
- A committee structure will ensure that technology issues, needs, and investments will have a formal identification process and a mechanism for making transparent investment decisions.

Recommendations

- Implement a Technology Steering Committee to discuss technologies, recommend priorities, assist in policy implementation, and increase communication within the City and department staff
 - ◆ Develop a Technology Steering Committee Charter and establish a periodic meeting schedule
- Utilize the Technology Steering Committee as the initial forum for departments to propose and present new technology-related projects
 - ◆ Assure best practices are followed and applied to the review, selection, approval, procurement, and implementation project management of approved projects
 - ◆ Assure ongoing application maintenance and support meet department needs
 - ◆ Discuss ongoing security concerns and security awareness initiatives
- Continue to utilize the Technology Steering Committee to assist with:
 - ◆ Communicating significant changes
 - ◆ Coordinating application software training needs
 - ◆ Identifying potential improvements in inter-department information flow

Recommended Next Steps

- Develop a Technology Steering Committee Mission Statement
- Identify potential Technology Steering Committee members who:
 - ◆ Can represent their Department and speak to Department priorities
 - ◆ Understand citywide needs and budget constraints
- Develop and implement a Technology Steering Committee focused on:
 - ◆ Adjusting priorities based on limited IT resources
 - ◆ Annual IT initiative/project review and prioritization
 - ◆ IT policy implementation and security awareness
 - ◆ New project reviews and feedback
 - ◆ Lessons learned from ongoing projects
- Ensure representation of all/most departments on the Steering Committee for regular technology-based communication, ongoing education, and continued collaboration
- Monitor and discuss active initiatives and projects at each Committee meeting
- Form sub-committees, as appropriate
 - ◆ Consider a GIS subcommittee to focus on developing a strong citywide GIS program

Benefits

- Increased transparency, responsibility, and accountability
- Prioritization of initiatives
- Improved compliance and consistency
- Enhanced communication and collaboration
- A higher degree of business and technology alignment
- Widespread personal and professional growth

2. Applications Management Best Practices

Background

Many agencies underutilize their software systems, resulting in a loss of productivity due to manual processes, inefficient workarounds, and ineffective or unnecessary reconciliations. Additionally, most agencies do not have sufficient resources in their IT organization to document operational requirements for applications and business processes. Identifying additional application improvement opportunities requires prioritizing and evaluating alternative solutions and identifying sufficient implementation, ongoing management, and support resources. Successful projects spread responsibility between department subject matter experts, other stakeholders, and the technical team. This best practice applies to the system's implementation and ongoing support and maintenance.

Gaining greater utilization of the existing application modules is vital to increasing staff productivity throughout the City. Accomplishing this is often challenging due to limited resources, the diversity of application providers, and the systems in use.

The City can benefit greatly by evolving beyond traditional application management practices. Implementing the following recommendations can lead to improved functionality and system use as well as increased overall productivity, customer service, and transparency.

The roles and responsibilities for application support and management need to be identified and assigned to all departments' operational software. The "Future Application Roles and Responsibilities" matrix recommends a starting point for identifying staff and end-user roles.

The following table is an unofficial inventory of the City's different software applications or modules throughout all departments. Cathedral City currently utilizes over 100 applications, modules, and systems. Major systems include:

Application Functionality	Vendor-Application Name
Financial Management	Tyler Munis
Human Resources Management	Tyler Munis
Payroll	Tyler Munis
Applicant Tracking	NEOGOV
Enterprise Asset Management (Work Orders & Asset Management)	Tyler Enterprise Asset Management
Electronic Document and Records Management	Laserfiche
Land Management System	Tyler Technologies Energov, Permits Plus
Computer Assisted Dispatch/Records Management System	Alliance

Below is a sample listing of the City's applications and modules. This list is not an official or complete inventory.

- ACFR Builder
- Adobe
 - ◆ Acrobat
 - ◆ Acrobat Pro
 - ◆ InDesign
 - ◆ Photoshop
 - ◆ Premiere Pro
 - ◆ Rush
- ARCGIS Pro
- AutoCAD
- Axis Camera Client Station
- BlueBeam
- BlueTeam
- Calphoto
- Carfax
- CDCR Leads
- Cell Hawk
- Cellebrite Physical Analyzer
- Cisco Phone
- City Map (internal program)
- Citymap (GIS)
- CJIS Validations
- Court Notify
- Crossroads T/C
- Crystal Reports
- CVAG signal sync software
- Cyrun – Alliance
 - ◆ Computer Aided Dispatch
 - ◆ Mobiles
 - ◆ Records Management
- Data Ticket (web-based)
- Data Warehouse
- Dig alert app
- Dropbox
- Ecats
- Ekos
- Firehouse
- Flock
- G2 Phoenix
- GasBoy
- GIS Maps
- GIS/ESRI
- Google Chrome
- GoRequest
- GovOutReach (web-based)
- GovQA
- Gray Key
- HDL Property and Sales Tax
- IAPro
- IDIS
- ImageTrend
- InTime
- KnownBe4
- Laserfiche
- Leadtools OCR
- Lexipol
- LINX
- Mail Merge Tool Kit Pro
- Microsoft
 - ◆ 365
 - ◆ Excel
 - ◆ Outlook
 - ◆ PowerPoint
 - ◆ Publisher
 - ◆ SharePoint
 - ◆ Teams
 - ◆ Word
- MinuteTraq
- My Cathedral City
- Neighbors by Ring
- NeoGov Insight
- NeoGov On-board
- NextRequest
- PaperStream Capture
- Permits Plus
- Rapid Deploy
- RapidSOS
- Real Quest (web-based)
- Redbox
- Riverside County Probation
- SSRS / Cubes
- Streetsaver (PMP)
- T Value
- TargetSolutions
- Telestaff
- Time Tracking (excel based)
- TLO
- Training Management System (TMS)
- Trakstar
- Tyler Technologies
 - ◆ 311
 - ◆ Cashiering
 - ◆ Citizen Self-Service
 - ◆ Employee Self Service
 - ◆ Energov
 - ◆ Enterprise Asset Management
 - ◆ Enterprise ERP
 - Accounting
 - Bid Management
 - Capital Assets
 - Cash Management
 - Contract Management
 - Expense Reimbursement
 - Inventory
 - Project & Grant Accounting
 - Purchasing
 - Executime
 - Human Resources & Talent Management
 - Payroll w/ESS
 - Accounts Receivable
 - General Billing
 - Tyler Cashiering
 - eProcurement
 - ACFR Statement Builder
 - Incident Management
- Vector Solutions
- Vesta
- Visio
- Web Universal
- Webex
- Zoom

Findings and Observations

- Both initial and ongoing software training is needed for many existing and future applications throughout the City (see "User Training and Support" initiative).
- Several core applications in the City require further effort to improve utilization and/or possible replacement.
- Key tasks that will lay the foundation for a successful implementation down the line are:
 - ◆ Committing resources from the beginning of an initiative to document business processes
 - ◆ Documenting functional needs for applications
 - ◆ Prioritizing requirements
 - ◆ Evaluating vendor solutions
 - ◆ Assigning the right project team members
- Greater utilization of the City's software systems will significantly increase staff productivity and data sharing.
- The City should identify application support and management roles and responsibilities. Then, assign them to each department's operational modules. We recommend starting with:
 - ◆ Enterprise Resource Planning (ERP)
 - ◆ Enterprise Asset Management (Work Order System)
 - ◆ Land Management
 - ◆ CAD/RMS

Other application systems utilized by multiple or all Cathedral City departments

See the list of major applications above. Identifying capable staff to fulfill the roles and responsibilities for optimizing applications will help the City achieve the goals of the "Applications Management Best Practices" initiative in the future. Examples include:

Process Owner

- Primarily makes final decisions on process policies, procedures, and deliverables for their area of expertise
- May also be responsible for oversight and delivery of daily, weekly, monthly, and annual processes
- Stays current with applicable industry best practices, technology, and application capabilities
- Stays current with existing application vendors' capabilities, offerings, and enhancements

Role Description	Roles and Responsibilities												
	PO - Process Owner(s)	PO - Power User	AR - Application Analyst(s)	RW - Ad Hoc Report Writer(s)	IT - IT Responsibilities (e.g. System Admin. or server support)	MS - Module Stakeholders	FF - Feature Function Reviewer(s)	EC - Evaluation Committee Selection Participants	MS - Module Lead				
Financial Management													
1. Research current staff who is responsible for a given department process or function	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1
2. May also be responsible for oversight and delivery of daily, weekly, monthly, and annual processes	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1
3. Stay current with the applicable industry best practices, technology, and application capabilities	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1
4. Stay current with the applicable industry best practices, technology, and application capabilities	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1
5. Stay current with the applicable industry best practices, technology, and application capabilities	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1
6. Stay current with the applicable industry best practices, technology, and application capabilities	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1
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50. Stay current with the applicable industry best practices, technology, and application capabilities	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1	Name 1

Power User

- Department expert on application/module
- Possesses the greatest knowledge of application/module
- Lead trainer/support person for other department staff that utilize the application/module
- Usually has formal training and is responsible for application configuration setup and changes on an ongoing basis
- Stays current with the applicable industry best practices, technology, and application capabilities
- Stays up to date with current application vendors' capabilities, offerings, and enhancements

IT Roles and Responsibility

The IS Department serves an important role in the implementation and ongoing support of application systems. However, they are not usually operational experts, as described above. IS roles and responsibilities should be clearly defined and complement the skills and knowledge of other project/support team members. Some common IS staff responsibilities include:

- Maintain supporting equipment/peripherals
- Network support and maintenance
- Provide Help Desk support to users
- Perform backups of system data
- Copy/refresh data between development, training, and production databases
- Implement and test security roles
- Database Administration
- Assist with the installation, upgrades, and ongoing maintenance of the application systems

It is important to note that IT staff involvement in supporting and maintaining enterprise application systems is critical. However, they may have limited operational process knowledge and IT resources available.

Consider how users obtain assistance with issues, receive appropriate training, and become proficient in utilizing application systems when defining roles and responsibilities.

The most successful application support infrastructure teams comprise technical and operational staff. While IT staff may serve numerous roles, they are not process owners or power users. Individual departments should take as much responsibility as possible for supporting and maintaining modules used in their primary business operations.

Module/Functional Area Lead

- Responsible for gathering documentation/information and coordinating the activities of other key Module Stakeholders
- Lead participant in reviewing assembled software and business process needs requirements
- Liaises and/or coordinates with department staff, project managers, and vendors
- May also be a feature function reviewer
- Provides feedback or clarifications on software needs
- Lead department implementer for new software module/functionality

Module/Functional Area Stakeholders

- Participate in business process reviews to determine software requirements
- Assist in gathering documentation and identifying department or division needs
- May also provide feedback or clarification on software needs
- Participate in the implementation, testing, documentation, and training of other users

Recommendations

- Consider adding staff to the MIS - IT Department to provide specialized enterprise application support to department users.
- Departments should be encouraged to become more responsible for application setup and configuration changes with the assistance of IT personnel. Provide training if department personnel cannot make these changes. Third-party subject-matter expertise can be helpful for large or complex projects.
- Assign staff-specific roles and responsibilities for each application or module.
- Key assignments should be responsible for understanding industry best practices and solutions as well as taking the lead in continually assessing and inventorying needs.
- Inventory and maintain current and future feature/functions; reporting, training, and support gaps; and lists of improvement needs by software module.
- Consider cross-training department personnel on utilizing report writing tools with proper security access to generate required reports. More complex reporting often requires a specific understanding of database structures in the application, necessitating IT assistance.
- Process owners and/or power users should actively monitor upcoming functionality improvements in new software releases. In addition, it would be helpful if process owners monitored and discussed application usage with other peer cities and entities and incorporated the feedback from inter-city exchanges into the City's systems to improve functionality further and increase usage across the City.

Benefits

- Higher return on software investment from the increased use of application features
- Lower costs and less reliance on vendor assistance
- Less time required by IT staff due to increased user independence.
- Identification of application user roles and responsibilities
- Improved efficiencies and productivity
- Improved customer service

For technology master plans, high-level assessments identify needs and gaps in existing technologies to determine individual project needs. This process results in recommendations to complete more detailed assessments and/or business process reviews of specific application and infrastructure systems (a different project purpose). The technology plan becomes a roadmap for the City to prioritize, budget for, and implement short- and long-term technology strategies resulting from citywide collaboration efforts.

Regardless of the type of assessment needed, some key considerations and resources are needed to succeed. These include:

- Identifying the assessment objective
- Identifying the appropriate resources/stakeholders to conduct and participate in the assessment process
- Determining the level of documentation detail needed to communicate both current and potential future needs
- Developing a plan to implement the findings and recommendations that result from the assessment process



Each of these areas is discussed in more detail in the sections below.

Identifying the Assessment Objective

Always consider the big picture when determining an assessment's objective. The scenario below is an illustrative example:

A City implemented a new ERP system four years ago. While the application met the Finance Department's needs, other departments that utilized different system components struggled and continued to produce reports that required data manipulation using spreadsheets and manual processes.

In this scenario, the Finance Department may not have favored replacing the core enterprise application system. On the other hand, other departments may have been open to evaluating alternative solutions.

Unless it is apparent that the incumbent vendor cannot perform the functions needed or is sunsetting the product, determining the gaps in the existing system before pursuing its replacement is always recommended. This analysis will guide the resulting action plan.

These big-picture items, the detailed feature/function needs, and subsequent documentation can lay the foundation for implementing a new system or replacing the old one, if appropriate. Additionally, detailed needs documentation becomes the foundation for improving or replacing a system.

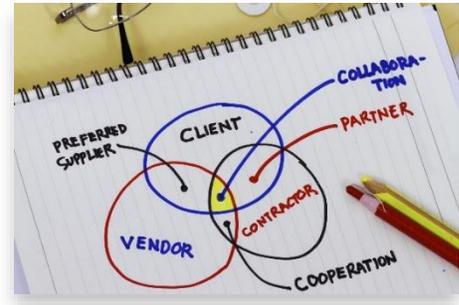
Identifying Stakeholders and the Right Resources

Having the right resources involved in conducting an assessment is critical to achieving the objectives of the process. There are two types of resources recommended:

- The interviewer
- Stakeholders

The interviewer should have business analysis skills, including:

- Analytic thinking
- Good listening
- Problem-solving
- Oral and written communication skills
- General knowledge of the application or processes in question
- Possibly a role in support of the application
- Familiarity with the existing vendor
- Reputation from the end users as a champion for their needs
- Ability to articulate the department's needs in a concise manner
- Ability to lead the follow-up effort with the vendor upon the conclusion of the assessment



Stakeholders' use of the system or role in the process will vary, and their needs may differ. Stakeholders should represent the application end-user community and/or assessment focus.

Identifying and interviewing two key stakeholder groups is important to capture their needs and determine improvement recommendations to address their concerns. The first stakeholder group should represent the department responsible for administering a system or module. Those stakeholders should understand the configuration of the current system or module and some of the application's functional deficiencies.

The second group of stakeholders should consist of cross-departmental end users who may have insights into the day-to-day use of the system or process. Their operational perspective should complement that of the administering department's staff.

Documentation Details and Communication Methods

The assessment type dictates the level of documentation detail needed. A successful assessment process will articulate findings with a recommended follow-up plan.

Various tools and techniques are available to gather the needed information for making recommendations during the assessment process. Some of these tools/ techniques, depending on the type, size, and complexity of the project or system, could include:

- Distributing surveys or information requests to end users and compiling the results
- Conducting workshops as a group to review the results of questionnaire feedback and identify issues
- One-on-one interviews with Power Users and/or subject-matter experts
- Reviewing or observing business processes
- Documenting detail needs as described above

The goal is to achieve collaboration and involvement from the user community without judgment or criticism. In addition, the recommendations made due to the assessment process need to identify useful, realistic, and implementable solutions.

Developing an Improvement or Implementation Plan

Assessment findings and recommendations must be realistic and include a feasible action plan.

If the City has a limited budget or staffing resources, it may not be a realistic recommendation to replace the system at that time. An interim alternative may be to utilize the needs assessment documentation to work with the existing system to set up features not originally implemented or available at that time, set up workflow automation, or improve existing integrations.

If additional training is needed, the assessment should outline all the City's training needs, identify who should participate, and who should conduct research with the vendor regarding the amount and cost of the training. A long-term strategy might also be identified for an ongoing training program to onboard new employees and ensure that software updates/new releases are implemented.

The resources needed to execute the action items identified in the assessment may include executive leadership, a project manager, temporary staffing, training facilities, hardware, data extraction experience, GIS assets, and a change management strategy.

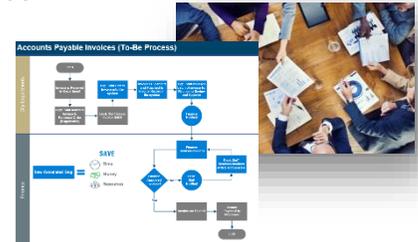
Each assessment will be different depending on the specific objective and project needs. The City should evaluate the skillsets of staff available to lead an assessment and determine whether third-party assistance is needed. The assessment process determines specific requirements and is crucial in optimizing technology investments.

4. Business Process Reviews

Background

A Business Process Review (often called Business Process Improvement) is a method of analyzing and evaluating current processes for:

- Identifying enhancement opportunities and streamlining processes
- Automating manual processes
- Eliminating or dramatically reducing the use of shadow systems and processes
- Eliminating paper, other equipment, and supply costs
- Maximizing the human resources involved in processes
- Embedding or transferring the knowledge of subject-matter experts (SMEs) into the processes and associated workflows
- Optimizing the configuration and functionality of the system to support process improvements
 - ◆ Note that system features, functions, and capabilities can also dictate process improvement opportunities.
- Defining functional requirements for business application implementation, replacement, or improvement projects



Conducting business process reviews and looking for ways to improve productivity are continuous processes. To optimize application utilization, business processes and system configurations should undergo continuous improvement in response to:

- Emergence and introduction of new technologies
- Release of application software updates containing new features, functions, and capabilities
- Changes in law, regulations, or rules
- Changes in the needs and demands of the City's constituents and the public user community
- Unforeseen changes in access to resources or funding
- Changes in business operation processes
- Although process reviews and improvements should be continual, it is most common for process improvement projects to occur:
 - ◆ In preparation for, and during the implementation of, new, replacement, or improvement of business application systems
 - ◆ When new technology becomes available that provides opportunities for additional automation
 - ◆ On a pre-established process review and improvement cycle (e.g., annually)

Business process reviews for complex processes can also include as-is and to-be documentation and diagrams.

Recommendations

- Perform Business Process Reviews throughout the City, breaking processes down by department, division, application module, and finally, the process level (e.g., procurement or cashiering). This should also take into consideration interdepartmental interaction and dependencies.
 - ◆ Conduct business process reviews before implementing new software and major changes to existing platforms.
 - ◆ Begin by analyzing the staff feedback throughout this report to identify high-priority opportunities.

- Conduct Business Process Review efforts in conjunction with evaluating any required business applications.
- City management needs to be aware of the potential need for employee reassignment or redeployment and the operational and emotional effect this may have (see “Workload Transference” concept described below).
- Consider initially utilizing a third-party SME or consulting firm for scheduling, structuring, and conducting the necessary business process review and improvement efforts for large complex projects.

Workload Transference (A Business Process Concept)

As a result of business process improvements, including those that occur during the implementation of new systems, the City’s processes will be changed and streamlined. These changes sometimes require shifting workload (tasks and amount of effort) from one person to another. Even though a particular individual may experience an increased workload, the total work effort for the entire process is reduced. This is called “workload transference” and is why reallocation and change in personnel duties are sometimes required to achieve the potential gains from implementing system improvements. The diagram below represents this principle.

“As Is” Process (prior to new system)



“To Be” Process (after implementation of new system)



Even though Person #1 in the process has an increase of three work units, the work units of the individuals down the process stream have been reduced. The result is a total workload reduction for the entire process stream (reduction of five work units).

Note: It is important to understand that this is an example of a single process. This example represents a reduction of hours and effort, **not a reduction in employee count.**

Benefits

- Improved efficiencies through:
 - ◆ Process enhancements and streamlining
 - ◆ Automation of manual processes
 - ◆ Elimination or dramatic reduction of shadow systems and processes
 - ◆ Elimination of paper, other equipment, and/or supply costs
 - ◆ Maximization of the human resources involved in processes
- Improved utilization of existing systems through reconfiguration and setup, gaining productivity, and achieving better results
- Preservation of institutional knowledge by embedding or transferring staff knowledge into processes and associated workflows
- Maximized investment in software applications and technologies by incorporating process improvements in system workflows, configuration, and setup
- Customized requirements for business application implementation, replacement, or improvement projects

5. Software Selection Best Practices

Background

Selecting the right system and technology is more critical today than ever because the efficiency and effectiveness of the City are directly dependent on its use of technology and information systems. Agencies that follow best practices recognize that they must take greater advantage of automation to meet growing constituent and public demands.

Following best practices while procuring new software solutions can transform an agency's operations, processes, and constituent services. Without proper preparation, planning, and methodology for selection and implementation, agencies face many problems and risks, including:



- Spending sometimes hundreds of thousands of dollars more than necessary in the total cost of ownership
- Failed or prolonged implementation
- Implementation of systems that still do not meet the City's functional needs
- Low productivity
- Poor contract negotiation position
- Lack of and/or reduced integration between other software systems

Agencies typically fall short of their implementation goals due to one or more of the following factors:

- Insufficiently defining system objectives and requirements
- Failing to involve both management and users adequately
- Underestimating the costs and effort required
- Failing to plan for expansion adequately
- Failing to evaluate software properly

The City should utilize a structured analysis and selection methodology to implement key software systems and reap the full benefits properly. A structured approach to selection and implementation results in significant benefits, including:

- Reduced risk of a failed or prolonged implementation
- Lower total cost of ownership
- Independent and objective analysis of potential alternatives
- Well-defined objectives and requirements
- Opportunities for staff and project participants to learn about application functionality and business processes outside of their scope of work that they may not see during their day-to-day tasks



STARTLING STATISTICS

- Only 32% of projects are on time, within budget, deliver all required features and functions, and achieve measurable business and stakeholder benefits.
- Approximately 44% of projects are "challenged" (late, over budget, and/or have less than the required features and functions).
- 69% of project failures are due to a lack of and/or improper implementation of project management methodologies.
- Nearly 40% of those surveyed said that a "lack of employee buy-in and executive support" was the biggest challenge facing a successful implementation.
- A recent customer survey shows that enterprise implementation projects:
 - Have only a 7% chance of on-time implementation
 - Will likely cost more than estimated
 - Will likely deliver unsatisfying results (only 21% will realize half or more of expected benefits)
- In a past study of local government enterprise implementations published in Government Finance Review, it was found that the average project was 176% over budget and 243% beyond the planned implementation timeline.

- Selection of technology that meets the City's short- and long-term objectives and requirements
- Effective contract negotiation through well-prepared and documented needs
- Overall project time savings
- Improved implementation readiness
- Longevity of the system selected for years to come

Findings and Observations

- Software selection and procurements that follow best practices include departmental end-users in the assessment process to capture each business unit's functional needs.
- A best practices approach to software selection can avoid thousands of staff labor hours performing tasks that modern enterprise systems can automate and/or streamline.
- Following selection best practices, beginning with an assessment, streamlines processes and consolidates siloed systems into a fully integrated enterprise system.

Recommendations

- We recommend that the City adopt these best practices when initiating the search and procurement of application software. Larger, more complex projects generally require more due diligence. However, even small projects can benefit from these methodologies.
- Utilize best practice selection methodology when evaluating new software.
- Consider third-party subject-matter experts (SMEs) when selecting or improving complex or highly specialized solutions.
- For major enterprise-level systems:
 - ◆ Complete process reviews and document detailed feature/function specifications as part of an RFP.
 - ◆ Include cross-function stakeholders in each software evaluation and implementation project by module (e.g., budgeting should include all staff who participate in that process; fixed assets should only include staff who participate in that process).
 - ◆ Identify all reporting needs.
 - This will help inform implementation decisions to capture all data and fields required to create a report.
 - This focus can save significant implementation and system costs.
- For department-specific applications:
 - ◆ Develop a high-level application requirements inventory.
 - Requirements do not have to be as detailed as an enterprise-level system.
 - This allows the City to structure software demonstrations to show functionality relevant to the departmental end-user.
 - ◆ The identified functionality and associated costs may be shared among two or more departments. For example, Public Works, Development Services, and Recreation may all use Project Tracking and Collaboration.
 - This is also an effective way to build a business case for the new applications.

