

Report

Comprehensive Information Technology Assessment

August 10, 2016



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Engagement Purpose and Background

Comprehensive Information Technology Assessment Objective

The objective of the Assessment included developing and articulating a vision for the effective use of technology to support the work of the City, identifying strategies for developing and implementing technology initiatives, and highlighting the cost benefits of doing so.

We created a well-documented plan to guide the IT Team over the next five years in planning, procuring, implementing, and managing current and future technology investments and resources related to Information Technology Services provided to the City. The plan is the result of a thorough analysis of the following:

- 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
- Interviews and workshops involving all levels of the City's staff, including the Management Team, end-users, and other stakeholders, recognizing limited staff availability
- Identification and prioritization of projects that the IT staff should undertake over the next five years
- Identification of needs to accommodate current and future technology requirements, such as data storage and management, legal requirements, security requirements, etc.

Deliverables

The Assessment includes:

- Project Purpose and Background
- Methodology for implementation and maintenance of the Assessment
- Current Information Technology Environment Summary
- Key Benchmarking Metrics
- Strategies, Goals, and Objectives
- IT Vision and Principles
- IT Initiatives (Projects) by priority
- Key Initiatives
- Moving Forward
- Timelines
- IT Plan Budgets





Methodology and Approach

We utilized a five-phase methodology on which we base our IT Assessment projects. This served as the cornerstone of the project, allowing the collaborative process to shape and develop our recommendations and approach, enabling us to tailor each step to fit the City's unique specifications. We worked in partnership with the City to improve the IT environment so it can better meet the needs of staff and citizens.





Current Information Technology Environment Summary

Summary IT Environment

| City of West Covina IT Environment Summary City Hall/Fire | |
|---|------------------------------------|
| IT Staff (Full-time Equivalent - FTE) | 3 |
| City Employees (FTE) | 353 |
| User Log-Ins | 232 |
| PCs | 137 |
| Mobile Computers (Fire) | 7 |
| Laptops | 30 |
| Mobile Devices (e.g., Tablets, Smart Phones, Cell phones) | 120 smart/cell phones 5 tablets |
| Telephones | 270 |
| Physical Servers | 7 |
| Virtual Servers | 9 |
| Network Devices | 8 switches |
| Avg. Reported Help Desk Tickets per Week | 40 |
| Closed within 24 Hours | 88% |
| Closed within 48 Hours | 90% |
| Closed within 72 Hours | 90% |
| Average Resolution Time | 1-2 hours |
| Average Open after 7 Days | Minimal |
| Platforms (e.g., Windows, Red Hat Linux) | Windows, Linux |
| Databases Management Systems in use | MS SQL |

City management and staff have done a good job of maintaining information technology systems with the limited financial and staff resources available. The IT Administrator and staff deserve credit for how well the current IT environment functions. Operating as a part of the existing situation is a testament to the patience of City staff.

Although the organization has gotten by with limited expenditures, a significant portion of the IT infrastructure and some of the enterprise business applications, which are the backbone of departmental operations and Citizen services, are out of date, end of life, underutilized, and behind similar municipalities. Staff report limited opportunities for training on application systems and common Microsoft applications such as Word and Excel. Continuing with outdated systems and undertrained employees is a significantly less than optimal approach. It takes more recurring staff time (and therefore labor cost) to make up for the lack of up-to-date IT systems that are common in other municipal governments.

Over the last few years, citizens have begun demanding more efficient interaction, online transactions, and more transparent information availability. The City will not be able to meet these demands without updating, better utilizing, and improving management of enterprise business applications and the IT infrastructure that supports them.



Key Statistics and Metrics

The following analysis provides feedback on three key measurements regarding IT operations:

| | |
|---|--|
| IT Budgeting/Expenditures | IT Spending vs. Operating Fund Budgets and Users |
| IT Staffing Resources | Overall IT Staffing vs. Key Equipment Counts |
| IT Capital Replacement Schedules | IT Equipment Replacement Schedules |

These measurements provide an indication of issues that may affect the organization’s IT effectiveness as it relates to providing IT support of systems and application solutions.

IT Spending versus Operating Budgets provides an overall indication of whether the IT function receives a sufficient level of organizational resources to provide the necessary services. Underfunding, over time, typically reduces IT’s ability to respond to requests, reduces system availability, and negatively impacts organization-wide productivity.

IT Staffing Levels Versus Key Equipment Counts (e.g., servers, PCs, and total number of logins) are often a reflection of IT staff productivity. With current, up-to-date technology and the proper productivity tools, an individual IT staff member can support more users, reducing overall costs.

Capital Equipment Replacement is an important measure of the ability of hardware to adequately support the ongoing vendor changes to application software. These changes often require additional resources and hardware that are more robust. Slow capital replacement cycles can result in increased downtime and slower system response times, overall.

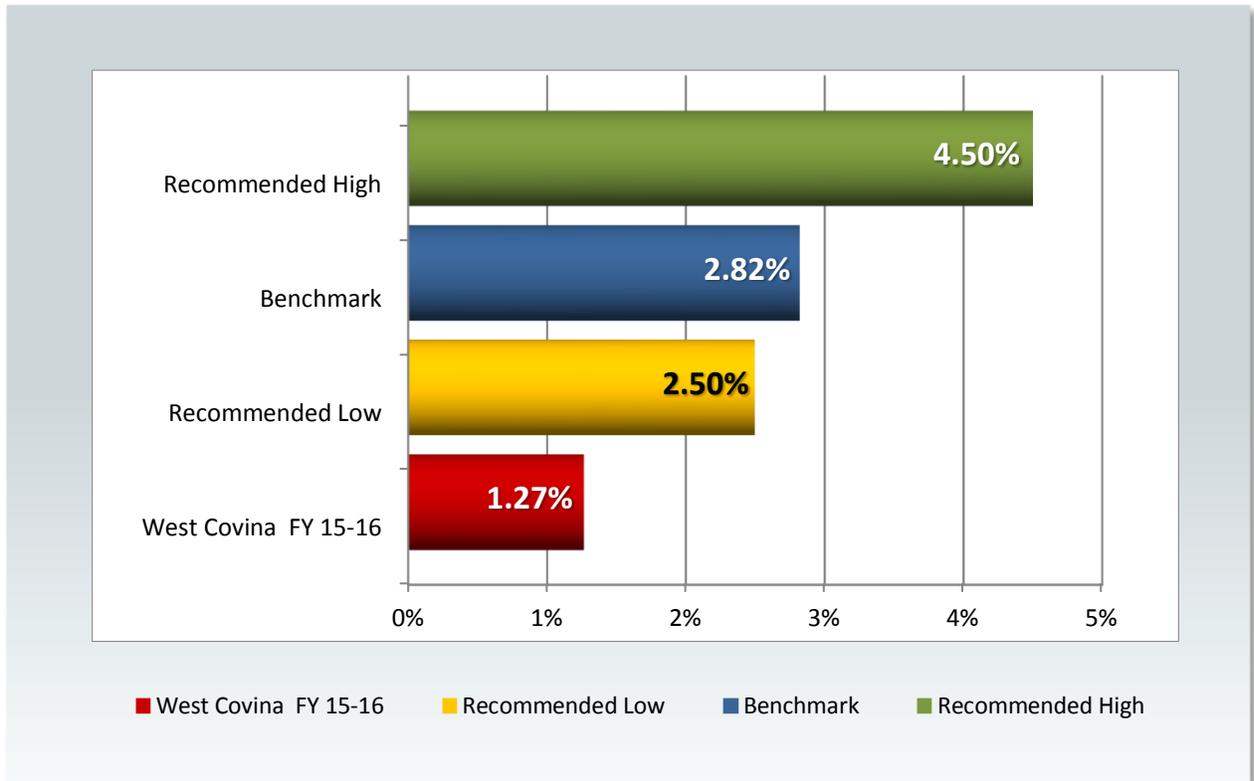


IT Spending versus Operating Fund Budgets

The following table depicts West Covina’s IT Spending versus recommended best practices and a municipal benchmark of 37 agencies.

Table 1 - IT Spending versus Operating Fund Budgets (Percent)

| West Covina FY 15-16 | Recommended Low | Benchmark | Recommended High |
|----------------------|-----------------|-----------|------------------|
| 1.27% | 2.5% | 2.82% | 4.5% |



The 2015/2016 total combined adopted budget for the general fund and enterprise funds supported by IT were \$65,605,385. The municipal spending benchmark range from the survey was between 1% and 8%, with an average of 2.82%. The percentage of IT expenditures versus operations budgets at West Covina is below the recommended low and the average benchmark for other municipalities. Historically, IT funding has resided in each Department budget. When we began this project, efforts were already underway to consolidate IT spending to provide greater accountability and transparency to the IT function.

Overall, the above represents significant underspending versus industry standards for IT infrastructure and overall information technology solutions and support. The result of this underspending has been an IT infrastructure that is obsolete in places, and a portfolio of application systems that include many aging and underutilized departmental applications. A greater level of funding would bring IT infrastructure up to date and improve the departmental applications tools, resulting in increased productivity throughout the City, and greater citizen transactions, service access, and interactions through the City’s website.



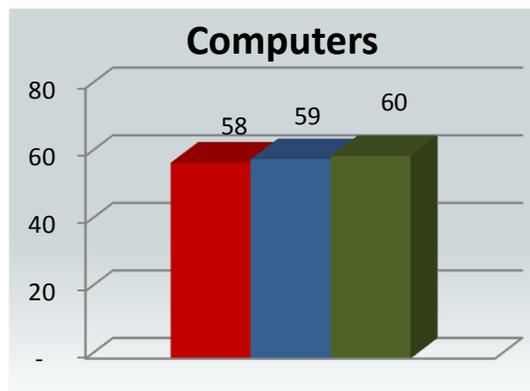
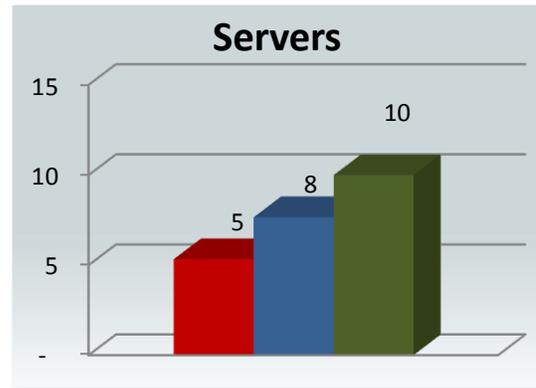
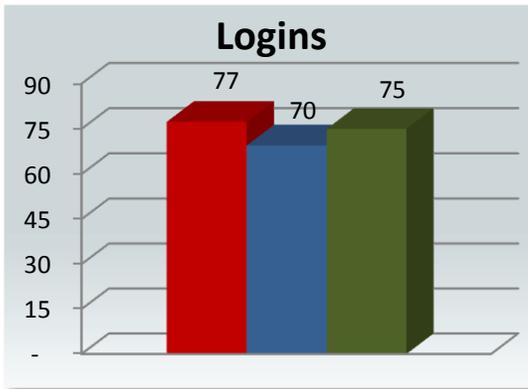
IT Staffing Ratios

The following table depicts West Covina’s IT Staffing Ratios for logins and equipment versus a municipality benchmark of 49 similar agencies. These are commonly used measures in the industry to validate staffing levels. As the number of individuals served and the amount of equipment increases, staffing levels should also increase.

Table 2 - IT Staffing Ratios (Counts)

| | City of West Covina | Municipality Benchmark | Recommended Best Practice |
|------------------|---------------------|------------------------|---------------------------|
| Logins | 77 | 70 | 75 |
| Servers | 5 | 8 | 10 |
| Computers | 58 | 59 | 60 |

In this comparison, the City’s IT staff support approximately the same number user logins and computers as their peers. It should be noted that server support is mostly outsourced.





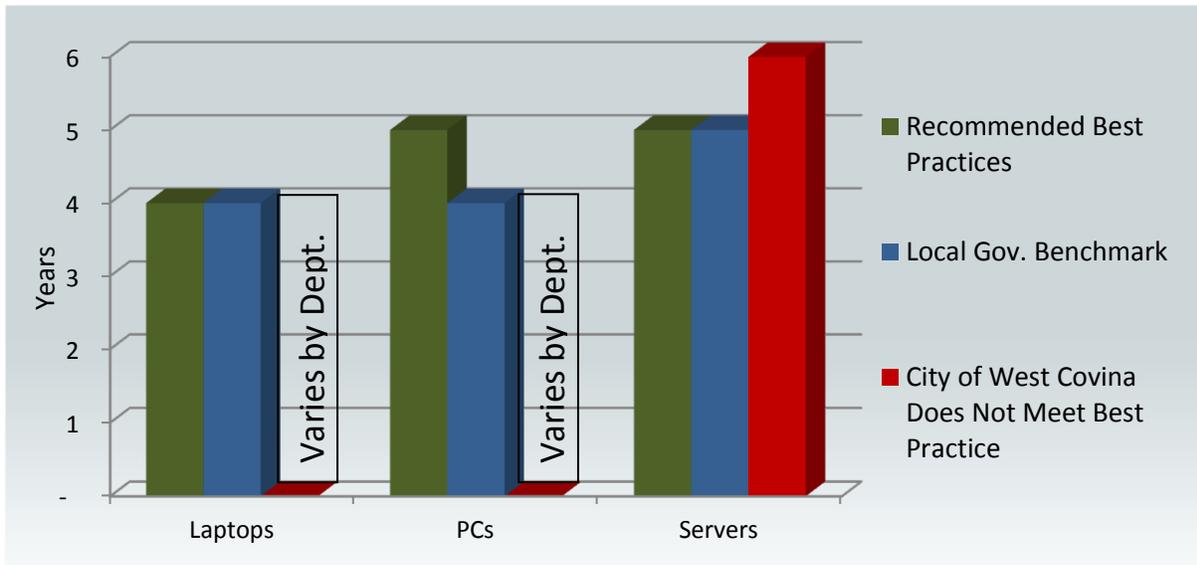
Equipment Replacement

The following table represents IT Equipment Replacement Recommended Best Practices and a municipal benchmark of 40 agencies.

Table 3 - IT Equipment Replacement Cycle (Years)

| | City of West Covina | Municipal Benchmark | Recommended Best Practices |
|---------|---------------------|---------------------|----------------------------|
| Laptops | Varies by Dept. | 4 | 4 |
| PCs | Varies by Dept. | 4 | 5 |
| Servers | 5+ | 5 | 5 |

The City's current policy is a result of the historical method of budgeting computer equipment by Department. Centralizing the management of computer devices will reduce overall costs, improve efficiency, and provide additional information for comparative analysis.





IT Strategies, Goals, and Objectives

The strategies for leveraging and maximizing information system utilization in delivering City services are listed below. Within each strategy, we have listed initial goals and objectives for the City. We have translated those goals and objectives into specific initiatives in the *Appendix*. Additionally outlined later in the report are the budgetary costs for each initiative, resource requirements, implementation time frame and, if appropriate, the next steps toward implementation.

MODERNIZE IT INFRASTRUCTURE

Goals and Objectives

- Move from obsolete hardware and software to current generation infrastructure.
- Improve resiliency and uptime of infrastructure.
- Create and track uptime metrics.
- Implement improved management software to assist in moving from a reactive to a proactive IT function.
- Create an information technology foundation that can support improved citizen services.

INCREASE CITIZEN SERVICES

Goals and Objectives

- Provide additional services to the various citizens both in and outside the City of West Covina.
 - ◆ Select and implement a new Enterprise Resource Planning system for the City, which will form the basis for a majority of the citizen online access and services.
- Increase transparency and information available through the City website.
- Improve availability and quality of Council Meeting audio/video for public access.
- Increase the number and timeliness of documents available online.
- Increase self-service opportunities, providing citizens with 24-hour access to City services through the website.
- Provide for online permitting, inspection scheduling and other key citizen services.
- Create portals for additional online bill payment.
- Utilize technology and improved business processes to increase responsiveness and speed delivery of services.



Ensure IT Governance and IT Best Practices

Goals and Objectives

- Formalize an IT Steering Committee and Governance mechanism.
 - ◆ Review Help Desk metrics and identify training needs.
 - ◆ Monitor and review IT Initiatives.
 - ◆ Develop and review standards and policies.
 - ◆ Collaborate on projects and initiatives.
- Act as a sounding board for management and staff. Adopt a best-practices approach to software selection and management.
 - ◆ Improve application analysis and reporting capabilities within the departments.
- Create and maintain project inventory.
- Utilize project management principles for larger projects.
 - ◆ Become date and project-schedule driven.
- Finalize documentation.
 - ◆ Create standard operating procedures.

Improve Staff Productivity

Goals and Objectives

- Introduce application management best practices.
 - ◆ Increase user application training.
 - ◆ Provide key departmental personnel with report writer training.
- Conduct process reviews to identify opportunities to streamline processes and reduce duplication, including:
 - ◆ Find areas for automating existing manual processes.
 - ◆ Perform processes within core application systems and eliminate side-bar spreadsheet work and other shadow systems.
 - ◆ Fully implement reporting capabilities to ensure output that supports better business decisions and measurement of performance goals (performance measures or KPIs).
- Provide the public and citizen online information and self-service capabilities, reducing staff phone time, and counter activity.
- Utilizing return-on-investment (ROI) principles, identify areas for improvement, and use ROI principles to justify additional applications to improve productivity and service.
- When justified, move to next-generation mobile computing (tablets and laptops).
- Continue to implement dual monitors for staff productivity gains.
- Use sustainability planning strategies to improve and maintain high network speed, network reliability, and full, citywide access.



Implement IT Staffing Improvements

Goals and Objectives

- Create an IT Manager position to lead the implementation of the Plan.
- The revised position will assist with the following:
 - ◆ Selection and implementation of current generation software applications
 - ◆ Improvement of business processes to leverage new technology and increase efficiency
- Develop a training plan for each existing staff member.

Strengthen Infrastructure Resilience and Disaster Recovery Capabilities

Goals and Objectives

- Identify high-priority systems and recovery time frames.
- Expand virtual servers to reduce server count and increase failover.
- Consider implementation of redundant Internet connections with automatic failover.
- Finalize disaster recovery capabilities and plan.
- Exercise plan annually.



Information Technology (IT) Principles

Vision / Mission Statement

The City of West Covina is dedicated to providing the highest-quality technology-based services in the most cost-effective manner to deliver services effectively and efficiently on a sustained basis, in a manner that reflects the organization's dedication to excellent customer service. The City will ensure that its information systems are maintained in a secure environment, capable of supporting technology advancements made by the City, and will exist in an integrated environment that fosters an open, collaborative, and unifying culture. Information Technology is committed to the values of:

1. **Reliability**
 2. **Professionalism and Integrity**
 3. **Efficiency and Effectiveness**
 4. **Innovation**
 5. **Excellence**
 6. **Collaboration and Teamwork**
- Given **Finite IT Resources**, the City will focus these resources on the most productive and cost-effective projects.
 - City departments will agree on a **Collaborative Long-Term IT Vision and Strategies**, which requires active participation in setting IT priorities through an IT Committee made up of department leadership.
 - City will strive to **Maximize Utilization of Existing Systems** and prior investments in application software, as well as to expand functionality and seek enhancements to existing applications.
 - City is committed to ensuring **Sufficient Staff Training and Application Software Knowledge** of existing vendor systems.
 - **Department Ownership** is fundamental to achieving maximum return-on-investment of applications. Departments recognize the importance of assuming responsibility for managing and implementing their specific core business applications, with the support of IT staff. City departments are committed to taking responsibility for adapting and improving processes to best integrate them with the application software.
 - The City will develop an **IT Services Portfolio** so that all interested parties and stakeholders understand the IT Division's roles and responsibilities in servicing the City overall.



IT Initiatives

Introduction

IT Assessment is a process to assess, research, prioritize, budget, and plan future information technology initiatives. Some of the following initiatives are ready for approval and implementation, while others require further assessment and research before the City can make a final determination as to priority, resource requirements, and cost-benefit.

Citizen Services – Many of the following initiatives will have a direct impact on the delivery and availability of citizen services. Opportunities to improve service delivery include increased availability of information and transparency, increased use of the website to provide 24/7 services, and productivity improvements that increase timeliness.