Benefits

- Reduced preparation time for deployments
- Better identification of integration requirements
- Reduced license fees
- Increased utilization of application systems
- More effective due diligence
- System functional alignment with overall City goals
- Higher probability of having a successful implementation

Example Work Plan

Step	Software Selection Workplan
Project Coordination and Management	
1	<p>Project Coordination and Management - Finalize the project work plan and timelines and arrange communications, logistics, and support. Schedule various meetings with personnel from each functional area to review and discuss existing and future information system needs. Provide ongoing project coordination and status updates. The project manager will:</p>
	Act as a liaison between the executive stakeholder team, project team, vendor(s), and City staff
	Develop and manage a comprehensive project plan, detailing project stages, milestones, and resources
	Manage the Change Management Process with oversight from the City's Executive Project Steering Committee
	Develop a communications plan, and provide monthly executive/project status reports, detailing any key decisions, issues, and action items
Phase 1 - Project Team Development and Kick-off	
2	<p>Project Initiation and Project Team Development - Develop and finalize the makeup of the Project Team, -documenting required roles and responsibilities as well as ensuring representation from all key stakeholder groups. Follow "Enterprise Application Support and Management Best Practices." This will include the following steps:</p>
	Development of a Project Charter
	Establish a project management office (PMO), per Project Management Institute (PMI) best practices
	Develop Module/Functional Area Teams based on <i>Enterprise Application Management and Support</i> best practices. These Teams will also be utilized during the actual software implementation. They should include cross-function stakeholders/users from multiple divisions and departments, as appropriate.
	Assist with educating Project Team and Module Team members on defined roles and responsibilities, facilitated through the completion of forms and gathering of information for use in workshops, including background concepts, instructions, and finalization
	Conduct a formal Kick-Off Meeting to officially start the project and provide an overview of the project to the Project Team, Module Team members, and other engagement participants

Step	Software Selection Workplan
Phase 2 - Assessment and Process Reviews	
3	<p>Needs Assessment Questionnaires/Information Requests - Develop tailored assessment questionnaires and information requests related to existing and future information system needs to be used during the discovery process. Questionnaire results will be utilized to guide the business process reviews by module/function, including automating manual processes, streamlining others, improving integrations, and identifying unmet reporting needs.</p>
4	<p>Business Process Review and Requirements Workshops - Meet with Module/Functional Area Teams to review existing manual and automated systems and operations, including any custom-developed workaround systems or processes. Change management and best practices for vendor selection and implementation preparation should be addressed throughout all workshops. Workshops should also identify deficiencies in current processes and establish expectations for improved design and efficiencies in a modern software solution. Also, include documentation of all other system integration and data conversion requirements.</p>
5	<p>Software Functionality Requirements Documentation - Review information gathered during the process reviews and develop system requirements (software feature/function requirements) specific to the City's needs.</p>
6	<p>System Functionality Requirements and Documentation Revisions - Incorporate and revise the process review and requirements specification documents by incorporating reviews and feedback from the various Module/Functional Area Teams.</p>
7	<p>IT Information Meetings and Interviews - Conduct information-gathering activities focused on the ability of the existing IT staff and infrastructure to support the needs of the new system and review the readiness to implement and support the platform that will be required for the new software system, including:</p>
	IT Network and Infrastructure
	Storage and Backups
	Servers, Server Applications, and Management
	Cybersecurity
	Disaster recovery
	Desktop environment
	Document information and summarize the required preparation initiatives, findings, and recommendations
	Prepare a memo assessing gaps and the readiness of IT infrastructure to support the City's general needs and the introduction of the new software system. The memo is to include the following:
	General readiness of IT to support the City's new system needs and support the introduction of a new software system
	IT Initiatives with findings and recommendations, including the following scope:
	IT Environment and Infrastructure
	IT Applications Support Staffing Structure

Step	Software Selection Workplan
8	Assessment and Recommendations Reporting - Based on the information gathered and analysis performed, prepare an assessment/gap analysis report and presentation documenting current processes, with recommended improvements and future needs, including:
	New System Opportunities and Existing System Challenges
	Findings and Recommendations
	New-Solution Requirements
	Integration Needs
	Conversion Requirements
	Implementation Risk Assessment
	Budget, Resource, and Timeline Considerations
Phase 3 - Develop Request for Proposals (RFP)	
9	Preliminary Vendor Communication/Research - Research and prepare a list of pre-screened information system vendors and their contact information, based on the assessment process and new system requirements. The objective is to identify vendors specializing in government agencies with the application modules for future needs already in use in the industry. Vendors do not respond to all RFPs, so pre-communication is helpful to obtain proposals that are in the City's best interest.
10	Develop Request for Proposals (RFP) Documents - Prepare Request for Proposal (RFP) or Bid documents. RFPs should include, but will not be limited to, the following:
	Project objectives and process
	Evaluation criteria
	Proposal forms and supporting information
	Software feature function compliance
	Vendor software support, reference ability, and reputation
	Reporting capabilities and ease of use
	Modern technology utilization
	Customer base similarities
	Cost (proposals for SaaS/cloud and on-premise options, professional services, third-party integrations, and conversions)
11	RFP Issuance and Facilitate Vendor Response Activities - Facilitate pre-proposal vendor response activities, including:
	Manage vendor questions and answers during established proposal response timelines
	Assist with required RFP addenda

Step	Software Selection Workplan
Phase 4 - Vendor Proposal Evaluation and Finalist Vendor Selection	
12	Vendor Proposal Evaluations - Analyze and evaluate proposal responses. Provide an initial Summary Vendor Comparison Worksheet and Vendor Executive Summary Analysis Memorandum that provides side-by-side comparisons of key system evaluation requirements, including feature/function compliance statistics.
13	Vendor Analysis Workshop to Determine Vendor Finalists (Short List) - The Project Team and Executive Project Steering Committee should conduct an analysis results workshop that includes the review of the Vendor Comparison Worksheet and Vendor Executive Summary Analysis to determine a short list of vendors to provide comprehensive software demonstrations.
14	Develop Demonstration Documents, Agenda, and Coordination - Develop documents, including an agenda and sample guides for vendor demonstrations. Send these documents to vendor finalists for their preparation. Also, prepare Vendor Demonstration Evaluation Forms for use by all participating City staff during demonstration sessions.
15	Facilitate Vendor Demonstrations - Schedule demonstration dates and facilitate initial vendor demonstrations to address applicable requirements. City personnel should evaluate vendor demonstrations using Demonstration Evaluation Forms.
16	Post Demonstration/Visit/Reference Check Due Diligence and Follow-up - Conduct/facilitate additional finalist vendor(s) follow-up issues and due diligence. This may include additional demonstrations, Q&A facilitation, reference checking, and site visits. Also, prepare a form to be used by Project Team members to conduct finalist reference checks and/or calls and a Site-Visit Form for City personnel to use during site visit(s). IT should also review the technical requirements in the selected vendor's proposal and prepare a memo outlining observations and recommendations.
17	Facilitate Final Vendor Selection - The Project Manager should meet with the City's Project Team and the Project Executive Steering Committee to facilitate discussion and finalize the vendor selection. The Vendor Demonstration Evaluations, combined with additional due diligence analysis, should be used to facilitate finalist selection.
Phase 5 - Implementation Plan Review Contract Negotiations	
18	Implementation Plan (SOW) Review - Review and finalize the Statement of Work, Implementation Schedule/Plan, Project Management Office, resource requirements, and timelines.
19	Contract Review and Negotiation Assistance - Review vendor contract documents and negotiate terms and special requirements, including legal representation. Consider using a Best and Final Offer (BAFO) approach when finalizing costs.

Example Feature/Function Specifications

Application	Feature Number	Feature / Function / Capability	Standard - Current	Standard - Next	Report Writer	3rd-Party Application	Custom Modification	Not Available	Comments
Application	Number	Requisitions and Purchasing							
PUR	4.024	PURCHASE REQUISITIONS							
PUR	4.025	PRODUCT CATEGORIES - Allow for the user to define product categories.						1	
PUR	4.028	PURCHASING REQUISITIONS - Ability to support online, real-time requisitions with the following minimal information:						1	No online capabilities accessibility via Cloud
PUR	4.067	STANDARD COMMENTS - Ability to print standard comments on a requisition or Purchase Order.	1						Purchase Order
PUR	4.068	REQUISITION – VENDORLESS ENTRY - Provide the ability to enter a requisition without a vendor.						1	
PUR	4.070	PURCHASE ORDER PROCESSING							
PUR	4.106	ATTACHING DOCUMENTS AND IMAGES TO PURCHASE ORDER - Allow for the transfer of attachments from originating requisition.						1	
PUR	4.107	PURCHASING - P.O. / REQUISITION STATUS - Provide for the ability to view requisition and purchase order status at all stages of the requisition through payables process.	1						
PUR	4.109	CLOSE PO WITH OPEN AMOUNT - Ability to close purchase orders within agency-defined dollar amounts, with ability to override that closing.	1						Change Orders
PUR	4.114	EMAIL POs - Ability to automatically or manually send purchase order via email to vendors individually or in batch.	1						
PUR	4.115	EMAILING PO WITH ATTACHMENTS - The system has the ability to email attachments with a purchase order, with the ability to prompt users before doing so.						1	
PUR	4.129	ENCUMBRANCE ACCOUNTING							
PUR	4.131	ENCUMBRANCE ACCOUNTING - Provide all procedural functions of an encumbrance system, including verification of budget availability before accepting invoice, requisition and purchase order transactions.	1						
PUR	4.164	INTEGRATION							
PUR	4.165	INTEGRATION - GENERAL LEDGER - Provide for the encumbrance of related general ledger accounts for a purchase order transaction.	1						
PUR	4.168	INTEGRATION - BUDGET - Provide capability to validate funds availability for requisition and purchase order transactions, with the ability to override capability.	1						
PUR	4.169	INTEGRATION - PROJECT ACCOUNTING - Purchase order transactions coded to projects must integrate with Project Accounting and/or Work Order Management systems.	1						
PUR	4.170	INTEGRATION - ACCOUNTS PAYABLE - Provide for automatic transfer of purchasing information to Accounts Payable (e.g., vendor, address, amount, purchase order number, etc.)	1						

6. Enterprise Applications Implementation Best Practices

Background

Implementing a new system can be challenging, particularly when a City's staff has not gone through the process for a long time, if at all. To complicate things further, City staff have other "day job" responsibilities, limiting time for overseeing project tasks during implementation.

Many Agencies are skeptical about whether any project can succeed based on past experiences. The result of a poorly implemented system is frustrated end users, and the benefits once hoped for in a new system are unrealized.

This does not have to be the case. It is possible to successfully implement a new system or reimplement an existing system with the proper planning and utilization of proven implementation best practices.

Successful projects have several common elements that contribute to their success:

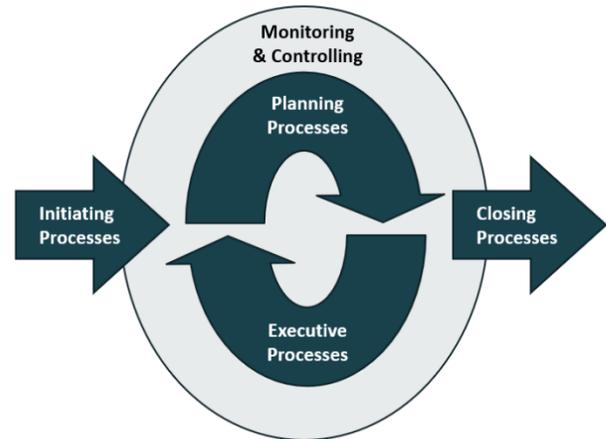
- Clearly defined goals and objectives (Project Charter)
- Adequate and inclusive resource allocations (Resource Management)
- Adherence to implementation best practices and utilization of well-established Project Management methodologies (Comprehensive Project Management Plan)
- Adequate budget to accomplish goals and objectives
- Clearly defined scope of deliverables (Scope Management Plan)
- Defined and well-executed change management strategies to assist in end-user adoption and provide adequate training (Resource and Change Management Plan)
- Executive Sponsor engagement (Top-level support and communications)

All these elements are important to the overall success of a project and achieving the objectives and goals set forth when implementing a new system, especially major enterprise application systems.

A clear vision of the desired goals and objectives should be documented and communicated to stakeholders impacted when a project begins. This phase is called Project Initiation and Planning and begins by establishing a Project Charter.

Project Initiation Phase

The initiation phase of a project is an important step when formulating the business case and authorization to begin a project. For any typical technology project, this process begins with developing a project charter and assessing the impacted groups (stakeholders). The project charter becomes the roadmap toward success, which begins during the selection process. A common mistake is assuming that project initiation begins when starting the project implementation. The process begins much sooner during the assessment/vendor selection period. It is during this time that a City identifies the specific functional requirements needed and what the overall objectives and goals are for the project.



The purpose of a project charter is to outline the goals/objectives of a project and to identify the budget, deliverables, timeline, and resources needed to meet the stated goals. Specifically, the project charter includes the identification of the following:

- Project definition and stakeholders impacted
- Identification of project sponsors, who in turn give project oversight authority to the project manager
- Preliminary scope and estimated timeline
- Business objectives and success measurement metrics
- Project budget

In addition, the project charter is also the tool utilized to receive executive sponsor buy-in and authorization to proceed with the project as outlined.

Once the City authorizes the project and develops the initial project charter, the City's designated project manager will continue to work with staff to develop the detailed components of the project management plan during the project planning and initiation phase.

Project Planning Phase Knowledge Areas

The planning phase of a project plays a critical role in its overall success. During this phase, the team lays out each plan component to account for the time, budget, and scope constraints. Below is a brief description of tasks for each knowledge area.



Scope Management Plan

A Scope Management Plan begins with collecting the requirements needed to meet the project's business objectives. Depending upon the project type, this process usually begins with needs assessment activities, such as process reviews, workshops, interviews, surveys, and observations, to document the City's operational business needs, departmental impacts, and resources needed for the project.

Identifying and documenting the project scope as early in the process as possible is important. Scope changes will likely impact other project dependencies such as budget and timeline. In addition, the project scope will impact the choice of vendor solution.

If the vendor selection process includes a thorough assessment and the development of detailed feature/function requirements, the City will be much further ahead in this process during implementation. The goal then becomes communicating and clarifying the intent with the vendor and making the applicable configuration changes in the new system to meet these needs. This will reduce the need for frequent change orders and potentially costly budget increases.

Time (Schedule) and Resource Management Plans

A baseline schedule that considers the available resources and required activities is determined based on the identified project scope. These plans include the following activities:

- Define specific activities/actions needed to meet deliverables
- Define the sequence of activities to be completed and identify interdependencies
- Estimate activity resources (quantity, duration, schedule availability)
- Develop a baseline project schedule

As mentioned earlier, resources chosen to participate in project activities are critical to the project's success. Many people assume that the IS Department should run a technology project. IT staff support the individual departments and guide infrastructure and integration. Still, they are not necessarily experts on what each department does daily in their business operations and workflows. There are some exceptions, but it is not the standard in today's world of doing more with less. Including power users and subject-matter experts (SMEs) from all impacted functional areas on the project team is important. These individuals will play a critical role in identifying old and new business practices/workflows and, ultimately, the configuration of the new system to meet the needs of their respective departments. This should be a collaborative approach, and staff from all levels should be involved so that one person does not make all the system setup decisions.

Enterprise Software Needs Assessment Roles and Responsibilities										
PO = Process Owner(s)		AA = Application Analyst(s)		FL = Application Area Functional Lead (Liaison/Coordinator)						
FF = Feature Function Lead Reviewer(s)		RW = Ad hoc Report Writer(s)		FF = Feature Function Reviewer(s)						
AC = Application Champion(s)		IT = IT Responsibilities (e.g. System Admin. or server support)		NP = Needs Assessment/Software Selection Participants						
				U = List of all users of the module by name						
Financial Management										
General Ledger (includes Bank Reconciliation)	Budgeting	Project and Grant Accounting	Purchasing and Requisitions	Contract Management	Accounts Payable	Accounts Receivable	Cashiering and Online Payments (Cash Receipts)	Fixed Assets	Financial Reporting	Ad Hoc Reporting
FF =										
AC =										
AA =										
RW =										
IT =										
FL =										
FF =										
NP =										
U =										

Through a collaborative effort, configuration choices will be more deliberate to achieve productivity efficiencies, resulting in higher adoption of the new system by end users.

The experts in business operations are the power users within the individual departments. These users need to be involved and take ownership of the new system. They need to be involved in the configuration choices of the new system, the testing and documentation of new processes, and the training/mentoring of end users.

It is critical to identify this team of power users and module leads early on, what role they will play on the project, how much time they can allocate, and strategies for backfilling the gaps to cover normal business activities during their absence. Completing a roles and responsibilities matrix is the first step in determining the necessary resources to complete the project. This process goes hand-in-hand with determining the overall project schedule. If no one can spend time on the project completing tasks that are required, the project timeline will continually get pushed back, and the project costs to complete it will increase. The overall project schedule should realistically reflect the resources available to complete tasks.

Note: The amount of vendor involvement in the system configuration varies. Most vendors train the City to use the tools and complete the configuration. Therefore, it should not be assumed that the vendor will do this work for your City. Allocating resources and time to the project are necessary.

Risk Management Plan

A risk management plan aims to identify potential risks, assess the impact of the risk on the project, and determine potential mitigation strategies to address each identified risk. Risks should be identified early for enterprise system projects to avoid major delays and budget overruns. Some risks have more substantial impacts on a project and require aggressive actions. In contrast, others are low-impact risks that only require monitoring and awareness. The goal of the risk management plan is to be proactive in dealing with potential issues on the project and adjusting accordingly to the overall project management plan.

Cost Management Plan (Budget)

The Cost Management plan builds on the initial scope and resource plans. There is a direct correlation between time, scope, and costs for every project, commonly called the Project Manager's Triple-Constraint Triangle. This theory maintains the presumption that an adjustment to one of these areas will have a positive/negative effect on the other elements within the constraint triangle. For example, extending the project schedule directly impacts the project's cost.

Thoroughly analyzing requirements and project scope during the planning phase avoids significant budget overruns later in the project. It also allows for contingency planning as part of the project risk assessment.



Quality Assurance Plan

A Quality Assurance Plan containing detailed test plans is not just nice but an essential success factor for all project initiatives.

A well-conceived quality assurance process needs to be identified and implemented as part of the overall project management plan to meet the project's business objectives.

Identifying a test plan takes place during the scoping of deliverables. When a City takes the time to identify and document key functional goals and their impact on business operations, this documentation can become the basis for testing these functional areas. The resources assigned to the project also play a critical role in carrying out these test plans and ensuring that the system is ready for end-user training. These resources must thoroughly understand business operations and new procedures that will change in the future. These project team members must be able to communicate these changes to the rest of the City with a high degree of understanding behind the decisions made.

Communication Plan

The Communication Plan deals with the "people side of change" and is integral to any project's success. An inclusive communication plan informs all participants and stakeholders about the project's status, deliverables, and activities. Methods of communication vary, depending upon the audience and stakeholders involved.

Based on the initial stakeholder assessment completed during the project initiation activities, a mutually agreeable communications plan is developed for each project. The plan will identify the means, frequency, and audience of the various types of communication channels desired for the type of project initiated (e.g., bi-monthly status calls, monthly executive sponsor high-level briefings (project dashboards), detailed action item lists, newsletters, and intranet postings).

Execution Phase

The execution phase focuses on deploying and executing each of the previously discussed components of the project management plan.

These activities include day-to-day deployment activities such as installation, configuration activities, development of custom integrations, data conversions, and testing.

Other types of project activities during the execution phase include:

- Completing data conversion mapping and testing
- Completing customizations and configuration of the system
- Developing process documentation and user guides
- Scoping, developing, installing, and testing standard and custom interfaces
- Execution of the communications plan and monitoring of change management initiatives
- Coaching, mentoring, and motivating team members to take positive action and accountability for their assigned work
- Addressing critical issues before, during, and after they may arise to determine contingency/mitigation strategies (risk mitigation)

Monitoring and Controlling Project Phase

While the execution phase of a project is critical to fulfilling the deliverables identified in the contract, failing to adequately system test and prepare for end-user training could nullify all the hard work and efforts during this period.

It cannot be stressed enough how important it is to have a documented test plan, change management plan, and training plan that all fall under this project phase.

Test Plan Guidelines/Recommendations

Successful projects have detailed, structured test plans, ensuring all processes, procedures, data conversions, and configuration work are complete before end-user training. The timing of this testing period is also critical because the system should be "Go Live" ready when proceeding to end-user training.

The last thing a City wants to happen is to expose end users to a poorly tested system during their training and spend most of their first interaction fixing errors. These end users will lose faith in the new system, not see its benefit, and become frustrated that they do not know how to do their job with it.

To avoid this situation, a test plan must be documented and implemented before end-user training with enough time to fix issues identified during its execution.

A successful test plan includes:

- End-to-end testing of every core module
 - ◆ This testing should be scenario-based (how to initiate a report, route to a supervisor for approval, check for validation errors, and finally, lock the final report).
 - ◆ Staff conducting the testing should include all levels of the City, especially key staff performing the functions to receive their input.
 - ◆ After testing each core application, the next step is testing the integration between systems and interfaces. This integration testing should include all project team staff, key subject-matter experts, and possibly other staff that will train end users.
 - ◆ During this testing phase, key process changes should be identified and documented.
 - ◆ In addition to core module and integration testing, all reports and other procedures should be reviewed and tested during this time.

Change Management Plan

Throughout the execution phase of the project, there will most likely be changes identified to the scope, resources needed, project schedule, and potential costs. All these adjustment types should be managed and addressed through a formal, agreed-upon change control process overseen by the project manager.

The success metrics established during the planning phase will also be used to monitor the health and progress of the projects. Project plan documents will be updated and maintained throughout the project's life cycle.

Training Plan

End-user Training takes place after successful testing. Cheat sheets and other procedural change documents should all be prepared and ready to be distributed during training. It is common to have limited vendor training ("Train the Trainer"), implying that the department will need to prepare to train the rest of the City's staff on their own. The Resource Plan for the project will need to reflect this. It is important to select trainers who understand the system's setup, ideally are part of the configuration choices made during implementation, can speak well, and are respected by their peers (Power Users). There is enough time between completing the test plan and proceeding to end-user training so that instructors can prepare the curriculum and materials for this training.

Go Live

If the administering department executes the other phases of the project well, then cutover should be a non-event and go smoothly. Issues will always come up at go live, but they can be greatly minimized by following these best practices.

A cutover plan identifies the vendor and City resources supporting users during and after a cutover. Training materials should be made easily accessible on the City's intranet, and power users should be scheduled to be available to assist with any questions or issues that may come up.

Project Closure

The final phase is Project Closure. On any given project, there are always lessons to be learned and processes identified that could be improved to benefit future initiatives.

This final project phase is an opportunity to compile lessons learned, conduct a final project analysis against metrics established early on, and archive project documentation and supporting materials for future reference.

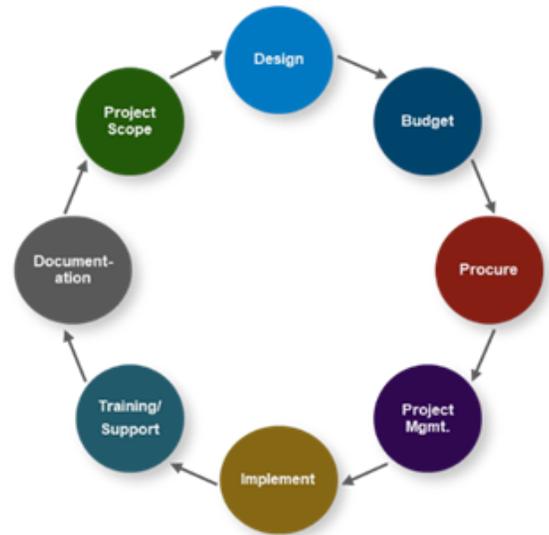
By following these project management implementation best practices, your City will be more likely to achieve the results desired and have a successful cutover in a reasonable implementation time frame. In addition, end users will be more successful in adopting significant business practice changes, ultimately improving productivity, transparency, and customer service.

7. IT Project Planning and Implementation Best Practices

Background

Following best practices for all significant implementation projects is recommended. The complexity and risk determine the actual level of needed due diligence. The following is an outline of IT Project Planning and Implementation Best Practices:

- **Determine Scope of Work** – Work with all stakeholders to determine what needs to be accomplished.
- **Design** – The design effort may become a separate project for larger, more complex projects. For smaller projects, integrate design into budgeting.
- **Specifications** – Include appropriate vendor-agnostic specifications with procurement requests, reducing ambiguity and creating better vendor comparisons.
- **Collaborate** – Include input from each stakeholder group to document all requirements in specifications. This allows all stakeholders to buy into the final solution. The Technology Steering Committee should review as part of the Committee's roles and responsibilities.
- **Develop Budget** – Project budgets include hardware, software, consulting, and subject-matter expert (SME) costs. Estimate consulting costs by outlining the work steps and the required hours.
- **Gain Sign-Off** – Once the budget is complete, review the scope of work and costs with the project sponsor and gain their approval before continuing, including consent by the Technology Steering Committee.
- **Create Project Plan** – Based on all stakeholders' needs, delivery dates, and the necessary tasks, develop a project plan and estimated implementation date.
- **Outline Communication Plan** – Outline the process for communicating implementation dates, improvements, and training to appropriate staff members.
- **Document Other Plans** – Other plans may include training, testing, contingency, and back-out. Develop these plans on an as-needed basis.
- **Configure, Implement, and Train** – Utilize planning methodologies and technical expertise, configure the necessary system components, and implement the solution with the least possible impact on staff and productivity. The Technology Steering Committee should receive status reports on the progress of the implementation, including whether the project is on time and within budget, user needs are being met, and vendors are following through with their contractual obligations.
- **Post-Implementation Review** – Complete a post-implementation review with successes, lessons learned, and any unresolved issues requiring vendor assistance. Report the results of the Technology Steering Committee's review.
- **Post-Implementation Support** – All implementations that affect multiple users require on-site, post-implementation support to eliminate remote response times.
- **Documentation** – Develop any necessary procedures and update documentation as part of the project.



Recommendations

- Develop a project portfolio methodology for all IT and software-related projects.
- Follow planning and implementation best practices.
- Provide project management training for IT staff involved in major systems upgrades.
- Review all major active and upcoming projects during Technology Steering Committee meetings.
- Obtain services of third-party project managers and/or subject-matter experts to supplement internal resources as appropriate and/or cost-beneficial.

Benefits

- Prioritization of projects
- Reduced periods between transitions
- Increased information-sharing capabilities
- Enhanced communication and consensus
- Increased anticipation and management of technology upgrades
- Improved analysis and planning
- Increased departmental collaboration
- Measurement and tracking of results and outcomes

8. Enterprise Reporting Best Practices

Background

Enterprise software applications that support the City's critical business functions and operational processes also store and retain the City's critical information and data.

Following best practices when establishing strategies to meet the City's reporting needs is important. Implementing these reporting strategies will require users to have access to the data and the tools to extract it into a meaningful format.

Reporting tools provide information in many formats, including, but not limited to:

- Traditional rows and columns (tabular)
- Pivot tables
- Graphic, e.g., line, bar, and pie, including dashboard presentation
- Overlay

Ideal reporting systems can also provide the results in an actionable format, including, but not limited to:

- Using analysis tools to apply filters and factors to view and better understand the information
- Using the data to determine options and apply decision criteria (what-if scenarios)
- Sharing and combining data with information from other departments, systems, or even external data sources

To maximize the usefulness of a City's software, the City must be able to extract the needed data from the system through reporting tools. Only then can the full value of an enterprise system be realized.

Findings and Observations

- Reporting is a core business function. Staff across many workshop sessions expressed the need to improve reporting and data sharing and to learn how to produce their reports.
- Many staff do not have the training or knowledge to generate standard, ad-hoc, or custom reports after an unsuccessful effort at training with a third-party consultant.

Recommendations

- The City should conduct a complete inventory of all reports, including shadow system reports, e.g., those compiled in MS Excel or Access for each functional area.
 - ◆ We have included a sample of a report tracking sheet (below) containing the types of information that should be captured. **Note:** *This is only an example. Headings and data fields can be added, changed, or deleted to best meet Cathedral City's needs.*
- Any new application systems under consideration should address current shadow systems or unmet reporting needs. By having the City's reporting needs identified before implementation, configuration considerations can be accounted for to ensure the City captures future business processes and reporting needs in the new system.
- The City should use all available reporting tool options. Potential options for meeting reporting needs are listed below and **in order of preference and priority**. These options often depend on the technology, database, database structure, and development tools the application vendor(s) applied when building their systems.