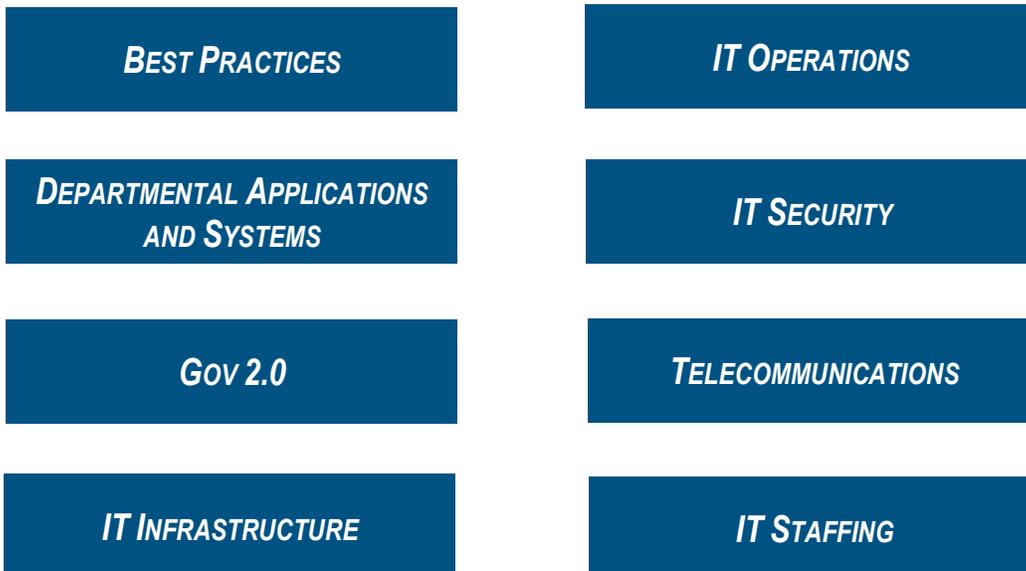
Productivity and Operational Improvement – Many of the following initiatives will have a direct impact on overall productivity within the organization. Some of these initiatives will significantly impact specific processes, reducing staff time required to complete a certain process, while others will ease or speed delivery of services to City residents.

Modernization and Risk Reduction – A number of initiatives focus on improvements, updates, and modernization to existing computer software and network infrastructure. This modernization, and other efforts described in the initiatives, reduce risk and the potential pain resulting from failures or stops in service.

Cost Savings – Many of the initiatives outlined herein will have direct or indirect cost savings when implemented. Extensive return-on-investment (ROI) calculations are not within the scope of this report. A ROI Considerations discussion is included in the *Appendix* of this report.

IT Initiative Categories

The Assessment process resulted in 124 initiatives. Combined, there are hundreds of findings and recommendations. *CLIENTFIRST* classified the major findings and recommendations into eight categories, including:





Key Initiatives

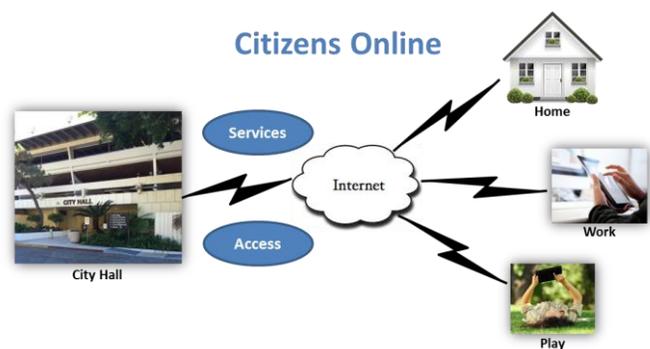
The table that follows in this section includes a list of the Key Initiatives that have been determined. The City has made note of these as the initiatives from this plan that should be kept in the forefront during the future implementation of this IT Assessment.

Criteria for Identifying Key Initiatives

The criteria for identifying these Key Initiatives are as follows:

Citizen Access and Service Improvement – This was, first and foremost, the most important criterion for identifying Key Initiatives. The criteria include applications or infrastructure initiatives necessary to provide on online citizen access to services and information. Some examples (not a complete list) for citizen access and online services include:

- Online planning and permit applications
- Online access to status and progress on planning applications
- Online permit issuance and payment
- Online inspection requests and access to inspections results
- Citizen online access to Council, Board, and Commission videos and audio with integration to agenda and minutes, for quick, easy access
- Citizen Request Management (CRM) to submit issues questions, etc., and have them automatically routed for departments to resolve and access by citizens to see the final resolution to their request
- New business access to zoning, requirements, and costs to ease business licensing and registration process
- Online payment capabilities across all City departments for all City services
- Vendor purchasing and accounts payable portal
- Vendor access to bid management
- ... and more



Productivity and Operational Improvement – This was an important criterion, and is a close second in importance to citizen access and service improvement. The criteria include applications and infrastructure that will improve productivity or have a high return on investment (ROI). These productivity and operational improvements include, but are not limited to:

- Process streamlining and improvements allowing activity to be done more quickly and efficiently
- Elimination of dual entry into multiple systems due to the introduction of integration between systems through the introduction of more integration between applications

Productive Anywhere / Anytime





- Reduction or elimination of reconciliation and balancing activities through the introduction of more integration between applications
- Reduction or elimination of shadow systems (databases, spreadsheets, etc.) and workarounds that are required due to lack of capability in existing systems
- Quicker and better query/online access to information to complete tasks and better serve citizens
- Ability to perform more work in the field using mobile devices with access to critical applications including mobile inspections, mobile code enforcement, and field-based work orders and maintenance tracking, etc.
- Improved reporting to make better day-to-day operational and management decisions and to better make decisions and plans for the future
- More reliability of networks, PC workstations, and up-to-date software, so that time is not lost due to downtime or the need for numerous calls for support
- ... and more

Risks, Prerequisites, and Dependencies – This criterion is important and focuses on initiatives that eliminate current risks or potential failures. It also includes initiatives that are a prerequisite or must be implemented because the other Key Initiatives are dependent on them. These include, but are not limited to, the following:

- System platforms, hardware or network initiatives that are at high, immediate risk of failure due to fragility and age
- End-of-life or near end-of-life system platforms, hardware, or network initiatives that other Key Initiatives require (interdependency)
- Prerequisite platforms, hardware, or network initiatives that are a prerequisite to another Key Initiative, which may include a required sequence (“a” has to come before “b” and “b” has to be complete before “c”)
- ... and more



Note Regarding Initiatives

It should be noted that these “Key Initiatives” are not ranked in any particular order.



Key Listing and Discussion

The following is a list of the Key Initiatives with points of discussion and explanation.

| IT Initiative | Initiative Number | Discussion |
|--|-------------------|---|
| Applications Management Best Practices | 6 | <p>The City has not had in place, nor followed consistently, any policies, processes, or best practices for the management, maintenance, and upkeep of critical application software systems. As a result, systems are not utilized fully, the City has not taken advantage of new features and functions released, user-role access and security are not up-to-date, and most applications are numerous release levels behind. There also is a gap in IT for the human resources necessary for the support of the City's software applications. Following best practices can help the City manage and maintain these applications. Application Management talent (Business Systems Analysts) can help ensure effective implementations and adequate software management to realize a return on investment and high utilization.</p> |
| Enterprise Resource Planning (ERP) Replacement | 19 | <p>The Enterprise Resource Planning (ERP) system is the core system for the entire City. The existing Tyler Technologies' Eden system is aged, and Eden is no longer a mainstream solution proposed by Tyler Technologies. Accela's Permits Plus system is also at end-of-life and is no longer a viable option. These existing City systems, and other City systems that would be part of a modern ERP system, are all in need of replacement because they no longer meet the City's needs and they do not have a future in the marketplace. Other ancillary systems and shadow systems have been acquired or developed that do not interface/integrate and would not be necessary with the implementation of a new ERP system. It is critical to update the City's ERP environment and to keep it up to date into the future. The new ERP system will provide the capabilities to provide a majority of the citizen online access and services desired.</p> |



| IT Initiative | Initiative Number | Discussion |
|--|-------------------|--|
| Electronic Document Management System (EDMS) Replacement | 32 | Electronic Document Management Systems (EDMS) are enterprise systems that help store and retrieve documents, images, video, audio, and much more. Other modules within the EDMS system include Agenda Management, Legislative Management, Council Meeting Management (electronic meeting and voting), and the ability to integrate with media management and the City's Website. The trend to utilize EDMS within cities is prevalent and should be of high consideration for the City. Some ERP systems include EDMS, therefore it would be prudent to conduct an ERP selection before an EDMS selection. |
| GIS Assessment and Master Plan | 43 | GIS and spatial maps are the future and will drive many of the City's operations moving forward. Municipal GIS system integration with public safety, planning, building, public work, etc., is the fastest growing trend nationwide in municipalities. GIS and maps also provide a visual interface for citizens to access online services and information. Having a citywide approach to GIS will set the City on a course to meet these geospatial and mapping needs in the future. |
| Structured Connectivity System | 80 | The City's internal copper cabling is obsolete and will not support current-generation data network speeds or Voice-over-Internet Protocol (VoIP) telephony services. This system, and any obsolete fiber-optic cable, must be replaced to provide a solid foundation for the City's network infrastructure. |
| Network Redesign | 85 | The City's network is the highway for communication and the infrastructure upon which all applications and tools reside and data travels. Without a solid network design for MANs (municipal area networks), WANs (wide area networks), and LANs (local area networks), the investment in application software tools will not be realized. |
| IT Policies and Procedures | 113 | The Finance Director expressed the need to allocate resources to this endeavor to ensure proper documents for day-to-day operations, but to also ensure that documents are in place to ensure smooth operations in the event of any turnover in staff resources. |
| IT Operations | 113 to 120 | These initiatives are critical to improving IT productivity and the realignment of the IT function from a reactive to a proactive posture. |



| IT Initiative | Initiative Number | Discussion |
|---------------|-------------------|---|
| IT Staffing | 120 to 132 | The talent to properly maintain the City's IT infrastructure and the City's application systems environment is critical to ensuring that IT investments provide the level of productivity and return expected. The alignment, positions, and training recommended will ensure this is accomplished. |

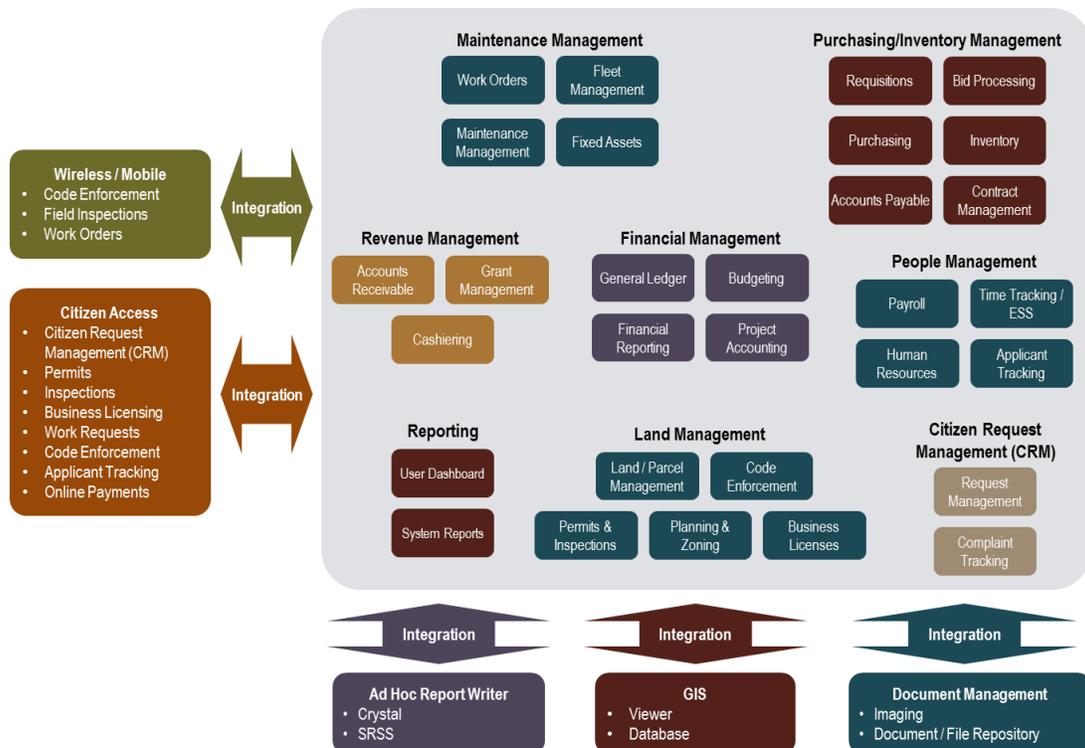


Benefits of Modern ERP Software

An *enterprise resource planning (ERP)* system automates and integrates many core, citywide functions into a single solution, while automating manual processes and providing a central location of information and reporting. An enterprise system allows collaboration and sharing of information between divisions, departments, and citizens to provide a transparent and efficient government operation. The benefits of an enterprise system are numerous and include:

- Built-in integrations between Land, Work, Financial, and People Management application suites
- Newer technology platform (processing, capacity advantages)
- Real-time notifications/queues
- Task tracking
- Real-time access to information
- Elimination of duplicate data entry
- Improved data integrity
- Centralized location and customer account maintenance
- Reliable information
- Workflow capabilities
- Centralized cash receipt capabilities
- Efficient revenue collection
- Reduced operating costs
- Improved internal communication
- Foundation for future improvement
- Potential reduction in annual maintenance and support fees
- Improved online information for citizens to access

Example Enterprise Applications Overview





Financial and People Management

A *financial management suite* is a collection of software in an enterprise system that encompasses the financial 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:

- 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

A *people management suite* is a collection of software that manages the organization's workforce and provides automation to the human resources, payroll, timekeeping, and applicant tracking functions. *Employee self-service* (see below) is also available to allow employees flexibility in retrieving their information at their convenience. 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, HR and financial management
- Quick and 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) empowers employees to provide, change, and retrieve their personal information through an online employee portal, thereby reducing the manual interaction required with the Human Resources Department. ESS offers an online option for employees to access and manage information for themselves:

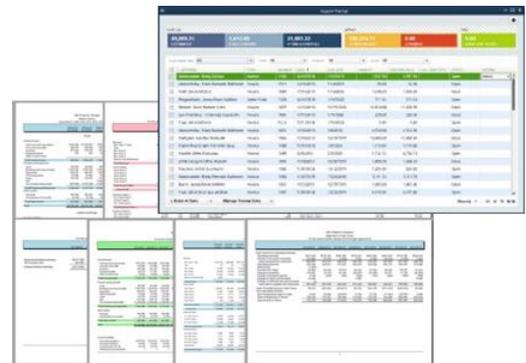
- Address changes
- Tax allowance changes
- Open enrollment benefits
- Dependent changes
- Leave/vacation accrual balances
- Electronic pay stub copies
- Year-end W-2s
- Populating and retrieving time sheets
- Time requests
- Tax forms
- Many other forms and applications



Reporting

The number one problem that is commonly seen when utilizing disjointed applications is the extensive time users dedicate to the consolidation of information for reporting purposes. Enterprise systems allow information to be quickly retrieved from a single source with numerous readily available reports. Users are also able to create their own reports without requiring them to be technical experts. This allows staff to spend more time studying analytics rather than manually assembling reports. Benefits of improved reporting include:

- Aggregated data across divisions, departments, and organization
- Improved data accuracy and reduced human error
- Intuitive report-creation capabilities
- Board-ready reports
- Sharing of created reports
- Elimination of labor-intensive report creation



Individual User Dashboards

Dashboards form part of a user's home page, displaying reports, key indicators, and other metrics regarding day-to-day operations, activities, and historical trends. 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
- Transformation of data into visual information
- Easy-to-understand graphics
- Real-time analysis
- Drill-down access to activity detail





Mobile Computing

Mobile computing provides the flexibility to operate a more mobile and productive workforce. An enterprise system can allow staff to utilize applications while in the field in order to perform their job functions while away from their office. Common benefits of mobile computing include:

- Completion of work while in the field
- Real-time access to information
- Inspection results in the field
- Receipt of notifications and job assignments
- Reduced travel to and from office locations
- Map routing based on location of activities
- Retrieval of mapping information
- Management of code enforcement cases in field



Online Citizen Access

Online citizen access enables a more transparent government by providing the public with 24/7 access to real-time information for inquiries and payment processing. This empowers residents to retrieve online information that is pertinent to each individual, and for them to take further actions, which improves customer relations by eliminating the need to be physically present at City Hall. The following are examples of online citizen access transactions:

- Online permit applications
- Submit and access plan review comments
- Online payments
- Submit complaints
- Submit citizen requests
- Submit inspection requests
- Access to inspection results
- GIS maps (zoning, infrastructure, parcels, etc.)



Citizen Request Management

A *citizen request management system* is used to track, manage, and resolve citizen concerns and requests in a timely manner by automatically routing citizen requests to the appropriate department. It also provides the citizen with the flexibility to submit and track their complaints through the Web or a mobile phone application. Common benefits of a citizen request management system include:

- Ability for citizens to submit requests 24/7 through a phone application or the website
- Automatic assignment and routing of requests, by type, to appropriate department(s) or staff
- Ability for citizens to view current request status
- Conversion of requests to work orders
- Ability to include photos and geolocation related to a request
- More effective and efficient processes
- Improved transparency and citizen relationships





Land Management

A *land management system* is one of the suites offered by an enterprise application system that manages the creation, issuance, and tracking of community development activities related to planning and zoning, permitting, building inspections, licensing, and code enforcement.

Benefits associated with the utilization of the application include:

- Automated permit processing, from application through permit issuance
- Automatic routing for permits requiring reviews and approvals
- Single electronic file for all permit applications and documents
- Automated tracking of reviews, inspections, and fees by permit and development projects
- Tracking of timelines, tasks, and required group reviews
- Viewing all project and permit information at a glance
- Readily accessible planning and zoning records
- Automatic generation of case documentation
- Centralized current and historical parcel information



GIS Integration

Enterprise systems offer real-time integration to *geographic information systems (GIS)* in order to display land-use, zoning, and infrastructure layers on a map, as well as parcel, permit, inspection, code enforcement, and work order activity that resides within the enterprise system.

Benefits of *GIS integration* include:

- Viewing system activity on a map (e.g., active projects, permits, cases, etc.)
- Map routing of work orders, service requests, and daily inspections
- Displaying locations of infrastructure assets
- Generating asset condition analysis
- Ability to overlay multiple map layers
- Integration to website for resident inquiries

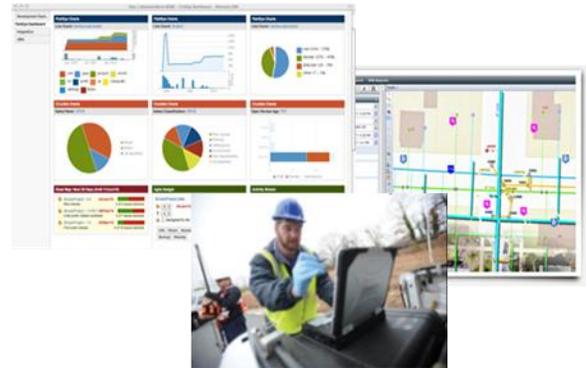




Maintenance/Work Order Management

Another suite of an enterprise system is the *maintenance/work order management system*, which provides automation in managing maintenance and day-to-day operations related to infrastructure assets, buildings, facilities, and fleet vehicles, while being able to capture and report on the labor, equipment usage, and materials costs associated with a work order and preventative maintenance. System benefits include:

- Electronic routing of citizen requests
- Centralized task and maintenance management
- Completion of work orders from the field
- Streamlined public works operations
- Retrieval of historical work order information and costs
- Quicker work order completion times
- Improved decision making through access to real-time information
- Viewing of asset and activity trends visually through GIS mapping capabilities
- More effective replacement planning and forecasting
- Enhancement of staff productivity
- Improved compliance with regulatory standards
- Improved safety and risk management



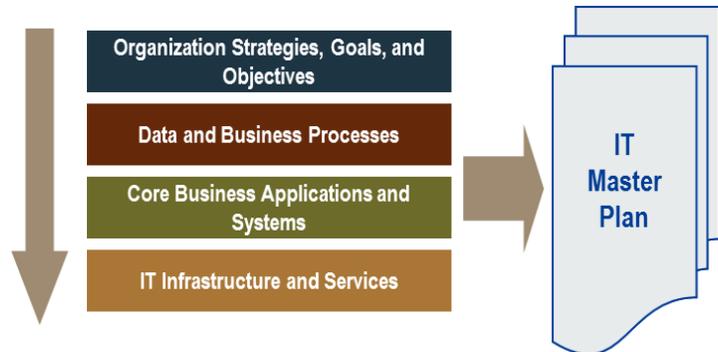


Conclusion

Moving Forward

Moving forward, over the next 18 to 24 months, the focus of Information Technology should be on infrastructure upgrades, as well as training and re-aligning IT staff to meet the needs of 21st-Century technology. Software application improvements should also be considered. We believe the highest priority application project is the selection and implementation of an ERP system. An ERP selection project can begin

immediately upon approval of the plan. ERP implementation should follow the initial focus on infrastructure. IT must work to position itself in the following ways:



Citizen Services – Unfortunately, prior underspending has led to a **large technical deficit**. Upgrading the infrastructure will necessarily delay the implementation of significant citizen services upgrades. We recognize that, over the long term, improving citizen services is the goal of Council and City Management, but reaching this goal may be delayed slightly while the enabling foundation is laid.

IT Infrastructure – Follow best practices in implementing a core network refresh: a structured connectivity system and network redesign. These important initiatives include cloud-based disaster recovery capabilities. They also establish the foundation for the required application system improvements.

IT Staffing – The IT function has not been provided with the necessary training to update and maintain the City infrastructure, primarily the City’s network. The City is also focusing IT management on the maintenance and support of the existing core software applications. The addition of an IT Manager will allow IT function to lead the implementation of this plan. The planned revision of the IT Administrator job to more of a Business Applications Analyst focus will allow for increased emphasis on improving applications and therefore citizen services. A Business Applications Analyst will provide long-term benefits and increase application utilization and organizational productivity.

Application Utilization – City departments want to improve their core business processes and fully utilize their applications. The City should work to encourage a sense of application ownership and continuous improvement by the departments. Improved application utilization is one of the most effective ways to increase staff productivity and customer service.

ERP Replacement – The entire effort to select and implement a new ERP solution to replace existing Eden and other core systems will logistically require two years. The City needs to ensure that all its applications needs have been identified and that appropriate funding has been budgeted for a replacement ERP by conducting a comprehensive needs assessment and developing a Request for Proposals (RFP). Additionally, because *the City has not conducted this type of project with this complexity and these specific business analysis, documentation, and negotiation requirements, the City should obtain assistance from a municipal ERP Applications Subject-Matter Expert (SME).*



Electronic Document and Agenda Management – The City agenda management product is no longer the vendor’s flagship product. In its current state, the product is underutilized and performs in a less-than-optimal manner. Replacing these systems is a key priority of the City.

Governance – The formation of the internal IT Steering Committee will foster cooperation and collaboration in setting priorities and executing multi-department initiatives. Over the long term, the IT Steering Committee will oversee and maintain the execution and occasional modification of this plan.

We expect the projects outlined in this report to result in improved productivity and customer service, as well as improved sustainability.

Third-party Subject-Matter Experts (SMEs) will be helpful for projects that are (1) high priorities, (2) beyond the scope of City skill sets, and/or (3) lacking internal resource availability.

Additionally, we recommend that action plans be developed by the departments and IT for all active, short-term initiatives. The action plans should include all identified needs, recommended solutions, responsible individuals, and target due dates. These action plans can ensure that all needs are being addressed and/or that a decision has been made not to pursue an initiative. These action plans will also prove beneficial to annual resource and budget planning requirements.

The City should review and update the plan annually, using an abbreviated version of the Assessment methodology. In this way, the plan will be a vehicle to continuously guide the information technology activities of the City. The annual IT Assessment update should be synchronized with the City’s annual budget process, so the City’s IT Plan initiative costs can be properly represented in the City’s annual budget.

Benefits

The completed plan should not be viewed as static, but rather as a dynamic tool that is revised and updated as business conditions and requirements change. If the planning function is not an ongoing process, certain objectives and benefits will not be realized, because the objectives themselves may change as the organization and its environment evolves.

Major benefits that are (or should be) realized through the implementation of this IT Assessment include:

- Increased collaboration and communication between the departments and IT
- Transformation of the organization’s overall understanding, knowledge, and stewardship of information technology
- Clear direction for IT operations and IT projects for the next five years, focused on meeting the organization’s needs
- Citywide department consensus and understanding of all IT Initiatives and their priorities
- Foundational process and methodology for evaluation of project investments and analyzing business case justification

Immediate Next Steps

It is recommended that the IT Steering Committee begin work by reviewing the plan and priorities, including the ranking and sequencing of the Top -Priority Initiatives. Next, assign lead and participatory resources to these Key Initiatives and also to all other high-priority IT initiatives. This should include the finalization of target due dates for immediate next steps of those initiatives. Initiative leaders should then report status updates for active initiatives to the IT Steering Committee as part of each agenda.



Major issues for each initiative should be discussed among the Committee and/or sub-committees for general feedback, collaboration, and lessons learned, as many of the IT/application initiatives cross-departmental boundaries.

In order to improve the culture of application utilization, management, and support, it is also recommended that a series of training seminars be developed for all key department stakeholders and all enterprise business application users throughout the organization. This is an effective way to maintain momentum and kick off the tremendous change that is to occur in improving operations and citizen services.



IT Assessment Capital Budget

The IT Assessment budget on the following pages is NOT an entirely new set of spending requirements. The plan encapsulates all information technology issues and needs of all departments in the City. Some projects, initiatives are normally funded by departments themselves, some initiatives already have capital reserves set aside and others are part of normal annual IT budgeting.

Comprehensive IT Assessment

Project / Initiative Budget Estimates



| | |
|----------|---|
| H | High - Initiative is mission critical to the City or user department(s), it mitigates risk, and/or it has significant cost benefit or return on investment. Also provides significant level of service to constituents and the community. Funding for these initiatives typically begin in the front end of the 5-year planning period. |
| M | Medium - Is important to the City or user department(s), has measureable cost benefit or return on investment. Medium initiatives also provide a service to constituents and the community, but at a lower degree than a High priority initiative. Funding for these initiatives typically begin in the middle of the 5-year planning period (Year 2 or 3). Can also be a High priority initiative that is dependent on another High priority initiative that is a prerequisite. |
| L | Low - Provides value but with minimal cost benefit or return on investment. Can also be a Medium priority initiative that is dependent on another Medium priority initiative that is a prerequisite. Funding for these initiatives typically begin on the back end of the 5-year planning period (Years 3 - 5). |

| Initiative # | IT Initiative | Comments | Priority | Budget Range | | Dept(s) | Funding Source(s) | FY2015-16 | FY2016-17 | FY2017-18 | FY2018-19 | FY2019-20 | FY2020-21 |
|--|---|--|----------|-----------------|-----------------|----------------------|-------------------|-----------|------------|------------|------------|-----------|-----------|
| | | | | Low | High | | | | | | | | |
| Best Practices | | | | | | | | | | | | | |
| 1 | Return-on-Investment Considerations | Providing tools and staff training, including working on several project examples. | M | n/a | n/a | All Departments | | | n/a | n/a | n/a | n/a | n/a |
| 2 | IT Governance | Assist in establishing a Steering Committee with roles and responsibilities. Educational Seminar for Steering Committee Members and providing tools and next steps. (Possibly facilitating first several months of Steering Committee meetings - Option w/ additional cost). | H | \$ 5,000 | \$ 15,000 | All Departments | | \$ 10,000 | | | | | |
| 3 | COBIT | Standards | M | n/a | n/a | All Departments | | n/a | n/a | n/a | n/a | n/a | n/a |
| 4 | ITIL | Standards | M | n/a | n/a | All Departments | | n/a | n/a | n/a | n/a | n/a | n/a |
| 5 | Software Selection Best Practices | Standard methodology and practices | H | n/a | n/a | All Departments | | n/a | n/a | n/a | n/a | n/a | n/a |
| 6 | Applications Management Best Practices | Providing tools and staff training. Establishing roles and responsibilities for enterprise applications. | H | \$ 5,000 | \$ 10,000 | All Departments | | \$ 7,400 | | | | | |
| 7 | Applications and User Licensing Inventory | Providing tools and staff training | M | \$ 1,000 | \$ 5,000 | All Departments | | | \$ 4,440 | | | | |
| 8 | Maintaining Software Updates | Standards | H | n/a | n/a | All Departments | | n/a | n/a | n/a | n/a | n/a | n/a |
| 9 | Computer Equipment Replacement Plan | Policies, standards, and practices | H | n/a | n/a | All Departments | | n/a | n/a | n/a | n/a | n/a | n/a |
| 10 | Sustainability Planning | Providing tools and staff training | M | n/a | n/a | All Departments | | n/a | n/a | n/a | n/a | n/a | n/a |
| 11 | Project Planning and Implementation Best Practices | Providing tools and staff training | M | n/a | n/a | All Departments | | n/a | n/a | n/a | n/a | n/a | n/a |
| 12 | IT Project and Services Portfolio | Documenting IT Department roles and responsibilities for all services including SLA for business application support | L | \$ 1,000 | \$ 25,000 | IT & Finance | | | | | | \$ 14,800 | |
| 13 | User Training and Support | Annual Recurring | H | \$ 25,000 | \$ 75,000 | All Departments | | \$ 25,000 | \$ 50,000 | \$ 50,000 | \$ 50,000 | \$ 50,000 | \$ 50,000 |
| 14 | Training Room | Facilities, computers and equipment, with refresh in year 5 | H | \$ 15,000 | \$ 20,000 | All Departments | | \$ 12,500 | | | | | \$ 5,000 |
| 15 | User Access Controls | | H | n/a | n/a | | | n/a | n/a | n/a | n/a | n/a | n/a |
| 16 | Cloud Computing Strategy | Standards | M | n/a | n/a | IT & All Departments | | n/a | n/a | n/a | n/a | n/a | n/a |
| 17 | Centralized Land and Parcel Management | Included in developing GIS Master Plan Initiative | H | See below | See below | All Departments | | See below | See below | See below | See below | See below | See below |
| Departmental Applications and Systems | | | | | | | | | | | | | |
| 18 | Enterprise Resource Planning (ERP) Selection Services | Assistance from subject matter experts to assist with needs assessment, systems selection, contract negotiations, and implementation preparation | H | \$ 75,000 | \$ 100,000 | All Departments | | \$ 40,000 | \$ 40,000 | | | | |
| 19 | Enterprise Resource Planning (ERP) Replacement | Includes the suites/modules listed below including cost from vendor for software, training, implementation. Cost also includes a subject matter expert to provide implementation project management for the full implementation of the ERP solution. | H | \$ 1,500,000 | \$ 2,000,000 | All Departments | | | \$ 500,000 | \$ 750,000 | \$ 500,000 | | |
| 20 | Project and Grant Accounting | Included in ERP | H | Included in ERP | Included in ERP | All Departments | | | | | | | |
| 21 | Contract Management | Included in ERP | M | Included in ERP | Included in ERP | All Departments | | | | | | | |
| 22 | People Management Replacement (HR and Payroll) | Included in ERP | H | Included in ERP | Included in ERP | All Departments | | | | | | | |
| 23 | Time and Attendance | Included in ERP | H | Included in ERP | Included in ERP | All Departments | | | | | | | |
| 24 | Employee Self-Service | Included in ERP | M | Included in ERP | Included in ERP | All Departments | | | | | | | |

Comprehensive IT Assessment

Project / Initiative Budget Estimates



| Initiative # | IT Initiative | Comments | Priority | Budget Range | | Dept(s) | Funding Source(s) | FY2015-16 | FY2016-17 | FY2017-18 | FY2018-19 | FY2019-20 | FY2020-21 |
|--------------|---|---|----------|---------------------|---------------------|--|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | | | | Low | High | | | | | | | | |
| 25 | Applicant Processing and Onboarding | | H | Included in ERP | Included in ERP | HR, All Departments | | | | | | | |
| 26 | Land Management System Replacement | Included in ERP | H | Included in ERP | Included in ERP | All Departments | | | | | | | |
| | (Planning, Permits, Inspections, Code Enforcement, CRM), Citizen/Contractor Online Self-Service (Planning Application Submission, Online Permits, Inspection Requests, Electronic Plan Submittals and Reviews | Included in ERP | H | Included in ERP | Included in ERP | Finance, Vendors | | | | | | | |
| 27 | Electronic Plan Submittals and Reviews | Included in ERP | M | Included in ERP | Included in ERP | | | | | | | | |
| 28 | iWorQ Work Order Utilization Improvement | Included in ERP | H | Included in ERP | Included in ERP | PW, Finance | | | | | | | |
| 29 | Fleet Management System Replacement | Included in ERP | H | Included in ERP | Included in ERP | PW, Finance | | | | | | | |
| 30 | Fuel Management System Replacement | Included in ERP | M | Included in ERP | Included in ERP | PW, Finance | | | | | | | |
| 31 | Electronic Document Management System (EDMS) Selection Services | Assistance from subject matter experts to assist with needs assessment, systems selection, contract negotiations, and implementation preparation | H | \$ 30,000 | \$ 40,000 | City Clerk, Council, The Public, All Departments | | \$ 40,000 | | | | | |
| 32 | Electronic Document Management System (EDMS) Replacement | Includes the breakdown of the Phases below as well as the Liste Modules | H | See breakdown below | See breakdown below | City Clerk, Council, The Public, All Departments | | See breakdown below |
| | Phase 1: City Clerk Records Management | Included in EDMS To convert from SIRE, to implement City Clerk records management and configure records retention | H | \$ 100,000 | \$ 150,000 | City Clerk, Council | | \$ 65,000 | \$ 60,000 | | | | |
| | Phase 2: Agenda Management and Media Management | Included in EDMS Implement records management with Media Management or Media Management Integration with publishing to the web for public access | H | \$ 75,000 | \$ 100,000 | City Clerk, Council, The Public, All Departments | | \$ 50,000 | \$ 50,000 | | | | |
| | Phase 3: Departmental EDMS (Store and Retrieve) | Included in EDMS Implement EDMS throughout the departments and convert shared drive files to EDMS | H | \$ 75,000 | \$ 100,000 | City Clerk, Council, All Departments | | | | \$ 75,000 | | | |
| | Phase 4: Citywide/Departmental Workflows | Included in EDMS Implement workflows throughout the City, department-by-department | H | \$ 75,000 | \$ 125,000 | City Clerk, Council, All Departments | | | | | \$ 100,000 | | |
| 33 | Agenda Creation and Management Software | Included in EDMS | H | Included in EDMS | Included in EDMS | Clerk, Council, All Departments, Public | | | | | | | |
| 34 | Legislative Management | Included in EDMS | H | Included in EDMS | Included in EDMS | Clerk, Council | | | | | | | |
| 35 | Council Meeting Management (including Automated Voting) | Included in EDMS | H | Included in EDMS | Included in EDMS | Clerk, Council, All Departments | | | | | | | |
| 36 | Council Meeting Media Management (EDMS) | Included in EDMS | H | Included in EDMS | Included in EDMS | Clerk, Council, All Departments, Public | | | | | | | |
| 37 | Staff Reports Agenda (EDMS and Agenda Management) | Included in EDMS | H | Included in EDMS | Included in EDMS | CMO, All Departments, Public | | | | | | | |
| 38 | Public Records Request Tracking and Responses (EDMS) | Included in EDMS | H | Included in EDMS | Included in EDMS | Clerk, All Departments | | | | | | | |
| 39 | Candidate Election Filing and Form 700 Tracking (EDMS) | Included in EDMS | H | Included in EDMS | Included in EDMS | Clerk, CMO | | | | | | | |
| 40 | Microfiche, Microfilm, and Paper Conversion to Digital | Included in EDMS | M | \$ 25,000 | \$ 50,000 | Clerk, PW | | | | \$ 40,000 | | | |
| 41 | Campaign Contribution Tracking and Public Access | Included in EDMS | M | Included in EDMS | Included in EDMS | Clerk, CMO | | | | | | | |
| 42 | Third-Party SME Retention Schedule Resource | Included in EDMS Third-party resource to assist the with the development and establishment of a Citywide document/content retention schedule | M | \$ 20,000 | \$ 35,000 | Clerk, City Attorney, All Departments | | \$ 30,000 | | | | | |
| 43 | GIS Assessment and Master Plan | Third-party SME to assist in GIS Master Plan Development including centralized parcel & address recommendations | H | \$ 60,000 | \$ 80,000 | All Deaprtments | | \$ 40,000 | \$ 20,000 | | | | |
| 44 | Bid Management with Integration to Bid Tracking | Bid Planlet or similar | H | \$ 10,000 | \$ 20,000 | Fin, All Departments | | \$ 15,000 | | | | | |
| 45 | Project and Construction Management | Software & Implementation | M | \$ 50,000 | \$ 150,000 | PW, Finance | | | | \$ 70,000 | | | |

Comprehensive IT Assessment

Project / Initiative Budget Estimates



| Initiative # | IT Initiative | Comments | Priority | Budget Range | | Dept(s) | Funding Source(s) | FY2015-16 | FY2016-17 | FY2017-18 | FY2018-19 | FY2019-20 | FY2020-21 |
|--------------|---|---|----------|---------------------------|------------|---|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| | | | | Low | High | | | | | | | | |
| 46 | Police Implementation of InTime Scheduling Software | Implementation is in progress and is scheduled for completion by the end of the 2016 calendar year. The costs here are for the necessary integration to the ERP/Financial System payroll module. | H | \$ 10,000 | \$ 25,000 | Police, Finance | | \$ 15,000 | | | | | |
| 47 | Fire TeleStaff Updates and Utilization Improvements | Assistance from software vendor to catch up to most current versions and for any required reconfiguration and training. | H | \$ 5,000 | \$ 15,000 | Fire, Finance | | \$ 10,000 | | | | | |
| 48 | FIREHOUSE Gap Analysis and Utilization Improvements | Assistance from third-party SME to determine Gap and develop a plan, would also include assistance from software vendor to catch up to most current versions and for any required reconfiguration and training | H | \$ 10,000 | \$ 40,000 | Fire | | \$ 10,000 | \$ 20,000 | | | | |
| 49 | Patient Care Reporting Implementation | Annual DigitalEMS Subscription (\$20K annually first year, \$28K annually years 2-5) and one-time cost for CAD/RMS Interface (\$1,500 in year 1). Does not include the cost for Mobile Tablets and Mobile Printers. | H | \$ 27,000 | \$ 20,000 | Fire | | \$ 21,500 | \$ 28,000 | \$ 28,000 | \$ 28,000 | \$ 28,000 | \$ 28,000 |
| 50 | Digitization of Fire Map Book into GIS | Related to GIS Master Plan Initiative above. Includes use of Esri Government Template(s) w/ assistance from third-party SME to help implement and train the Fire Department to independently maintain and support in the future | H | \$ 10,000 | \$ 20,000 | Fire | | \$ 15,000 | | | | | |
| 51 | Fire Alarm Tracking and Billing Software | New Software of Cloud/SaaS service to provide this service. Includes software and implementation services | M | \$ 25,000 | \$ 50,000 | | | | | | \$ 20,000 | \$ 5,000 | \$ 5,000 |
| 52 | Notifications System (Public/Employee/Emergency) | Tool to manage all City notification needs (emergency & non-emergency). Annual prescription per year. | L | Annual Subscription Based | | All Departments, Public | | | | | | \$ 15,000 | \$ 15,000 |
| 53 | Standardized Building/Security Access | Equipment and Implementation of a new standardized security access system for all buildings and facilities | H | \$ 50,000 | \$ 100,000 | Building, Police, All Departments | | \$ 50,000 | \$ 25,000 | | | | |
| 54 | OpenCounter | This would include the Zoning Viewer/Guided Tour Experience products only. There is a one-time upfront cost of \$13,500 for implementation/setup and then an annual ongoing Cloud-based subscription fee of \$36,000. | M | Annual Subscription Based | | CMO, Planning | | | | | \$ 49,500 | \$ 36,000 | \$ 36,000 |
| 55 | DASH Integration to New ERP | Interface for moving cash receipt information to be imported and reflected in the new ERP system. | M | \$ 10,000 | \$ 30,000 | Comm Serv, Finance | | | | | \$ 20,000 | | |
| 56 | Property,Space, Tower Billing (Leasing) | Can be provided by ERP system. A bolt on submodule may need to be licensed along with implementation services | M | \$ 5,000 | \$ 10,000 | CMO, Finance | | | | | \$ 7,500 | | |
| 57 | Improved HdL User Access | Internal effort to identify all users and their required access needs and then updating the user sign-on/security roles. | H | n/a | n/a | Finance | | n/a | n/a | n/a | n/a | n/a | n/a |
| 58 | Benefits Administration System Selection (in-process) | Effort is being completed to for an outside service. An interface with the future People Mgmt suite in the new ERP system will need to be implemented and is desired by the City | M | \$ 10,000 | \$ 25,000 | HR, Finance, Employees | | | \$ 15,000 | | | | |
| 59 | Insurance Compliance Service (third-party outsource) | Service for the ability to confirm and track compliance as well as confirm the ratings of the insurance carriers are adequate to meet the City's requirements. | M | Annual Subscription Based | | Clerk, HR | | | | \$ 2,500 | \$ 2,500 | \$ 2,500 | |
| 60 | General Liability Claims and Damages Tracking | This can be performed using a third party or using forms/workflows in the EDMS system. May require assistance from your selected EDMS vendor. | M | \$ 5,000 | \$ 15,000 | Clerk, HR | | | | \$ 10,000 | | | |
| 61 | Large-File Sharing Tool | Could use Microsoft 365 Option | M | Annual Subscription Based | | All Departments | | | | \$ 1,750 | \$ 1,750 | \$ 1,750 | |
| 62 | Instant Messaging | Could use Microsoft 365 Option | L | Annual Subscription Based | | All Departments | | | | | \$ 2,000 | \$ 2,000 | |
| 63 | Constituent Satisfaction Surveys | Can use your Website vendor or Survey Monkey | L | \$ 2,500 | \$ 7,500 | CMO, Comm Serv, All Departments, Public | | | | | \$ 5,000 | | |
| 64 | Computer Lab Updates for Senior Center | Includes acquisition and installation of new PCs. It should be noted that using a redeployment strategy could be applied as an adjunct to the Computer Equipment Replacement initiative noted in Best Practices above. | M | \$ 10,000 | \$ 15,000 | All Departments | | | \$ 12,500 | | | | |