- ◆ **Dashboard(s)** – Many enterprise application software vendors provide dashboards. Dashboards provide a launching point for the platform. They can also display information that is of interest to the specific user's role. For example, the status of expenditures against budget or the number and types of work orders issued versus completed for a particular time period are just a few examples of potential data to display. These results are often displayed graphically as context-sensitive content, so clicking on the graphic enables drilling down to the detailed information in the application. Users can pin frequently used reports on the Dashboard for quick access and execution.
- ◆ **Vendor Application Standard Reports** – Most vendors provide prewritten reports with the software application. These are reports that the software vendors have determined are most needed or requested by the application user community. These standard reports usually have additional criteria to select, e.g., applying a date range or specifying a particular value type. Some vendors have written these reports using their own report-writing services, such as SSRS, which uses standard reports as a starting point for customization using the vendor's ad hoc reporting tools.
- ◆ **Ad Hoc Reports** – Ad hoc reporting tools allow for the customization of reports without needing a technical skillset. Many report-writing tools are intuitive enough for non-IT-oriented department staff to create customized reports independently. Familiarity with the application and data contained in the system is a prerequisite to using any ad hoc reporting tool. However, any mid- to high-volume application user who is also computer proficient usually has the system knowledge to use an ad hoc reporting tool. As noted earlier, more sophisticated reports may require the assistance of IT staff. Ad hoc reports are a powerful tool for the user community, allowing them to meet their basic reporting needs independently. Typical ad hoc reporting tools that are available include:
 - Application vendor proprietary tools
 - Vendor-incorporated SQL Server Reporting Services (SSRS)
 - Third-party reporting/BI tools (e.g., Crystal, Cognos, and Business Objects)
 - Other non-SQL, server database-specific reporting tools, e.g., Oracle reporting tools
- ◆ **Financial Analysis and Financial Statement Report-Writing Tools** – These reporting tools are a form of ad hoc reporting but include additional capabilities related to financial analysis and financial reporting needs of finance and accounting staff. A few common reporting tools for this need are listed below:
 - A reporting tool developed by the software application vendor for use with their particular application
 - Tools to produce financial reports, like ACFR builders and other tools to produce other GASB-related/required reports
 - Third-party financial reporting tools offered to work with the more common financial/accounting systems in the local government market space
- ◆ **Application Vendor Business Analytics and Key Performance Indicators (KPIs)** – Some application systems have tools for performance-based analytics and other performance measure-related reporting. These often accompany a dashboard with the characteristics described in the *Dashboard* option above. Many of these tools also provide more sophisticated capabilities for exporting to use pivot tables and other advanced capabilities in Excel. Some software vendors are beginning to offer these capabilities as an optional "bolt-on" to their application solutions.

- ◆ **User-Programmed/Coded Reporting** – These are reports built using internal IT staff and could also include hard-coded reports that a vendor may custom-build for the customer. Exploring standard and ad hoc reporting options before turning to this option is recommended. Use coded reporting when the business need is so sophisticated or complex that a coding method is the only way to accomplish the desired outcome. Examples of this type of report include:
 - SQL queries.
 - Other coded/programmed reports.
- ◆ **Application Vendor-Written Custom Applications** – Because of the vendors' detailed knowledge of their systems, they are often a good resource for hiring to write custom reports. It is often best to have several reports grouped together, which will help keep costs more manageable as vendors will provide discounts for larger blocks of hours for these reporting services. It is also a good idea to request that the vendor build these reports using their report-writing tool, if possible, so responsibility for maintaining them can be assumed in the future, as needed, or used as a base to build variant (modified) reports.
- Maintaining a report inventory provides a means for documenting the responsible party(s) and roles of those responsible for reports (user, IT, or vendor). This is in line with "Application Management Best Practices." Identifying those responsible for report creation and development and maintaining the inventory list is important. We recommend that department staff members become engaged in producing reports. This should not solely be an IT function. Department operational staff are most familiar with their business processes and data. We recommend that department staff receive report writing training and gain the ability to develop reports within their functional area.

Report Name	Priority & Reporting Tool Used	Dept	IT	Vendor	Report Options

- Identifying the responsible party is a necessary part of the report inventory process. Each core application will have staff identified who perform certain roles, e.g., system admin, code table maintenance, and report writer. The table below is an example of a roles and responsibilities matrix. Some Agencies use this, or something similar, to identify the roles and responsibilities of department staff when implementing and maintaining their applications. Included among these roles is report writing for each functional area. These individuals responsible for generating reports should be identified for each functional area within the City.

Enterprise Software Needs Assessment Roles and Responsibilities								
PO = Process Owner(s)			IT = IT Responsibilities(e.g. System Admin. or server support)					
PU = Power User(s)			ML = Module Lead					
AA = Application Analyst(s)			MS = Module Stakeholders					
RW = Ad Hoc Report Writer(s)								
ENTERPRISE RESOURCE PLANNING								
General Ledger and Bank Reconciliations	Advanced Budgeting (General, Position, and Capital)	Requisitions/Purchasing	Contracts Management	Accounts Payable	Accounts Receivable	Cashiering	Fixed Assets	Financial & Ad Hoc Reporting
PO =								
PU =								
AA =								
RW =								
IT =								
ML =								
MS =								

- After completing the existing report inventories and identifying Cathedral City's reporting roles and responsibilities as recommended above, an assessment and gap analysis should be conducted to include:
 - ◆ A review of existing reports to determine how well they meet needs, as well as if any modifications are required to meet needs better or provide more value
 - ◆ A detailed list of necessary reports for all departments and divisions. These may include identifying any formatting requirements or Excel export needs and reporting tool options to be applied (per the definitions above). In addition, citywide cross-application reporting needs should be identified, which may require additional processes to combine data from multiple sources using multiple reporting tools and options.
 - ◆ After identifying the department's reporting needs, conduct a workshop to prioritize these reports with the participation of all staffing levels within the City. This would include line and field staff, supervisors, management, and executive leadership to capture all reporting needs across the City.
 - ◆ Define priorities using a High, Medium, and Low scale. Plan for High-priority reports in the first third of the implementation period. Complete Medium-priority reports in the middle third of the implementation period. Lastly, complete low-priority reports in the final third of the implementation period. Use cost-benefit and impact on operations as factors in these prioritizations.

9. User Training and Support

Background

Software systems are tools utilized to conduct daily business operations. Like other tools, becoming proficient in the software's use and ensuring all necessary functionality is key to achieving greater productivity and efficiency, which leads to cost savings.



Findings and Observations

- The City requires proactive vs. reactive training on new systems.
- Staff require additional training and ongoing tutorials or access to tutorial information on systems the City uses.
- Additionally, staff also indicated that when training is provided, few come.
- Staff indicated that training is often too technical and needs to be written for non-IT staff.

Staff Feedback

City Clerk's Office

- Staff needs training on Laserfiche, Adobe, Munis, NextRequest, Microsoft (Excel, Office, Teams, Sharepoint), Adobe Acrobat Pro, Energov, City Map, BlueBeam, Next Request, Trakstar, and GIS/ESRI.
- Everyone needs Munis training, department financials, and all modules in use. Particularly training and dashboard setup for department/division budget management.
- Training for all users on EnerGov.
- Ongoing security training, e.g., sending out fake phishing/spam emails and providing feedback to management on those who click or open suspicious files. Need additional training.

Development Services

- The department needs training in Microsoft (Excel, Office, Teams, Sharepoint), Adobe Acrobat Pro, Energov, City Map, BlueBeam, Next Request, Trakstar, and Munis.

Emergency Services

- The department needs training in Microsoft Excel, PowerPoint, Adobe Acrobat Pro, Telestaff, Vector Solutions, and Alliance Mobile Service.
- Need training on the Excel mapping feature

Engineering & Public Works

- The department requires training in Energov, Munis, Word, Excel, PowerPoint, Outlook, Adobe Acrobat Pro, Bluebeam, Minute Trak, City Map, Gas Boy, IDIS, CVAG Signal Cync Software, Streetsaver, and Executime.

Facilities

- Need additional and ongoing training for Microsoft Office

Finance

- Training is needed on Munis, SSRS/Cubes, Crystal Reports, Microsoft (Word, Excel, PowerPoint, Access, Outlook), Executime, GIS Maps, Laserfiche, Trakstar, Gasboy, and Energov.

Fire Department

- Additional training in Munis (time approvals, time off requests and the associated approvals/procedures, clocking in and out procedure if department is to be affected), GIS mapping, Office 365, and Adobe.

Human Resources

- Staff needs training on Office 365 (Sharepoint, Teams), Publisher, TrakStar, and NEOGOV.

Police

- The department needs training on Microsoft Teams, Zoom, Axis Camera Client Station, Crossroads T/C, Trakstar, Munis, Executime, Cell Hawk, Cellebrite, Gray Key, ArcGIS Pro, and Training Management System.
- The department uses multiple applications, systems, and processes. Not everyone is involved in each application, but some need users to be trained or receive further training.

Recommendations

- We recommend that the City consider hiring a full-time training coordinator.
- Develop a Business Applications Training Plan.
 - ◆ Utilize the Technology Steering Committee to assess the training required to address department needs and determine anticipated enrollment.
 - ◆ Business process improvement reviews will also uncover many needs for additional training across departments and application systems.
 - ◆ Incorporate a formal training plan into the City's new employee onboarding process and utilize technology to assign the training plan to make it easier for new hires to track progress.
- Determine strategies and engage software vendors to accomplish training needs, such as:
 - ◆ Self-learning aids
 - Enterprise software vendors sometimes have online resource portals and an extensive user community where users can query and ask other users questions.
 - ◆ Internal classes
 - ◆ On-site vendor training
 - ◆ Lunch-and-learns
 - ◆ Monthly updated training sessions for both new and existing employees
 - ◆ Application champions/power users
- If available, participate in software vendor user conferences and local user meetings.
- Create a repository of basic how-to training aids and other information (e.g., videos and past class information).
- Consider procuring a screen-capture video solution to assist with developing internal video training aids.



- Consider training as a factor in performance evaluations.
 - ◆ Accomplish this by involving department management and agreeing to the classes each employee would benefit from.
- Consider efforts to reduce and/or limit the total number of software vendors and databases whenever possible.
 - ◆ This will reduce and limit overall cost-of-ownership, support requirements, and training and reporting needs.
 - ◆ This will also improve overall integration capabilities.
- Current and future needs can be evaluated and prioritized through a combination of mechanisms, including the Technology Steering Committee.

Benefits

- Improved operations management
- Improved utilization and efficiency of software applications
- Activation and use of existing functionality that is currently unknown but important to the City
- Review and activation of new functionality provided in future applications software releases
- Increased information sharing
- Better identification of training needs
- Increased training alternatives
- Centralized training, with documentation of who has been trained and when
- Improved software administration (fewer staff members required to service user community)

10. Cloud Computing

Background

Cloud computing can be described as IT services or equipment that are not internal but available through the Internet. This can range from having a server hosted by a third party, accessing information from a portable device, processing requests from the field, subscribing to an Internet-based software solution per a subscription model (often referred to as "software as a service" or SaaS), and more. The benefits of cloud computing allow individuals to collaborate and remain centralized, regardless of location.

Cloud computing is one of the most prominent discussions among current trends in IT. Significant benefits can be achieved, including security, disaster recovery, and cost savings. However, cloud computing options for many systems are still not the most cost-effective or secure approach.

Findings and Observations

- Microsoft 365 is cloud-based.
- The City's Land Management, Laserfiche document management, and financial systems use on-premise servers.
- Staff home directories are in OneDrive, and some department file shares are in SharePoint. The majority of department file shares are located in on-premise servers. The cost of home directory and file share storage is included in the City's Microsoft 365 licenses.
- Microsoft 365 data requires backup to a destination outside of the Microsoft universe.
- The majority of municipal enterprise application vendors are pushing agencies to cloud-based products.
- The use of cloud-based systems often increases IT operational costs while decreasing capital project costs. Cloud systems require IT administration in ways that are similar to on-premise systems. Some cloud solutions have limited functionality when compared to some on-premise, server-based solutions.
- When moving to cloud-based products, the implementation of redundant Internet connections reduces risk.

Recommendations

- The City should continue to strongly consider cloud computing options for future projects.
- Move to Microsoft 365 for file shares. Train staff to use Microsoft 365 file share (SharePoint) tools during implementation. Implement a backup system for Microsoft 365 data. Consider Public Records Act implications of Microsoft 365 chat and develop policy accordingly.
- We recommend that the City move all on-premise applications to the cloud.

11. Data Availability and Management Solution Best Practices

Background

Managing data is a complex and challenging task. There are many different types of data, and they can come from various sources. This can make it difficult to keep track of all the data and ensure that it is accurate and secure. That said, a data management strategy is essential for organizations that want to gain insights from their data and make better decisions. Organizations can improve their data quality, security, and analytics capabilities by addressing the challenges of managing data.

When evaluating the best data management strategy for your City, numerous factors go beyond selecting the right software. Successful data management requires a holistic business strategy that considers the City’s capacity to innovate and grow and your City’s business goals, needs, resources, supporting infrastructure, and available funding.

Common Data Management Options

Many options are available to meet the City’s needs.

Vendor Reporting Tools

In a perfect world, a single vendor solution seamlessly shares data across all enterprise applications. Extracting data from this single data source would eliminate the labor costs of manually compiling data from separate, siloed systems. However, single-vendor solutions do not always meet every department’s needs. To overcome this, multiple vendor applications are implemented and then integrated using file exports or custom interfaces.

Additionally, many vendors provide standard reports and tools such as an Analytics module. They will also provide ad hoc reporting tools like SSRS to produce customized, user-driven reports the City needs.

Other Data Management Options

Other common data management/integration strategies involve one or a combination of data warehouses, data lakes, and data hubs. There are subtle yet distinct differences between these alternatives.

Data Lakes vs. Data Warehouses

Data lakes and data warehouses are both forms of storage for large amounts of data. However, it is important to understand the data types they primarily serve to understand their differences. There are two types of data: structured and unstructured.

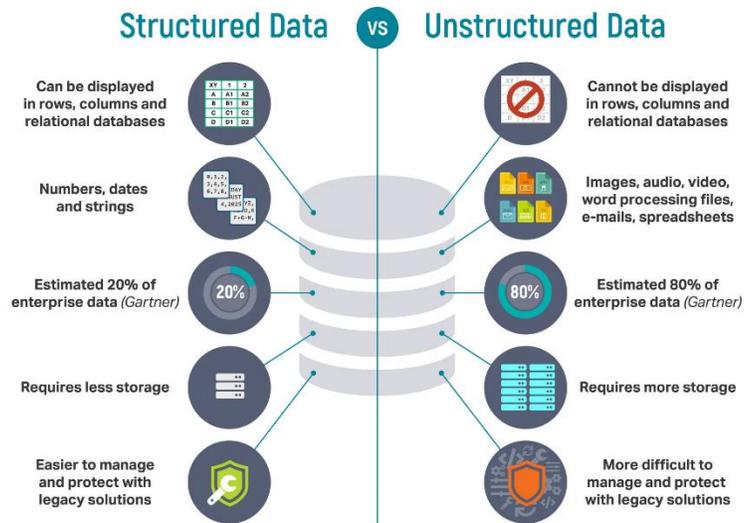
CONSIDERATIONS WHEN EVALUATING YOUR DATA MANAGEMENT STRATEGY

- » Where will your infrastructure be housed? On-premise vs. cloud?
- » What technologies do your customers use to interact with your organization today? What will they use in the future?
- » What users will access which data? How will you ensure they get high-quality data?
- » Does your organization have the technical resources to manage the ongoing demand for data and ensure data quality, security, and regulatory requirements?
- » Is there a current staffing structure in place to support a data management strategy in the future?
- » What standard data management tools are available with the latest application offerings available on the market? Do these tools meet the current and future reporting and integration needs of the organization? If not, what are the gaps and the most cost-effective data integration solutions available to address these shortcomings?

Structured data: Structured data is organized in a predefined way, typically in a table or spreadsheet. This makes it easy to store, manage, and analyze. Structured data is typically stored in a structured format using relational databases.

Unstructured Data: Unstructured data has no predefined data model or structure. Unstructured data is typically text-heavy but may contain data such as dates, numbers, and facts.

A **data lake** is a centralized repository that stores a large volume of data in its raw format. This data can be structured, semi-structured, or unstructured and come from various sources, such as operational systems, social media, and Internet of Things devices.



Data lakes store data that is not yet ready for analysis, such as data that is still being processed or data that is too large to be processed in real time. The data can then be analyzed later when it is needed.

Data lakes offer several advantages over traditional data warehouses. They are more scalable, can store a wider variety of data, and are more flexible. However, data lakes can also be more complex to manage and more difficult to secure.

A data warehouse is a centralized repository of data collected from various sources within an organization. The data in a data warehouse is typically structured and organized to make it easy to query and analyze. Data warehouses are often used for business intelligence and reporting purposes.

The tables traditional data warehouses use can't easily contain newer, semi-structured data types from weblogs, clickstreams, mobile applications, or social media networks. These data types must be transformed into a more structured format for analysis.

Data Hubs

A data hub enables the seamless flow and governance of data. Unlike data warehouses and data lakes, data hubs do not focus on the analytical uses of data. Their focus is enabling data sharing and governance. Data hubs support a range of specific use cases and processes.

Some predominant vendors in the data management market space include:

- Snowflake
- Power BI with Azure Data Lake Storage
- BigQuery
- Redshift
- Hadoop
- Teradata

Recommendations

- We recommend fully implementing core enterprise applications (if replaced or upgraded) and ensuring utilization before exploring options for an enterprise data management system. The data must reside in these systems to be shared.
- To identify the best data management strategy, City staff will need to identify all use cases across the enterprise to determine reporting/analytics needs and the best-suited approach to data management.
- Consider engaging a third party to assess current enterprise systems to assist in identifying opportunities for efficiencies, benefits from new technologies, and current integration/reporting challenges.
- We recommend carefully analyzing long-term storage, licensing, and staffing costs to determine the return on investment to implement a data warehouse/data lake solution. Most agencies can meet most of their reporting needs within modern enterprise application systems that are well-implemented and highly utilized.

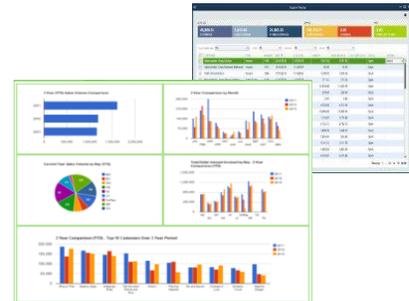
Benefits

- A well-planned and supported data integration and management program can increase productivity and operational efficiencies through the reduction of data entry and transparency of data.
- Optimal data management will provide checks and balances on data governance and quality.
- Improved customer service and accessibility to both internal and external consumers of data
- A centralized data source for producing analytics and reports on demand across disparate systems

12. Dashboard Preparation and Automation

Background

Many enterprise application software vendors provide dashboards. Dashboards form part of a user's homepage and display reports, key indicators, and other metrics regarding day-to-day operations, activities, and historical trends (e.g., the status of expenditures against budget, number and types of work orders issued versus those completed for a particular period) These results are often displayed graphically as context-sensitive content, so clicking on the graphic enables drilling down to more detailed information. Benefits of dashboards include:



- Quick links for immediate access to required tasks and approvals
- Easy modification of dashboards for each user's preference
- Automated generation of dashboard information
- Data visualization
- Easy-to-understand graphics
- Real-time analysis
- Drill-down access to activity detail

The market also offers other standalone dashboard solutions. The marketplace for these systems is vendor-rich and dynamic. As new vendors enter the marketplace, they bring forth new features and functionality. Examples of public sector-oriented vendors include:

- Envisio
- Tableau
- Power BI – by Microsoft
- CityView 360 – by Agiline Software
- OpenGov
- Venngage
- Canva

Findings and Observations

- The City does not have a centralized dashboard functionality to help departments and key staff simplify and automate routine or monthly performance management and reporting.
- Staff would like the ability to create and share a citywide dashboard for scheduled monthly reporting, ad hoc reporting, and other business analytics. Current reporting requests create a "crush of demand," interrupting the operational flow.

Staff Feedback

City Manager's Office

- Need a localized place for departments to put their info. Departments are responsible for formatting and consistency in council presentations. Dashboards could reduce the City Manager's workload in preparing reports.
- The City Manager sends weekly reports. Currently, staff send emails to the City Manager about their weekly activities. They are in different formats, some in email, others in Word or PD. The City Manager has to edit them together.

- Tracking performance measurements set this year as part of the budget/strategic plan. Need a mechanism to track and create dashboards.

Development Services

- The Development Services Department currently has no tools to manage its performance in key areas. It would be beneficial to the department to develop metrics for key performance indicators and to be able to monitor those through a dashboard, such as the average City processing time for major entitlement applications (design review, CUP, etc.) and various types of building permit applications. It would also be desirable to have similar metrics for code compliance, such as the time from the receipt of a complaint to the time it takes to make initial contact on a property, together with more automation to report vital statistics. The department prepares weekly and monthly reports where these datapoints would be helpful to illustrate the department's performance to established benchmarks.

Engineering & Public Works

- Currently, weekly updates are made to staff. Need a way to make the document visible during corrections and alterations by all parties.
- Weekly City Manager report - need to streamline the format to be more easily collaborated on and used. Everything is copied/pasted, and it is painful to regenerate weekly. The City Manager is open to a new format for this
- Community Updates - All department heads and managers produce a weekly newsletter. It's sent to the information manager and uploaded to the Cathedral City website. It's hard to search history.
- The City needs a report on the Developer Project Status. It will have general info on the project, status, and hearing. Staff wants more specificity on the details of the projects through certificate of occupancy and in full service.

Fire Department

- The Fire Department has no access to a dashboard to provide personnel with incident data/trends, mapping of hot spots, call times, etc.
- The fire department is currently exploring options to create a dashboard for analyzing data (call trends, response times, etc.). The department needs a dashboard program that can integrate several different reporting platforms (i.e., ImageTrend, Inspections, Vector Solutions, CAD data)

Recommendations

- Research the overall system capabilities of dashboard solution providers.
- Consider performance dashboards available in modern enterprise solutions before considering a third-party application.
- Complete a review and an assessment of Performance Dashboard needs with a cross-section of leaders and users. Documenting the needs will result in an expectation of functionality to be delivered.
- Follow the "Business Process Reviews Best Practices" initiative to determine detailed feature/function requirements for a new Business Analytics system.
- Follow the guidelines of the "Software Selection Best Practices" initiative to select the best overall, long-term system for the City's needs.
- Follow the guidelines in the Applications Implementation Project Management Best Practices initiative.

13. Centralized Land and Parcel Data Management

Background

Centralized land parcel data is increasingly crucial for consistent organization-wide parcel and address data management for all departments. A well-maintained database allows departments to retrieve historical records efficiently and consistently across the organization.

Modern enterprise applications are increasingly integrated with geographic information systems (GIS), which rely on accurate parcel information to generate maps. Maps allow for a succinct visualization of data. Agencies are also increasingly making that data and capability available to the public via their websites and other online tools.

Findings and Observations

- The City could realize significant productivity gains and improved accuracy by using a common, centralized parcel/address database to populate any new or changed information.
 - ◆ This includes centralizing data from all applications that contain address data and all GIS data environments to improve the ability to share layers (see the “GIS Planning and Improvements” initiative).
 - ◆ Public Works uses Geographic Technologies Group (GTG) GIS to locate streetlights, land ownership, and creek maintenance work.
- Staff identified the need for a fully integrated land parcel and GIS system.
- Development Services and Public Works staff need the ability to see all information related to a parcel in one space and integrate data with the various geo-based applications.

Recommendations

- Work with geo-based application vendors to develop a system improvement plan and project statement of work (SOW) that capture all of the City’s requirements.
 - ◆ This plan would ultimately result in obtaining a quote or contract amendment with those vendors to implement the solution according to the City’s needs fully.
 - ◆ It is recommended that the City follow “Business Process Reviews Best Practices” to identify and inventory all functional gaps and system needs.
- Recommended requirements include:
 - ◆ Utilize the GIS database for master address and parcel records (see “GIS Planning and Improvements” initiative).
 - ◆ Master addresses/locations should be shared across all geo-based applications.
 - ◆ All address and parcel updates from external and internal sources should be performed through GIS first.
 - Updates to other systems would then use GIS master information.
 - ◆ The City should enforce strict control of who is authorized to update this information, typically limiting access to only GIS data editors.
 - ◆ Geo-based applications should be configured so that each transaction requires users to select from valid addresses or validate against the GIS database, not type in free-form addresses.

The *Departmental Applications and Systems* category includes Technology Initiatives that are primarily division business applications-related and were identified during the assessment process. Many of these initiatives and recommendations can significantly impact overall productivity, enhanced communications and information sharing, improved constituent service, transparency, and cost savings.

14. Enterprise Resource Planning (ERP)
15. Human Resources System
16. NEOGOV Improvements
17. Transient Occupancy Tax/Short-Term Vacation Rentals
18. Land Management System Improvements
19. Code Enforcement Software
20. Work Order/Asset Management Improvements
21. Fleet Reservations Management Software
22. Police CAD/RMS Improvements
23. Police Cellphone Analysis Software Replacement
24. Police Ticketing/Citation System Improvements
25. Digital Evidence
26. Fire RMS Improvements
27. Fire Pre-Planning Management Software
28. Electronic Content Management System (ECMS)
29. Agenda Management
30. Contract Management Software
31. Digital Signatures Software
32. New Parks Reservation Software
33. Project Management Software
34. Contact Management Software
35. Microsoft Office 365 and Teams

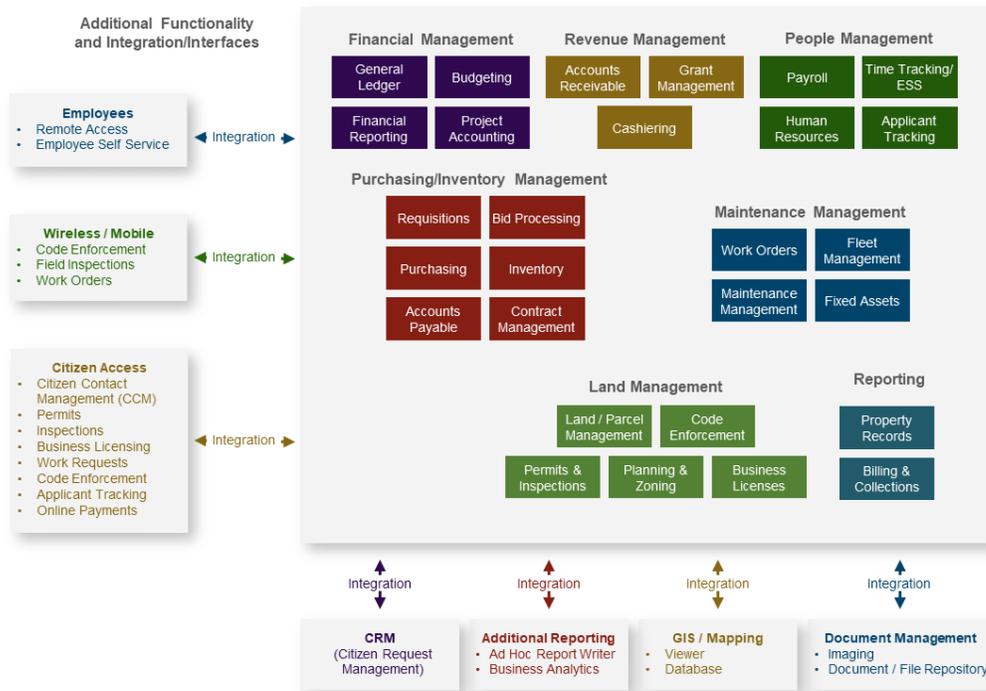
14. Enterprise Resource Planning (ERP)

Background

Enterprise resource planning (ERP) is an organization-wide software solution that allows integration among various departments and their respective functions. The result is a centralized communication, data storage, and operations management system. Replacement or improvements to ERP solutions bring about processes from which multiple departments can benefit. Common organization-related ERP application modules include Accounting, Financial Reporting, Payroll, and Human Resources.