Comprehensive IT Assessment

Project / Initiative Budget Estimates



| Initiative # | IT Initiative | Comments | Priority | Budget Range | | Dept(s) | Funding Source(s) | FY2015-16 | FY2016-17 | FY2017-18 | FY2018-19 | FY2019-20 | FY2020-21 |
|---|--|--|----------|---------------------|---------------------|---------------------------------------|-------------------|------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | | | | Low | High | | | | | | | | |
| Gov 2.0 | | | | | | | | | | | | | |
| 65 | Citizen Request Management (CRM) | Implement as part of the Land Management Incode v8 migration to EnerGov | H | See above | See above | Planning, Building, Pub Wks, City Mgr | | | See above |
| 66 | Online Payments, Transactions, and Services Strategy | See ERP Improvement Initiative | H | See above | See above | All Departments | | | See above |
| 67 | Internal Intranet | Implementation with existing public website vendor | M | \$ 20,000 | \$ 30,000 | | | | | \$ 25,000 | | | |
| 68 | Council Chambers Audiovisual Systems | Upgrade and Implementation of new Council Chamber Audiovisual Equipment | H | \$ 100,000 | \$ 200,000 | City Managers Office | | \$ 150,000 | | | | | |
| 69 | Conference Room Audiovisual | Costs based on 5 conference rooms at \$5,000 - \$7,500 per room. | M | \$ 20,000 | \$ 40,000 | All Departments | | | | \$ 30,000 | | | |
| 70 | Video/Web Conferencing | City to Investigate Office 365 using Skype for Business. <u>Annual Subscription</u> for video/Web conferencing from City conference rooms. | M | \$ 1,500 | \$ 4,000 | All Departments | | | | | \$ 1,800 | \$ 3,600 | \$ 3,600 |
| 71 | Social Media Risk Management and Controls | Policy is nearly complete. Software and ongoing program for records retention of social media is under investigation | H | \$ 7,500 | \$ 10,000 | All Departments | | \$ 8,500 | | | | | |
| 72 | Mobile Computing | See wireless network initiatives below; and ERP for PW, Planning, Permitting, Code Enforcement; and Fire and Police Initiatives | H | See above and below | See above and below | All Departments | | | See above and below |
| 73 | Employee Remote Access | Included with Network Redesign and other network related initiatives below | M | See below | See below | All Departments | | | See below |
| IT Infrastructure | | | | | | | | | | | | | |
| 74 | Desktop Computer Standardization | Staff to complete | H | | | | | | | | | | |
| 75 | Office Software Upgrades | Various versions - get to 2013 | H | | | All Departments | | | \$ 9,000 | | | \$ 90,000 | |
| 76 | Computer Room/Data Center Improvements | Will use Office Supplies funds | M | | | IT | | | | | | | |
| 77 | Converged Network Design | | H | | | IT | | | \$ 6,000 | | | | |
| 78 | Core Switch Replacement | | H | | | IT | \$ 34,500 | | | | | | |
| 79 | IT Infrastructure Roles and Responsibilities | | H | | | IT | \$ 4,680 | | | | | | |
| 80 | Structured Connectivity System | City Hall Pub Works/Corp Yard rewiring and cabling | H | \$ 350,000 | \$ 400,000 | All Departments | | | \$ 365,000 | | | | |
| 81 | Create Best Practice Internet Connectivity (DMZ) | | H | | | | | | \$ 23,500 | | | | |
| 82 | File Servers | | H | | | | | \$ 70,500 | | | \$ 26,000 | | |
| 83 | Metropolitan Area Network (MAN) | | M | | | | | | | \$ 25,000 | \$ 25,000 | \$ 25,000 | \$ 25,000 |
| 84 | Local Area Network (LAN) Upgrade | | H | | | | | | \$ 42,550 | | | | |
| 85 | Network Redesign | Delete this or 16 | | | | | | | | | | | |
| 86 | Traffic Management System | Upgrade and move off of existing copper wiring | L | | | | | | | | | | \$ 50,000 |
| 87 | Consolidated Radio Operations | | | | | | | | | | | | |
| 88 | Power Distribution Units/Computer Room Power | | H | | | | | | \$ 6,000 | | | | |
| 89 | Storage Area Network (SAN) Implementation | | H | | | | \$ 56,000 | | | | | \$ 50,000 | |
| 90 | Virtualization | | H | | | | \$ 27,000 | | | | \$ 27,000 | | |
| 91 | Staff Wireless Network | | M | | | | | | | \$ 48,000 | \$ 25,000 | | |
| 92 | Technology Support for the EOC | Included in PD upgrade 2016 - underway | M | | | | | | | | | | |
| 93 | Redundant CAD/RMS System | Talk to Travis about this | M | | | | | | | | | | |
| 94 | Firewall Replacement | Obsolete FY17-18 | M | | | | | | | \$ 50,000 | | | |
| 95 | SQL Server Database Consolidation | Currently 3 or 4 | L | | | | | | | \$ 22,000 | | | |
| PD Improvements | | | | | | | | | | | | | |
| 96 | Data Center Improvements | | H | | | | | | \$ 25,000 | | | | |
| 97 | Body Cameras | | | | | | | | | | | | |
| 98 | Expand PD Wireless | | H | | | | | | | \$ 25,000 | | | |
| 99 | CAD/RMS Assessment | | M | | | | | | | | \$ 100,000 | | |
| Public Safety Capital Replacement Plan | | | | | | | | | | | | | |
| 100 | MDCs | PD currently purchasing | H | | | | | | \$ 12,000 | \$ 12,000 | \$ 12,000 | \$ 12,000 | \$ 12,000 |
| 101 | Workstations | | H | | | | | | \$ 10,000 | \$ 64,000 | | | \$ 15,000 |
| 102 | VDI Terminals | | M | | | | | | | | | \$ 55,000 | |
| 103 | Backup Software Maintenance | | | | | | | | | | | | |
| 104 | Microsoft EA | | | | | | | | | | | | |
| 105 | Cloud-Based Storage | | M | | | | | | \$ 13,000 | | | | |

Comprehensive IT Assessment

Project / Initiative Budget Estimates



| Initiative # | IT Initiative | Comments | Priority | Budget Range | | Dept(s) | Funding Source(s) | FY2015-16 | FY2016-17 | FY2017-18 | FY2018-19 | FY2019-20 | FY2020-21 |
|---------------------------|---|--|----------|--------------|------|---------|-------------------|-------------------|---------------------|---------------------|---------------------|---------------------|-------------------|
| | | | | Low | High | | | | | | | | |
| 106 | Cloud-Based Storage Connectivity | | | | | | | | | | | | |
| 107 | Firewall | | H | | | | | | | | \$ 50,000 | | |
| 108 | Maintenance for Software Applications | | | | | | | | | | | | |
| 109 | VMware | | H | | | | | | | \$ 50,000 | | \$ 50,000 | |
| 110 | Servers | | H | | | | | \$ 45,000 | \$ 45,000 | | | | |
| 111 | Switches | | H | | | | | | | | \$ 10,000 | | |
| 112 | SAN | | H | | | | | \$ 38,000 | \$ 40,000 | | | | \$ 40,000 |
| IT Operations | | | | | | | | | | | | | |
| 113 | IT Policies and Procedures | | M | | | | | \$ 7,800 | | | | | |
| 114 | Desktop Management | | M | | | | | \$ 23,000 | | | | | |
| 115 | Help Desk Ticketing System | Consider TRAKIT or equivalent | M | | | | | \$ 15,000 | | | | | |
| 116 | Imaging Software Tool | | H | | | | | \$ 10,000 | | | | | |
| 117 | IT Automation Tools (Patch Management, Packaging Changes) | Consolidate 42 & 44 | H | | | | | | | | | | |
| 118 | Mobile Device Management | | H | | | | | | \$ 7,000 | | | | |
| 119 | Asset Management Automation | | M | | | | | \$ 6,000 | | | | | |
| 120 | Network Management Tools (Alerts/Alarms) | | H | | | | | | \$ 22,000 | | | | |
| IT Security | | | | | | | | | | | | | |
| 121 | Disaster Recovery Planning | | M | | | | | | | | \$ 15,000 | | |
| 122 | Backups | | | | | | | | | | | | |
| 123 | IT Security Review | | M | | | | | | | | \$ 22,500 | | |
| 124 | SCADA Security | | | | | | | | | \$ 50,000 | | | |
| 125 | Virus Updates | Really IPS for firewall | H | | | | | \$ 10,000 | | | | | |
| 126 | Two-Factor Authentication | | M | | | | | | \$ 11,000 | | | | |
| 127 | Records and Data Retention - Email Archiving | | M | | | | | \$ 15,000 | | | | | |
| Telecommunications | | | | | | | | | | | | | |
| 128 | VoIP Phone Replacement | RFP in FYE 2018, Install FYE 2019 | H | | | | | \$ 25,000 | \$ 216,000 | | | | |
| IT Staffing | | | | | | | | | | | | | |
| 129 | Interim IT Assistance | Assist with selection of IT Manager & Plan implementation, 6 to 8 months | H | | | | | \$ 40,000 | | | | | |
| 130 | IT Staffing | | | | | | | | | | | | |
| 131 | IT Staff Training | One per FTE - starting FY2017-18 | H | | | | | \$ 3,000 | \$ 14,000 | \$ 16,000 | \$ 16,000 | \$ 16,000 | \$ 16,000 |
| 132 | Enterprise Applications Support Specialist | | H | | | | | | | | | | |
| | | | | | | | | \$ 201,180 | \$ 1,356,250 | \$ 1,580,940 | \$ 1,454,550 | \$ 1,061,650 | \$ 306,850 |

Comprehensive IT Assessment

Project / Initiative Budget Estimates



| Initiative # | IT Initiative | Comments | Priority | Budget Range | | Dept(s) | Funding Source(s) | FY2015-16 | FY2016-17 | FY2017-18 | FY2018-19 | FY2019-20 | FY2020-21 |
|---|-------------------------|----------|----------|--------------|------|---------|-------------------|-----------|------------|------------|-----------|------------|-----------|
| | | | | Low | High | | | | | | | | |
| *Other Funding Sources (Funded, Planned, and/or Estimated) | | | | | | | | | | | | | |
| | PEG Funds | | | | | | | \$ - | \$ 150,000 | | | \$ - | |
| | Waste/Storm Water Funds | | | | | | | \$ - | \$ - | \$ 50,000 | \$ - | \$ - | \$ - |
| | Workstations | | | | | | | \$ 10,000 | \$ 64,000 | \$ - | \$ - | \$ - | \$ 15,000 |
| | VDI Terminals | | | | | | | \$ - | \$ - | \$ - | \$ 55,000 | \$ - | |
| | Cloud-based storage | | | | | | | \$ 13,000 | | | | | |
| | Firewall | | | | | | | | | | \$ 50,000 | | |
| | VMware | | | | | | | | | \$ 50,000 | | \$ 50,000 | |
| | Servers | | | | | | | \$ 45,000 | \$ 45,000 | \$ - | \$ - | \$ - | \$ - |
| | Switches | | | | | | | \$ - | \$ - | \$ 10,000 | \$ - | \$ - | \$ - |
| | SAN | | | | | | | \$ 38,000 | \$ 40,000 | \$ - | \$ - | \$ - | \$ 40,000 |
| | | | | | | | | \$ - | \$ 256,000 | \$ 249,000 | \$ 60,000 | \$ 105,000 | \$ 55,000 |

| | | | | | | |
|-----------------|-------------------|---------------------|---------------------|---------------------|-------------------|-------------------|
| NET Cost | \$ 201,180 | \$ 1,100,250 | \$ 1,331,940 | \$ 1,394,550 | \$ 956,650 | \$ 251,850 |
|-----------------|-------------------|---------------------|---------------------|---------------------|-------------------|-------------------|

| IT Staff Costs | | | | | | | | | | | | | |
|-----------------------|--|--|--|--|--|--|--|--|------------|------------|------------|------------|------------|
| 137 | IT Staffing | | | | | | | | \$ 421,778 | \$ 477,553 | \$ 402,611 | \$ 366,669 | \$ 366,669 |
| 139 | Enterprise Applications Support Specialist | | | | | | | | | | | | |

| Ongoing Expenses | | | | | | | | | | | | | |
|-------------------------|---------------------------------------|--------------------------------|--|--|--|--|--|--|------------|------------|------------|------------|------------|
| 109 | Backup Software Maintenance | | | | | | | | \$ 3,500 | \$ 3,500 | \$ 3,500 | \$ 3,500 | \$ 3,500 |
| 110 | Microsoft EA | | | | | | | | | \$ 60,000 | \$ 60,000 | \$ 60,000 | \$ 60,000 |
| 111 | Cloud-based storage | | | | | | | | \$ 36,000 | \$ 36,000 | \$ 36,000 | \$ 36,000 | \$ 36,000 |
| 112 | Cloud-based storage connectivity | | | | | | | | \$ 36,000 | \$ 36,000 | \$ 36,000 | \$ 36,000 | \$ 36,000 |
| 113 | Firewall | | | | | | | | \$ 15,000 | \$ 15,000 | \$ 50,000 | \$ 15,000 | \$ 15,000 |
| 114 | Maintenance for Software Applications | | | | | | | | | \$ 100,000 | \$ 100,000 | \$ 100,000 | \$ 100,000 |
| 115 | VMware | | | | | | | | \$ 15,000 | \$ 15,000 | \$ 15,000 | \$ 15,000 | \$ 15,000 |
| 129 | Backups | | | | | | | | \$ 15,000 | \$ 15,000 | \$ 18,000 | \$ 18,000 | \$ 21,000 |
| 134 | Email Archiver - Maintenance | | | | | | | | | \$ 6,500 | \$ 6,500 | \$ 6,500 | \$ 6,500 |
| | | In FY206-17, utilize CIP funds | | | | | | | \$ 120,500 | \$ 287,000 | \$ 325,000 | \$ 290,000 | \$ 293,000 |



Appendix – IT Assessment Initiatives

The following section contains the *IT Assessment Initiatives Workshop* documentation in its entirety.

Comprehensive IT Assessment

Appendix: IT Initiatives

August 10, 2016



Client Locations
Coast-to-Coast

Practice Locations
California
Illinois
Minnesota
North Carolina

800.806.3080
www.clientfirstcg.com

CLIENTFIRST
TECHNOLOGY CONSULTING

Appendix: IT Initiatives



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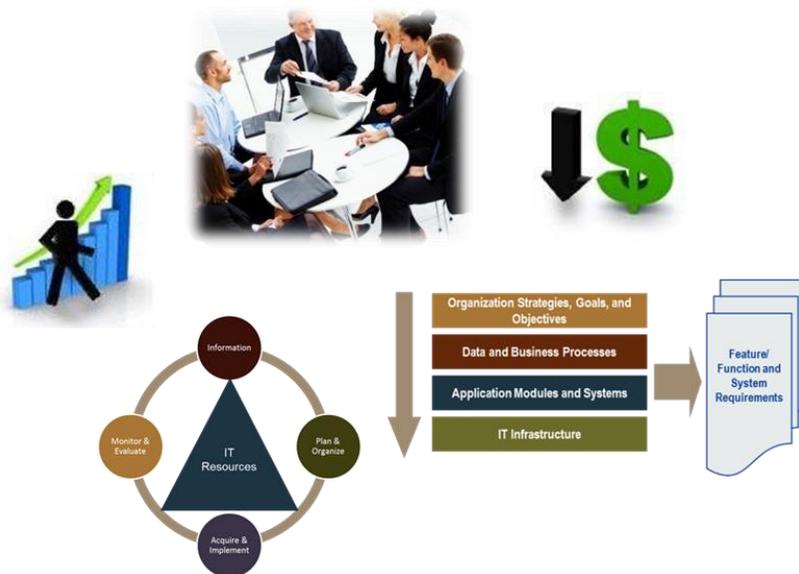
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Best Practices are methods that consistently provide results greater than those achieved with other methods. We believe that the following best practices will enhance the City’s ability to select, procure, and maintain solutions that are more effective in the future, as well as improve overall productivity of staff.

1. Return-on-Investment Considerations
2. IT Governance
3. COBIT
4. ITIL
5. Software Selection Best Practices
6. Applications Management Best Practices
7. Applications and User Licensing Inventory
8. Maintaining Software Updates
9. Computer Equipment Replacement Plan
10. Sustainability Planning
11. Project Planning and Implementation Best Practices
12. IT Project and Services Portfolio
13. User Training and Support
14. Training Room
15. User Access Controls
16. Cloud Computing Strategy
17. Centralized Land and Parcel Management





1. Return-on-Investment Considerations

IT Infrastructure, Operations, and Support

Limiting the number of software and technology vendors supporting City functions will decrease IT infrastructure, operational costs, and support costs in the medium-to-long term. The following is a list of technology areas impacted when determining the number of applications necessary to support and maintain an organization's core business solutions:

- **Hardware** – Servers required to house the applications
- **Software** – Additional software, such as key operational software applications, and the number of different database tools required to support core applications
- **Licensing** – Increased licensing due to an increased number of vendor applications and various associated database tools
- **Business Continuity** – Increased Disaster Recovery Planning effort, testing, and recovery complexity to support multiple vendor applications
- **Support Costs** – IT support costs for hardware and software as vendor application volumes increase
- **Operation Costs** – Increased training for employees to meet expertise requirements as more vendor applications and different database tools are introduced

Further analysis outside of the scope of this project would be required to determine specific potential cost savings.

Departmental Labor Costs

Many organizations do not adequately understand the impact that improved automation—and the resulting reduction in manual processes and shadow systems—will have when considering implementation of new systems or conducting process improvement analysis. Most productivity analyses show that, over time, labor cost savings far exceed the cost of reasonable automation efforts. The savings associated with the avoidance of one new hire or the elimination of a position due to natural attrition may be \$40,000 to \$70,000 or more per year (including total payroll, taxes, benefits, and other costs). The life of some new systems should be over ten years, making the savings from the avoidance of just one new hire, or elimination of an unnecessary position through attrition, the equivalent of \$400,000 to \$700,000 over ten years. Ten years should be the minimum expected life cycle for major/large applications systems.

Return-on-Investment (ROI) for Applications Systems

Improved utilization of applications systems can result in immediate and sustained savings in time spent performing specific tasks or processes. These individual improvements do not always equate to immediate, “hard” savings. They may result in intangible benefits to the City, the population that the City serves, or cumulative savings from reduced long-term personnel needs.

User Training and Support

Applications software is continually evolving. Improvements and enhancements are made yearly. Maintaining staff efficiency and improving productivity over time requires ongoing training of all staff. Users are typically not trained on all aspects or capabilities of particular software applications or other technology-based tools during initial implementation. Therefore, it is important for the organization to develop methodologies to carry out functionality use, reporting, and training requirements in order to utilize the City's important technological assets to their fullest potential over time.



Calculation Examples

Whenever possible, we recommend that staff calculate tangible and intangible benefits when requesting approval for a project. The following calculations can be utilized in those efforts. We believe in being conservative and practical. Exhaustive ROI studies should not be necessary. Focusing on a limited number of reasonable examples, as outlined here, should normally be sufficient to provide adequate justification for strategic projects.

Labor Efficiency Savings = **Labor Hours Saved X Gross Hourly Rate**

Tangible Labor Cost Savings = **New hire avoidance, elimination of position through attrition, consolidation of work load and positions, etc.**

Hard Cost (Tangible) Savings

- Hardware
- Software
- Maintenance
- Inventory Reductions



Intangible Benefits

- Increasing Levels of Service
- Improved Service to Public Users
- Safety
- Transparency
- Improved Public Communication
- Improved Employee Communication and Satisfaction
- IT Planning and Improvements



Return-on-Investment (ROI) Considerations

A study conducted by Macquarie University¹ discovered the following:

- Overall ROI in IT projects is around 30%.
- Successful IT projects can have an ROI of around 400%.

¹ Macquarie University, 2006.



2. IT Governance

Findings and Observations

The City requires cooperative technology to meet its goals. The Information Technology Master Plan implementation provides a great opportunity for City departments to collaborate on future technology use and applications.

IT Governance

Traditionally, key IT decisions are made by IT professionals and a select few organization managers. This does not always ensure the most effective benefit to all stakeholders (all departments and constituents). IT governance can provide a collaborative forum for major decisions, planning, internal communication, and department/staff training regarding such matters. IT governance is committed to the stewardship of IT resources on behalf of the stakeholders who demand a benefit and/or return on the investment.

IT Steering Committee

The IT Steering Committee is a group of employees and managers from a variety of departments and disciplines that provide long-term direction and oversight for an organization's IT resources. This committee can provide a stabilizing influence and focus for development of organizational concepts and planning. Some of the responsibilities the group may carry out include:



- Identifying and developing of technology initiatives
- Prioritizing initiatives
- Monitoring and reviewing initiatives
- Project management of IT Master Plan implementation
- Providing a forum for lessons learned during implementation of technology projects
- Providing an initial review process of technology-related projects requested by individual departments
- Reviewing and providing feedback on long-term unresolved Help Desk issues
- Developing and reviewing standards and policies
- Updating standards and policies as changes occur in the organization and technology
- Helping to achieve support across the organization
- Reviewing Help Desk statistics, issues, and long-term unresolved needs
- Acting as a sounding board for management and staff

Implementation of IT Governance can be an effective forum for departments to become more knowledgeable about technology and how it can be used effectively to enhance customer service and create efficiencies throughout the City's business process environments.

Recommendations

Assemble and formally implement an internally staffed IT Steering Committee, including an IT Steering Committee Charter, to discuss technologies and recommend priorities, assist in policy development, communicate with department staff, and **oversee the implementation of the IT Master Plan**.

It is recommended that the City considers engaging *CLIENTFIRST* to review the IT Steering Committee Charter in order to make specific recommendations and to assist in conducting a Steering Committee Development Workshop, including make-up of Steering Committee



members and structure, as well as review Steering Committee roles and responsibilities. As part of the same engagement, *CLIENTFIRST* would also conduct a workshop to educate on Steering Committee best practices.

Utilize the IT Steering Committee as the initial forum for the IT Department and other Departments to propose/present new information technology-related projects to ensure best practices are followed and applied to their review, selection, approval, procurement, implementation (project management), and ongoing maintenance.

The IT Governance strategy and implementation of an IT Steering Committee can be an effective forum for departments to become more knowledgeable about technology and how technology can be used effectively to enhance customer service and create efficiencies throughout the City's business-process environments.

Benefits

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

Next Steps

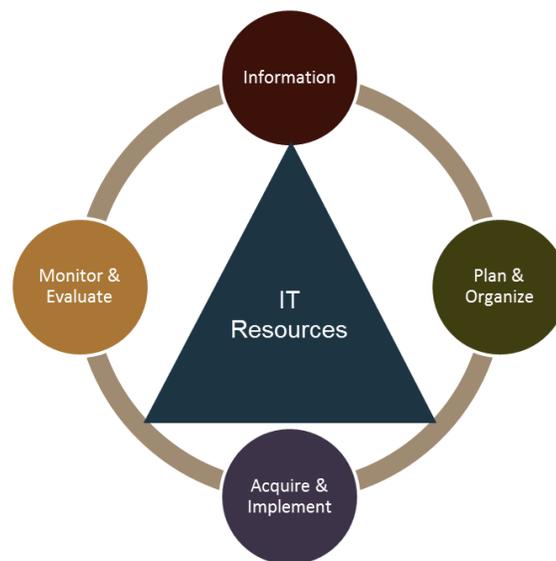
- Determine potential IT Steering Committee members who are:
 - ◆ Interested in participating on Steering Committee
 - ◆ Have the ability to speak for Department Head
- Develop and implement an IT Steering Committee, focused on:
 - ◆ Determining priorities, based on limited IT resources
 - ◆ Annual IT budget review and prioritization
 - ◆ IT policy reviews
 - ◆ New project reviews and feedback
 - ◆ Lessons learned from ongoing projects
- Determine representation of all departments on the Steering Committee for regular IT communication, ongoing education, and continued collaboration.
- Assign a lead and/or sub-committee for all IT Master Plan initiatives.
- Monitor and discuss active/in-process IT Master plan initiatives at each Committee meeting.
- Form subcommittees, as appropriate.



3. COBIT

Control Objectives for Information and related Technology, also known as COBIT, helps to ensure alignment of IT with the environment through the adoption of incentives, metrics, and oversight. IT governance is the responsibility of executives and the City Council, and consists of the leadership and organizational structures and processes that ensure that the enterprise's IT sustains and extends the organization's strategies and objectives. For IT to be successful in delivering, management should put an internal control system or framework in place. The COBIT control framework contributes to these needs by:

- Making a link to the organization's requirements
- Organizing IT activities into a generally accepted process model
- Identifying the major IT resources to be leveraged
- Defining the management control objectives to be considered



The orientation of COBIT consists of linking organizational goals to IT goals, providing metrics and maturity models to measure their achievement, and identifying the associated responsibilities of organization and IT process owners. The benefits of implementing COBIT as a governance framework over IT include:

- Better alignment, based on an organizational focus
- A view of what IT does that is understandable by management
- Clear ownership and responsibilities, based on process orientation
- General acceptability with third parties and regulators
- Shared understanding among all stakeholders, based on a common language

COBIT is an IT governance framework and supporting toolset that allows managers to bridge the gap between control requirements, technical issues, and business risks. COBIT enables clear policy development and best practices for IT control throughout organizations. COBIT emphasizes regulatory compliance, helps organizations to increase the value attained from IT, enables alignment, and simplifies implementation². *CLIENTFIRST* utilizes the concepts from COBIT throughout its IT Planning process.

² www.isaca.org – COBIT, 2009.

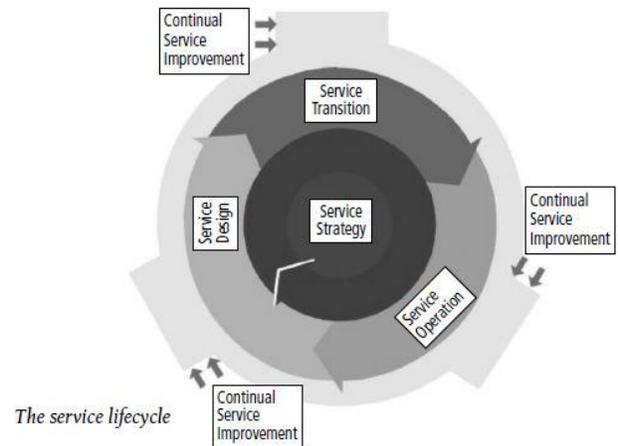


Benefits

- Reduction in unplanned work
- Increase in number of successful changes
- Improved operations management
- Secure sharing of infrastructure and asset information
- Increased anticipation and management of technology upgrades
- Reduction in total cost of ownership

4. ITIL

This lifecycle approach to IT organization results in strategies that align service management with business strategy, structures IT services to meet the real business environment, and builds a support model for the day-to-day procedures needed to support business objectives. Through an understanding of Information Technology Infrastructure Library (ITIL) and how it relates to IT operational environments, *CLIENTFIRST* can identify the strategy and resources needed to accomplish the business objectives based on the current structure of the IT Department.



ITIL provides a common framework understood by suppliers, clients, vendors, and businesses through a set of global standards. *CLIENTFIRST* utilizes these concepts for service delivery throughout its IT planning process to provide a sound approach to support IT initiatives³. ITIL is a framework intended to assist organizations with the alignment of IT operations with business objectives through an IT service strategy of continuous realignment. ITIL is considered a best-practice approach to IT service delivery that can be molded to fit all organizational structures. ITIL v3 groups IT service into four (4) categories: Strategy, Design, Transition, and Operation. *CLIENTFIRST* recommends that all IT Managers obtain at least foundational certification in ITIL.

Benefits

- Reduction in unplanned work
- Increase in number of successful changes
- Improved operations management
- Secure sharing of infrastructure and asset information
- Increased anticipation and management of technology upgrades
- Reduced recovery times
- Reduction in total cost of ownership
- Improved alignment of technology with business requirements and needs

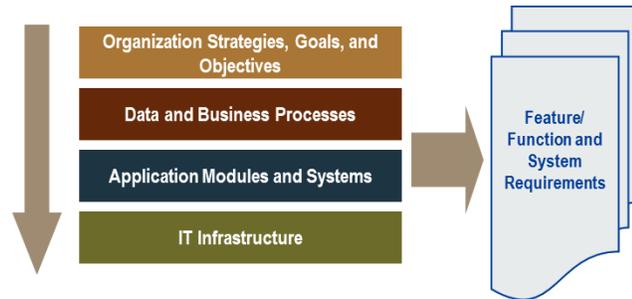
³ www.itil-officialsite.com, ITIL, 2009.



5. Software Selection Best Practices

Findings and Observations

Selecting the right system and technology is more critical today than ever before, because the efficiency and effectiveness of the organization is directly dependent on its use of technology and information systems. Organizations are realizing they must take greater advantage of automation and technology to ensure a better position to meet growing constituent and public demands. Additionally, many agencies must provide better service to their constituents, users, and the general public, while coping with greater budget constraints.



Return-on-Investment Consideration

While new software solutions can transform certain operations, processes, and constituent services, consider these facts:

- Without proper preparation, planning, and a methodology for selection and implementation, organizations face many problems and risks, including:
 - ◆ Spending hundreds of thousands—and, potentially, millions—of dollars more than necessary in total cost of ownership
 - ◆ Failed or prolonged implementation
 - ◆ Implementation of systems that still do not meet the organization’s functional needs
 - ◆ Low productivity
 - ◆ Poor contract negotiation position
 - ◆ Lack of and/or reduced integration between other software systems
- Organizations typically fall short of their implementation goals due to one or more of the following factors:
 - ◆ Insufficiently defining system objectives and requirements
 - ◆ Failing to adequately involve both management and users
 - ◆ Underestimating the costs and effort required
 - ◆ Failing to adequately plan for expansion
 - ◆ Failing to properly evaluate software



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.



- In order for key software systems to be implemented properly and for the organization to reap the full benefits, the organization should utilize a structured analysis and selection methodology. 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
 - ◆ An education process for the organization
 - ◆ Selection of technology that meets the organization’s short- and long-term objectives and requirements
 - ◆ Effective contract negotiation through well-prepared and documented needs
 - ◆ Overall project time savings
 - ◆ Improved implementation readiness

Recommendations

- Utilize best practice selection methodology when evaluating new software solutions (see example work plan below).
- Consider third-party consultants when selecting or improving complex or highly specialized solutions.
- Ensure process reviews are completed and detailed feature/function specifications are documented as part of the RFP (see example below).
- Ensure detailed feature/function specifications are utilized with test scripts before going live on new applications implementations.
- Include all stakeholders in each software evaluation and implementation project.
- Ensure detailed feature/function specifications are utilized in post-implementation reviews and ongoing training.

Benefits

- Reduction in hardware/software requirements
- Reduction in preparation time for deployments
- Better identification of integration requirements
- Reduced license fees
- Increased utilization of applications systems
- More effective due diligence
- Increased staff buy-in, consensus, and morale
- Improved decisionmaking (selecting software that is the best fit for your needs)
- Improved implementation results (time, costs, and results)



6. Applications Management Best Practices

Findings and Observations

The City utilizes over 49 different software applications or modules throughout all departments. Major systems include:

| Application Functionality | Vendor |
|--|--------------|
| Financial/Accounting Management | Eden |
| Personnel Management | Eden, NEOGOV |
| Land Management | PermitsPlus |
| Work Orders/Maintenance and Asset Management | iWorQ |
| Public Safety CAD/RMS | Firehouse |
| Electronic Document and Records Management | SIRE |
| Geographic Information System (GIS) | Esri ArcGIS |

A more comprehensive example listing of City applications is included below.

Note: *This is not an official inventory.*

- Adobe
 - ◆ Acrobat
 - ◆ Illustrator
 - ◆ InDesign
 - ◆ Photoshop
 - ◆ Reader
- ArcGIS
- ArcView GIS
- AutoCAD
- Bluebeam
- Corkboard
- CoStar
- Crystal Reports
- DASH Platforms
 - ◆ Class Registration
 - ◆ Rental Bookings
- Eden
 - ◆ Human Resources
 - ◆ Accounts Payable (A/P)
 - ◆ Accounts Receivable (A/R)
 - ◆ Budget Prep
 - ◆ Fixed Assets
 - ◆ General Ledger
 - ◆ Payroll
 - ◆ Position Budgeting
 - ◆ Project Accounting
 - ◆ Purchasing
- False Alarm Billing System
- Firehouse
 - ◆ Incident Reporting
 - ◆ Training
 - ◆ Inspections
- GoToMyPC
- GovClarity
- HDL
- Microsoft
 - ◆ Excel
 - ◆ OneNote
 - ◆ Outlook
 - ◆ PowerPoint
 - ◆ Project
 - ◆ Word
 - ◆ Power Point
 - ◆ Publisher
- NEOGOV
- Open Data
- Pages
- PermitsPlus
- Vision (Website)

Many City software applications, modules, and systems are underutilized, resulting in loss of productivity due to manual processes, inefficient workarounds, and inefficient or unnecessary reconciliations. Additional user training is needed for many software applications (see *User Training and Support* initiative). The City does not have sufficient resources to document practices and procedures, develop needs for applications systems, prioritize needs, evaluate solutions, and identify sufficient implementation and ongoing management and support resources for these solutions. Additionally, the City has insufficient effective IT resources to ensure quality applications utilization, increase department process improvements, and gain significant efficiencies in labor throughout the organization.



Gaining greater utilization of the existing application modules is vital to significant increases in productivity by staff throughout the City. The ability to accomplish this is difficult because of limited resources and the diversity of application providers in use.

Future Applications Management Best Practices

The City can benefit greatly by changing traditional applications management practices. Use of the following recommendations can lead to improved functionality, use, and increased overall productivity.

Future Applications Roles and Responsibilities

Applications support and management roles and responsibilities will have to be identified and assigned to departments' operational applications and modules. We recommend starting with:

- ERP (Finance and Accounting)
- EDMS
- Permitting
- Contract Management
- Personnel Management
- Work Orders/Maintenance and Asset Management

| PO = Process Owner(s) SU = Super User(s) AA = Application Analyst(s) RW = Ad hoc Report Writer(s) | | FI = Application Area Functional Lead (liaison/Coordinator) FR = Feature Function Reviewer(s) HP = Needs Assessment/Software Selection Participants | | | | | | IT = IT Responsibilities(Explanation) |
|--|----------------------|--|--------------------------|--------------------------|-----------------------------|------------------|-------------------------|---------------------------------------|
| Financial Management | | | | | | | | |
| | General Ledger | Budgeting | Bank Reconciliation | Project Accounting | Purchasing and Requisitions | Accounts Payable | Accounts Receivable | |
| PO | John | Robbie | Thomas | Lorrie | Debbie | Robert | Evan | |
| SU | John | Robbie | Denise | Thomas | Sherry | Pat | John | |
| AA | John | Robbie | Denise | Thomas | William | Robert | Robert | |
| RW | Jody | Robbie | Thomas | Lorrie | Debbie | Pat | Jerry | |
| IT | Rich | Rich | Rich | Rich | Rich | Pat | Rich | |
| FI | John | Robbie | Thomas | Lorrie | Debbie | Robert | Evan | |
| FR | John Jody Rich | Robbie Rich | Thomas Denise Rich | Lorrie Thomas Rich | Debbie Sherry William | Robert Pat | Evan Robert Jerry | |
| HP | John Jody Rich | Robbie Rich | Thomas Denise Rich | Lorrie Thomas Rich | Debbie Sherry William | Robert Pat | Evan Robert Jerry | |

Identification and assignment will help the City spot capable resources to fulfill the roles and responsibilities for Applications Management Best Practices in the future.

Process Owner

- Staff “resident expert” who is responsible for a given departmental process or function
- May also be responsible for oversight and delivery of the daily, weekly, monthly, and annual processes that the application or module is utilized to fulfill
- Primarily makes final decisions on process policies, procedures, and deliverables for their area of expertise
- Stays current with the applicable industry best practices, technology, and applications capabilities
- Stays current with existing application vendor capabilities, offerings, and enhancements

Application Champion

- An expert on a specific application or module
- Possesses greatest knowledge of application or module
- Lead trainer or support person for other staff that utilizes application or module
- Usually has formal training and is responsible for application configuration setup and changes on an ongoing basis
- Often trained to provide ad hoc report writing capabilities for the application or module
- Stays current with the applicable industry best practices, technology, and application capabilities
- Stays current with existing application vendors’ capabilities, offerings, and enhancements

Business Process and Application Analyst

- Assigned to work with process owners, application champions, report writers, and users
- Reviews business processes, current utilization of application, manual processes, and shadow systems (i.e., spreadsheets and other databases) in an effort to increase automation, improve efficiencies, and increase utilization of the core business application



- Assists in the development of user, application, and process requirements
- Assists in developing and documenting standard operating procedures (SOPs)

Note: An Application Analyst may be a person already fulfilling one or more of the above roles.

Ad Hoc Report Writer

- Aptitude to develop ad hoc reports using vendors' report writing tools, which may include third-party tools such as Crystal Reports, Cognos, or Microsoft SQL Server Reporting Services (SRSS)
- Assigned as the "go-to" person for ad hoc reports that other users cannot quickly generate on their own

IT roles and responsibilities should be defined by application module. Consider taking the following actions:

- Identify role of IT for a given application or module (primarily server and network support).
- Departments are to take as much responsibility as possible for applications management of modules utilized by their primary business-process functions, as the IT Department does not currently and will never have all the resources to fulfill all applications management support and maintenance roles for the entire organization.