NOTE: See “Benefits of Modern ERP Software” below for more detailed functionality commonly found in leading ERP solutions.

Enterprise Application System Overview



Findings and Observations

- The City staff is using the following Tyler Munis modules as its ERP system:
 - ♦ General Ledger
 - ♦ Budget
 - ♦ Accounts Payable
 - ♦ Bid Management
 - ♦ Capital Assets
 - ♦ Cash Management
 - ♦ Contract Management
 - ♦ Employee Expense Reimbursement
 - ♦ Inventory
 - ♦ Project & Grant Accounting
 - ♦ Purchasing
 - ♦ eProcurement
 - ♦ Accounts Receivable
 - ♦ General Billing
 - ♦ Cashiering
 - ♦ Asset Maintenance
 - ♦ Executime Time & Attendance
 - ♦ Human Resources
 - ♦ Talent Management
 - ♦ Payroll
 - ♦ Employee Self-Service

- Munis is not fully utilized by department staff who want more access and functionality, including workflow automation.
- Most department users need additional training on multiple Munis modules. Staff received reports from Finance and need additional training to find the information they need in the system.
- Staff want to use dashboards in Munis and want real-time access to information
- The Budget module is licensed but not yet in use. Staff are using spreadsheets for their annual budget requests.
- Online workflows are not used in Munis. Paper packets are still being routed for approval.

Staff Feedback

City Manager's Office

- Most departments need more training in Munis to access and monitor department expenditures and revenues.
- Departments want dashboards for their department to see their accounts for better monitoring and administration automatically. They want departments to have real-time data. Munis is not easy to use for non-finance staff.
- Department staff submit budget input via spreadsheet instead of directly into Munis. Requires redundant input by Finance staff.
- Executime still has issues with holidays. Staff would like holidays to pre-populate for each exempt employee and load automatically.
- Staff would like access to the online budget creation process.
- Staff would like access to the online budget amendment approval process.
- The City uses the Expense reports module in Employee Self-Service.
- Departments get a hard copy signature to approve expenses and then scan and upload it to Munis.
- The system is very complicated and duplicative.
- Staff expressed a need for a more user-friendly and automated system.

Emergency Services

- EMS past due receivables are tracked in Excel, and payments are processed in Munis manually.

Engineering & Public Works

- The department is emailed a PDF for approval.

Finance

- Staff would like the daily cash logs, Automated Clearing House (ACH) processing, Electronic Funds Transfer (EFT) payables, and automated cash letters.
- Accounts Payable (AP) workflows are not set up.
- The Human Capital Management implementation is in progress.
- Workflow for Personnel Action Forms is being implemented.
- Vendor Self-Service implementation has not yet begun.
- The ACFR builder module has not started implementation.
- The escrow account is managed through journal entry.
- eProcurement has not started implementation. Munis isn't talking to Energov; Energov is feeding back to Munis, which is a software limitation.
- Energov mass email functionality is in process.

- Citizen Self-Service will allow citizens to pay taxes and renew permits and is currently in process.

Fire Department

- Personnel must enter several different codes for shifts occurring on holidays. Time sheet entry is not user-friendly, i.e., selection of a work code that is abbreviated.
- The City implemented time clocks in the fire department. This implementation has resulted in confusion for staff to approve payroll, additional person-hours to review payroll and scheduling, and a duplication of effort to ensure that TeleStaff corresponds to Tyler Munis.

Police

- Check scan is not always populating the system.
- The system doesn't always start properly.
- Receipt printing is unreliable.
- The department takes in payment for vehicle releases, report releases, insurance company cases, and repo releases.
- The ExecuTime time entry system is not user-friendly.
- Sworn officers are not fans of ExecuTime. Used to use Excel.
- Overtime is not calculated correctly in Munis.
- In Munis, once you work over 40 hours, anything else is counted as OT. However, the first shift could've been overtime, e.g., the user had the day off but elected to go in.
- There are varying overtime rules for different divisions. Need to set up these rules in ExecuTime.
- The review process is not user-friendly for people who have to review time. Several hours twice a week.

Recommendations

- Consider working with third-party subject-matter experts and Tyler Technologies to develop a system improvement plan and project statement of work (SOW) that captures the City's functionality gaps and additional requirements. This plan would ultimately result in obtaining a quote or contract amendment with Tyler to fully implement the solution according to the City's needs.
 - ◆ We recommend the City follow "Business Process Reviews Best Practices" to identify and inventory each module's functional gaps and system needs.
- Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine which automation improvements will eliminate or reduce those processes and/or shadow systems and result in labor efficiencies.
 - ◆ This process should also include:
 - Inventorying all reporting requirements
 - Identifying all integration/interface requirements with other applications
 - Identifying any requirements that the vendor is not capable of providing that can be handled by other means, such as more efficient workarounds, third-party applications, modifications, and changes in organizational processes and procedures
 - ◆ Develop a system improvement plan to close these gaps, including vendor-developed end-user training plans.
 - ◆ Follow the "Applications Implementation Project Management Best Practices" guidelines to increase the probability of implementation success.
- This best practices approach to implementing new or upgrading enterprise systems should include end users from each impacted department in the setup and configuration of the system to enable all necessary business processes to be identified and implemented.
- Given the complexity of implementing a new enterprise system, following best practices will reduce risk and ensure a successful outcome.

Benefits of Modern ERP Software

An *Enterprise Resource Planning (ERP) System* automates and integrates many core organization-wide functions into a single technology platform while automating manual processes and providing a central location of information and reporting. Each suite is composed of individual modules that process specific business functions. Suites can include:

- Finance and Accounting
- People Management

Each suite and its modules enable an enterprise-wide integrated communication, storage, and operations system. Configuring and implementing a system using industry best practices is a critical foundational component to digitally transforming an organization and can achieve significant operating efficiencies and Return On Investment (ROI).

An enterprise system allows collaboration and information sharing between divisions, departments, and citizens to provide transparent, efficient government operations. The benefits of a well-researched, well-implemented enterprise system rooted in the assessment and streamlining of City processes are numerous and include:

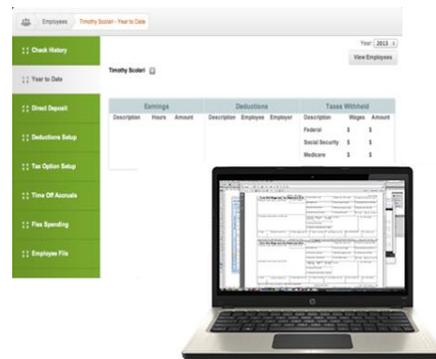
- Ability to analyze and streamline inter-departmental and department processes
- Built-in integrations between Land, Work, Financial, and People Management application suites
- Effective mobile solutions

- Newer information technology platforms (processing, capacity advantages)
- Real-time notifications/queues
- Task tracking
- Real-time access to information
- Elimination of duplicate data entry
- Improved data integrity and capacity for data-driven decision-making
- Centralized location and customer account maintenance
- Reliable information
- Workflow capabilities
- Centralized cash receipt capabilities
- Efficient revenue collection
- Reduced operating costs
- Improved department and inter-departmental communication
- Foundation for continuous future improvement
- Potential reduction in annual maintenance and support fees
- An improved online experience for citizens, providing them with a valuable and convenient experience

Financial Management

A *financial management suite* is a collection of software in an enterprise system that encompasses the financial and accounting tasks and processes performed to ensure all organization-wide activity is properly accounted for and accurately reported to local, state, and federal agencies. Benefits of a financial management suite include:

- Centralized accounting data
- Quick generation of financial reports
- More efficient budgeting processes
- Real-time access to available budgets and funding
- Better spending controls for departments and projects
- Management of grants and funding sources
- Real-time inquiries into capital improvement project progress



People Management

A *people management suite* is a collection of software that manages the organization's workforce and provides automation of tasks for human resources, payroll, timekeeping, and applicant tracking functions. *Employee self-service* (see below) is also available to allow employees flexibility in retrieving information conveniently. Benefits of a people management suite include:

- Paperless personnel forms
- One-time data entry
- Tracking of employee files
- Incorporation of employee self-service (ESS)
- Integration between timekeeping, payroll, human resources, and financial management
- Quick, reliable reporting to federal and state agencies
- Improved employee satisfaction
- Automated time entry approvals and payroll calculations
- Minimal steps between processing payroll and issuing direct deposits and checks

Employee Self-Service

Employee self-service (ESS) allows employees to provide, change, and retrieve their personal information through an online employee portal, reducing the manual interaction required with the Human Resources Department. ESS offers an online option for employees to access and manage the following information for themselves:

- Address changes
- Tax allowances changes
- Open enrollment benefits
- Dependent changes
- Leave/vacation accrual balances
- Electronic paystub copies
- Year-end W-2s
- Populating and retrieving timesheets
- Time off requests
- Many other forms and applications

Reporting

The number one pain point City staff confront is the challenge of quickly and accurately locating information for reporting. The use of disjointed applications that reside in siloed information systems or individual desktop computers exacerbates this problem. In such an environment, staff spend extensive time searching and consolidating information for reporting. Enterprise systems allow for the rapid retrieval of information from a single source. They have numerous standard reports that are easily accessible and shared. Users can also create their own reports. The time efficiencies allow staff to devote time to developing business analytics that allow the City to make data-informed and evidence-centered decisions. The benefits of improved reporting include:

- Aggregated data across divisions, departments, and the organization as a whole
- Improved data accuracy and reduced human error
- Intuitive report creation capabilities
- Board-ready reports
- Sharing of created reports
- Elimination of labor-intensive report creation
- Business Analytics
- Improved data-driven decision-making



Individual User Dashboards

A user dashboard is an information management tool that visually tracks, analyzes, and displays key performance indicators (KPI), metrics, and data points to monitor a business area, department, or specific process. They are customizable to meet the specific needs of a user, department, or organization. Invisible to end-users and running in the background, a dashboard connects files, attachments, services, and APIs. The information can be presented as tables, line charts, bar charts, and gauges. It is the most efficient and accurate way to track, present, and summarize multiple data sources. Agencies can monitor and analyze information that is of tangible value. Benefits of dashboards include:

- Quick links for immediate notifications and access to required tasks and approvals
- Easy modification of dashboards for each user's preference
- Automated generation of dashboard information
- Transformation of data into visual information
- Easy-to-understand graphics
- Real-time analysis
- Drill-down access to activity detail



15. Human Resources System

Background

A *human resources information system (HRIS)* contains numerous Human Resources-related functions within a single solution while also providing accurate and secure access to employee information. An HRIS typically includes, but is not necessarily limited to, the following capabilities:

- Employee Internal/External Training
- Professional Development
- Certifications and Licenses
- ACA Management and Reporting
- EEO Reporting
- OSHA Reporting
- HIPAA Reporting
- Insurance and COBRA Reporting
- Emergency Medical Information
- Workers' Compensation
- FMLA Benefit Payments
- Benefits Administration
- Seniority Tracking
- Retiree Tracking
- Terminations
- Employee Grievance Tracking
- Position Control
- Applicant Tracking
- Organizational Chart Generation
- Wage/Promotion/Disciplinary History
- Performance Evaluations
- Leave Requests
- Compensation Reporting
- "What If" Scenarios
- Labor Negotiation Tools
- Merit/Step Increases
- Tuition Reimbursement
- Travel Management
- Employee Surveys
- Beneficiary Information

HRIS solutions also integrate with payroll processing and employee self-service (ESS) portals, enabling employees to retrieve their information in real time, 24/7.

Findings and Observations

- The City is using Tyler Munis's HCM suite for human resources management.
- The system is not fully integrated with other systems, such as NEOGOV, the City's applicant tracking system.
 - ◆ The City is working on a NEOGOV integration with the HR and Payroll systems.
- Staff lack necessary reporting.
- HR staff have had very little training on the HR functions in Munis.
- Manual processes still require automation, e.g., personnel action forms, new hire requirements, and more.
- The Munis implementation has been piecemeal due to budgetary constraints.



Staff Feedback

Finance

- Staff would like Personnel Action Forms (PAFs) automated.

Human Resources

- Staff would like to automate:
 - ◆ Stipend Requests
 - ◆ PAFs
 - ◆ Workers Comp Intake
 - ◆ Performance Evaluation Analysis
 - ◆ WC Claims Management
 - ◆ Salary Budgeting and "What If" Scenarios
- Staff need reporting for:
 - ◆ Retirees
 - ◆ Organizational Chart
 - ◆ Retirement Status
- Staff only use ASP and what's needed for payroll.
- Staff had limited Munis HR training. It was primarily a functionality overview.
- Staff want to consolidate software solutions when possible.
- Staff wants birthday auto-notification.
- Staff don't feel they received enough training to understand Munis.
- The following manual processes require automation:
 - ◆ Stipend Requests and PAFs
 - ◆ Risk Management
- Some functions are controlled by Finance, and HR has limited access to HR modules. Need to open the HR modules in the Test environment so that HR can test the functionality.

Recommendations

- The City should perform a gap analysis of the Munis HR functionality and consider supplementing the module with third-party software as necessary to fill any functional gaps not possible in the current module.
- Work with Tyler to develop a System Improvement Plan and project statement of work (SOW) that captures the City's requirements. This plan would ultimately result in obtaining a quote or contract amendment with Tyler to implement the solution according to the City's needs fully.
 - ◆ It is recommended that the City follow the "Business Process Reviews Best Practices" initiative to identify and inventory all functional gaps and system needs.
 - Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine which automation improvements will eliminate or reduce those processes and/or shadow systems and result in labor efficiencies.
 - This process should also include:
 - Inventorying all reporting requirements
 - Identifying all integration/interface requirements
 - Identifying any data conversion needs

- Identify any requirements the vendor cannot provide that can be handled by other means, such as more efficient workarounds, third-party applications, modifications, and organizational processes and procedures changes.
- ◆ Develop a System Improvement Plan to close these gaps, including vendor-developed end-user training plans.
- ◆ Follow the guidelines in the “Applications Implementation Project Management Best Practices” initiative to increase the probability of implementation success.

16. NEOGOV Improvements

Background

NEOGOV is a software solution that provides some Human Resource (HR) management-type functionality. Designed for the needs of public sector HR, the NEOGOV suite helps you attract, retain, develop, manage, and protect top talent. NEOGOV's three integrated, cloud-based modules — Recruit, Develop, and Manage — meet the unique needs of the public sector HR teams by automating and supporting the entire employee lifecycle, streamlining processes and diversity initiatives, all from one centralized platform.



Findings and Observations

- The City uses NEOGOV for recruitment and onboarding.
- The software is not used to its fullest capacity.
- There is no integration with Munis.
- Workflow online automation is not implemented.

Recommendations

- It is recommended that the City follow the “Business Process Reviews Best Practices” initiative to identify and inventory all functional gaps and system needs.
 - ♦ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine which automation improvements will eliminate or reduce those processes and/or shadow systems and result in labor efficiencies.
 - ♦ This process should also include:
 - Inventorying all reporting requirements
 - Identifying all integration/interface requirements
 - Identifying any data conversion needs
- Develop a System Improvement Plan to close these gaps, including vendor-developed end-user training plans.
- Work with NEOGOV to develop a System Improvement Plan and project statement of work (SOW) that captures the City’s requirements. This plan would ultimately result in obtaining a quote or contract amendment with NEOGOV to implement the solution according to the City's needs fully.
- Follow the guidelines in the “Applications Implementation Project Management Best Practices” initiative to increase the probability of implementation success.

17. Transient Occupancy Tax/Short-Term Vacation Rentals

Background

Transient occupancy tax (TOT) is a tax that is levied on short-term rentals, such as hotel rooms, bed and breakfasts, and vacation rentals. The local government collects the TOT, which often funds various services such as tourism promotion, infrastructure maintenance, and affordable housing. Software that tracks transient occupancy tax helps agencies automate the TOT collection process, ensure compliance, and maximize revenue. Typical functionality of this type of software includes:

- Automated TOT calculations
- TOT registration for businesses
- Reporting
- Payment collection
- Compliance monitoring

Software that tracks transient occupancy tax is valuable for agencies to manage this important revenue source effectively.

Some vendors in the marketplace include:

- GovOS
- iGovServices
- Vertex Inc
- Staygov

Findings and Observations

- TOT/Vacation rentals are tracked in Excel and Access. These will be tracked in Energov once it's live.
- Short-term Vacation Rentals are manually entered into Energov.
- The City would like software to make the process more efficient and automated. Online access is in process.
- The City has released an RFP for TOT and Tax Licensing services, including billing. The RFP was filled for only scrubbing the complaint line from the Deckard system.
 - ◆ The City is exploring the Tyler Tax Module for sending invoices.
- Automated TOT calculations in Energov are in process.
- TOT registration for businesses in Energov is in process.
- Energov has reports
- Payment collection in CSS online is in process.
- Compliance monitoring is in Energov software.

Recommendations

- We recommend that the City consider acquiring software to track Transient Occupancy Tax/Short-Term Vacation Rentals.
- Follow "Software Needs Assessment Best Practices" to determine a new system's detailed feature/function requirements.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine what to eliminate or reduce to create efficiencies.
 - Identifying all integration/interface requirements with other applications

- Follow the guidelines of the “Software Selection Best Practices” initiative to select the best overall, long-term system for the City’s needs.
 - ◆ Consider a Tyler Technologies module already integrated with the City’s ERP system before looking at other third-party software solution options.
- Follow the guidelines in the “IT Project Planning and Implementation Best Practices” initiative.

Benefits

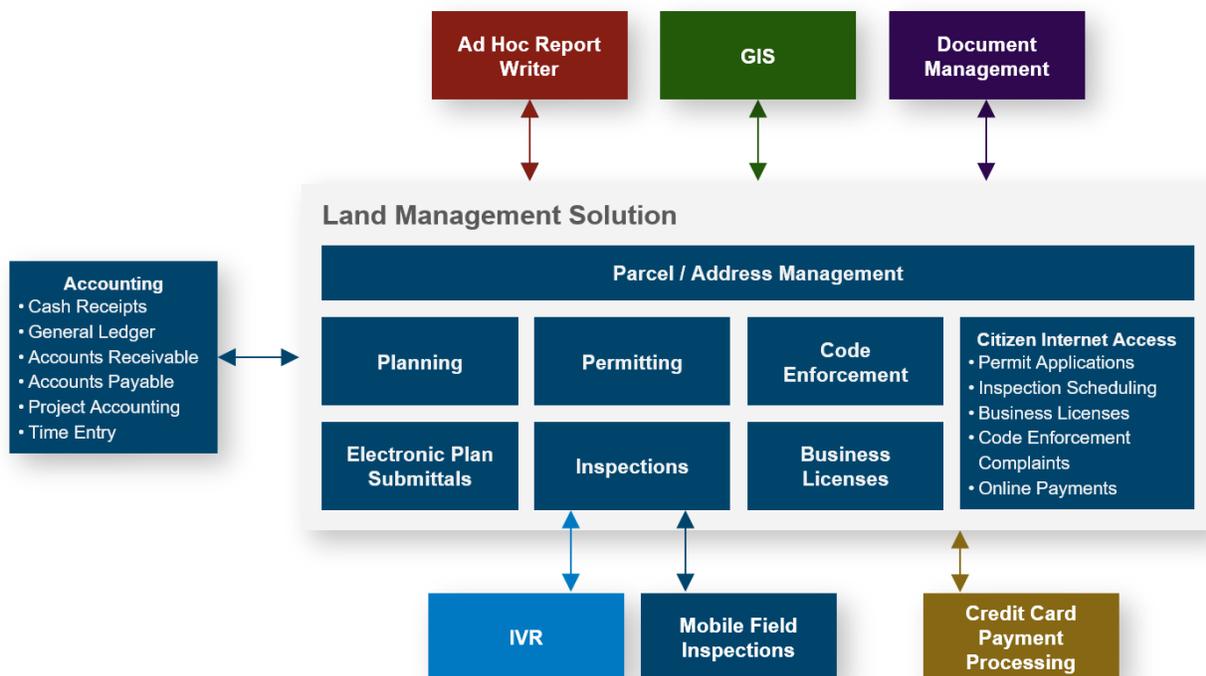
- Automated TOT collection, which saves time and resources
- Increased compliance, reducing revenue loss
- Enhanced transparency, ensuring accountability
- Improved customer service by making it easier for guests to pay the TOT

18. Land Management System Improvements

Background

A Land Management System (LMS) is a software suite comprising several applications that manage the creation, issuance, and tracking of development-related activities commonly associated with planning and zoning, permitting, inspections, licensing, code enforcement, and parcel/address management. An LMS system is a core solution for most cities. Modern LMS systems enable an enterprise-wide integrated communication, storage, and operations system. A system that is configured and implemented using industry best practices can achieve significant operating efficiencies and return on investment (ROI) for the City.

The illustration and table in the following pages show typical modules available in land management systems.



Findings and Observations

- The City is using Energov to replace PermitsPlus for both Planning and Building.
 - ◆ Energov is not used to its fullest capabilities.
- The City receives 35-50 inspection requests per day. Requests are left in voicemail and then tracked manually in Excel.
- Bluebeam is in use by the City, but its use is not standardized across departments.
- The City has contracted with a third-party consulting firm to transition away from PermitsPlus.
- The City has begun to take some online payments and issue some permits online.
- iPads are used in the field.
- Some online permits and payments are now available.

Staff Feedback

Development Services

- Staff mail letters and notices, forms, and applications. This process requires automation.
- Integration is needed for refunds, permits, and plans to the Assessor's Office.
- Staff need a project status report to improve customer service.
- Staff need better information sharing of case, project, and address notes.
- The solution should provide an electronic process from the inception of an application through the review and approval process, enabling the electronic referral of plans and permits for comment to other divisions and departments together with external consultants and providing a more efficient means of sending comments to an applicant.
- Energov went live in October 2021. The Finance Department handled the implementation with little Development Services involvement.
- There are duplicate cases, projects, and permits. Development Services – The Energov implementer did not seem knowledgeable about the software.
- Updating contact records updates historical data as well.
- Energov doesn't have refund functionality.
- The project took roughly one year to implement.
- The City was advised that many of its needs were not possible in Energov.
- Would like to deemphasize time tracking and would rather support a flat fee schedule through the next fee study.
- Integration with Energov for time tracking is in process.
- The City needs to deploy technologies responsive to our customers' needs and expectations, providing services through the web on an on-demand basis. Emergency Services.
- Fire plan submittal processing and tracking is in progress to move to Energov. We create the project in EG to have an invoice to apply to future payments. We still have to track our projects and create invoices in Excel as we did before because EG doesn't work as expected.

Engineering & Public Works

- Staff are currently doing the correspondence over email, and then once paid, a studio session is created in Energov for Bluebeam.
- Field reporting and inspections need to be streamlined and digitized.
- Energov was a Finance department project.
- Bluebeam is set up with Energov, and work is in progress to be fully utilized by staff.
- Citizen Self-Serv is live. 40% of permits are available online.
- IG Inspect was licensed from Tyler. We may need more licenses.

Finance

- Work is in progress to automate tax returns, remittances, payments, and business license manual renewals.
- Staff would like time tracking automated.
- The search function isn't working.
- HDL/Permits Plus moved into Energov.
- Code Enforcement is using GOGov rather than Energov.
- HDL is read-only at this point.

Recommendations

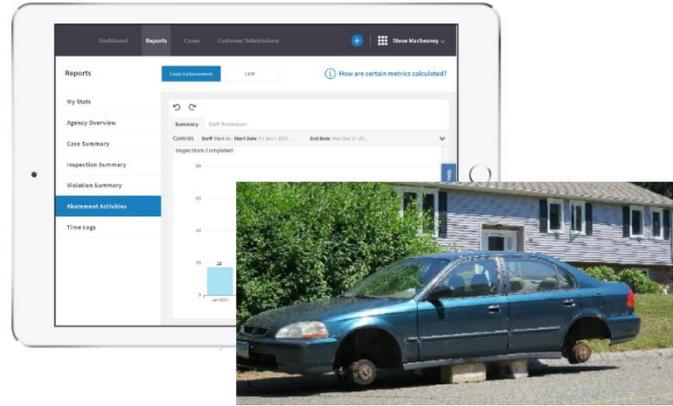
- Continue working with third-party subject-matter experts and Tyler Technologies to develop a system improvement plan and project statement of work (SOW) that captures the City's functionality gaps and additional requirements. This plan would ultimately result in obtaining a quote or contract amendment to implement the solution according to the City's needs fully.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine automation improvements that will eliminate or reduce those processes and/or shadow systems and result in labor efficiencies.
 - ◆ This process should also include:
 - Inventorying all reporting requirements
 - Identifying all integration/interface requirements with other applications
 - ◆ Identify any requirements the vendor cannot provide that can be handled by other means, such as more efficient workarounds, third-party applications, modifications, and changes in organizational processes and procedures.
 - ◆ NOTE: Land Management System (LMS) implementations on an organization-wide basis are complex undertakings and, on an organization-wide basis, are commonly underscoped and underfunded, leaving organizations with limited utilization and intended benefits.
- Follow the guidelines in the "Software Needs Assessment" and "Business Process Reviews" Best Practices initiatives.
- Follow the guidelines in the "Enterprise Applications Implementation Project Management Best Practices" initiative to increase the probability of implementation success.
- Given the complexity of implementing a new enterprise system, following best practices will reduce risk and ensure a successful outcome.

19. Code Enforcement Software

Background

Code enforcement software helps agencies enforce compliance with municipal codes and regulations. It is used to:

- Identify and address potential safety hazards, such as unsanitary conditions, fire hazards, and structural defects, preventing accidents and injuries
- Protect the environment by enforcing environmental regulations, such as pollution control and waste disposal,
- Promote economic development by ensuring businesses comply with zoning regulations and other ordinances, creating a positive business climate and attracting new investment
- Improve quality of life by addressing issues such as graffiti, abandoned vehicles, and excessive noise, making communities more livable and attractive



Typical functionality of code enforcement software includes:

- Case management
- Inspection scheduling
- Violation tracking
- Reporting
- Communication

Some sample vendors in the marketplace include:

- SmartGov
- Citizenserve Code Enforcement
- Evolve
- OpenGov
- Tyler Energov

Findings and Observations

- The City processes 20 inspection requests per day.
- Multiple systems are in use for code enforcement.
 - ◆ Data Ticket
- Code Enforcement software isn't integrated with GIS.
- Code Compliance is not using Energov. It does not meet their needs.
- The connectivity issues in the field are limited. The iPads in use currently have 5G and work well.

Staff Feedback

Development Services

- GoGov is used for all code case processing, but Deckard is used for Short-Term Vacation Rentals.
- Data Ticket received info from GovOutReach, but the integration is only one way. Data Ticket doesn't send payment information back to GovOutReach.
- There are challenges in the field with GOGov when there is no cell reception.
- There is no offline ability to view maps and enter code cases.
- GIS maps show all open or historical CE cases.
- Not planning to use Energov for Code compliance. It does not work for City processing needs.
- Bandwidth is slow in the field. Currently bypassing this by taking local photos and uploading them later.
- Geolocation is used for complaints. Needs a map that shows the locations of violations throughout the City. Need to see areas of high concentration and do trending/forecasting.
- GOGov is only used for code enforcement; citizens can enter requests. Not planning to use Energov (found not to be efficient for code compliance).
- GOGov is being used for code enforcement and as a CRM system.

Recommendations

- Follow "Software Needs Assessment Best Practices" to determine detailed feature/function requirements.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine what to eliminate or reduce to create efficiencies.
 - Identifying all integration/interface requirements with other applications
- If the existing system is not capable of sufficiently meeting the City's needs, consider replacing the system.
- Follow the guidelines of the "Software Selection Best Practices" initiative to select the best overall, long-term system for the City's needs.
- Follow the guidelines in the "IT Project Planning and Implementation Best Practices" initiative.

Benefits

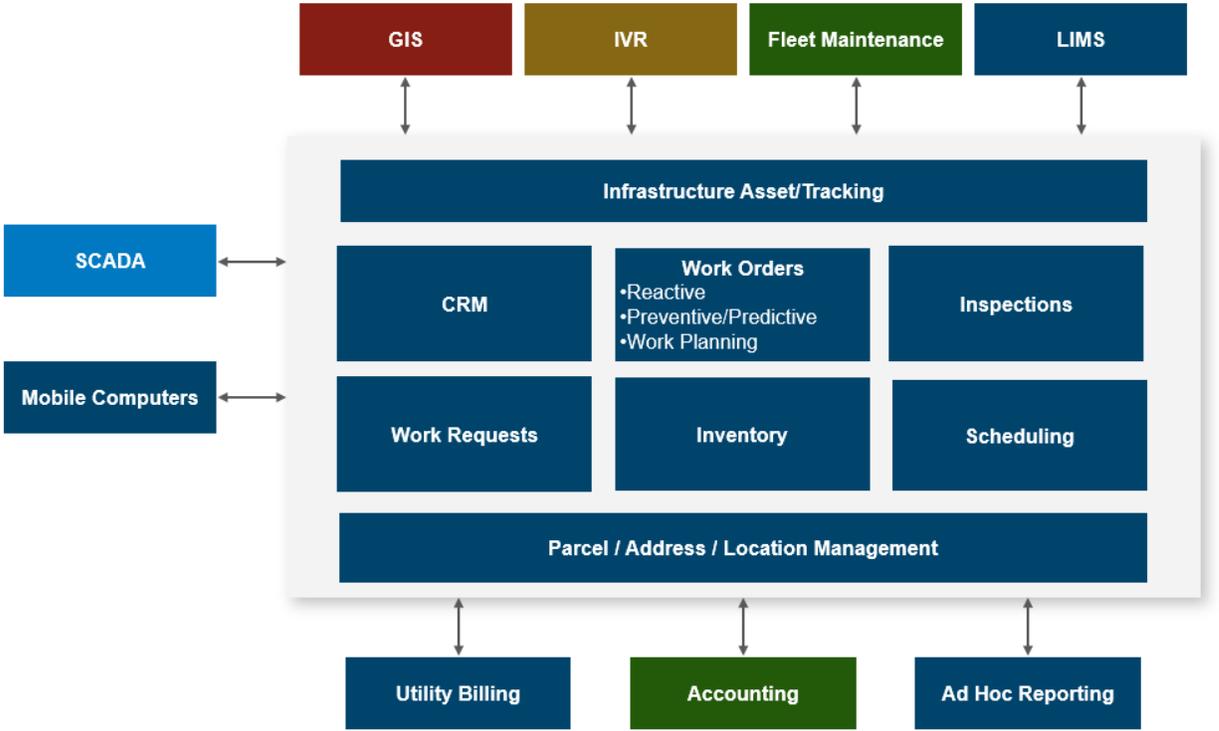
- **Increased efficiency:** Code enforcement software automates tasks like scheduling inspections and generating reports, freeing staff time for more important activities.
- **Improved accuracy:** Code enforcement software ensures that data is accurately entered and tracked, avoiding mistakes and improving the quality of code enforcement activities.
- **Increased transparency:** Code enforcement software makes it easier for the public to view code enforcement records and reports, helping to build trust and accountability.

20. Work Order/Asset Management System Improvements

Background

A Work Order/Asset Management system is a software suite that manages work orders, preventative maintenance, and asset management of City infrastructure. The following list and diagram illustrate the functionality of typical maintenance and asset management software.

- Service Requests
- Inspections and Condition Assessment
- Work Orders
- Preventative and Predictive Maintenance
- Facilities Maintenance
- Asset Tracking
- Warehouse Inventory
- GIS Integration
- Report Writing
- Costing and Budget Forecast



Findings and Observations

- Tyler Enterprise Asset Management (work order/asset management system) has been licensed and is being implemented.
- The Facilities team oversees fourteen facilities, including parks, restrooms, shade structures, and three fire stations. The City contracts for graffiti removal, trash, major concrete repairs, and landscaping.
 - ◆ There are four staff that do landscaping.
 - ◆ Staff oversee lighting and landscaping
- Some departments feel their needs were not adequately assessed during the planning phase of the implementation.
- Staff still use many manual processes and are uploading their work daily.
- There is no inventory system in place.
- A fuels management system integration is currently in progress.

Staff Feedback

Engineering & Public Works

- The City contracts for graffiti removal, trash, major concrete repairs, and landscaping.
 - ◆ There are four staff that do landscaping.
 - ◆ Oversee lighting and landscaping districts
 - ◆ Street signals are contracted out. Edison owns all the streetlights and maintains them.
 - ◆ Homeless camp cleanup is contracted out.
- The City needs an inventory system for signs, drains, City-maintained sidewalks, parkways, alleyways, retention basins, and signals.
- They are updating the system each day by uploading work logs.
- Fleet uses it for work orders and preventative maintenance.
- Fleet Coordinator - 3rd parties do the repairs for the fleet. The department works with Finance to input it into the system.

Facilities

- A facilities condition assessment with an outside consultant is in process
- A way to merge work orders with email is currently in process.
- Plan to improve preventive maintenance.
- Need historical work records for analysis.
- Tyler Enterprise Asset Maintenance has been purchased and is in the planning stage
- Cooling Tower Maintenance is done twice yearly, and a contractor is used
- Facilities uses an email-based work order system that doesn't capture history or allow reporting and trending
- Tyler 311 will be the next project when Energov Reimplementation is complete.
- Currently, emails come in, and then they must be input into the work order system.
- There is a Facilities email box that requests are sent to
- We are looking at using Tyler 311 as an internal mechanism for employees to put in requests

Currently not able to query history or do any trend reporting

- Staff would like LLDs Labor allocations to be automated
- Public Works does labor allocation tracking on paper, including location and hours
- IT Implemented but not in use

- Public Works has implemented the work order/asset management system but only for logging hours.
- Public Works invoicing is not yet set up

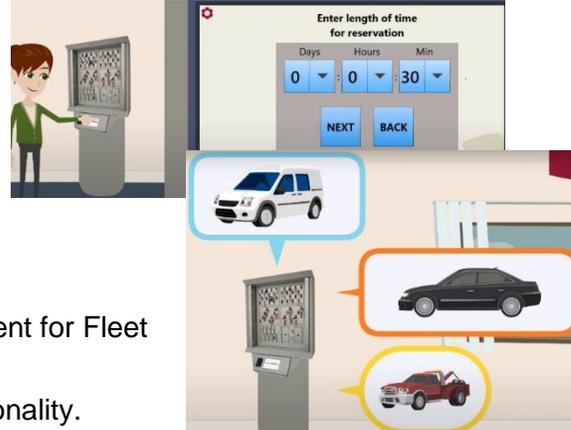
Recommendations

- Conduct an enterprise management assessment with process reviews and develop a gap analysis and improvement plan.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine automation improvements that will eliminate or reduce those processes and/or shadow systems and result in labor efficiencies.
 - ◆ This process should also include:
 - Inventorying all reporting requirements
 - Identifying all integration/interface requirements with other applications
 - Identifying any data conversion needs
 - ◆ Identify any requirements the vendor cannot provide that can be handled by other means, such as more efficient workarounds, third-party applications, modifications, and changes in organizational processes and procedures.
 - ◆ NOTE: Work Order/Asset Management system implementations are complex undertakings and, on an organization-wide basis, are commonly underscoped and underfunded, leaving organizations with limited utilization and intended benefits.
- Follow the guidelines in the “Software Needs Assessment” and “Business Process Reviews” Best Practices initiatives.
- Follow the guidelines in the "Enterprise Applications Implementation Project Management Best Practices" initiative to increase the probability of implementation success.
- Given the complexity of implementing a new enterprise system, following best practices will reduce risk and ensure a successful outcome.
- Consider working with third-party subject-matter experts and Tyler Technologies to develop a system improvement plan and project statement of work (SOW) that captures the City’s requirements. This plan would ultimately result in obtaining a quote or contract amendment with Tyler to implement the solution according to the City’s needs fully.

21. Fleet Reservations Management Software

Background

Fleet Reservations Management Systems (FRMS) manage the fleet or motor pool. These systems can create customer reservations, check out vehicles, and perform billing and asset maintenance. This software is sometimes available as a module within a Fleet Maintenance system or as an independent software solution).



Findings and Observations

- The City uses Tyler Enterprise Asset Management for Fleet maintenance.
 - ◆ This does not include any reservation functionality.
- The City is considering allocating a fleet vehicle to each department.
- The City uses email to reserve pool vehicles.
- Fleet reservations are being moved to Public Works. The function used to sit in Finance.
- The City will be implementing an electronic lock box to check in and check out keys.

Recommendations

- Follow the “Business Process Reviews” initiative to determine detailed feature/function requirements for a new fleet reservations management system.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine which automation improvements will eliminate or reduce those processes and/or shadow systems and result in labor efficiencies.
- Follow the guidelines of the “Software Selection Best Practices” initiative to select the best overall, long-term system for the City’s needs.
- Follow the guidelines in the “IT Project Planning and Implementation Best Practices” initiative.

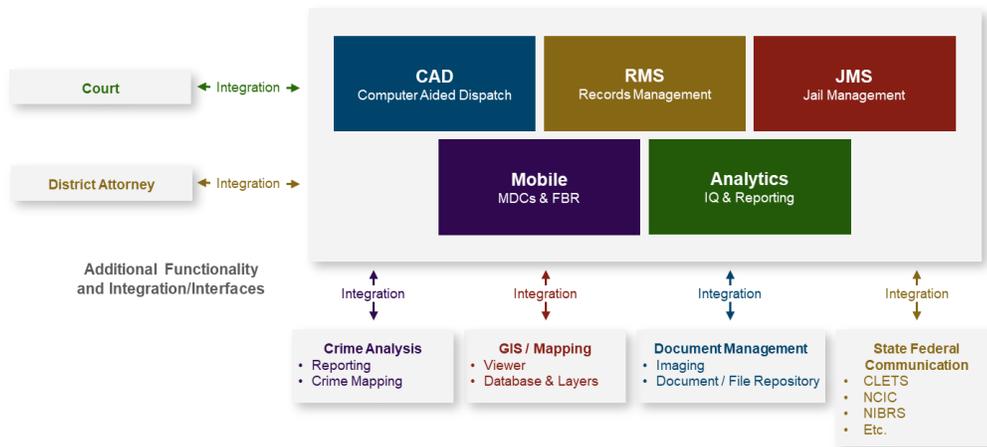
22. Police CAD/RMS Improvements

Background

An integrated CAD/RMS system enables Police agencies to centralize public safety incident information, preserve data integrity, reduce redundant data entry, and enhance officer safety and operational efficiency. An integrated CAD/RMS system provides the ability to quickly capture, record, update, share, and access critical incident and public safety data in real time, both internally at the station and in the field.



The following is a high-level view of the primary or “core” public safety operational or application areas and integration points.



Findings and Observations

- The City is using Alliance for its CAD/RMS system.
- The 849 Detention Certificate features in Alliance are manual.
 - ◆ When rejected by the county, staff must generate a report in Word and upload the file to Alliance to change the arrestee status to a detainee.
- DA packaging forms are fillable PDFs that staff type information into forms.
 - ◆ Staff would like a way to pull information from Alliance and fill out the form automatically.

Staff Feedback

Police

- Need to auto-populate duplicative information between DA packaging forms
- Need to scan supporting documents into the DA electronic case file
- Need to create an electronic 290/arson registrant file
- Need redaction capabilities in Alliance
- Need to be able to copy the narrative from Alliance into Word and then use the “find and replace” feature to seal the defendant’s name
- Redacting info from reports is a manual process. Staff want to do this within Adobe or Alliance rather than having to print out reports from Alliance, redact with whiteout, and then scan and release the report

Recommendations

- We recommend the City work to improve the existing CAD/RMS System.
- Consider working with third-party subject-matter experts and Alliance to develop a system improvement plan and project statement of work (SOW) capturing all the City's requirements. This will likely result in obtaining a quote or contract amendment with Alliance to implement the plan.
 - ◆ We recommend following the "Business Process Reviews Best Practices" initiative to identify all functional gaps.
 - Review relevant manual processes and shadow systems. These may include spreadsheets, paper, and other databases. Identify where manual effort and shadow systems can be eliminated to create efficiencies.
 - This process should include:
 - ◆ Inventorying all reporting requirements
 - ◆ Identifying all integration/interface requirements with other applications
 - Identify any requirements the vendor cannot satisfy but can be dealt with by other means, such as more efficient workarounds, third-party applications, modifications, and organizational processes and procedures changes.
 - Develop a system improvement plan to close these gaps. This may include vendor-developed end-user training plans.

23. Police Cellphone Analysis Software Replacement

Background

Police cellphone analysis software allows law enforcement agencies to extract and analyze data from cell phones. This data helps law enforcement agencies to:

- Identify suspects by analyzing the call logs, text messages, and other data on a cellphone
- Gather evidence of a crime, such as photos, videos, and documents
- Trace a suspect's movements through the location services on the phone
- Prevent crimes by analyzing cellphone data to identify potential threats and prevent crimes from happening

The functionality of police cellphone analysis software varies depending on the specific software. However, most software can extract and analyze the following types of data from cell phones:

- Call logs
- Text messages
- Contact lists
- Photos
- Videos
- Messages from social media
- Web browsing history
- Location data

Police cellphone analysis software is a powerful tool that can be used to investigate crimes and gather evidence.

Some vendors in the marketplace are:

- Grayshift
- MSAB
- Magnet Forensics
- AccessData

Findings and Observations

- The City utilizes Cellebrite Cell Hawk, which is cumbersome to use. Other systems may be easier to use with more functionality.
- The City lacks the necessary network storage space for the extracted evidence. As a result, critical evidence is being stored on external hard drives.

Recommendations

- We recommend the City follow "Software Needs Assessment Best Practices" to determine whether Cellebrite Cell Hawk can meet the City's needs.
- If it is determined that different software is necessary, follow the guidelines of the "Software Selection Best Practices" initiative to select the best overall, long-term system for the City's needs.
- Follow the guidelines in the "IT Project Planning and Implementation Best Practices" initiative.

24. Police Ticketing/Citation System Improvements

Background

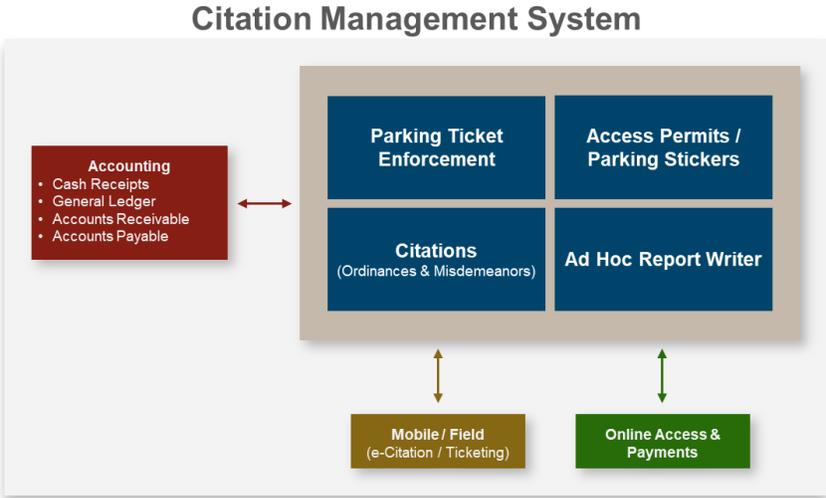
Citation systems offer agencies the ability to issue tickets and citations electronically. Numerous vendors provide this capability as a stand-alone system. Other full CAD/RMS vendors have electronic citation system modules that fully integrate this functionality.



Citation Management systems provide the following capabilities:

- **Citations** – This capability provides the ability to track citations from issuance to determination. The systems provide the ability to set classes and fine structures. Violation and history are also maintained for quick inquiry along with people, addresses, and related subjects.
- **Parking Tickets** – If needed, many systems provide a parking tickets component that streamlines the administrative adjudication process for parking and equipment violations. There is also the ability to track late payments and assess late fees.
- **Access Permits and Parking Stickers** – Some systems can sell, manage, and enforce tags or stickers for parking or other services that can deliver revenue for the organization. Some organizations have used this capability to issue annual passes for unlimited visits to parks or other facilities or programs.
- **Mobile or Field Capabilities** – This includes issuing citations in the field with the connection to a small portable printer. Vendors typically support a variety of handheld devices, including handheld computers, laptops, and tablets. Many also integrate license plate recognition technology.
- **Reporting** – These systems support reporting, including several standard reports that can be picked from a list and run as needed. They also include Ad Hoc reporting capabilities so specific reports can be created.
- **Online Services** – Most systems provide the additional capability for public access to their citations and tickets and to pay for any associated fines online using credit cards.

The diagram below illustrates a typical Citation Management system.



Findings and Observations

- Non-traffic citation data entry is manual, as most citations are handwritten.
 - ◆ Some Officers use iPhones and portable printers to issue citations.
- Staff want to scan and auto-populate parking citations into Alliance.
- Crossroad E-Tickets are used for multiple citation types.
 - ◆ It is not communicating with Alliance correctly.
- The City is working on a data transfer from Crossroads to the CAD system.
- Staff need additional electronic ticketing hardware, both handhelds and portable printers.
- For retention of Parking Citations, staff scan citations and upload them to TurboData, where they are manually entered.
- Staff want to streamline the process of being able to view citations. If a citizen comes in to pay a ticket but doesn't have the ticket present, Records has to reach out to someone with access to TurboData.

Recommendations

- We recommend that the City consider expanding the use of Crossroads to include all citation types.
- Follow “Software Needs Assessment Best Practices” to document all of the City’s citation needs.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine what to eliminate or reduce to create efficiencies.
 - Identifying all integration/interface requirements with other applications
 - Determine if there are any data conversion requirements
- Follow the guidelines in the “IT Project Planning and Implementation Best Practices” initiative.

25. Digital Evidence

Background

Digital evidence is an important component of an overall Police evidence management solution. It is increasingly becoming one of the most significant and labor-intensive components of processing evidence due to modern-day technologies now available to law enforcement agencies.

Evidence such as video footage captured by the public on smartphones, use of drones, integration with business surveillance/traffic cameras, body-worn cameras, and squad car dash cam footage all contribute to the massive amounts of digital evidence collected that require processing and storage.

To keep up with this demand, short- and long-term solutions for storing, tracking, retrieving, redacting, and sharing digital evidence are important considerations for law enforcement agencies.

Several key factors to consider when evaluating digital evidence systems include:

- Compatibility and integration with the agency's Records Management System (RMS)
- Cost, the capacity of, and the method of storage (cloud vs. on-premise)
- Ability to track the chain of custody of digital evidence
- Cybersecurity measures
- Ability to electronically share digital evidence with other agencies
- Ability to upload digital evidence directly from the field mobile units
- Ongoing maintenance/tracking - Ticklers and disposition notifications to eliminate items no longer needed

Findings and Observations

- Evidence photo upload is manual and needs automation.
- Staff want to use Evidence.com.
 - ◆ Currently using a network "Drive" for uploads into the evidence folder; then, staff files the photo.
- Digital photo capture needs to be automated.

Recommendations

- We recommend that the City consider procuring a digital evidence system.
- Follow "Software Needs Assessment Best Practices" to determine detailed feature/function requirements for a new digital evidence system.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine what to eliminate or reduce to create efficiencies.
 - Identify all integration/interface requirements with other applications.
- After developing the features/functions needed, explore whether VeriPic can meet the City's needs.
- Follow the guidelines of the "Software Selection Best Practices" initiative to select the best overall, long-term system for the City's needs.



- Follow the guidelines in the “IT Project Planning and Implementation Best Practices” initiative.

Benefits

- Significant productivity efficiencies
- Improved compliance
- Centrally stored information and retrieval
- Documented property movement
- Improved accountability and disposition of evidence

26. Fire RMS Improvements

Background

Modern Fire/EMS RMS systems allow agencies to integrate with Computer Aided Dispatch systems for real-time access to incident data. This information typically includes what resources responded to the incident, their associated response times, incident locations, geographic areas, i.e., map pages or response areas, and possibly other incident details such as call comments from CAD. This saves firefighters/medics time by providing immediate access to the report from the field and eliminating redundant data entry.

In addition, Fire Reporting systems are designed to capture NIFRS/CFIRS data that is required to be reported by the agency.

Other typical modules available within modern Fire RMS systems include fire inspection tracking, hydrant and flow testing, and vehicle maintenance tracking.

ePCR (electronic Patient Care Reporting) for EMS users also provides the ability to complete patient care reports from the field.

Findings and Observations

- The City uses ImageTrend for its Records Management System.
- The City implemented ImageTrend to replace Firehouse but still has historical data in Firehouse.
- This City implemented RMS in 2021. This is not integrated with ARCGIS.
- The current mapping system is out of date and in need of updates. The new GIS map of the City is not conducive to 911 operations.
- Staff would like a dashboard-type emergency response and inspection reporting platform available to internal customers and the public.
- The department would like to map incidents in real-time (or within hours) and historical incidents. This can include inspections and occupancy information.
- Staff need improved mapping, analytics, and reporting.
- Need to improve integration mapping with CAD.

Recommendations

- We recommend that the City work to improve the current Fire/RMS system.
- Follow “Software Needs Assessment Best Practices” to conduct a comprehensive gap analysis and develop a system improvement plan.
 - ◆ Review relevant manual processes and shadow systems. These may include spreadsheets, paper, and other databases. Identify where manual effort and shadow systems can be eliminated to create efficiencies.
- If it is determined that the current system cannot meet the City’s needs, we recommend following the guidelines of the “Software Selection Best Practices” initiative to select a replacement system for the City.
- Follow the guidelines of the “IT Project Planning and Implementation Best Practices” initiative.

27. Fire Pre-Planning Management Software

Background

Fire services routinely conduct pre-incident planning, which allows the Department to identify and target hazards in a prospective response area and guide a response to an incident. The plans enable fire and rescue services to pre-determine the resources to deploy or the manner of deployment based on the type and nature of the incident. The plans ensure first responder safety and successful responses to dispatched calls for service.

Increasingly, plans are being developed and enabled with the use of pre-incident planning software. The software allows fire and rescue services to develop detailed maps and plans for response areas and buildings. The plans may include parcel information, utility and hazard locations, building plans, floor plans, fire escape locations, or evacuation routes. The software is available and accessible to mobile data computers and devices. Example vendors may include:

- Emergency Reporting
- Raxar
- APX
- Blazemark
- Flow MSP
- First Due
- TRP SMARTPLAN

Findings and Observations

- The Fire Department's mapping software is out of date, along with pre-incident plans.
 - ◆ The department doesn't have the most up-to-date preplans or the ability to create new ones within the current mapping system without going to the outside contractor that built the program.
- The department also needs GIS-routing capabilities.
- The current system is contracted out to a single individual vendor.

Recommendations

- We recommend that the City replace the Fire Pre-Planning Management Software with a commercial off-the-shelf solution for greater functionality, ease of use, and continuity.
- Follow "Software Needs Assessment Best Practices" to determine detailed feature/function requirements for a new Fire Pre-Planning Management Software.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine what to eliminate or reduce to create efficiencies.
 - Identifying all integration/interface requirements with other applications
- Follow the guidelines of the "Software Selection Best Practices" initiative to select the best overall, long-term system for the City's needs.
- Follow the guidelines in the "IT Project Planning and Implementation Best Practices" initiative.
- Establish a public safety GIS committee to identify specific layers and information the Fire Dept. would like to see and have access to on the CAD map. The committee could also work towards changing policies on more frequent map updates.
- Establish a process of incorporating pre-plan updates into regular CAD map updates and establish an agreed-upon policy and procedure for implementing the new procedures.

28. Electronic Content Management System (ECMS)

Background

An Electronic Content Management System (ECMS), also known as an Electronic Document Management System (EDMS), is a software system for managing and storing different types of digital media. ECMS typically stores, tracks, and delivers electronic documents, images, and other forms of content. They can also help organizations to automate workflows, improve collaboration, and comply with regulations.

Cost Reduction

Record creation, maintenance, and retrieval are pervasive throughout the organization for many agencies. Effective and strategic document management is key to reducing administrative costs. Studies have shown:

- The average office spends \$33 on labor filing or finding one document.
- To relocate one misfiled record costs an estimated \$200.
- One lost document costs an estimated \$420 to recreate.

With that in mind, an effective document management program can provide significant savings to an agency through:

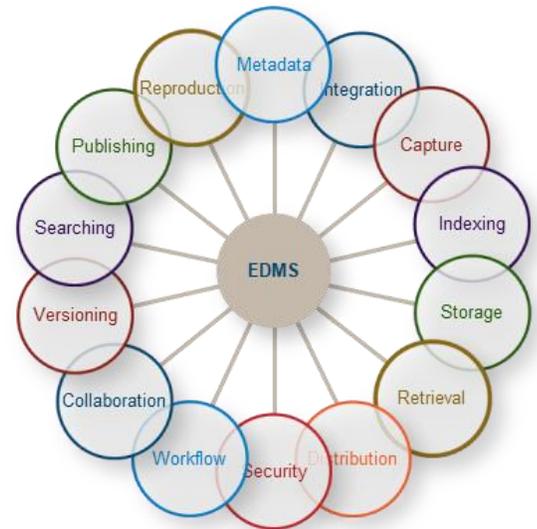
- Safe, highly efficient storage and retention of all records following Federal, State, and Local regulations
- Rapid access to all records stored in offices or off-site facilities
- Immediate reduction of misfiled and lost information
- Cost-effective use of prime office and storage space
- Timely disposal of obsolete records through approved retention schedules
- Protection of vital records from natural or man-made disasters

Workflow Automation

Workflow automation is the digitization and automation of business processes to reduce manual labor and inefficiencies. When a business process has many steps, it can be difficult to eliminate bottlenecks, miscommunications, and even mishandling of information. Workflow automation aids in removing human error, speeding up reviews and approvals, and providing insight into how you can improve these workflows in the future.

When considering workflow automation, look for a solution that can:

- Route documents in response to content creation or status updates.
 - ◆ Provide functionality to notify stakeholders of changes to or the creation of documents and automatic filing capabilities.
 - ◆ Extend automation across departments and integrate with existing applications.
 - Integrate with third-party and legacy systems for the seamless flow of information across the enterprise.
 - ◆ Enable real-time editing and monitoring access to documents, workflows, and reports via laptop, desktop, or mobile devices.