Please note that the organization may not have an identified resource in some instances, and that some applications may not require certain roles. It is also likely that, in some instances, the same person(s) will fulfill more than one role for a given application/module.

Business Department Application Training

As applications software changes and grows in complexity, training staff to use software properly becomes more critical. We believe that a renewed emphasis on targeted staff training on the City's applications software will pay off significantly in increased staff effectiveness and productivity. An inventory of high-priority training is essential to achieve expected productivity. The City can identify and assess future training needs for all applications and users upon completion of an application/user matrix (see *Applications and User Licensing Inventory* initiative).

Recommendations

- Departments should be encouraged to become more responsible for changes to application setup and configurations with assistance from IT. If department personnel are unable to make these changes, training should be provided.
- Training department personnel to perform their own simple report writing (basic listings and extracts in tabular form) is challenging, but beneficial. More complex reporting often requires specific understanding of database structures in the application. There is currently very limited capacity to provide such support from IT.
- Consider adding more specialized application/business analyst personnel and database administration to the IT Department to provide increased and improved applications support to departmental users for departmental business applications (e.g., ERP, Personnel Management, Permitting, EDMS, CAD/RMS, Work Orders/Maintenance Management etc.)
- Over time, we believe that applications utilization by departments will improve if applications sponsors (Process Owners and Application Champions) take a more active role in monitoring upcoming functionality improvements from new software releases that will benefit the City. In addition, it would be helpful if applications sponsors and sponsoring departments monitored and discussed applications usage with other peer organizations and entities to gather information and potential productivity improvements that could be incorporated into the City's systems.



- Specifically assign a process owner, application champions, primary business analysts, applications administrators (setup and configuration responsibility), and ad hoc report writers for each application or module.
- Key assignments should encompass responsibility for understanding industry best practices and solutions or processes available, and taking the lead in continually assessing and inventorying needs.
- Inventory current and future feature/function, reporting, training, and support gaps, and maintain improvement needs lists.

Benefits

- Increased use of applications features, resulting in higher return on software investment
- Higher degree of user independence and less reliability and cost for vendor assistance
- Identification of applications user roles and responsibilities
- Improved efficiencies and productivity
- Improved customer service

Next Steps

- Each department should complete Application/User Matrices for current and future applications usage and applications management roles, and IT Steering Committee should review completed matrices.
- Identify process owner(s) for each module, or insert “N/A” if not applicable.
- Identify application champion(s) for each module.
- Identify application analyst(s) for each module, or insert “N/A” if not applicable.
- Identify ad hoc report writers, or insert “N/A” if not applicable.
- Differentiate (e.g., by color shading, annotations, etc.) if individuals are expected to assume roles in the future with additional training.
- Define IT Department roles and responsibilities for all applications or modules.

7. Applications and User Licensing Inventory

Findings and Observations

A citywide *applications and user inventory* can be helpful in understanding/confirming licensing compliance, over/under seat license needs, and identifying training and user roles mentioned in the *Applications Management Best Practices* initiative.

The screenshot shows a complex spreadsheet titled 'Application/User Matrix'. It lists various applications and modules such as 'Financial Management', 'HR', 'HRIS', 'Personnel', 'Recruitment', 'Training', 'Performance', 'Compensation', 'Benefits', 'Pension', '401k', 'Health', 'Dental', 'Vision', 'Life', 'Disability', 'Workers Comp', 'Unemployment', 'Retirement', 'Pension', '401k', 'Health', 'Dental', 'Vision', 'Life', 'Disability', 'Workers Comp', 'Unemployment', 'Retirement'. The spreadsheet has columns for user names and their roles (Full, Inquiry, Report) across these applications. The cells are color-coded: green for 'Full' role, yellow for 'Inquiry' role, and blue for 'Report' role.

Recommendations

- Create an inventory of all organization software applications/modules currently in use, as needed. This is necessary for multiple initiatives/projects and developing and budgeting a multi-year user training budget.
- Identify all current user license holders, as well as those that need additional licenses.
- Determine which users that don't have a valid need for a license and determine if these licenses can be transferred to other users.
- Identify user's roles as “F” (Full), “I” (Inquiry), or “R” (Reporting Only).
- Recommend differentiating between current/licensed and non-current/non-licensed users, so that budgeting can be addressed for additional user-license requirements.
- Determine software applications that can be run centrally from a server or shared computer for infrequent users.



- Obtain ongoing sustainability cost estimates.
- Consider development of an IT Applications Support Portfolio to document departmental ownership and IT Department service-level agreements (SLAs).

Benefits

- Assurance that investment in licenses are matched to users truly in need
- Assurance that investment of licenses match the organization's software needs
- Better ability to identify potential integration requirements
- Ability to obtain proper support and reference information for licensed software
- Ability to better schedule and conduct training for staff, based on software usage
- Better, well-informed decision making for applications acquisitions or maintenance cancellations
- Potential reduction in applications license and maintenance fees by cancelling applications no longer in use
- Mitigation of legal risk from use of non-licensed software

8. Maintaining Software Updates

Findings and Observations

- Best practice for the maintenance of applications software is to maintain a minimum of N-1 (current major release or the one prior).
 - ◆ Software vendors often only support the current release and the one prior.
 - ◆ Falling further behind often creates upgrade scenarios with several intermediate steps, risking additional problems, and potentially makes upgrades more expensive and time consuming.

Recommendations

- The City's normal practice is to maintain software updates as recommended.
- Maintain consistent updates across all users.
 - ◆ Utilize the inventory created in the *Applications and User Licensing Inventory* initiative to understand version issues.
 - ◆ Implement patch management software to provide software updates across the City for desktop software to improve standardization.
- Provide appropriate user training with each release.



9. Computer Equipment Replacement Plan

Findings and Observations

- A computer equipment refresh plan is not currently in place.
- The City has many older servers, switches, and other computer equipment that are past their expected end-of-life.
- IT does not maintain a complete inventory of computer equipment, including when purchased and expected end-of-life.

Recommendations

- Develop a five-year, rolling computer equipment replacement plan, and budget accordingly.
- Allow customized length of time for replacement of any technology that may have a unique end-of-life.
- 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, etc.)
- As a result of the project preliminary recommendations, the City has initiated a network upgrade project to eliminate end-of-life equipment.
- The City’s should provide capital replacement information for use at the start of each budget cycle.

Return-on-Investment (ROI) Consideration

A study conducted by Express Metrix for quantifying ROI, as it relates to IT and software asset management, describes the following ROI benefits of Replacement Planning within an organization⁴:

- Reducing cost of ownership related to IT assets by determining licenses for which an organization is overspending and reducing Help Desk costs
- Managing technology change by developing software procurement models that map current and future needs with technology migration and upgrade planning
- Minimizing security risks by preventing unauthorized use, enforcing desktop standards, and identifying PCs with unlicensed applications

| 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 |

In a study conducted by the Aberdeen Group, the following were the cost savings that occurred after incorporating a Sustainability Plan⁵:

- System automations reduced paper costs by up to 11%.
- Efficiencies reduced facility costs by up to 10%.

⁴ Express Metrix.

⁵ Aberdeen Group, 2009.



- Waste and disposal costs were reduced by up 8%.
- Transportation and logistics costs were reduced by up to 5%.

Benefits

- Better forecasting of purchases
- Managed process that flattens capital expenditures over time
- Improved computer performance
- Improved available features
- Reduction in trouble tickets to support failing or faulty hardware
- Ability to keep spare equipment around to be reissued, reducing employee downtime
- Increased employee performance by eliminating the use of old, slow, and post-lifecycle technology
- Reduction in total cost of ownership



10. Sustainability Planning

Findings and Observations

Sustainability Planning is the process of mapping the acquisition, maintenance, upgrade, improvements, training, and eventual replacement for major applications systems over a long-term period (i.e., five to ten years). Sustainability Planning helps in two significant ways:

1. Reducing the significant periodic spikes in capital expenditures of large software solutions
2. Scheduling upgrades and replacements of departmental business applications systems in a convenient and timely manner

The growing practice of Sustainability Planning provides a more practical or realistic way to determine and plan for the ongoing operational needs of all departments.

Because software applications are the primary technology tools of the operational departments, in order to increase productivity and efficiencies, improve customer service and transparency, and take advantage of technology improvements, the City can benefit from the implementation of sustainability planning versus the more limited practice of replacement planning.

Recommendations

- Develop a sustainability plan for IT software applications.
 - ◆ Microsoft licenses should be replaced N-1 (i.e., every other version).
 - ◆ Larger core applications (e.g., Financials, Land Management, Work Order Management, Recreation, etc.) benefit most from sustainability planning, because these should only be replaced every 10-15 years, if procured and managed properly.
- Investigate and track annual maintenance and support, and upgrade costs for all major systems to determine if the cost structure is sustainable. If the cost structure is not sustainable, consider alternatives and priorities over the next five-year period.

Benefits

- Increased long-term investment through scalability
- Reduced maintenance expenses
- Increased trust in systems
- Reduced risk and liability
- Reduction in total cost of ownership
- Avoidance of unforeseen upgrades
- Informed purchase timing
- Software lifecycle evaluation



11. Project Planning and Implementation Best Practices

Findings and Observations

A best practices approach should be followed for all significant implementation projects. The complexity and risk determine the actual level of due diligence that should be performed. The following is an outline of project planning and implementation best practices:

Determine Scope of Work – Work with all stakeholders to determine what needs to be accomplished.

Design – For larger, more complex projects, the design effort may become a separate project. For smaller projects, design is integrated into budgeting.

Specifications – Make sure an appropriate level of vendor-agnostic specifications are included with procurement requests that reduces ambiguity and provides better comparisons between vendors.

Collaborate – Include input and requirements of all stakeholder groups to ensure all requirements are included in specifications and all stakeholders buy-in to the final solution. IT Steering Committee should review as part of the Committee’s role and responsibilities.

Develop Budget – Project budgets include hardware, software, and consulting/SME costs. Consulting costs are estimated by outlining the various work steps and estimating the hours required to complete them.

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 IT Steering Committee.

Create Project Plan – Based on all stakeholder needs, delivery dates, and the tasks to be completed, 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.

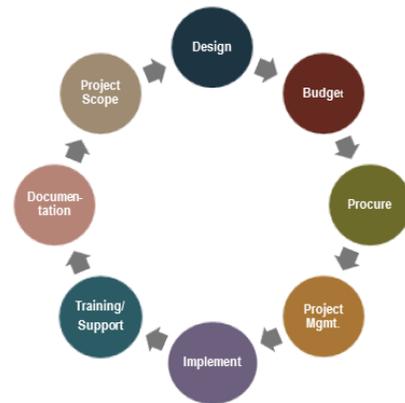
Document Other Plans – Other plans may include training, testing, contingency, and back-out. These plans are developed on an as-needed basis.

Configure and Implement – Utilizing planning methodologies and technical expertise, configure the necessary system components, and implement the solution with the least possible impact to staff and productivity. The IT Steering Committee should receive status reports on the progress of the implementation, including whether the project is on time and on budget, whether user needs are being met, and that vendors are following through with their contractual obligations.

Post-Implementation Review – Complete a post-implementation review with successes, lessons learned, and any loose ends requiring vendor assistance. Report the results of the IT Steering Committee.

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 for all IT and software-related projects.
- Follow planning and implementation best practices.
- Review all major active and upcoming projects during IT Steering Committee meetings.
- Obtain services of third-party project managers/subject-matter experts, 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/outcomes

12. IT Project and Services Portfolio

An *IT Support Services Portfolio* is a complete list of IT projects and services provided to City staff and the public. The support services portfolio outlines IT responsibilities for each service and any service-level agreements for those services (e.g., 24/7 support required, disaster recovery priorities, user access permissions, report writing for certain software modules, server uptime requirements, etc.) Applications support, partially addressed in the *Applications Management Best Practices* initiative, is only one aspect of the complete portfolio. Other IT services include projects, Help Desk, data network, telephone systems, IT security, etc.

Recommendations

- We recommend the IT Department create an IT Projects and Services Portfolio to effectively communicate and set expectations for all users regarding what support services IT provides and communicate service-level standards.
- Utilize results of IT Assessment as the basis for a five-year project portfolio and budget.
- Utilize the *Applications Management Best Practices*, *Applications and User Licensing Inventory*, and *User Training and Support* initiatives as a basis to complete the services portfolio.



13. User Training and Support

Software systems are tools utilized to conduct business operations. Like other tools, gaining greater utilization through sufficient training and installation of available software modules is key to significant increases in productivity and greater efficiency, as well as achieving cost savings in many areas.



Findings and Observations

- Software applications that are underutilized will gain significant increases in staff productivity if more training were provided.
- A complete inventory of all applications and/or modules by department and user does not currently exist.
- This list can be helpful in understanding and confirming licensing compliance, over/under seat license requirements, and identifying training needs and user-responsibility roles, as discussed in the *Applications Management Best Practices* initiative.
- Examples of requested training are included below.

Return-on-Investment (ROI) Consideration

- In a study conducted by Nucleus Research, an organization drove productivity gains of up to 50% through ongoing, successful user trainings⁶.

Recommendations

- Complete the Applications/User Matrices by department and user.
- Identify all current user license holders, as well as those that need additional licenses.
 - ◆ Conduct a survey, by user, to determine what training would be helpful and to determine actual need and planned attendees. This should be driven by department managers to elicit participation when training is made available.
- Identify approximately 500 square feet of space for use as a Training Room (See *Training Room* initiative).
 - ◆ Optimum configuration would be twelve PCs and two printers for hands-on training.
- Determine strategies for accomplishing training needs:
 - ◆ Self-learning aids
 - ◆ Internal classes (internal or external trainers)
 - ◆ On-site vendor training
 - ◆ Lunch-and-learns
 - ◆ Go-to Application Champions
 - ◆ Training opportunities at software vendor annual user conferences
- Create a repository of basic “how to” training aids and other training information (e.g., videos, past class information, etc.)
- Consider procuring a screen capture video solution to assist with developing internal video training aids.



⁶ Nucleus Research, 2010.



- Current and future needs can be evaluated and prioritized through a combination of mechanisms, including the IT governance function.
- Consider class attendance as a factor in performance evaluations. This can be accomplished by having department management involved and agreeing to which 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, training and reporting needs, and improve overall integration capabilities.

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
- Increase training alternatives
- Improved software administration (fewer staff required to service user community)



14. Training Room

A *Training Room* serves as a great opportunity for staff to become familiar with applications or expand on their current skills. It serves as a best practice to promote professional growth and continued improvement through increased utilization of existing or future organization applications to be released to staff. A dedicated Training Room is also a requirement for all major software implementation projects.



Findings and Observations

- The City has existing conference and meeting rooms that are multi-use that are often used for training.
- The City will benefit from a full-time Training Room in order to successfully complete the projects outlined in this plan.

Recommendations

- The organization should maintain a Training Room for testing applications that are being implemented or for staff to improve upon existing competencies.
- Identify approximately 500 square feet of space for use as a Training Room.
- With so many applications in use, a permanent Training Room will be needed if the organization implements ongoing user training, refresher training, and meet other training needs, as well as support applications management best practices.
- A minimum of twelve computers/workstations should be maintained in a room that provides adequate individual space for each workstation.
- Virtual Desktop (VDI) technology is often used for Training Room computers.
- Utilizing the recommended City VDI infrastructure will allow the City to place older PCs in the Training Room.
- Computers can also be used as a lab or resolution environment for staff experiencing extensive computer difficulties or those waiting for a computer replacement.



15. User Access Controls

Findings and Observations

Users sometimes lack access to certain information from various applications. *CLIENTFIRST* generally believes it is prudent for staff not to be required to obtain necessary information through internal requests of other staff or other manual processes, if non-confidential information is available in an inquiry-only manner from various software programs.

Recommendations

- Utilize integration with Windows Active Directory (AD) to facilitate user access management and reduce the amount of system logins.
- Utilize an applications/user inventory to determine user access needs that are currently not provided.
- 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 that require it, in order to improve productivity, increase efficiency, and enhance responsiveness.

16. Cloud Computing Strategy

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 in an organization or facility other than the local organization, accessing information from a portable device, procession requests from the field, subscribing to an Internet-based software solution per a subscription model, etc. The benefits of cloud computing allow individuals to collaborate and remain centralized, regardless of location.

Cloud computing is one 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 cost-effective or the most secure approach.

Findings and Observations

- The organization is already taking advantage of a number of cloud computing or hosted application and other forms of cloud computing.
- Several infrastructure improvements will be required for the organization to be able to fully utilize cloud-based systems (increased internet bandwidth and Internet service provider/access redundancy).

Recommendations

- Before continuing toward further cloud computing and considering moving any significant large-scale critical applications to the cloud, the City should:
 - ◆ Upgrade the local area network (LAN)
 - ◆ Geographically separate Internet provider services
 - ◆ Move to most current version of Active Directory
- Cloud-computing options should be considered for future projects.
- Cost-benefit should be the overriding factor for most final decisions.



17. Centralized Land and Parcel Management

Centralized Parcel data is important for consistent organization-wide parcel and address data for all departments to utilize. The updating and sharing of a central database is essential in allowing departments to operate more efficiently moving forward and in retrieving historical records. Centralized Land and Parcel Management is not just a best practice; it is also one of the most visible technology trends in the local government sector.

Findings and Observations

- The City uses multiple geo-based applications, such as Work Orders, Permits, Code Enforcement, Planning, Business Licenses.
- The City maintains disjointed GIS technologies, including GovClarity and a minimal number of internal Esri layers.
- The address/parcel information is not synchronized; no formal or automated process is in place to update parcel and address information from the County.
- 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.
- Although City staff have some limited access to GIS software (Esri ArcGIS for Desktop), and sometimes access to basic GIS layers, the City does not have a citywide GIS system that provides a base level of functionality to support the land and parcel management process. GovClarity provides some capabilities but is not the best long-term alternative.

Recommendations

- Utilize the GIS database for master address/parcel records (see *GIS Assessment and Master Plan* initiative).
- Select a future software system that offers both a master address/location and parcel management database (if applicable).
 - ◆ System should allow for regular updates and synchronization with the GIS.
 - ◆ Master addresses/locations should be shared across all geo-based applications.
- All updates of information from external and internal sources should first be done through the GIS. Then, updates to other systems would be done using the GIS master information.
- Strict control of who is authorized to make updates of this information should be enforced, and typically limited only to GIS data editors.
- Geo-based applications should be configured so that users select valid addresses, not type in free-form addresses, for each transaction.

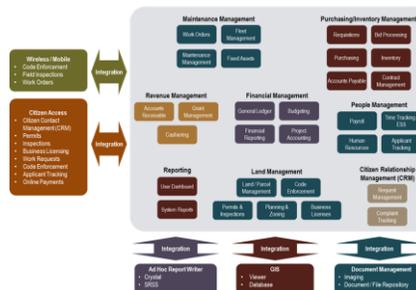
Benefits

- Improved data integrity (i.e., consistent organization-wide parcel and address data)
- Connectivity with City/County parcel systems
- Improved review and planning
- Better GIS layer reporting
- Increased staff efficiency by reducing data entry into multiple land-based systems
- Ability to allow access to this information, via the Web to the public

The *Departmental Applications and Systems* category includes IT Initiatives that are primarily department business applications-related and were identified during the needs assessment process. Many of these initiatives and recommendations can have a significant impact on overall productivity, enhanced communications and information sharing, improved constituent service, improved transparency, and, in some cases, cost savings.

18. Enterprise Resource Planning (ERP) Selection Services
19. Enterprise Resource Planning (ERP) Replacement
20. Project and Grant Accounting
21. Contract Management
22. People Management Replacement (HR and Payroll)
23. Time and Attendance
24. Employee Self-Service
25. Applicant Processing and Onboarding
26. Land Management System Replacement
27. Electronic Plan Submittals and Reviews
28. iWorQ Work Order Utilization Improvement
29. Fleet Management System Replacement
30. Fuel Management System Replacement
31. Electronic Document Management System (EDMS) Selection Services
32. Electronic Document Management System (EDMS) Replacement
33. Agenda Creation and Management Software
34. Legislative Management
35. Council Meeting Management (including Automated Voting)
36. Council Meeting Media Management (EDMS)
37. Staff Reports Agenda (EDMS and Agenda Management)
38. Public Records Request Tracking and Responses (EDMS)
39. Candidate Election Filing and Form 700 Tracking (EDMS)
40. Microfiche and Microfilm Conversion to Digital
41. Campaign Contribution Tracking and Public Access
42. Third-Party SME Retention Schedule Resource
43. GIS Assessment and Master Plan
44. Bid Management with Integration to Bid Tracking
45. Project and Construction Management
46. Police Implementation of InTime Scheduling Software
47. Fire TeleStaff Updates and Utilization Improvements
48. FIREHOUSE GAP Analysis and Utilization Improvements
49. Patient Care Reporting Implementation
50. Digitization of Fire Map Book into GIS
51. Fire Alarm Tracking and Billing Software
52. Notifications System (Public/Employee/Emergency)
53. Standardized Building/Security Access
54. OpenCounter
55. DASH Integration to New ERP
56. Property, Space, and Tower Billing (Leasing)
57. Improved HdL User Access
58. Benefits Administration System Selection (in-process)
59. Insurance Compliance Service (third-party outsource)
60. General Liability Claims and Damages Tracking
61. Large-File Sharing Tool
62. Instant Messaging
63. Constituent Satisfaction Surveys
64. Computer Lab Updates For Senior Center

Example Enterprise Applications Overview





18. Enterprise Resource Planning (ERP) Selection Services

Finding and Observations

Any critical, large-scale system that the City plans to select and implement should follow the recommendations and processes described in the *Software Selection Best Practices* initiative.

This initiative is an important risk management prerequisite to the *Enterprise Resource Planning (ERP) Replacement* initiative, and would include a thorough process including:

- Kick-Off
- Needs Assessment
 - ◆ Needs Assessment Interview Workshops
 - ◆ Needs Documentation
 - ◆ Feature/Function Development
 - ◆ Vendor Research
- RFP Development
- RFP Proposal Analysis and Scoring
- Vendor Short-List Workshop
- Demonstration Management
 - ◆ Development of Demonstration Agendas, Scripts, and Demo Evaluation Forms
 - ◆ Facilitation of Shortlist Vendor Demonstrations
 - ◆ Post -Demonstration Issues/Questions Management
- Reference Checking Forms and Instructions
- Demonstration Results Analysis and Finalist Workshop
- Due Diligence of Selected Vendor
- Contract Review and Negotiations
- Pre-Implementation Planning and Transition

It should be noted that the ERP Selection process is really where the implementation of the entire new ERP system begins. Most ERP implementations go over budget, significantly miss timelines, or even fail because *System Selection Best Practices* were not followed.

Recommendations

- Utilize a third-party SME (subject-matter expert) for the assessment process and RFP process for the *Enterprise Resource Planning (ERP) Replacement* initiative, including:
 - ◆ Conducting a comprehensive assessment, including documenting detailed needs, and developing feature/function requirements for all modules and components for the ERP system
 - ◆ Following best practices according to the *Software Selection Best Practices* initiative

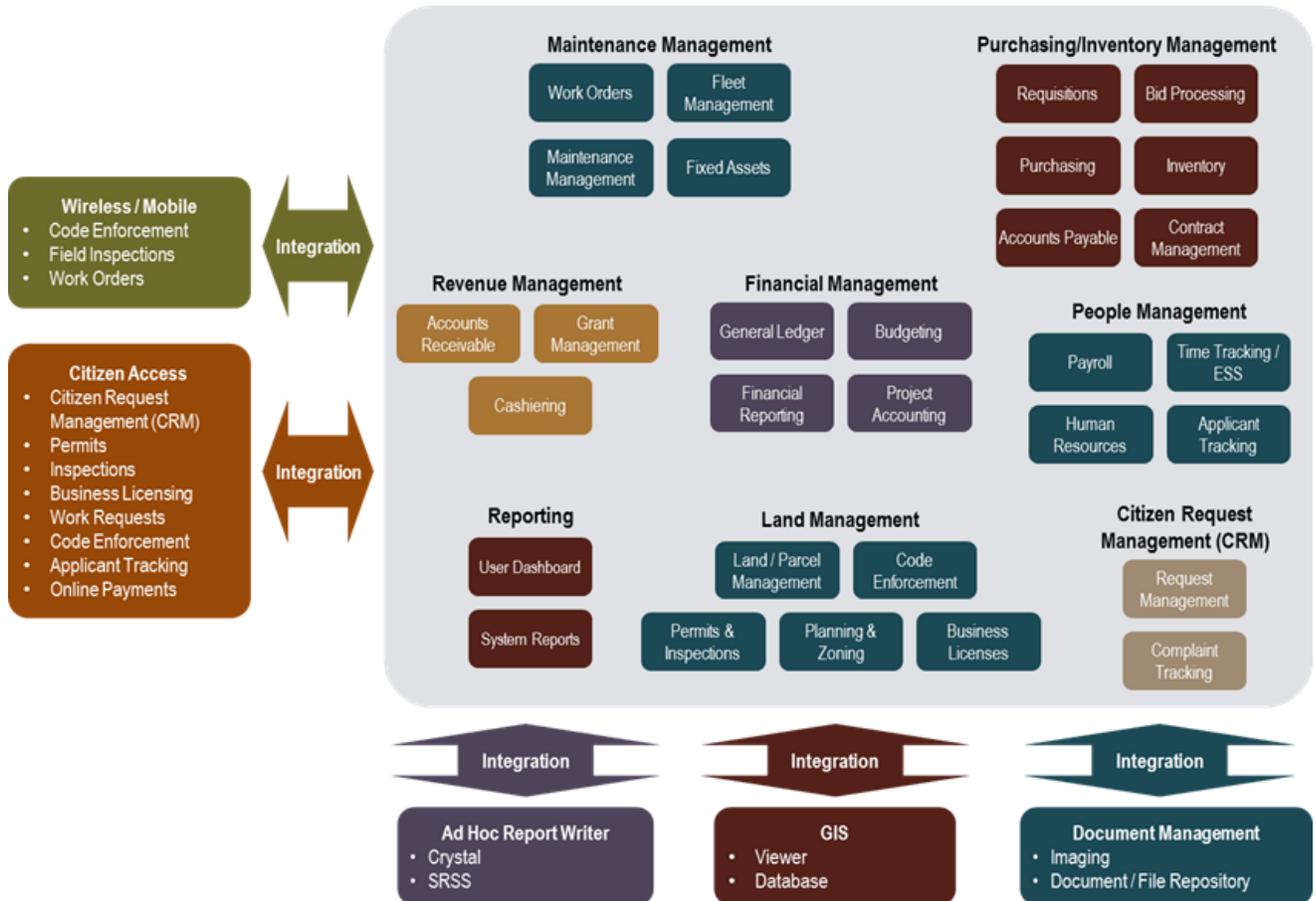
Closing out the project with contract review and negotiation assistance and facilitation to transition to the implementation phase of the project



19. Enterprise Resource Planning (ERP) Replacement

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 system of communication, data storage, and operations management. Improvements to ERP solutions bring about processes that multiple departments can benefit from. Common municipal-related ERP applications modules include Accounting, Financial Reporting, Payroll, Human Resources, Planning and Permitting, and Work Orders. The following graphic shows a typical municipal ERP environment.

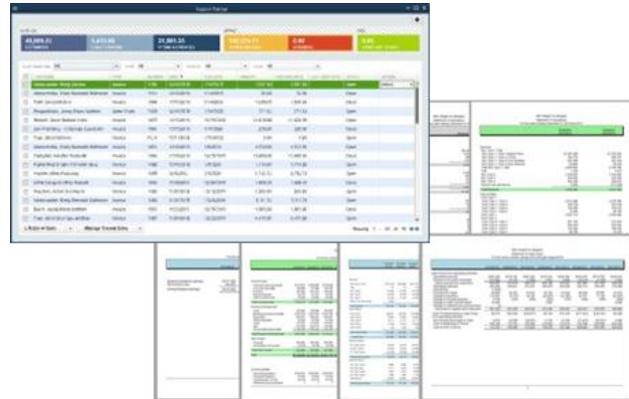
Example Enterprise Applications Overview





Findings and Observations

Currently, the City utilizes multiple software vendors to support its enterprise applications requirements, including Tyler Eden for core financials and payroll, Permits Plus for land management, HdL for business licensing, NEOGOV for applicant tracking and iWorQ for work orders and maintenance management. Eden is no longer being proposed by Tyler Technologies and is at its end-of-life. Eden is dated, lacks adequate integration, reasonable reporting capabilities, commonly utilized functionality found in other available ERP solutions. Eden also requires additional manual workarounds and shadow systems to meet the needs of the City. All departments noted insufficient query capabilities, reporting needs, feature/functional requirements deficiencies, and an overall need for systems improvements and additional software modules.



The City is missing opportunities for labor savings (significant labor hours per year), improved customer service due to lack of integrated solutions with sufficient training, and functionality to meet internal operational and customer needs.

Departments have a strong interest in newly available features and enhancements that a more modern ERP solution can provide. Gaining greater utilization in enterprise applications software modules through installation of a new ERP system is key to significant increases in citywide productivity and efficiencies. The table below represents current and potential future ERP applications.

The City currently uses at least five different vendors to provide its ERP needs. Two primary solutions, Eden and Permits Plus, are older-generation systems that lack key functionality available in more current technology. The Eden and Permits Plus systems are in excess of twenty years old, and even though the City has done its best to stay as current as possible on software release versions, the systems still lack the required capabilities which significantly hinders the City’s ability to improve operations and provide better services.

The following is a table that shows major software suites which the City uses that are usually included in an ERP system. The table also depicts what prominent municipal ERP systems typically offer.

| ERP Applications and Vendors | Currently Owned | Implemented | Potential Modules in Single-Vendor Solution |
|------------------------------|-----------------|-------------|---|
| <i>Financial Management</i> | | | |
| Eden | | | |
| General Ledger | Yes | Yes | Yes |
| Requisitions and Purchasing | Yes | Yes | Yes |
| Accounts Payable | Yes | Yes | Yes |
| Accounts Receivable | Yes | Yes | Yes |
| Budgeting | Yes | Yes | Yes |
| Project/Grant Accounting | Yes | Projects | Yes |



| ERP Applications and Vendors | Currently Owned | Implemented | Potential Modules in Single-Vendor Solution |
|--|-----------------|-------------|---|
| Fixed Assets | Yes | No | Yes |
| Financial Reporting | No | No | Yes |
| Cash Receipting | No | No | Yes |
| Modules Not In Use Or Not Available | | | |
| Financial Reporting (separate from Ad Hoc reporting) | No | No | Yes |
| Contract Management | No | No | Some |
| Bids Management | No | No | Some |
| Vendor Self-Service | No | No | Some |
| <i>Quadrant</i> | | | |
| Quadrant Cash Receipting | Yes | Yes | Yes |
| <i>People Management</i> | | | |
| Eden | | | |
| Payroll | Yes | Yes | Yes |
| Human Resources (Personnel Mgmt and Control) | Yes | Yes | Yes |
| Personnel/Position Budgeting | Yes | Yes | Yes |
| NEOGOV | | | |
| Applicant Tracking | Yes | Yes | Yes |
| Online Applicant Tracking | Yes | Yes | Yes |
| Modules Not In Use Or Not Available | | | |
| Time Keeping/Tracking | No | No | Yes |
| Employee Benefits Tracking | No | No | Yes |
| Performance Evaluations | No | No | Yes |
| Employee Self-Service | No | No | Yes |
| Profile Management | No | No | Yes |
| Personnel Action Forms | No | No | Some |
| Leave Requests | No | No | Some |
| Open Enrollment | No | No | Some |
| Family Medical Leave Act (FMLA) | Yes | Yes | Yes |
| Affordable Care Act (ACA) Compliance | Yes | Yes | Yes |
| <i>Work Orders / Asset Management / Fleet Management</i> | | | |
| iWorQ | | | |
| Citizen Request Management (CRM) | No | No | Yes |
| Work Requests | No | No | Yes |
| Work Orders | Yes | Yes | Yes |
| Preventative Maintenance | No | No | Yes |
| Asset Management | No | No | Most |
| Fleet Management | No | No | Some |
| Inventory Management | No | No | Yes |
| Mobile Work Orders | No | No | Some |



| ERP Applications and Vendors | Currently Owned | Implemented | Potential Modules in Single-Vendor Solution |
|---|-----------------|-------------|---|
| Land Management (Development Services) | | | |
| PermitsPlus | | | |
| Planning | Yes | Yes | Yes |
| Permits | Yes | Yes | Yes |
| Inspections | Yes | Yes | Yes |
| Code Enforcement | No | No | Yes |
| HdL | | | |
| Business Licenses | Yes | Yes | Yes |
| Online Business Licenses (applications, renewals, payments) | Yes | Yes | Yes |
| Modules Not In Use Or Not Available | | | |
| Citizen Request Management (CRM) | | | |
| Online CRM Submission and Status Query | No | No | Yes |
| Land Management | | | |
| Parcel/Address Management | No | No | Yes |
| Planning Projects and Zoning | Yes | Yes | Yes |
| Mobile Inspections | No | No | Yes |
| Mobile Code Enforcement | No | No | Yes |
| GIS Integration and Viewer | No | No | Yes |
| Online Services | No | No | Yes |
| Planning Projects | No | No | Yes |
| Permitting | No | No | Yes |
| Inspections Scheduling/Requests | No | No | Yes |
| Payments | No | No | Yes |

Recommendations

- Replace existing outdated, multi-vendor software applications environment with a modern, fully integrated ERP solution.
- Ensure that the City has identified all its applications needs, and that appropriate funding has been budgeted for a replacement ERP by conducting a comprehensive needs assessment and developing a Request for Proposal (RFP).
- The needs assessment process should provide an inventory of current and future functionality requirements by application and department. The process can also be used to inventory all reporting requirements, as well as integration/interface requirements between other applications, such as CRM, EDMS, website, GIS, etc.
- The needs assessment should also include a business process review for each module, including reviewing manual processes and shadow systems (e.g., spreadsheets) to determine automation improvements that will result in labor efficiencies.
- Through the RFP process, potential ERP software vendors will be asked to respond with their capabilities and compliance with City-specific requirements.
- Select new ERP software vendor according to the *Software Selection Best Practices* initiative.
- Follow implementation project management best practices according to the *Project Planning and Implementation Best Practices* initiative.



- Review the supporting overview entitled “Benefits of Modern ERP Software” describing the ERP system, which is inserted on the pages that follow.

Note: City IT staff has not conducted this type of project with these specific business process analysis, documentation, and negotiation requirements. It is highly recommended that the City consider obtaining consulting services from a municipal ERP Applications Subject-Matter Expert (SME) to perform the business process reviews, needs assessment, RFP development process, and contract negotiations process.

Benefits

- Free up thousands of labor hours per year
- Faster invoicing and purchasing
- Identification of integration requirements
- Centralized access to information
- Elimination of information silos
- Improved streamlined processes
- Improved operational consistency, efficiency, and accuracy
- Improved online access to information
- Improved financial reporting
- Improved utilization and realization of ERP investment
- Potential reduction in ERP annual maintenance and support fees



Benefits of Modern ERP Software

An *enterprise resource planning* (ERP) system automates and integrates many core, citywide functions into a single solution, while automating manual processes and providing a central location of information and reporting. An enterprise system allows collaboration and sharing of information between divisions, departments, and citizens to provide a transparent and efficient government operation. The benefits of an enterprise system are numerous and include:

- Built-in integrations between Land, Work, Financial, and People Management application suites
- Newer technology platform (processing, capacity advantages)
- Real-time notifications/queues
- Task tracking
- Real-time access to information
- Elimination of duplicate data entry
- Improved data integrity
- Centralized location and customer account maintenance
- Reliable information
- Workflow capabilities
- Centralized cash receipt capabilities
- Efficient revenue collection
- Reduced operating costs
- Improved internal communication
- Foundation for future improvement
- Potential reduction in annual maintenance and support fees
- Improved online information for citizens to access

Financial and People Management

A *financial management suite* is a collection of software in an enterprise system that encompasses the financial 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:

- 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





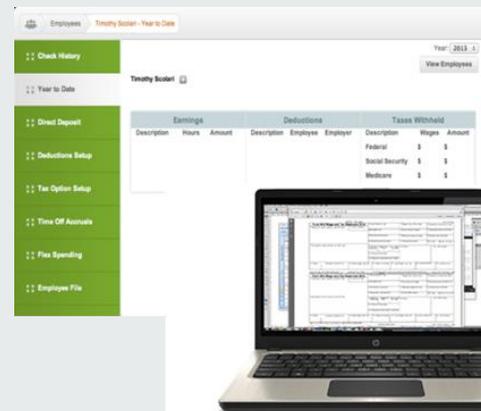
A *people management suite* is a collection of software that manages the organization's workforce and provides automation to the human resources, payroll, timekeeping, and applicant tracking functions. *Employee self-service* (see below) is also available to allow employees flexibility in retrieving their information at their convenience. 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, HR and financial management
- Quick and 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) empowers employees to provide, change, and retrieve their personal information through an online employee portal, thereby reducing the manual interaction required with the Human Resources Department. ESS offers an online option for employees to access and manage information for themselves:

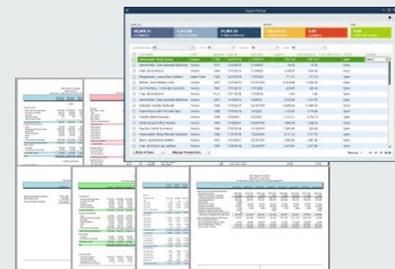
- Address changes
- Tax allowance changes
- Open enrollment benefits
- Dependent changes
- Leave/vacation accrual balances
- Electronic pay stub copies
- Year-end W-2s
- Populating and retrieving time sheets
- Time requests
- Tax forms
- Many other forms and applications



Reporting

The number one problem that is commonly seen when utilizing disjointed applications is the extensive time users dedicate to the consolidation of information for reporting purposes. Enterprise systems allow information to be quickly retrieved from a single source with numerous readily available reports. Users are also able to create their own reports without requiring them to be technical experts. This allows staff to spend more time studying analytics rather than manually assembling reports. Benefits of improved reporting include:

- Aggregated data across divisions, departments, and organization
- Improved data accuracy and reduced human error
- Intuitive report-creation capabilities
- Board-ready reports
- Sharing of created reports
- Elimination of labor-intensive report creation





Individual User Dashboards

Dashboards form part of a user's home page, displaying reports, key indicators, and other metrics regarding day-to-day operations, activities, and historical trends. 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
- Transformation of data into visual information
- Easy-to-understand graphics
- Real-time analysis
- Drill-down access to activity detail



Mobile Computing

Mobile computing provides the flexibility to operate a more mobile and productive workforce. An enterprise system can allow staff to utilize applications while in the field in order to perform their job functions while away from their office. Common benefits of mobile computing include:

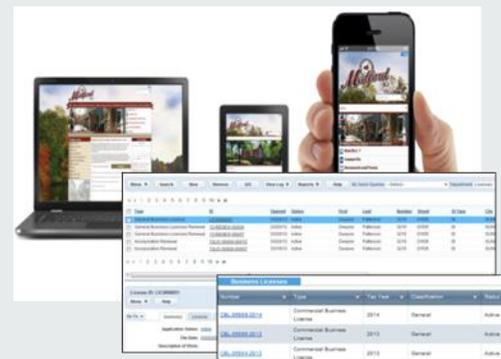
- Completion of work while in the field
- Real-time access to information
- Inspection results in the field
- Receipt of notifications and job assignments
- Reduced travel to and from office locations
- Map routing based on location of activities
- Retrieval of mapping information
- Management of code enforcement cases in field



Online Citizen Access

Online citizen access enables a more transparent government by providing the public with 24/7 access to real-time information for inquiries and payment processing. This empowers residents to retrieve online information that is pertinent to each individual, and for them to take further actions, which improves customer relations by eliminating the need to be physically present at City Hall. The following are examples of online citizen access transactions:

- Online permit applications
- Submit and access plan review comments
- Online payments
- Submit complaints
- Submit citizen requests
- Submit inspection requests
- Access to inspection results
- GIS maps (zoning, infrastructure, parcels, etc.)