Workflow automation is an important step in an organization's digital transformation. Businesses can save valuable resources by optimizing processes across departments while improving operational speed, accuracy, and internal and external transparency.

Compliance

An ECMS is an effective tool in ensuring an agency complies with record retention statutes. Title 2 CCR § 22601 for Trusted Electronic Document or Record Preservation governs record retention requirements in California. Every state in the country has some form of statute governing record retention. Using an ECMS – after ensuring agency policy is current – is an efficient way of ensuring compliance with the law.

In addition to document scanning, storage, and records retention management, modern systems have additional functionality, which includes:

- Enterprise records management, including retention management
- Forms management
- Document sharing and versioning
- Project and process collaboration
- Extensive search and retrieval capabilities
- Sophisticated security functionality
- Web publication or posting for all above items, if desired
- GIS integration and integration with electronic signatures

Benefits of a modern ECMS include:

- **Compliance** – Improved and more efficient abilities to comply with the increasing volume and complexity of regulations and retention requirements
- **Security** – Improved physical abilities and accessibility to security
- **Workflow Capabilities** – Electronic capture, routing, and approvals of manual paper processes
- **Improved Efficiency** – Increased productivity through automation of manual processes and time reduction in retrieving and sharing information
- **Reduced Costs** – Reduced costs of printing, paper, storage space, and labor
- **Reduced Carbon Footprint** – Minimized paper waste
- **Improved Transparency** – Increased accessibility to information via the Web, including full automation of some types of documents immediately upon creation without additional processing or labor
- **Disaster Recovery** – Protection of vital records through storage redundancy
- **Digitization** – Ability to digitize often accessed paper documents to reduce the time required to retrieve these documents from physical files
- **Improved Integration with Other Enterprise Applications** – Increased efficiency by allowing the real-time exchange of information between systems

Findings and Observations

- The City uses Laserfiche as its ECMS system for storing contracts, resolutions, officially recorded documents, and some fire department documents
- Laserfiche is not being used to its fullest capability.
 - ◆ There is a link on the website for the public to search what documents are available.
- The City is upgrading to the Laserfiche Enterprise version. The software has been ordered.
- A consultant is engaged for an ECMS overhaul and to assist the City with transforming its records into digital storage.

- The City wants to expand its use of Laserfiche beyond the City Clerk and Fire, the only two departments currently using it.
- The Records Retention policy was updated in October and approved by the Council.
- The City wants to use Laserfiche as an additional mechanism.
- The City doesn't currently use SharePoint or any document-sharing.
- Development Services plans to digitize all historical records with GIS and Land Management System.

Recommendations

- As part of the Laserfiche assessment, include estimates to digitize all applicable historical City records.
- Continue working with third-party subject-matter experts and Laserfiche to develop a citywide system improvement plan and project statement of work (SOW) that captures the City's functionality gaps and additional requirements. This plan would ultimately result in obtaining a quote or contract amendment with Laserfiche to fully implement the solution according to the City's needs.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine which automation improvements will eliminate or reduce those processes and/or shadow systems and result in labor efficiencies. This process should also include:
 - Identifying all integration/interface requirements with other applications.
 - Identifying any document conversion needs
- Follow the guidelines in the "Enterprise Applications Implementation Project Management Best Practices" initiative.

Benefits

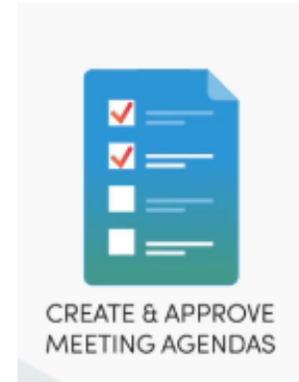
- **Improved efficiency:** ECMSs help organizations improve efficiency by automating workflows and providing a central repository for content.
- **Increased productivity:** ECMSs help organizations raise productivity by making finding and sharing content easier.
- **Improved compliance:** ECMSs help organizations improve compliance by providing a way to track and store electronic records.
- **Reduced costs:** ECMSs help organizations reduce costs by reducing the need for paper-based records and automating processes.
- **Improved customer service:** ECMSs help organizations improve customer service by storing and tracking customer interactions.
- **Enhanced decision-making:** ECMSs can help organizations make better decisions by providing a way to store and analyze data.
- Increased accessibility to information via the Web, including full automation of some types of documents immediately upon creation without additional processing or labor.
- Protection of vital records through storage redundancy.
- Ability to digitize often accessed paper documents to reduce the time required to retrieve these documents from physical files.

29. Agenda Management

Background

Agenda management systems allow an agency to centralize, automate, and manage the entire agenda creation and management process. These systems allow access to information for all departments and users involved in agenda development and management. Modern systems are offered as standalone modules, modules in a suite of applications from a single vendor, or as part of an *Enterprise Content Management System (ECMS)*.

Agenda Management systems allow staff to submit proposed agenda items online and attach supporting “report” or “package” documentation. Once submitted into the system, the system automatically routes requests for approval through preconfigured workflows. Approvers can receive email notifications with links to items awaiting review. The system administrator or other responsible parties can add items to meetings, prepare agendas, review, recommend revisions, finalize packets, and publish them. Agenda content is available online throughout the process and is easily accessible to those with a role.



In many instances, agenda and legislative management systems can be integrated with media management systems to stream and record video and audio information, time stamp it, and tie it to the correlating meeting agenda or activity during a meeting. The system can push/publish agendas, minutes, media, and meeting activities to the City’s website.

Findings and Observations

- The City uses MinuteTrack as its agenda management system.
 - ◆ MinuteTrack is no longer being supported by the vendor.
- The City went live with Granicus OneMeeting.

Recommendations

- Continue the implementation of OneMeeting.
- Follow the “Software Needs Assessment Best Practices” guidelines to meet all user needs and functionality requirements.
- Follow the guidelines in the “IT Project Planning and Implementation Best Practices” initiative to ensure a successful implementation.

Benefits

- Time savings from manually disseminating and routing documents for review
- Paper cost savings by disseminating and routing electronically
- Easy archival and retrieval
- View agenda items and related materials in real-time
- Public online access to agendas, minutes, legislative history, and potentially audio/video

30. Contract Management Software

Background

Contract management software helps agencies manage their contracts throughout the entire contract lifecycle, including creating, negotiating, signing, storing, tracking, and analyzing contracts. Contract management software is usually a standalone system. ERP systems with a Contract Management module manage invoicing and payment tracking after contract execution, not the creation workflow processes.

Contract management software typically includes features such as:

- Contract creation: Creating new contracts from scratch or using templates.
- Contract negotiation: Tracking and managing the negotiation process, including changes and approvals.
- Contract signing: Signing contracts electronically, using digital signatures, or by uploading signed documents.
- Contract storage: Storing contracts in a secure and centralized location.
- Contract tracking: Tracking contract status, including deadlines, milestones, and payments.
- Contract analysis: Analyzing contract data to identify trends and patterns.



Example contract creation software solutions include:

- CobbleStone
- Evisort
- Ironclad
- Juro
- Contract Safe

Findings and Observations

- The clerk would like software to manage the contract creation and workflow approvals.
- Some departments are managing their contracts manually.
- The City uses Munis for its contract finance management solution to track the related transactions.
- Staff need to manage contract workflow, expiration, and insurance documentation tracking.

Recommendations

- The City would benefit from a centralized system for managing contract documents.
- Follow the guidelines in the “Software Needs Assessment Best Practices” initiative to determine detailed feature/function requirements for a new Contract Management system.
 - ♦ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine which automation improvements will eliminate or reduce those processes and/or shadow systems and result in labor efficiencies.
 - Identify all integration/interface requirements with other applications.

- Follow the guidelines of the “Software Selection Best Practices” initiative to select the best overall, long-term system for the City’s needs.
- Follow the guidelines in the “IT Project Planning and Implementation Best Practices” initiative.

Benefits

Some of the benefits of using contract management software include the following:

- Improved efficiency by streamlining the contract management process through task automation, such as contract creation and negotiation.
- Reduce costs by providing insights into contract costs and helping identify potential savings areas.
- Increased compliance by ensuring the agency complies with all applicable regulations.
- Improved decision-making through a single view of all agency contracts, providing improved visibility.

31. Digital Signatures Software

Background

Electronic/digital signatures allow authorized persons to sign a document electronically anywhere using a computer. Although commonly used interchangeably, there is a difference between an electronic and a digital signature. The distinctions are as follows:

- An electronic signature is captured using a mouse, a signature pad, a touchpad, or a computer.
- A digital signature goes further by embedding a PKI (Public-Key Infrastructure), which requires signers to have a registered digital certificate that links the signer to their signature. In this instance, both the requesting and the signing parties have a specific key identifying their role in the transaction.



The process of identifying signers and originators is the primary distinguishing feature between an electronic signature and a digital signature. Electronic and digital signatures are equally secure, versatile, and convenient. Government agencies recognize them as legal signatures (based on recent UETA and E-SIGN acts), and many agencies use them to transact business.

Findings and Observations

- The HR, City Clerk, and Risk Management are using Adobe Sign for digital signatures.
 - ◆ Adobe Sign is currently the standard digital signature platform.
- The City Council approved a new digital signature policy.

Recommendations

- The City should continue using the Adobe Sign software to collect digital signatures.
- It is recommended that the City conduct comprehensive business process reviews to determine detailed feature/function requirements for a new system.
 - ◆ The City should determine what processes and documents require a legally binding signature versus an electronic approval as part of a workflow process.
- If necessary, follow the guidelines of the “Software Selection Best Practices” initiative to select the best overall system for the City’s needs. That system may consist of a single vendor’s application modules or a combination of vendors so long as automated integrations between the applications can be established.
- Follow the guidelines of the “IT Project Planning and Implementation Best Practices” initiative.
- The City may want to determine the contract management vendor before deciding on a new digital signature vendor, as signature capabilities may come with the software system.

Benefits

- Improved tracking
- Increased efficiencies
- Reduced risk of lost documents
- Secured signatures
- Reduced printing, faxing, mailing, copying, scanning, and filing costs
- Automated routine tasks

32. New Parks Reservation Software

Background

Parks and Recreation systems manage park and recreation operations. Many of the systems in the marketplace offer individual modules within a suite of applications that may include:

- Membership management
- Facility scheduling
- Activity registrations
- League management
- Swim team management
- Point-of-Sale
- Equipment and locker rental
- Fundraising and donation management
- Childcare management
- Marketing
- Website content management
- Reporting
- Online Customer Access
 - ◆ Registration software
 - ◆ Facility scheduling software
 - ◆ Equipment and locker rentals
 - ◆ Customer relationship management



Findings and Observations

- The City has no parks management software. Excel is being used for tracking.
- Outlook is used for scheduling.
- The City doesn't have a recreation department, and all processes are manual.
- Park Reservations are handled by phone calls and emails.
- Park Reservation Permits are available online. The Park Reservation refund process isn't automated. Refunds happen 4x per month and are tracked in Excel.

Recommendations

- We recommend that the City acquire a Parks reservation system.
- Follow "Software Needs Assessment Best Practices" to determine detailed feature/function requirements for a new Park and Recreation Management System.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine what to eliminate or reduce to create efficiencies.
 - Identify all integration/interface requirements with other applications.
- Follow the guidelines of the "Software Selection Best Practices" initiative to select the best overall, long-term system for the City's needs.
- Follow the guidelines in the "IT Project Planning and Implementation Best Practices" initiative.

Benefits

- Improved customer service
- Improved software application utilization
- Improved reporting, resulting in better management decision-making

33. Project Management Software

Background

Project management and collaboration software provide effective, flexible, and secure information sharing. This includes storing, routing, and managing documents, maintaining task lists, managing forms, and administering workflows. The following are the benefits of project management software:

- Project teams have a central repository of information for each project.
- Centralized project documentation storage, e.g., contracts, purchase orders, reports, interviews, findings, procedures, data, and so on
- Data is not duplicated due to distribution methods and management.
- Teams are provided with an electronic distribution point for information regarding a project.
- Project collaboration tools provide the ability to share information through multiple types of communication and media, such as:
 - ◆ Task creation, tracking, and assignment
 - ◆ Calendaring
 - ◆ Dashboards
 - ◆ Gantt charts
 - ◆ Contacts
 - ◆ Alerts
 - ◆ Document sharing libraries (versioning, check-in/out)
 - ◆ Workflow
 - ◆ Search
 - ◆ MS Office/other app integrations
 - ◆ Mobile access for smartphones
 - ◆ Project sites
 - ◆ Website content management
 - ◆ Discussion forums
 - ◆ Photo galleries
 - ◆ Metadata management

Several vendor-hosted project tracking and collaboration solutions that will support collaboration with both internal and external groups of users are available. Sample project tracking and collaboration solutions include:

- Asana
- Monday.com
- Wrike
- Basecamp
- Clarizen
- Zoho
- Teambox (Redbooth)
- Smartsheet
- Microsoft Project/Microsoft Project Professional

Findings and Observations

- Project tracking is done in SharePoint.
- Tracking progress on strategic plan goals and objectives needs to be accessible to all departments.
- Staff would like a project scheduling mechanism like Microsoft Project.
- Staff need a way to manage capital improvement project improvement.



Recommendations

- Follow the guidelines in the “Software Needs Assessment Best Practices” initiative to determine detailed feature/function requirements for a new Project Management system.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine which automation improvements will eliminate or reduce those processes and/or shadow systems and result in labor efficiencies.
 - ◆ This process should also include:
 - Inventorying all reporting requirements
 - Identifying all integration/interface requirements with other applications
- Follow the guidelines of the “Software Selection Best Practices” initiative to select the best overall, long-term system for Cathedral City’s needs.
- Follow the guidelines in the “IT Project Management and Implementation Best Practices” initiative.

34. Contact Management Software

Background

A contact management system (CMS) is a tool that helps agencies organize, store, and track contact information. It can be used to manage customer relationships, leads, and even marketing campaigns.

CMS systems typically offer a variety of features, including:

- **Storage:** A CMS can store a variety of contact information, including names, addresses, phone numbers, email addresses, and social media profiles.
- **Segmentation:** A CMS can segment contacts into groups based on their demographics, interests, or other criteria.
- **Tracking:** A CMS can track interactions with contacts, such as emails, phone calls, and meetings.
- **Reporting and analytics:** A CMS can generate reports on contact activity, helping agencies identify trends and make better decisions.

Example vendors include, but are not limited to, the following:

- Salesforce
- Act!
- BigContacts
- Microsoft Dynamics CRM

Findings and Observations

- Currently, the Economic Development Department is using Outlook and OneNote to track contacts.
- Economic Development has a specific need to track developers, potential investors, landowners, business owners, and more
- The City Manager would like a mechanism to track council contacts with the departments. A single system for department heads to enter info about council requests for the City Manager to have visibility.
- The tracking system would need to tie to the property address or street location. It would need to be flexible in how each entry was labeled.



Recommendations

- Follow “Software Needs Assessment Best Practices” to determine detailed feature/function requirements for a new Contact Management System.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine which automation improvements will eliminate or reduce those processes and/or shadow systems and result in labor efficiencies.
- Follow the guidelines of the “Software Selection Best Practices” initiative to select the best overall, long-term system for the City’s needs.
- Follow the guidelines in the “IT Project Planning Implementation Management Best Practices” initiative.

35. Microsoft Office 365 and Teams

Background

Microsoft Office 365 is a subscription service that is part of the Office product line. Office 365 is focused on enterprise customers. Office 365 products and services comprise:

- Outlook, which includes email, calendaring, people, and tasks
- Hosted Services, which include Office server platforms for Exchange, SharePoint, and Teams
- Office Applications, which include Word, Excel, and PowerPoint

Microsoft is transitioning its customers to a Software as a Subscription (SaaS) model. This is a departure from the conventional software license model. The SaaS model allows Microsoft to update the Office 365 software on a rolling release basis once per quarter.



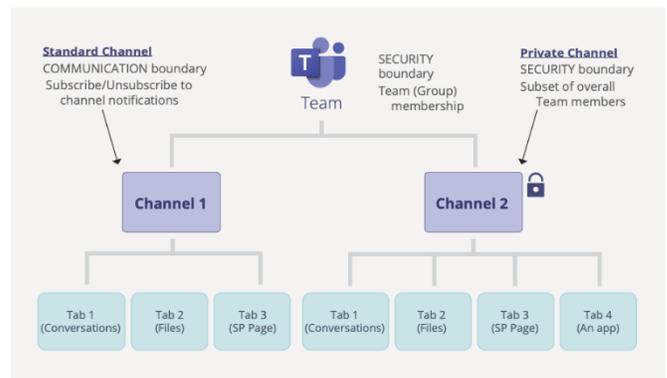
Findings and Observations

- Several departments indicated that they are not utilizing the full capabilities of Office 365 due to a lack of training and/or understanding of its capabilities.
- Staff need additional training on Teams, OneDrive, and SharePoint.
- Teams is not being utilized to its fullest capacity. Staff still use Zoom.
 - ◆ Several staff have indicated that Teams isn't a stable meeting platform.
- Staff have difficulty finding shared folders in Sharepoint. The collaborative features aren't being used.
- The City is paying for unnecessary Zoom licenses.
- Need Sharepoint migration from server file shares.

Recommendations

- Work with a third-party subject-matter expert to develop an MS 365 Improvement Plan and project statement of work (SOW) that captures all the City's requirements.
- The assessment phase of this project should begin with educating users on the overall capabilities of the major apps and functionalities of MS 365.
- It is recommended that the City follow the "Business Process Reviews Best Practices" initiative to identify and inventory all functional gaps and system needs.
 - ◆ Develop a System Improvement Plan, including end-user training plans.
- Follow the guidelines in the "Applications Implementation Project Management Best Practices" initiative to increase the probability of implementation success.
- It is recommended that the current Office 365 deployment be expanded.
 - ◆ Consider implementing additional Office 365 security services.

- Implement Multi-Factor Authentication (MFA) for all external access to Office 365.
- Consider expanding the Office 365 subscription to include MDM, self-service password changes, and other cybersecurity services.
- ◆ Expand utilization of Office 365 to include OneDrive.
 - Synchronize user home directories to OneDrive, providing a backup to locally saved files.
- ◆ Expand Office 365 to include SharePoint for file sharing and collaboration internally and with trusted third parties.
 - Staff training and documentation will be required for this effort.
- ◆ Introduce an email archiving and email backup solution.
- The City is using an Exchange Online Archiving solution and uses Rubrik to backup exchange accounts online.
- Include training as a part of each major upgrade.
- Expand the Microsoft Teams platform to broaden department collaboration. The basic feature of a workspace in Microsoft Teams has three components: the Team workspace (including the SharePoint file hosting), which acts as a permissions boundary; channels, which focus and divide audience areas; and tabs, which form the key artifacts, data, and apps used by team members.
- Expand utilization of Teams collaboration platforms. Provide staff training to include:
 - ◆ **Teamwork Space:** Using Teamwork Space, audience areas are divided by topics, projects, departments, geographies, types, etc.
 - ◆ **Private channels:** Teams' private channels provide a safe, confidential way to collaborate between Public Safety, Finance, and the Board of Directors.
 - ◆ **Tabs:** Tabs have become the most common form of collaboration within team workspaces, while channels separate an audience.
- Along with Microsoft Teams, we recommend a SharePoint deployment to support Teams' back end and serve as a Central document repository for the City.



Benefits

- Regulatory compliance
- Effective collaboration among teams
- Improved data management
- Saving time

Smart Technologies is the concept of using new technologies in combination with creativity, information sharing, and the collaborative process to better serve and interact with the public.

- 37. Website Improvements
- 38. Request Management Software
- 39. E-Filing Systems - Public Access
- 40. Mass Outbound Communications System
- 41. E-Billboards
- 42. Centralized HVAC Monitoring/Management System



36. Website Improvements

Background

Local government websites are portals for citizens, customers, and the public to quickly access information and conduct transactions without calling City staff or going to a public facility. Modern websites are interactive, allow transactions to be conducted at any time of the day, and can be accessed on any mobile device. Since the COVID-19 Pandemic, they have become an even more critical resource for all Organization stakeholders.

Findings and Observations

- The City is migrating from Granicus Vision to OpenGov for its website provider.
- Multiple departments have requested additional content and functionality.
- The City needs better bilingual communication with customers. Over 56% of the community is Hispanic.

Recommendations

- For each department, follow the guidelines in the “Software Needs Assessment Best Practice” initiative to identify and catalog the overall website functionality and training needs for the City.
- Identify user training requirements by specific users responsible for website content.
 - ◆ Assimilate the training needs with “User Training and Support” initiative.
 - ◆ Offer regular training to keep staff skills fresh and to ensure they can keep website content current.
- Develop content management policies and procedures, which may vary by department.
- As part of the content management policy, implement standard practices and make website maintenance a component of the Technology Steering Committee's responsibilities to ensure the site is maintained regularly and remains relevant and up-to-date for the public.

Benefits

- Improved public records access
- Increased information-sharing capabilities
- 24/7 availability
- Improved customer experiences
- Increased customer interaction and transaction capabilities

37. Request Management Software

Background

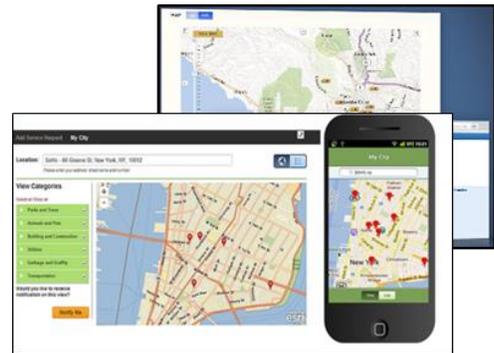
Request Management solutions are used to receive, track, and manage all types of requests and complaints from customers, citizens, or employees. These solutions can categorize requests, prompt the user for specific information required, assign and route information to specific staff or departments, track status, and fulfill overall reporting requirements for more effective handling and response.

Their primary objective is to ensure all inquiries, requests, and complaints are captured when received, routed to the proper resource, and responded to or resolved promptly, ensuring that the loop is closed on every contact. Ideal functionality includes:

- Request responsiveness
- Prompt request routing
- History tracking
- Interdepartmental resource linking
- Managing resources
- Benchmarking and performance-based measurements
- Planning and budgeting
- GIS integration
- Online customer surveys

Sample vendors include:

- GovQA
- Rock Solid
- Comcate
- GOGov
- Tyler - MyCivic



Findings and Observations

- Economic Development needs to track developers, potential investors, and other contacts.
 - ♦ The department is currently using Outlook.
- Tyler 311/MyCivic is configured but not used.
- The City uses a portal through NextRequest for public records requests.
- Econ Development is concerned about losing institutional knowledge due to historical information being tracked in OneNote.
- The City is currently using GoGov's GoRequest solution and GoGov's My Cathedral City mobile app.

Staff Feedback

City Clerk's Office

- The City uses a portal for public records requests.

- The City used to use GovQA but has now switched to Next Request.

Recommendations

- We recommend that the City perform the necessary assessments and due diligence to assess whether Tyler Technologies' MyCivic or GoGov's GoRequest product can meet the City's needs before going with a different vendor.
- If it is determined that neither meets the City's needs, follow "Software Needs Assessment Best Practices" to determine detailed feature/function requirements for a new Request Management System.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine what to eliminate or reduce to create efficiencies.
 - Identify all integration/interface requirements with other applications.
- Follow the guidelines in the "IT Project Planning and Implementation Best Practices" initiative.

38. E-Filing Systems - Public Access

Background

Local governments are increasingly seeking solutions for e-filing to satisfy the multiple regulatory requirements for reporting. Options for this functionality include using the workflows in an Electronic Document Management System (EDMS). EDMS systems can provide public access to agency-defined records and online fillable forms. Other vendors work specifically with cities and counties by offering hosted (cloud-based) services to assist with public access and e-filing, such as:

- Professional Applications (e.g., treasurers)
- SEI (Form 700) Statements of Economic Interest Filing
- Campaign Finance disclosure filings

E-filing systems allow agencies to administer, manage, and report as the state requires.

Some options in the marketplace include:

- Form 700 e-File
- NetFile
- Granicus

Findings and Observations

- The City does not have e-filing capabilities for Form 700 and Campaign Finance Disclosure Filings.
 - ◆ The City Clerk would like the ability to e-file Form 700 using a certified system.
- Some vendors provide the ability for online filing, e-signatures, and electronic public access for residents through a portal.
 - ◆ The City has explored Granicus as a possible solution.

Recommendations

- Follow the guidelines in the “Software Needs Assessment Best Practices” initiative to determine detailed feature/function requirements.
- Follow the guidelines of the “Software Selection Best Practices” initiative to select the best overall, long-term system for the City’s needs.
- Follow the guidelines in the “IT Project Planning and Implementation Project Management Best Practices” initiative.
- Ensure any considered vendor can accommodate state filing requirements.
- Implementation should include establishing a link to e-filing and accessing services from the City’s website.

39. Mass Outbound Communications System

Background

Outbound communication systems, including Reverse 911, have recently been significantly transformed. Public agencies have historically used enhanced mass notification systems to issue public notifications of severe weather warnings, traffic notifications, or other events such as street closures, interruptions in water service, and major organization events. The systems use delivery mechanisms like email, text messages, RSS feeds, and social media. Many systems can integrate with warning systems or GIS. Modern systems have even incorporated additional functionality to support advertising campaigns and public or legislative relations.

Example solutions include:

- AlertMedia
- Alertus
- OnSolve
- Everbridge
- RedFlag

Findings and Observations

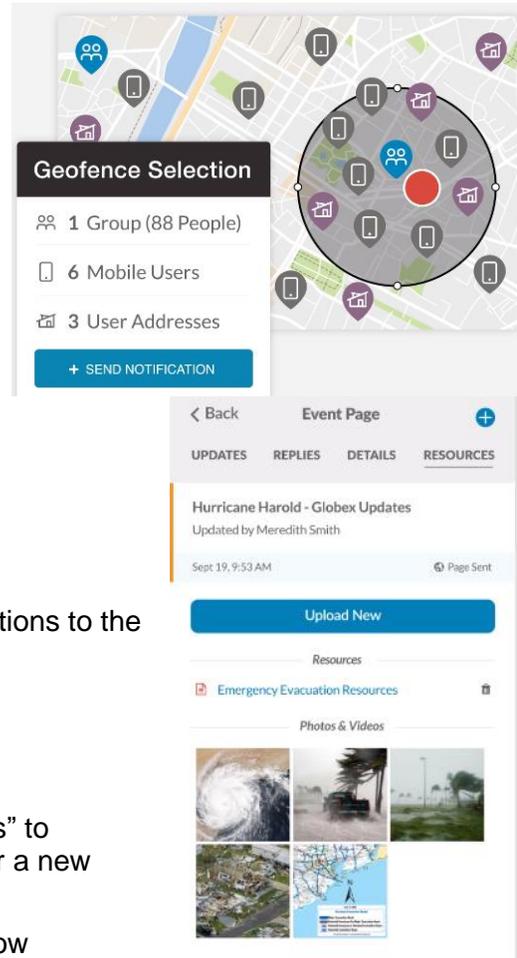
- The City would like the ability to issue mass notifications to the public and customers.
- The City does not have a Reverse 911 system for communicating with residents in emergencies.

Recommendations

- Follow “Software Needs Assessment Best Practices” to determine detailed feature/function requirements for a new Mass Communication System.
 - ◆ Review applicable manual processes and shadow systems, such as spreadsheets, paper, and other databases, to determine which automation improvements will eliminate or reduce those processes and/or shadow systems and result in labor efficiencies
 - ◆ This process should also include:
 - Inventorying all reporting requirements
 - Identifying all integration/interface requirements with other applications
 - Identifying any data conversion needs
- Follow the guidelines of the “Software Selection Best Practices” initiative to select the best overall, long-term system for the City’s needs.
- Follow the guidelines in the “IT Project Planning and Implementation Project Management Best Practices” initiative.

Benefits

- Increased community outreach
- Improved public relations
- A single standardized tool for use across the City



40. E-Billboards

Background

An “e-billboard,” or electronic billboard, is a billboard that displays digital images that are controlled by computer software at user-defined intervals. Digital billboards are primarily used for advertising. Public agencies are increasingly using them to communicate with the public. Many will locate them at high-visibility and trafficked locations, such as major road arteries, intersections, and City facilities. These boards can also be centrally managed when connected to the City network.

Findings and Observations

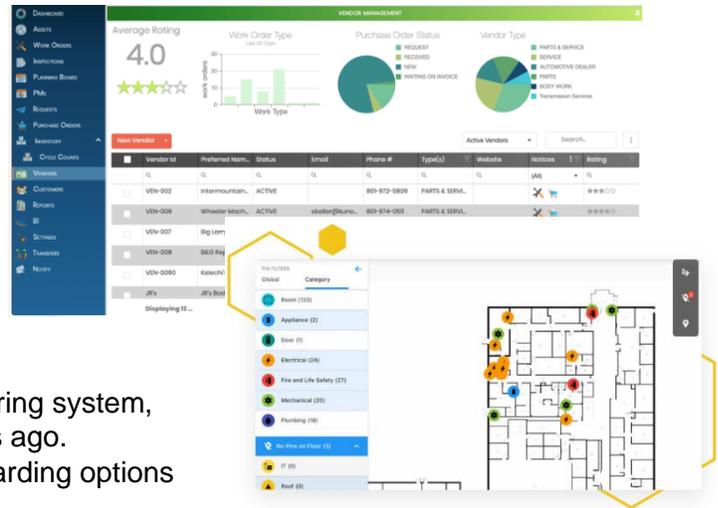
- The City has billboards around the civic square requiring staff to update posters and content manually.
- The City would like digital billboards that can be updated more regularly and remotely.
- The Police have purchased a kiosk display that is connected to the network.
- Staff need a reader board at the front counter reception area for daily news and events.
- Text and other alerts can be displayed on these boards.

Recommendations

- Research vendors in the marketplace who provide both this hardware and software.
- Follow procurement best practices to achieve cost savings.
- Ensure that contents adhere to the City’s media policy.
- Ensure deployment falls within the City Technology Governance process, allowing the IT Department to maintain and support the technology through its lifecycle and replacement.

41. Centralized HVAC Monitoring/Management System

Building management systems (sometimes called *HVAC management/monitoring systems* or *Energy Management Systems (EMS)*) are software systems that control heating, air conditioning, lighting, solar panel integration, and other building control systems. These systems can save money by automating building temperature controls and lighting and reducing time spent visiting buildings to adjust zonal heating or closing buildings for the night. The systems can maintain heating and cooling schedules by facility or HVAC source. Modern systems can be controlled and managed remotely by staff via portable or mobile computing devices.



Findings and Observations

- The City uses Pelican for its HVAC monitoring system, replacing iView, which crashed 6-7 months ago.
- The City is in discussions with Pelican regarding options for expanding the system.
- Two fire stations and the library aren't on the Pelican system.
- Some locations will need an upgrade to be integrated into Pelican.

Recommendations

- The City should consider implementing a centralized building control system for all applicable City facilities that include:
 - ◆ HVAC Management
 - ◆ Lighting Management
 - ◆ Security Management
 - ◆ Fountain Maintenance Management
- Follow the guidelines in the "IT Project Planning and Implementation Best Practices" initiative

IT Infrastructure refers to networks, servers, equipment, inside or outside cable plants, and other communications infrastructure.

- 42. Building, Door, and Gate Access Control
- 43. Computer Equipment Replacement Planning
- 44. Firewall Upgrade
- 45. Council Chambers Audiovisual Upgrade
- 46. Server Upgrades
- 47. Network Upgrade
- 48. Fiber Optic Master Plan
- 49. Public Wireless Network (Wireless Expansion)
- 50. Internet Bandwidth
- 51. Office 365 Software Upgrades
- 52. Public Safety Vehicle Communications
- 53. Public Safety Radio System
- 54. Public Safety Video



42. Building, Door, and Gate Access Control

Background

Door Access Control, sometimes called keyless entry, is an effective way for the City to manage security and control access to various buildings, facilities, and secure spaces. The system limits security risks and allows access management by employees, customers, and the public. Many municipalities are moving to a single, organization-wide system to manage security and facility access. Some systems in the marketplace allow for integration with video security systems to allow the City to associate keyless entry devices with video or photographic imagery to ensure users comply with contractual or rental agreements.

Findings and Observations

- The Civic Center has a key card system.
- Cathedral City Amphitheater has autolocking doors.
 - ◆ All other parks use traditional key access
- Some other City locations use traditional key access.
- There are no automatic restroom locks; they must be manually locked/unlocked.

Recommendations

- Complete a review and assessment of all facility access and control requirements for external and internal doors and access points.
- Consider a single Citywide system that can integrate with video security systems.
- Access should also be extended to constituents and others, as appropriate.

Benefits

- Improved maintenance and less time
- Mechanical locks and keys replaced with electronic locks, badges, or cards and readers
- Eliminated expense of re-keying or changing locks for employee separations
- Employees and others are less likely to set off false alarms
- Automatic regulation of access reduces the need for on-site security personnel
- Allows for more efficient temporary access by outside personnel, like visitors or vendors
- Decreases liability and risk from greater access control
- Provides access to reports regarding specific personnel accessing various buildings and division

43. Computer Equipment Replacement Planning

Findings and Observations

- The City has a replacement schedule for most capital computer equipment, including servers, storage, switches, or firewalls.
- IT replaces desktop PCs and laptops on a regular basis, approximately every five years.
- During the interview process, some departments discussed the need to continue using older PCs.

Other staff members felt their workstations were underpowered.

- Other technology systems, such as audiovisual systems, camera systems, door access control systems, and video surveillance, do not have a formal replacement schedule.

Recommendations

- Review workstation inventory and:
Ensure all staff have a minimum of i5 processors with 16GB of RAM.
Replace all PCs 5 years old or older.
- Create and maintain an inventory of all technology-related equipment, year purchased, warranty duration, and other useful information.
Expand the inventory to all technology with a standard life expectancy.
- Develop a ten-year, rolling computer equipment replacement plan for all types of technology and budget accordingly.
- Allow customized length of time for replacement of any technology that may have a unique end-of-life.
- Continue to purchase discounted extended warranties at the time of purchase that will cover the equipment throughout its useful life (e.g., five years for computers and servers).

IT Equipment	Recommended Replacement Cycle (Years)
Network Switches	7
Phone System Upgrade	5
Phone System Replacement	10
Audiovisual Equipment	5
Servers	5
Disk Storage	5
PCs	5
Laptops	4
Mobile Devices	2
Wireless Devices:	
Point-to-Point	5
Wireless LAN	4
Windows Software	+/- 5
MS Office	+/- 5
Printers, Scanners	5
Plotters	5

Benefits

- Better forecasting of purchases
- Managed process that flattens capital expenditures over time
- Improved computer performance
- Improved available features
- Improved portability through the use of a single device
- Ability to keep spare equipment around to be reissued, eliminating employee downtime
- Increased employee performance by eliminating the use of old, slow, and post-life cycle technology
- Reduced total cost of ownership

44. Firewall Upgrade

Findings and Observations

- City firewalls were purchased in 2020 and will be end-of-life in 2026.
City firewalls are installed in a high-availability cluster.
Separate firewalls are in use at remote sites and will be end-of-life in 2027.
- City firewalls are connected to two 1Gb circuits from different providers.
- City firewalls are capable of supporting necessary internet bandwidth with all security services enabled.
- During the interview process, some departments discussed slow upload/download times.

Recommendations

- Review firewall implementation and verify that both internet circuits are utilized in an active/active configuration.
- Investigate upload/download issues, utilizing WireShark or a similar program to determine bottlenecks.
Review routing to determine if any issues are apparent.

Benefits

- Improved network security
- Reduced risk of viruses being downloaded inadvertently by staff members
- Improved communication between devices and advanced proprietary feature sets through standardization in firewalls throughout the County
- Reduced support costs
- Improved functionality

45. Council Chambers Audiovisual Upgrade

Background

Council Chambers audiovisual (AV) tools record and stream public meetings to the Internet. The resulting recording can be matched with the agenda items through software to allow interested parties to select an item and click directly to the related video.

Staff Feedback – City Clerk

Council Chambers Audio/Visual systems need an assessment and replacement RFP. Councilmember displays need to be refreshed.

Findings and Observations

- Council audio/video equipment replacement schedules are staggered.
 - ◆ Computer replacement occurred in FY22-23.
 - ◆ Projectors were last installed in 2014.
 - ◆ A/V control systems were last upgraded in 2017.
- There are some issues with public meeting streaming speeds and upload capabilities.

Recommendations

- Consolidate projector and A/V control systems into a single procurement.
- Assess the current system and develop an RFP for replacement.
- Procure improved Council Chambers video equipment and integrate with existing audio systems through a best practices procurement process.

Benefits

- Improved production quality of City meetings and other public meetings held in the Council Chambers
- Improved government transparency

46. Server Upgrades

Findings and Observations

- Server hardware is mostly virtual using Dell vxFails. There are seven physical servers.
- Most servers are in a virtual environment using VMWare 8, with all host servers centralized.
- The servers are a mix of 2008, 2019, and 2022 Windows operating systems. Most servers are from 2019 and 2022, with two from 2008.

Recommendations

- Upgrading efforts for any remaining Windows 2008 servers should be prioritized because security patches are no longer available.
- If 2008 servers cannot be immediately upgraded due to data access issues, it is recommended to segment them behind a firewall.
- Any databases running under Windows SQL version 2012 should also be migrated to a newer version of the database software version as extended support ended July 12, 2022. SQL Versions are 2016 and 2019. Some are SQL Express.

Benefits

- Keeping the server operating system and application software patched reduces the attack surface available to malicious actors. It increases the likelihood of smooth operations of current software.
- Keeping the operating system and application software up to date increases the likelihood of faster vendor response times, as most vendors require up-to-date patches before they will help resolve issues.
- Keeping hardware within the support lifecycle offered by the vendor ensures that parts are available from the vendor in case of failure.

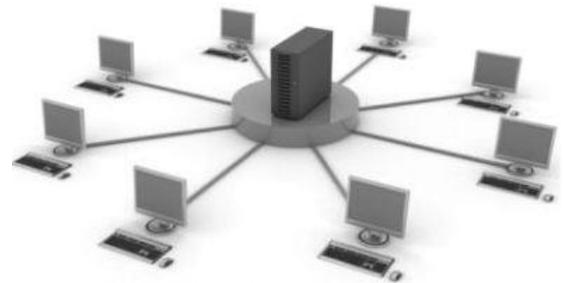
47. Network Upgrade

Background

A *Local Area Network* (LAN) is a group of interconnected computers that span a building using copper, fiber cabling, or wireless technology as a means of communication. Typically, access to a LAN is controlled by authentication software integrated with Active Directory. Authorized users access the network and can then use resources and applications assigned to them. LANs are very common due to their small size, low maintenance, fast speeds, and ease of use.

Findings and Observations

- City LANs consist primarily of Cisco and Dell switches.
- The switches are within five years of being originally deployed.
- Micro-segmentation is a cybersecurity trend, and virtual networking is a network management trend.
- Manage Engine OPS Manager is being used for network monitoring.



Recommendations

- Improve network documentation and diagrams.
- Replace any end-of-life network equipment.
- Replace all five-year-old switches over the next two years.
- Expand VLANs to further separate critical applications (micro-segmentation).
- Develop a comprehensive network design to correspond with a planned network upgrade. Expand the use of VLANs to increase prioritization and security. Consider routing at regional aggregation points to facilitate local communications and services.
- Include network equipment in the capital replacement plan.

Benefits

- Improved network performance and reliability
- Increased security on network and resources
- Reduced costs associated with replacements and failures.
- Ability to establish an internal SLA (99.9% would be standard for local government)
- Improved budget and project planning
- Increased network resiliency and performance
- Reduced IT staff support effort

48. Fiber Optic Master Plan

Findings and Observations

- It is desirable to have high-speed internet at their City park locations.
- Spectrum had been contracted to provide internet at park locations.
 - ◆ Spectrum provides unlimited Internet access for Spectrum subscribers. For Non-Spectrum subscribers, registered guests have a time limit of 30 to 60 minutes.
 - ◆ Due to the registration issue, Cathedral City decided to pay for Internet at park locations to remove the registration requirement.
 - ◆ Cathedral City will be paying Spectrum for Internet at the park locations.
- The fiber network could be leveraged to expand broadband speed wireless capabilities for businesses, residents, and visitors.
- Additional federal funding will be available for broadband services to underserved areas.

Recommendations

- Conduct an assessment of current fiber-optic capabilities and document pathways. Document available pathway capacity and handholds for possible resale.
- Apply for grant funding to develop a Fiber Optic Master Plan.
- Utilize the Fiber Optic Master Plan to apply for phased implementation funding of a fiber optic network.
- Develop Fiber Master Plan.
 - Consider leveraging the fiber network for broadband services where applicable.
 - Consider leveraging the fiber network for additional video for traffic management and public safety.
- Investigate the installation of dark fiber between City Hall and the following locations:
 - ◆ Public Works
 - ◆ Fire Department 410/412
 - ◆ Fire Department 411
 - ◆

Benefits

- Improved staff productivity return on investment
- Timely access to information for serving residents/public
- Reliability, dependability, and consistency of network communication

49. Public Wireless Network (Wireless Expansion)

Findings and Observations

High-speed wireless Internet is a key infrastructure component of a Smart City strategy. Strong wireless infrastructure for staff and public wireless access at City facilities is now expected. Public wireless infrastructure deployed at City parks and public spaces the City can enable many Smart City applications, including smart meters (water or parking), the Internet of Things (IoT), automatic license plate readers, traffic monitors, some video surveillance applications, and many more Smart City tools.



Findings and Observations

- The City has some wireless capabilities at City parks.
- City-owned Wireless access was completed for Panorama Park and Amphitheater Park.
- Demand for Wi-Fi will continue to increase. Public demand for wireless at City parks will increase.



Recommendations

- Budget for a capital project to implement high-speed wireless throughout City parks.
- Utilize a complete public project design/specification/bid methodology for the project.
- Install public wireless to faster bandwidth and increased density capabilities.
- Establish Wi-Fi connectivity for Ocotillo Park and Soccer Park.

Benefits

- Improved wireless speeds
- Reduced complexity
- Increased security
- Expanded coverage

50. Internet Bandwidth

Background

Increased Internet bandwidth and high availability are becoming increasingly important to organizations for daily functionality. This allows for additional resources to become available during peak Internet usage and provides resiliency when disasters occur that may affect primary Internet connections that are no longer accessible.

Findings and Observations

- Internet connectivity is as follows:
 - ◆ All sites are on ELAN for connectivity, between 300-500 Mbps
 - ◆ City Hall Internet access at 1Gbps, with redundant connections:
 - Spectrum
 - Frontier
 - ◆ City is using redundant firewalls and ISP connections to load balance incoming connections from the Internet.
- Redundant Internet also exists at public works.
- Future increases in use of cloud services as enterprise applications continue to only be available over the cloud will increase bandwidth utilization
- During the interview process, several departments discussed slow upload/download speeds.

Recommendations

- Implement load balancing for incoming Internet connections where the City hosts services.
- Increased Internet costs have been included in the recommended *Five-Year Budget*.
- Plan for future Internet upgrade speeds over time to meet increased anticipated needs.
- Use upgraded ELAN connections to provide SDWAN redundant connections between sites.
- Increase ELAN connectivity to 1 Gbps for backup replication and EOC functions.
- Upgrade the redundant Internet Firewalls to increase bandwidth and firewall processing power.
- Investigate upload/download speed issues and determine if the issues are workstation, network, firewall, or internet-related.
- Investigate the use of Satellite-based Internet services, such as Starlink, as an add-on to the redundancy of Internet and ELAN connectivity.

51. Office 365 Software Upgrades

Background

Microsoft 365 is a subscription service that is part of the Office product line. Microsoft 365 products and services comprise the following: Hosted Services, which include Office server platforms for Exchange, SharePoint, Teams, and Office Applications, which include Outlook, Word, Excel, PowerPoint, etc. Microsoft is transitioning its customers to a Software-as-a-Subscription (SaaS) model. This is a departure from the conventional software license model. The SaaS model allows Microsoft to update the Microsoft 365 software on a rolling release basis.

Microsoft 365 contains three major components:

- Email – Traditional electronic mail service using a SaaS model
- Teams – Collaboration tools, including video conferencing, chat, calendar, and a collection of productivity applications
- OneDrive and SharePoint – Individual and shared file storage built for collaboration and sharing internal and external to the City

Findings and Observations

- The City has migrated to M365 for email and OneDrive. Some department share files have been migrated to SharePoint.
- User licensing is G3, which includes Microsoft 365, Office licenses, Teams, OneDrive, SharePoint, and some cybersecurity features.
- Not all security features have been implemented.
- Full departmental SharePoint migration will be performed in 2023 - 2024.
- Microsoft 365 government licensing (G3) denotes a secure CJIS-compliant environment with all data stored in the United States.
- Microsoft 365 allows the further deployment of OneDrive and SharePoint, replacing on-premise Home Directories and shared file storage.
- Microsoft 365 will also allow for the implementation of Teams for the majority of City video conferencing and collaboration needs.
- Migration planning and implementation have started for file shares being migrated to SharePoint document libraries.
- The City has implemented Rubrik cloud backup service for Microsoft 365.

Recommendations

- Provide ongoing training to new users as they onboard with instructions on how to use OneDrive and SharePoint document libraries.
- Provide documentation and training for current users for OneDrive and SharePoint.
- Upgrade to Microsoft 365 G5.
- At a minimum, upgrade to Enterprise Mobility + Security E5 if not able to upgrade to G5.
- Expand Microsoft 365 to include SharePoint for file sharing and collaboration internally and with trusted third parties.
Staff training and documentation will be required for this effort.
- Include training as a part of each major upgrade.
For Microsoft 365, consider productivity tips and "what's new" types of training.

- Home directory and shared directory file storage are options via OneDrive and SharePoint to the cloud using current licensing. Migrating all on-site files to OneDrive and SharePoint will allow for local retention of current backup appliances to be used more efficiently with longer retention times available.

52. Public Safety Vehicle Communications

Findings and Observations

Cathedral City Police and Fire utilize mobile data computers (MDCs) in patrol cars, command vehicles, and fire apparatus to transmit dispatch data, look up critical information such as license plate numbers and arrest records, and write reports. Other City staff also use MDCs as a part of their fieldwork.

Verizon, AT&T, and T-Mobile all provide public safety priority cellular coverage in Coachella Valley. Many agencies have had success implementing dual-simm modems that sense carrier signal strength and switch to the stronger signal automatically.

Findings and Observations

- Police and Fire vehicles encounter dead zones and slow responses when using their MDCs in certain areas of the City.
- Other departments with mobile cellular devices have also complained about limited cellular coverage.
- Other agencies have implemented dual-simm modems to successfully reduce cellular coverage issues.

Staff Feedback

Police Department

- Officers sometimes have dead zones or slow connectivity with their MDCs.

Fire Department

- Cellular service is spotty in apparatus.
- MDCs in fire apparatus are not directly wired to the vehicle's power supply, resulting in units relying on 12V power conversion (cigarette lighter power cord) resulting in a variable power supply. Additionally, the base units for the MDCs are not all connected via a LAN cord to the Cradlepoint. This results in Wi-Fi connections to the CAD being interrupted/delayed/unreliable. There is no plan for hardware replacement/updating.

Recommendations

- Conduct "pilot" tests with leading modem providers and cellular companies to determine the best coverage combination.
- Consider modem mounts and antenna placement as a part of any pilot tests.
- Budget for dual-simm modems and expanded cellular coverage in the coming year.

53. Public Safety Radio System

Background

Public Safety radio is a communications radio system. Public safety radio availability is critical to officer and fire-fighter safety. A public safety radio is worn by the officer or firefighter and provides a “may-day” response capability.

Modern radio systems allow integration capabilities to reach across multiple applications and resources for enhanced response coordination. Integration can include messaging, CAD, mapping, and logging recorder systems. This is a mission-critical system that increases ease of use for organizing resources, coordinating a response, and communicating valuable information.



Findings and Observations

- There are times when communication with dispatch is impossible in some areas of the City.
- The City has moved to the Riverside County Public Safety Emergency Communication (PSEC) system.
- The City continues to improve mobile and handheld units.

Recommendations

- Conduct a drive-around to identify any potential areas lacking PSEC radio communication.
- PSEC radio communication shadows would likely be near mountainous terrain.
- Develop a plan and budget for repairs and potential upgrades of radio consoles, mobile, and handheld units.
 - ◆ PSEC offers repair services. Most Riverside County agencies handle repairs separately from PSEC.

54. Public Safety Video

Background

Security camera systems can be an effective security tool and criminal deterrent. One study by the Urban Institute determined that the savings and benefits of fewer incidents and crimes outweighed the cost of video systems. The study also found that police, policymakers, and others involved in facility or property oversight largely viewed security, surveillance, or monitoring cameras as useful tools for managing behavior, preventing crimes, aiding response, assisting arrests, and supporting investigations and prosecutions.

Video systems can be integrated with door access control systems to improve visibility into door-related alarms, such as focusing a camera on a door that has been propped open too long.

Recently, police departments have found that a mix of video options is required to provide optimal public safety capabilities. These include static video cameras, pan-tilt-zoom cameras, and fixed and mobile automated license plate readers (ALPRs).

Findings and Observations

- Parks are interested in adding video cameras to all City parks.
- Video cameras assist in reducing vandalism, transient-related issues, and can be used to increase enforcement.
- The Police Department's video system is separate from City video systems.
- There are approximately 80 cameras in use, including City facilities and parks.
- The City's video surveillance systems are underutilized.
 - ◆ Not everyone has access.
 - ◆ There are no notifications if a camera is inoperable.
 - ◆ Some cameras are so old that the video is unusable.
- Improved network connectivity to the parks is needed.
- Staff need more training in understanding, navigating, and using the system.

Recommendations

- Staff should inventory the quantity, type, and location of existing cameras.
- Conduct an assessment of video needs and develop a long-range video plan for the City.
 - ◆ Collaborate with the fiber optic planning study recommended as a part of this report.
 - ◆ Identify critical video needs by location and budget for implementation based on identified geographic needs.

Cybersecurity addresses all security systems and practices, including disaster recovery, to protect systems and data.

- 55. Audit Logs and Log Management
- 56. IT Cybersecurity Best Practices
- 57. Backups
- 58. Disaster Recovery Planning
- 59. Disaster Recovery Site Implementation
- 60. IT Security Assessment
- 61. Records and Data Retention



Disaster Recovery Planning



55. Audit Logs and Log Management

Background

The *audit log and log management software* are used to monitor the status and health of Active Directory, servers, and all network devices, respectively. This software also allows the ability to create audit trails of changes made to the Active Directory and other applications and systems. With log management and alerting software, IT staff members can be notified immediately of any issues or potential threats to the Active Directory domain. Audit logs are important tools for managing the environment. In addition, should an incident occur, audit logs can provide valuable forensic information related to the incident and any potential perpetrators.

Findings and Observations

- Two products are being used for logging and auditing purposes:
 - ◆ City is happy with the functionality of Log360 from ManageEngine
 - ◆ Syslogs are being sent to Log360
 - ◆ OpsManager from ManageEngine is being used to monitor network switches, servers, and firewalls and alert as needed
- There is not always enough time to monitor logs and alerts by current IT staff

Recommendations

- Conduct a study of time needed to fully monitor logs and alerts needed to keep up to date with cybersecurity threats that might be coming in and to be proactive in staying ahead of any operational issues.
- Recommend staff augmentation or third-party log management product to assist either part or full-time in monitoring and extending the logging capabilities of the City.

Benefits

- Increased investigation visibility using audit trails
- Improved security
- Improved reporting and metrics
- Better diagnostics and problem identification
- Availability of forensics log
- Alerts to bad logon attempts
- Increased staff productivity

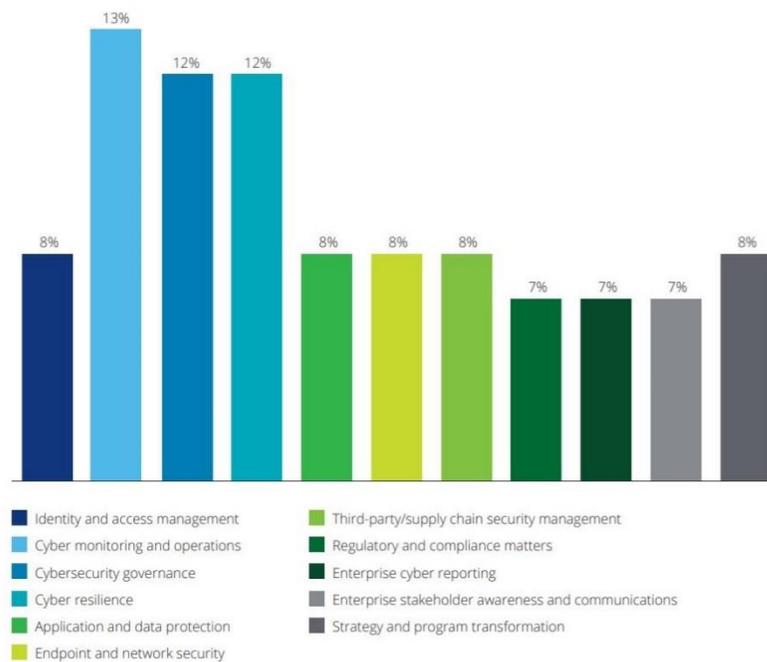
56. IT Cybersecurity Best Practices

Background

The number and sophistication of cybersecurity incidents continue to increase. Risks related to cybersecurity attacks have become more significant recently. It was forecasted that in 2021, a new organization fell victim to ransomware every 11 seconds. Costs of breaches have escalated and include loss of reputation, reduction in the ability to serve residents, costs to notify those affected by the breach, reduced staff productivity, and financial costs, all contributing. Local government agencies are all struggling to improve cybersecurity preparedness and expand cybersecurity defense.

For the last two years, ClientFirst has been recommending significant increases in cybersecurity spending as a part of IT planning engagements. The increased complexity of cybersecurity defense has caused us to advocate for a cybersecurity focal point to manage City efforts. Since 98% of cyberattacks rely on social engineering, cybersecurity defense begins with programs to reduce the risk of staff failure to recognize a cybersecurity risk.

According to the 2019 Deloitte Cybersecurity Survey, cybersecurity managers split their time between 11 different functional areas, as outlined below:



Source: *The Future of Cyber Development, Deloitte Development LLC*

There are several key areas in cybersecurity that need attention, effort, and management for the program to move forward as a whole. Each area needs focus and attention over time to reduce the risks inherent in today's modern computing environment.

Security Awareness Training

Background

Many cybersecurity functional areas can be easily outsourced. Others are specific to the organization and require continuous visible advocacy to be successful. Security Awareness training is critical because, as noted earlier, the vast majority of attacks rely on social engineering to gain initial entry into an organization.

Security Awareness Training is a formal process for educating employees about computer security. A good security awareness program should educate employees about corporate policies and procedures for working with information technology. Employees should receive information about whom to contact if they discover a security threat and be taught that data is a valuable corporate asset.

Regular training is necessary to provide staff with the knowledge to help protect the organization's network from viruses and malware. Users are the frontline defense for the prevention of virus and malware attacks.

Confirming how well the awareness program is working can be difficult. The simplest metric is to measure the number of incidents over time, which should be decreasing. The best practice method of measurement involves a multi-phased approach of baseline testing, then training, and then testing using an automated phishing approach. Follow up with additional training as needed.

Online training provides multiple benefits, including:

- Staff members can work at their own pace, on their own schedule.
- Staff members can be enrolled in multiple online training courses.
- An administration control panel can be used to monitor users' progress and set up phishing campaigns to test the users.
- Reports can then be generated to see how users did compared to previous phishing campaign scores to measure improvement.
- Organizations should encourage users to complete training on a regular basis as part of compliance requirements.

Findings and Observations

- The City utilizes KnowBe4 for security awareness training.
- The City is not utilizing phishing simulation testing yet.
- Security awareness training is becoming a best practice targeted at improved staff security readiness and is required by cybersecurity insurance carriers.

Recommendations

- Continue regular online security awareness compliance training.
 - ◆ This training should be mandatory for all users.
 - ◆ Incorporate training plans into the annual review process.
- Implement phishing simulation testing and training.
 - ◆ Give more targeted training to users who may need additional information on how to spot phishing attempts.
- Add security awareness training participation to employees' year-end evaluations.

- License the KnowBe4 PhishER tool for removing malicious emails after the fact with the push of a button.

Endpoint Protection

Background

Endpoint protection is a crucial step to make sure an organization is healthy from a Cybersecurity standpoint. If an endpoint gets infected, the program or threat actor will attempt to expand laterally to exploit as many other targets as possible. Catching this as close to real time as possible is vital to limit the damage potential. In addition, patching will reduce the attack surface such that attacks are less likely in the first place.

Findings and Observations

- The City pushes out patches and software using either Endpoint Central or PDQ Deploy.
- Website filtering module is licensed at the firewall.
- A combination of McAfee Endpoint Security and CrowdStrike is being used for malware and antivirus protection.
- PDQ Inventory and OpsManager are being used to scan the network to see what machines are connected. Endpoint Central/Service Desk is used as the primary asset management tool.
- Device encryption for laptops is not currently being used.

Recommendations

- Continue with device encryption for encrypting all endpoints.
- Use Microsoft BitLocker for device encryption and use Microsoft Intune to manage the encryption keys for Windows 10/11 operating systems.
- Consider hardening workstation, laptop, and server endpoints by following recommendations laid out by CIS through its benchmark analyzer tool. This would require a focused effort to complete as there are complexities of hardening.
- Use host-based firewalls to tighten down allowed traffic. Consider using the CrowdStrike agent installed on endpoints to create profiles for allowed host network traffic to stop the spread of malware if there is a breach.

Network Security

Background

One of the basic tenets of keeping an organization protected starts at the perimeter, keeping unsafe elements from entering the network. Attackers are constantly scanning the Internet to find soft targets that are not well protected. The first line of defense is to reduce the attack surface of anything that is Internet-facing, where incoming network traffic lands on a server or device in the DMZ.

A DMZ is also important to keep inbound traffic contained in the DMZ in case there is a breach to limit the number of systems that are accessible to a threat actor. Systems that house data should be contained inside the internal corporate network, where the DMZ is a pass-through. Similarly, internal networks should be segmented to limit the damage of a compromised system and increase the effectiveness of network firewalls where policy decisions are applied to traffic at network boundaries.

Similar ideas apply to wireless networks, where additional settings, encryption levels, and standards need to be taken into consideration.

Keeping physical assets safe from tampering by unauthorized personnel is also an important part of security for any organization.

Findings and Observations

- There are some safeguards in place to ensure that employee-brought devices (BYOD) cannot join corporate networks.
- A third party has not reviewed firewall rules.
- PacketFence is partially deployed as a NAC solution and is not currently being used.
- Hidden wireless SSID allows staff to access internal networks.

Recommendations

- Implement a Bring Your Own Device (BYOD) policy (more information in other areas of the report) to help staff understand the policy regarding personal devices accessing City-owned networks or systems.
- Conduct a firewall audit by a third party to assess and see where additional tightening of policies and controls is needed.
- Continue to work with the vendor to fully implement PacketFence as an NAC solution.
 - ◆ Manage BYOD devices to ensure they are placed on the correct network. In addition, the BYOD NAC policy should enforce remediation for patch levels and anti-virus software.
 - ◆ Staff and guest devices that are not managed by the City should not be able to access City resources on the internal network unless specific pre-admission conditions are met:
 - Pre-admission control applies NAC policies before a device is granted access to the network. If the device does not meet policy conditions, it will not be admitted.
- Increase network segmentation in the network to allow for traffic filtering at the layer three boundaries for increased protection and performance by decreasing broadcast traffic.

Benefits

- Reduced chance of system compromise over the network due to more tightened security posture and controls
- Reduced exposure to incoming threats over the network
- Increased ability to mitigate threats once they have landed on the network

Vulnerability Management

Background

Vulnerability management is growing in importance in the age of avoidable breaches, from larger organizations such as Equifax, Target, Uber, Facebook, and Yahoo to smaller and medium-sized municipalities and agencies that, at times, struggle to provide basic IT services. Having a roadmap of internally detected threats and weaknesses can help an organization know how to prioritize IT cybersecurity spending and resources, focusing on the most critical areas first.

With countless attack vectors present in systems and software, having a vulnerability management program is no longer optional for organizations. Continuous vigilance of threats and attack vectors existing in an organization's IT environment is at the Center for Internet Security's basic key controls. (Control 7, continual vulnerability management:

<https://www.cisecurity.org/controls/cis-controls-list>

Key areas of this topic:

- Logging / Reporting
- Managed Detection and Response (MDR) / Endpoint Detection and Response (EDR)
- Third-party validation (Pen Testing: internal and external facing)
- Internal Vulnerability Scanning
- Patch Management



Findings and Observations

- Scanning of endpoints is being done by Nessus Professional to validate patching and other vulnerability levels.
- Scanning of endpoints is also being done by Endpoint Central.
- Scanning of network segments is being done by PDQ Inventory and OpsManager.
- Patch management of workstations and servers is done regularly and kept up to date.
- Logging of alerts is being sent to MS-ISAC's SOC through the CrowdStrike program and ESS service.

Recommendations

- Use Nessus to increase the modules being used to look for all devices on the network, not just endpoints. This will give better information than using PDQ inventory.
- Track the total vulnerability score through Nessus to track progress over time.
- Explore Managed Detection and Response services, such as Arctic Wolf or CrowdStrike, that will help with the city's Cybersecurity efforts to detect and respond to security events.

57. Backups

Findings and Observations

- The City recently implemented Rubrik on-premise and cloud backup capabilities.
- Rubrik is backing up the video surveillance system. There are 90 days of retention in the current video surveillance system.

Recommendations

- Review backup retention practices to verify police-related backups are retained for one year (Government Code § 34090.6).
 - ♦ In-car video must be retained for ninety (90) days.
 - ♦ Develop a video camera policy outlining storage and retention requirements.
- Perform periodic restores of SQL Server and full server image restores
- Test and confirm successful restore of full system backups and ability to restore virtual machine at the host level
- Conduct bare-metal restoration exercises periodically
- Revise Disaster Recovery Plans based on the implementation of Rubrik.

58. Disaster Recovery Planning

Findings and Observations

- The City has a disaster recovery plan outlining high-level responsibilities, City contacts, and the priority of restoration.
- Service-Level Agreements (SLAs) are not in place for application recovery in the event of a disaster.
- The EOC is located at Fire Station 410, separate from where backups are being replicated at Fire Station 411.
- Every year, they have EOC training, but the scope of recoverability needs to be increased.

Recommendations

- Revise the Disaster Recovery Plan to include:
 - ◆ Expanded system restoration priorities by application
 - ◆ Cloud restoration as an alternative
- Work with the departments to understand desired service restoration time frames



Benefits

- Emergency preparedness compliance
- Improved communication
- Awareness of procedures
- Better diagnostics and problem identification
- Reduced risk and liability
- Faster, well-informed decision-making
- Identification of business-critical functions
- Decreased recovery times and exposure to system failures
- Awareness of immediate actions

59. Disaster Recovery Site Implementation

Background

The ability to recover IT services from a disaster has become more important recently as malware and ransomware attacks have forced several agencies to rebuild their systems completely. Many organizations are moving to cloud-based disaster recovery as a way to provide IT services without maintaining and managing a physical recovery site.

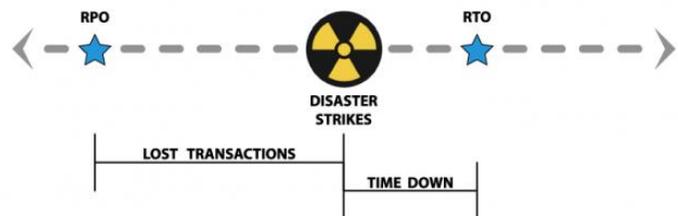
Findings and Observations

- State law requires electronic storage of public records to be more than 50 miles away from the City.
 - ◆ Utilization of a data center in Southern California, Nevada, or Arizona would meet state requirements and allow for relatively easy access to disaster recovery equipment.
- A direction for the DR site needs to be decided and firmed up.



Recommendations

- Inventory critical applications and cybersecurity needs.
 - ◆ Determine the recommended disaster recovery for each application.
- Conduct a cost analysis to determine the most cost-effective method of service restoration, given the requirements.
- Consider using a cloud-based disaster recovery provider that would allow for the restoration and operation of virtual machines from backups.
- Pick a data center location more than 50 miles away.
- Consider technology that would leverage backups that could be used for replication. Currently, backups and replication are using different technologies.



Benefits

- Improved business continuity
- Cost savings
- Reduced risk of data loss
- Reduced downtime in the event of a disaster
- Reduced confusion and clear prioritization during a disaster

60. IT Security Assessment

Background

It is best practice to conduct an IT security assessment every three years. Penetration testing should be performed annually or whenever major firewall changes are made.

Findings and Observations

- An IT security assessment has not been performed for the City via a third party recently.
- External third-party penetration testing is also being explored (DHS/CISA/MS-ISAC).

Recommendations

- Conduct penetration testing annually or whenever major firewall changes are made.
- Engage a third party to perform a security assessment every three years.
 - ◆ Complete security recommendations are included in this plan before initiating a Security Assessment.
- Perform yearly penetration testing by a third party, both from an internal and external testing perspective.

Benefits

- Risk mitigation
- Meets compliance requirements and industry best practices

61. Records and Data Retention

Findings and Observations

- The City does have a formal Electronic Records and Data Retention Policy in place for official City records managed by the City Clerk through the Laserfiche program.
- Electronic records retention durations should mirror paper records and data retention durations.
 - ◆ As with paper records, timely destruction is important.
- Records retention is set to keep employee records for up to two years when an employee leaves.
- PST file is created upon an employee leaving. OneDrive files are zipped and stored.
- The City does have email archiving in place via Office365 Exchange Online Archive.
- Records retention needs to be considered for data belonging to employees or contractors who have created data and are no longer with the City.

Recommendations

- Inventory all forms of electronic records storage at the City, including file shares
- Discontinue creation of PST files when an employee leaves. Utilize the email archive solution to set appropriate retention periods.
- Develop a procedure for the preservation of records after staff are offboarded.
 - ◆ Offboarded staff files should be easily searchable as they continue to be subject to Public Records Requests.

The *IT Operations* section addresses daily support and maintenance of all IT infrastructure and user support.

- 62. Identity and Access Management
- 63. IT Policies and Procedures

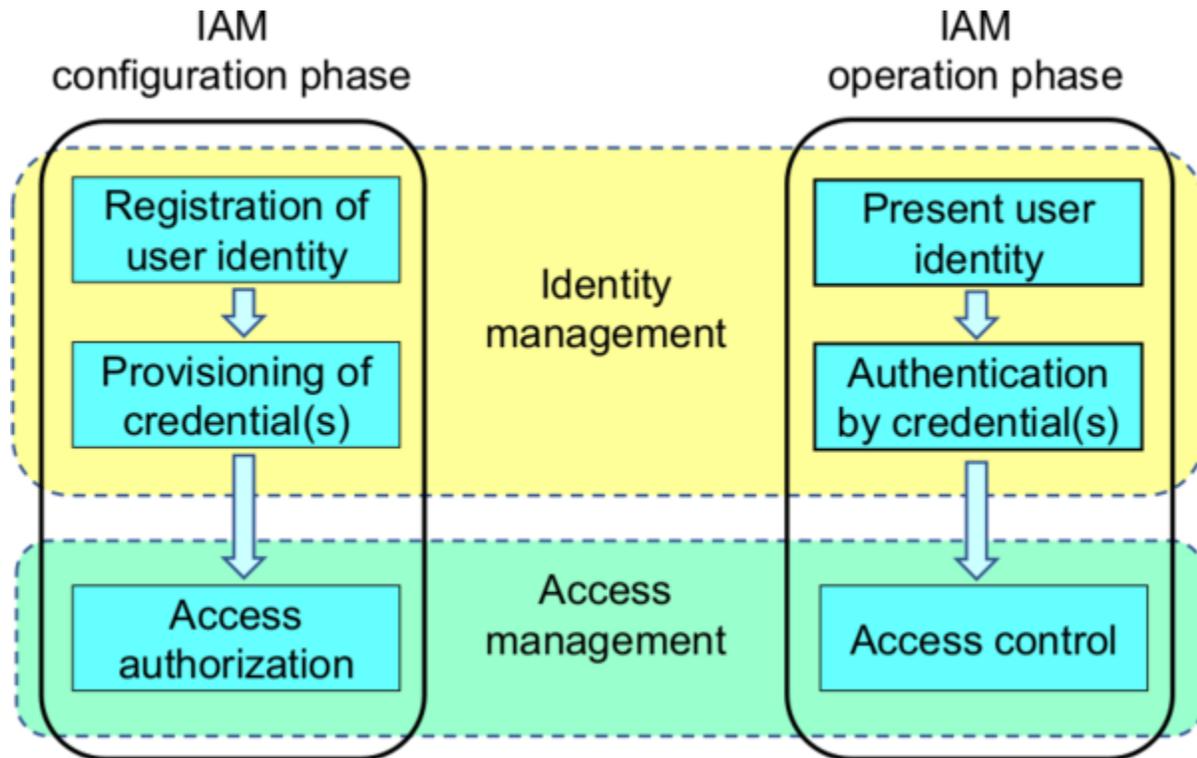


62. Identity and Access Management

Background

Identity and Access Management includes Multi-factor Authentication (MFA), Single Sign-On (SSO), Privileged Access Management (PAM), and user onboarding/offboarding. It is meant to help secure the resources and data of an organization, where access is only given to accounts that are authorized.

Identity and Access Management (IAM) is the organizational and technical process for first registering and authorizing access rights in the configuration phase and then in the operation phase for identifying, authenticating, and controlling individual or group access rights. Identity Management (IdM) is the task of controlling information about users on computers. Such information includes information that authenticates the identity of a user and information that describes data and actions they are authorized to access and/or perform. It also includes the management of descriptive information about the user and how and by whom that information can be accessed and modified. In addition to users, managed entities typically include hardware and network resources and business applications.



Identity and Access Management applies to enterprise or departmental applications systems. These are often set up using role-based security to allow people to access specific information within a system, including what capabilities they might have for approval or whether they can view, add, change, or delete information. These system roles are very critical, and if not set up properly, they can allow unauthorized personnel to see restricted information or even deny access or capability for those who need access and should be authorized to perform critical tasks.

Identity and Access Management includes onboarding staff, identifying and applying the proper security rights for the job function, and offboarding staff when they leave the organization. When staff are offboarded, emails and files are typically transferred to another staff member until they are no longer needed. Then, records retention policies and procedures apply to email and file retention or disposal.

Identity management can help protect users from password fatigue, where a user accustomed to frequent password prompts can sometimes enter a password to a malicious prompt out of familiarity. Single Sign-On can also help increase productivity for users who need to remember passwords to multiple applications.

Findings and Observations

- MFA is currently being used for authentication to Microsoft O365 applications and is being implemented for Tyler Munis and Energov for external users.
- Departments are responsible for informing IT that new staff have been hired, along with their roles and responsibilities.
- The IT process for onboarding staff and providing appropriate computer equipment appears to be timely and efficient.
 - ◆ IT uses New Domain User, new PC Setup, and Printer Setup documentation.
- Departments are responsible for informing IT that staff have left the organization or have changed roles.
- IT reports that prompt notification of staff leaving the organization does not always occur.
 - This can be a significant cybersecurity issue.
 - ◆ A written offboarding procedure to disable users is in use.
 - ◆ Procedures for records retention related to staff who have left the organization do not exist.
 - The typical process for retaining email in Microsoft 365 is to convert the user email account to a shared mailbox (which does not require a paid license).
 - Exchange Online Archiving is used for email archiving and Public Records requests.
- IT is implementing a Single Sign-On (SSO) solution.

Recommendations

- Utilize an applications/user inventory to determine user access needs that are not currently provided.
- Continue to utilize integration with Windows Active Directory (AD) to facilitate user access management and reduce the number of system logins when enterprise application systems support AD.
- Continue to expand the use of the single sign-on (SSO) application to ease access to authorized information further.
- Determine if any confidential information is available in requested modules (e.g., social security numbers, driver's license numbers, credit card numbers, etc.) If not, grant inquiry-only access to staff members who require it to improve productivity, increase efficiency, and enhance responsiveness.
- Management and application process owners should work with the IT Department to set up roles and security properly for all enterprise- or department-level application systems. This should include the setup of roles and security for new employees and the disabling of user roles and security for departing employees.

- Ensure that workflow is configured for on- and off-boarding employees that conform with City policies to ensure access permissions are provided only to those requiring such access.
- Implement a records retention policy and associated procedures for the retention of data as appropriate.
- Implement an email archiving system to minimize dependence on shared mailboxes.
- Use MFA for access to backup systems and elevated rights accounts.
- Upgrade to Microsoft 365 G5 to enhance Identity and Access Management.

63. IT Policies and Procedures

Background

IT security policies are the backbone of success in any organization's cybersecurity program. They ensure that best practices are applied and well-thought-out plans are executed regarding cybersecurity. Policies and procedures are set up to guide expectations and direction from management and serve as a starting point for auditors who are seeking to validate compliance efforts.

Policies can help improve the overall security posture. Policies help tie organizational risk in a way that helps everyone understand the what, who, why, and how of IT security.

The following are considered baseline policies:

- User and Staff Related
 - ◆ Acceptable Use Policy
 - ◆ Security Awareness and Training
 - ◆ Password Creation and Management
 - ◆ Remote Access
 - ◆ User Onboarding / Offboarding
- Operations
 - ◆ Change Management
 - ◆ System Maintenance
 - ◆ Monitoring and Logging
- Technical Controls
 - ◆ SPAM Protection
 - ◆ BYOD
 - ◆ Encryption
 - ◆ Network Security
- Compliance
 - ◆ Breach and communications
 - ◆ Incident Response
- Risk Management
 - ◆ Vendor Management
 - ◆ Vulnerability Management
 - ◆ Ransomware Prevention and Response
 - ◆ Disaster Recovery
 - ◆ Data Backup
- IT Security Governance
 - ◆ Governance Goals and Guidance
 - ◆ Data protection
 - ◆ Vendor management
 - ◆ Risk assessment and strategy

Findings and Observations

- The following Policies and Procedures are currently in place at Cathedral City:
 - ◆ Asset Disposal
 - ◆ Computer Use Policy
 - ◆ Failed Hard Drive Policy
 - ◆ Disable Users Policy
 - ◆ IT Security
 - Acceptable Use Policy
 - Password Policy and User Accounts
 - Remote Access Policy
 - Internet Usage Policy
 - Approved Application Policy
 - Asset Control Policy
 - Anti-Virus Policy
 - System Update Policy
 - Information Confidentiality Policy
 - Electronic Data Retention Policy
 - Backup Policy
 - Network Documentation Policy
 - Server Documentation Policy
 - IT Security Policy Administration
 - ◆ IT Change Management Policy
 - ◆ Mobile Device Policy

Recommendations

It is recommended to add to the existing policies and procedures:

- User and Staff Related
 - ◆ Security Awareness and Training
 - ◆ Work with Human Resources to expand Onboarding/Offboarding procedures to cover the entire agency.
- Operations
 - ◆ Monitoring and Logging
- Technical Controls
 - ◆ SPAM Protection
 - ◆ BYOD
 - ◆ Encryption
 - ◆ Network Security
- Compliance
 - ◆ Breach and Communications
- Risk Management
 - ◆ Vendor Management
 - ◆ Vulnerability Management
 - ◆ Ransomware Prevention and Response
 - ◆ Cybersecurity end device hardening (required by insurance carriers)
 - ◆ Removable storage
- IT Security Governance
 - ◆ Governance Goals and Guidance
 - ◆ Vendor management

The *telecommunications system* is a critical tool for local government entities. It enables the ability to communicate effectively with constituents and deliver high standards of service.

Telecommunication is also a key element in teamwork, allowing employees to collaborate easily from wherever they are located.

- 64. VoIP Phone Improvements
- 65. VoIP System Upgrade



64. VoIP Phone Improvements

Findings and Observations

- Community Development receives up to 50 inspection requests each day to a voicemail box.
- Telecommunications audit capabilities are limited.
- The VoIP phone system was last upgraded in 2016.
- Some departments requested additional training on the VoIP system.
- Staff are considering moving to Microsoft Teams/O365 for voice services.
 - ◆ Integration of Microsoft Teams/O365 voice with Police Dispatch and analog systems can be challenging.
 - ◆ The use of Integrated Voice Response or other automated systems for items such as inspection requests will require third-party add-on systems.
- Many vendors can provide similar VoIP services to Microsoft Teams/O365 at a competitive price.
- Staff would like the ability to block robocalls. In the aggregate, they take a significant amount of focus and work time away from staff.
- Staff would like a report of the number of calls received, as these should be considered "calls for service."

Recommendations

- Consider replacing the current on-premise VoIP system in the near future.
- Utilize Best Practice System Selection methodology to gather all requirements and develop an RFP for procurement.
- Include an Integrated Voice Response capability for inspection request scheduling.
- Include some call reporting functionality to track the number and purpose of calls.

Benefits

- Reduced implementation, support, and maintenance costs
- Increased long-term ROI
- Enhanced communications
- Increased use of features
- Improved user experiences
- Reduced total cost of ownership

65. VoIP System Upgrade

Background

The telecommunications systems and Voice Over Internet Protocol (VoIP) marketplace has changed over the last decade to include VoIP telephone systems installed using two general methods: on-premise or cloud-based. Systems using equipment installed on-premises are called Unified Communications Systems (UCS), and those installed in the cloud are called Unified Communications as a Service (UCaaS).

Both system approaches provide telephone features, voicemail, conferencing, mobility tools, and apps. The main difference between these solutions is the method by which they are installed and their pricing models. The following are some characteristics of both:

On-Premise	Cloud-Based
<ul style="list-style-type: none"> • Equipment is installed in IT closets. • Calls are delivered over the data network. • Software licensing is typically purchased. • The District owns all the system hardware, telephones, and servers. • Customers subscribe to an annual maintenance and Software Assurance contract. • Implementation is performed in detail by the selected vendor with customer participation. • Telephone lines are connected to the system from a separate carrier. • Requires local administration by staff for Moves, Adds, and Changes (MAC) and Billing. 	<ul style="list-style-type: none"> • System equipment resides in the provider's Cloud Data Center and is leased. • Calls are delivered over the data network. • Phones are the only equipment installed on-site and can be purchased or rented. • Maintenance and Software support is included in the monthly user license fee. • Software features are bundled into groups. • Some software features are billed monthly a la carte. • Implementation is typically conducted remotely and requires significant customer involvement. • The monthly user license fee typically includes telephone lines and carrier service. • Requires local administration by staff for Moves, Adds, and Changes (MAC) and Billing.

Pricing

The Pricing model characteristics:

Premises-Based	Cloud-Based
<ul style="list-style-type: none"> • Customers purchase the hardware and software. • This has a more substantial upfront cost (unless financed). • Low-cost Annual Maintenance and Software Assurance arrangements. • Ongoing telephone carrier costs. 	<ul style="list-style-type: none"> • In most cases, the Customers purchase only the telephone handsets; however, some vendors provide phones on a monthly rental basis. • The software user licenses are rented every month for each user.

The premises system has a more substantial one-time purchase price than the cloud-based system. Still, the Cloud system can have a much higher monthly cost than a premises-based solution.

Competitive Selection

The suppliers and manufacturers have also consolidated and changed over this time. This creates high competition between traditional on-premise and cloud-based providers through the development of a formal Request for Proposals (RFP) and competitive vendor selection.

Because of the system's complexity and the number of vendor choices, clients should develop a formal Request for Proposals (RFP) with specifications for the new system and conduct a competitive system selection process. Doing so will uncover "hidden" costs and provide the best operational fit and the most competitive pricing for the system's life.

Findings and Observations

- The current Cisco VoIP system was last upgraded in 2018.
- Replacement Planning Best Practice specifies a 7-year life for on-premise phone systems of this type.
- Cloud-based VoIP systems are becoming more prevalent and will dominate the marketplace when the next upgrade is due.
- Cloud-based systems are currently struggling with E-911 Dispatch call integration.
 - ◆ This integration is generally used to forward non-emergency E-911 calls to the appropriate personnel.

Recommendation

- Follow the "Software Selection Best Practices" initiative guidelines to select the best overall, long-term system for the District's needs.
- Utilize RFP results to develop ROI calculations for on-premise versus cloud-based systems.
 - ◆ Staff will continue to perform adds, moves, and changes for either system selected.
- Implement redundant voice-over internet connections to improve voice system resiliency.

Benefits

- Reduced implementation, support, and maintenance costs
- Increased long-term ROI
- Enhanced communications
- Increased use of features
- Improved user experiences
- Reduced total cost of ownership