Citizen Request Management

A *citizen request management system* is used to track, manage, and resolve citizen concerns and requests in a timely manner by automatically routing citizen requests to the appropriate department. It also provides the citizen with the flexibility to submit and track their complaints through the Web or a mobile phone application. Common benefits of a citizen request management system include:

- Ability for citizens to submit requests 24/7 through a phone application or the website
- Automatic assignment and routing of requests, by type, to appropriate department(s) or staff
- Ability for citizens to view current request status
- Conversion of requests to work orders
- Ability to include photos and geolocation related to a request
- More effective and efficient processes
- Improved transparency and citizen relationships



Land Management

A *land management system* is one of the suites offered by an enterprise application system that manages the creation, issuance, and tracking of community development activities related to planning and zoning, permitting, building inspections, licensing, and code enforcement.

Benefits associated with the utilization of the application include:

- Automated permit processing, from application through permit issuance
- Automatic routing for permits requiring reviews and approvals
- Single electronic file for all permit applications and documents
- Automated tracking of reviews, inspections, and fees by permit and development projects
- Tracking of timelines, tasks, and required group reviews
- Viewing all project and permit information at a glance
- Readily accessible planning and zoning records
- Automatic generation of case documentation
- Centralized current and historical parcel information



GIS Integration

Enterprise systems offer real-time integration to *geographic information systems (GIS)* in order to display land-use, zoning, and infrastructure layers on a map, as well as parcel, permit, inspection, code enforcement, and work order activity that resides within the enterprise system. Benefits of *GIS integration* include:

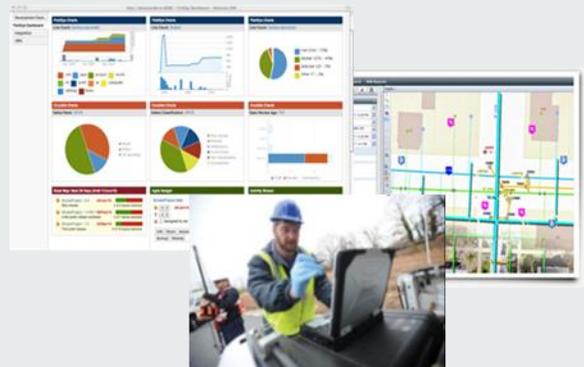
- Viewing system activity on a map (e.g., active projects, permits, cases, etc.)
- Map routing of work orders, service requests, and daily inspections
- Displaying locations of infrastructure assets
- Generating asset condition analysis
- Ability to overlay multiple map layers
- Integration to website for resident inquiries



Maintenance/Work Order Management

Another suite of an enterprise system is the *maintenance/work order management system*, which provides automation in managing maintenance and day-to-day operations related to infrastructure assets, buildings, facilities, and fleet vehicles, while being able to capture and report on the labor, equipment usage, and materials costs associated with a work order and preventative maintenance. System benefits include:

- Electronic routing of citizen requests
- Centralized task and maintenance management
- Completion of work orders from the field
- Streamlined public works operations
- Retrieval of historical work order information and costs
- Quicker work order completion times
- Improved decision making through access to real-time information
- Viewing of asset and activity trends visually through GIS mapping capabilities
- More effective replacement planning and forecasting
- Enhancement of staff productivity
- Improved compliance with regulatory standards
- Improved safety and risk management





20. Project and Grant Accounting

Findings and Observations

The City has expressed the need to improve tracking of projects and grants. The project accounting capabilities in Eden are only used in a limited fashion. Some departmental tracking of project data and information is occurring manually, in spreadsheets.

Although not complete, the list below provides some examples of opportunities a grant and project accounting module can provide for the City:

- Improvement of cost reporting for all projects and grants
- Consultant expense tracking
- Tracking of staff time and labor costs by project and/or task
- Projects/portfolio tracking, schedule/progress tracking, and prioritization
- General Fund projects tracking and prioritization
- Tracking and reporting of costs by project/grant category
- Integration with existing finance and budget system

Project accounting applications also provide a method for multi-year tracking of budgets and expenditures for grants. Project and grant applications examples include grant programs, special programs, capital improvements, etc. Grant and project detail can be recorded in the General Fund, as well as all other funds (special projects, grants, programs, etc.) Individual Grants can be created and tracked through the entire grant process, from application through conversion to a project. Project and Grant Accounting is a subsidiary module of General Ledger and is distributed separately.

Because Project and Grant Accounting is a subsidiary ledger to the General Ledger, account transaction flows can be mapped and created, allowing the City to process transactions (requisitions/POs, invoices, payments, and even payroll) within the accounting system once, and have the information post to the General Ledger and the appropriate project/grant ledger(s). Projects and grants can also have their own start and end dates that do not need to coincide with the organization's fiscal/budget year, but the system can report on the project and grant schedule or provide reports that follow the fiscal/budget year.

The key to a successful Project and Grant Accounting system is the information that can be stored, tracked, processed, and used for reporting, including but not limited to:

- Project Definitions – Start Date, Estimated Completion Date, Percent Complete, Funding Sources, Project Managers, Statuses
- Project Phases – Projects can be divided into phases, tasks, and sub-tasks to track activities at a high level or down to a detailed level
- Grant Tracking – Grants can be tracked from the application process through completion, along with the ability to track matching funds, grant specifications, conditions, and grant use, as well as reimbursement amounts
- Project Creation from Grant – Some systems allow the creation directly from a grant
- Granters/Grantees - Track grantees, sub-grantors, and sub-grantees
- Matching Funds – Track matching funds from other organizations
- Funding Sources – Track funding sources, including grant and grantor information
- Reimbursement Rules – Create rates and rules for reimbursement billing and indirect costing
- Bill Calculation – Calculate and bill for reimbursements, including indirect costs
- Drill-Downs to Information – Drill-down with connection to Next Year Budget and Work Orders for a project, etc.



- Milestone Dates/Triggers – Define Milestones/Key dates that trigger alerts or action to allow for tracking of meetings, payment, and work schedules tied to meeting goals
- Alert Distribution – Alerts often include the ability to create business rules for initiating actions or to alert appropriate staff
- Inquiry Details – Inquire into detailed activities posted to a particular project or grant. This can include:
 - ◆ Purchasing
 - ◆ Payables
 - ◆ Payroll
 - ◆ Receipts
 - ◆ General Ledger
- Auto-Posting – Many systems allow the ability to pick a project and use the system’s auto-posting utility (from purchase order, invoice entry, payroll, timekeeping, etc.)
- Project Summary Query – Most systems allow for the summary display of any project (filtered by data from: Last Year, Current Year, and Project Life):
 - ◆ Budget, Expended
 - ◆ Pre-Encumbered
 - ◆ Encumbered
 - ◆ Available
 - ◆ Estimated Revenue
 - ◆ Actual Revenue
- Expense Reporting – Report by period and category of expense (i.e., labor, materials, overhead, and other user-defined categories)



A Case Study

The following is a summary of a project and grant accounting system implementation recently completed by a county in the Midwest (hereafter called “County”). It is provided as an example of the potential benefits the City may achieve through the implementation of Project and Grant Accounting.

The Situation

Grant accounting is challenging for many government and quasi-governmental agencies because of the report flexibility required for fiscal year, calendar year, project schedule, ever-changing reporting requirements, and the complex environment of project accounting. Over many years, the County maintained two accounting systems, one for their organizational General Ledger and the other for project and grant accounting. With this recordkeeping method, data was difficult to reconcile for auditing, reporting, and for querying real-time project and grant budget and expenditure information. Faced with federal and state reporting requirements covering 60 departments, the Deputy Auditor and her team spent numerous hours pulling and reconciling data from the two systems on a daily basis. This resulted in lengthy auditing time, data entry errors, delayed access to grant data, and too much time spent on double entry. Without an integrated accounting system, the County faced an accounting headache “that led to spending many hours with auditors to explain what General Ledger accounts went into what grant cost categories,” per the words of the Deputy Auditor. Ready for a change, the County sought a solution.

Actions Taken

The County turned to their existing ERP vendor to determine if they offered a solution. Their ERP vendor offered a Project and Grant Accounting sub-module to the General Ledger that the County already had in operation and had used successfully for several years. The County conducted a detailed needs assessment and investigated, as well as analyzed, numerous vendor options, including the option from their existing ERP vendor. The final decision was to acquire the system from their existing vendor. The high-level goal was for the new Project and Grant Accounting system to provide an optional method for multi-year tracking of budgets, expenditures, and revenues for County projects and grants. By creating separate subsidiary project ledgers in the Project and Grant Accounting module, the County would be able to track the entire project/grant process, from application (if grant-based) through conversion to a project, alongside their regular General Ledger accounting. The County’s plan was to test the project ledgers in the Project and Grant Accounting module in a single department. The Deputy Auditor and her team worked with the department’s Grant Coordinator to set up the project ledgers specifically for grant reporting requirements, using the system’s master tables for projects grants and accounts. Using the project master, the team created account strings to identify each project. Each account string was set up, per the cost categories required for the project/grant and to the employees’ time and pay records in County’s employee payroll master.

The Department Coordinator tested the new setup utilizing requisition entry, invoice entry, employee self-service, and time entry. By the end of the first quarter, they confirmed the success of their project and grant ledgers’ ability to maintain their projects/grants within the new system. The department was able to eliminate the need for dual entry from having to maintain separate accounting and project/grant systems. Following the success of this test, the Deputy Auditor and the project team worked to roll out Project and Grant Accounting throughout all the necessary County departments. The Deputy Auditor stated that, “Once the project account strings were established, the departments were able to process their requisitions, invoices, and payroll within our ERP system one time and have the information post to the General Ledger and the Project Ledger automatically.”



Results

The Deputy Auditor stated that the greatest benefit was the time saved and the information available. “The implementation [of Project and Grant Accounting] saved the grant clerks five percent of their time per year, which freed them up for other work. The time saved was due to the elimination of the dual system environment and the associated dual entry, required reconciliation, and the resulting corrections from the reconciliation process. The Project/Grant Ledger has saved time with the grant auditors because the auditors can see the detail in the grant cost categories without having to make repeated inquiries to the Auditor’s office for verification.”

Through the implementation of the new Project and Grant Accounting system, the County was able to realize a number of benefits, including, but not limited to:

- Real-time access to project/grant budgets across all activities, including payroll and invoicing
- Accurate reporting for auditors and federal and state agencies
- Live updated budget information for processing requisitions or invoices
- Easy preparation of Schedule of Federal Award Expenditures
- Reduced data entry errors and time
- Departmental control over own projects and grants
- Project central access for grant administrators, giving query capability to view all information

Implementing Project and Grant Accounting gave the County a multi-level, single-vendor solution for all their project/grant management requirements, from the department level to the Auditor’s office. Departments and the County, as a whole, benefited and experienced positive results.

Recommendations

- Conduct a process review and needs assessment identifying required feature/function capabilities.
- Review applicable manual processes and shadow systems (e.g., spreadsheets, databases, etc.) to determine automation improvements that will result in labor efficiencies.
- Prioritize, implement changes and provide sufficient training to all applicable users.
- Implement Project and Grant Accounting in conjunction with the *Enterprise Resource Planning (ERP) Replacement* initiative.



21. Contract Management

A *contract management system* is a software module for managing the entire contract management lifecycle process, including contract development, negotiation, approval, and renewal. Typical contract management systems include features that allow an organization to maintain information on contract approval processes, responsible parties, and key contacts. Systems also include automated alert reminders for events such as contract expirations, required financial obligations, or anticipated receipts tied to a contract.

Findings and Observations

- The City does not currently use any contract management module or third-party contract management software.
- Contract management software is available as a standalone software system or sometimes as part of an overall ERP solution offering.

Recommendations

- Identify business needs and objectives for contract management software according to the *Software Selection Best Practices* initiative.
- Consider budgeting for inclusion of a contract management module as part of a new ERP solution (see *Enterprise Resource Planning (ERP) Replacement* initiative).

22. People Management Replacement (HR and Payroll)

Findings and Observations

A *human resources information system (HRIS)* contains numerous human resources-related functions within a single solution, while also providing accurate and secure access of employee information. An HRIS typically includes the following capabilities:

- Employee Internal/External Training
- Professional Development
- Certifications and Licenses
- 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

These solutions also have integration with payroll processing and employee self-service (ESS) portals to provide employees the ability to retrieve their information in real time, 24/7.

The City needs a reliable and capable HRIS through a replacement system that can be provided as part of an integrated ERP system.

The City’s existing Human Resources (HR) and Payroll system is provided as a module component of the Eden ERP system. The HR capabilities of Eden HR are minimal and, for the most part, provide only the personnel management and control necessary to support the Eden Payroll system. There are some additional tracking capabilities in the Eden HR module, but it is limited and insufficient for meeting the City’s needs.



Recommendations

- Conduct a comprehensive process review and develop feature/function requirements for all HRIS needs.
- Follow best practices according to the *Software Selection Best Practices* initiative.
- Consider budgeting for inclusion of HR and Payroll modules as part of a new ERP solution (see *Enterprise Resource Planning (ERP) Replacement* initiative).



23. Time and Attendance

Findings and Observations

The tracking, recording, and storing of employee time and attendance information is a significant undertaking. A manual system with repeated entry and review steps often leads to inaccurate reporting, payroll discrepancies, and lost data. Automated time management systems can provide:

- Single-occurrence data entry, with integration to time clock equipment, as needed
- Standardized employment rules and implementation
- Centralized database for electronic review of records
- Consistent enforcement of vacation and sick policies, FLSA requirements, and union rules
- Web- and server-based options
- Integration with other functions, such as accounting and/or payroll
- Automated calculations based on user parameters

Such systems:

- Reduce duplicate efforts (spreadsheets, paper, etc.), thereby saving valuable time and resources
- Decrease inaccuracies and human error
- Improve management of vacations, sick leave, and other absences



The current process involves paper timesheets completed by employees that are then reviewed by managers/supervisors and then passed to a designated departmental administration staff for consolidation into an Excel spreadsheet, which is then printed and sent to payroll for input into the payroll system. These processes are manually intensive and time-consuming.

The Police Department is in the process of implementing InTime Solutions' Public Safety Scheduling software. The InTime solution not only performs the traditional time entry/time keeping operations, it also performs scheduling operations, which, for public safety organizations, is complex. InTime can also track and perform unique accrual processes that are required by Union/Bargaining Unit requirements that often cannot be accommodated in traditional payroll time keeping modules. The implementation of InTime appears to be moving along successfully, but it is recommended that interfaces/integrations with the new ERP system are included in the scope of the selection activities for the new ERP system.

The Fire Department is using Telestaff, a software product that is similar to the Police Department's InTime solution. Telestaff is a public safety solution used by numerous police and fire departments. Telestaff handles scheduling and addresses many of the same challenges as InTime for tracking, time accruals, and rules related to Union/Bargaining Unit needs. Telestaff also performs the traditional time entry/timekeeping noted previously. Fire is currently using an outdated version of Telestaff (see *Fire Telestaff Updates and Utilization Improvements* initiative).

Return-on-Investment (ROI) Consideration

In a software selection study conducted by Nucleus Research, an organization that transitioned to an automated time-entry system saw a return on investment within six months and an overall return of 225% of their initial investment.⁷

⁷ "ROI Case Study: Kronos Workforce Timekeeper Anonymous Healthcare Organization", Nucleus Research 2003.



Recommendations

- Conduct a comprehensive process review, and develop feature/function requirements for all time keeping, attendance, and accrual tracking needs.
- Follow best practices according to the *Software Selection Best Practices* initiative.
- Budget for inclusion of HR and Payroll modules as part of a new ERP solution (see *Enterprise Resource Planning (ERP) Replacement* initiative).
- Interfaces to the new ERP HR and Payroll modules should be included for both InTime (Police) and Telestaff (Fire) systems.
- Due to their unique scheduling and time keeping requirements, Police and Fire departments require more robust software. However, the City should investigate the possibility of combining the Police and Fire into a single system (e.g., Police and Fire both using InTime). This would reduce the number of software vendors, and would only require one interface point into the new ERP system's HR and Payroll modules.

Benefits

- Consistent and standardized organization-wide timesheet system
- Reduced manual processes
- Increased processing volume
- Reduced data entry errors
- Reduced payroll processing time (from improved processes, policies, and practices)
- Single automated interface to ERP system

24. Employee Self-Service

Findings and Observations

Employee self-service (ESS) systems often empower employees to maintain and retrieve personal information such as benefits, leave accruals, electronic paystubs, and year-end W-2s, all while requiring minimal effort from the Human Resources and Finance Departments. Sometimes, there are additional features that provide automated leave requests, pay calculators, and changes to personal allowances. Some basic and common employee self-service capabilities offered online include:

- Address changes
- Tax allowances changes
- Open enrollment benefits
- Dependent changes
- Leave/vacation accrual balances
- Electronic paystub copies
- Year-end W2s
- Populating and retrieving time sheets
- Time requests
- Tax forms
- Many other forms and applications



Recommendations

- Conduct a comprehensive process review, and develop feature/function requirements for all employee self-service needs.
- Follow best practices according to the *Software Selection Best Practices* initiative.
- Budget for inclusion of an Employee Self-Service module as part of a new ERP solution (see *Enterprise Resource Planning (ERP) Replacement* initiative).



25. Applicant Processing and Onboarding

Most human resources departments are busy managing a constant stream of employment applications. Due to this volume of activity and the importance of a controlled process to acquire important human resources, there is a need to automate the recruitment and hiring process from the moment an application arrives, all the way through the hiring and onboarding process.

Applicant tracking allows customization of online applications, so applicants provide all necessary information. When applicants apply, they can also attach resumes and transcripts that are immediately accessible by the HR Department. Thereafter, the software allows mass-activation/inactivation of applicants, view or report individual or group applications, and construct personnel records once an applicant has been hired. Often, additional workflow capabilities are offered to include the departments needing candidates so that they can be engaged in the process. Online capabilities for applicants are also an integral part of the process within these application tracking systems.

In addition to the Applicant Processing functionality, many systems with Applicant Processing modules also include an integrated process for onboarding new hires that have been selected and participated in the Applicant Processing system. This onboarding allows all the candidate/new hire information gathering during the Applicant Processing module to be migrated to the HR and payroll systems eliminating the need to reenter or rekey the candidate/new hire information.

Findings and Observations

- The City currently uses NEOGOV for Applicant Processing. However, there is no integration with the Eden HT/Payroll modules for onboarding.
- The City also uses a number of external systems for posting positions and recruiting.

Recommendations

- The City is currently using NEOGOV. However, it may be beneficial to consider the Applicant Processing module offered by vendors that will participate in the selection of a new ERP system. This would provide standard integration with ERP HR and Payroll automating the onboarding process.
- If the City determines that the Applicant Processing capabilities of the potential ERP vendors will not meet their needs and chooses to continue the use of NEOGOV, the City should include the need for the selected ERP vendor to interface/integrate NEOGOV with the new ERP HR and Payroll modules.

Benefits

- Increased efficiency in tracking candidates and maintaining necessary documentation
- Improved interface experience for candidates to apply and determine status
- Increased efficiencies through workflow automation with the elimination of manual process and shadow systems
- Time savings and error reduction by elimination of duplicate entry through integration with HR and Payroll systems



26. Land Management System Replacement

Findings and Observations

A typical land management suite of applications includes:

- Development Planning and Zoning
- Permitting
- Inspections
- Code Enforcement
- Recurring Revenue and Business Tax (Licensing)
- Parcel/Address Management

| License Number | Type | Tax Year | Classification | Status |
|----------------|-----------------------------|----------|----------------|--------|
| CLB-0000-2014 | Commercial Business License | 2014 | General | Active |
| CLB-0000-2013 | Commercial Business License | 2013 | General | Active |
| CLB-0000-2012 | Commercial Business License | 2012 | General | Active |

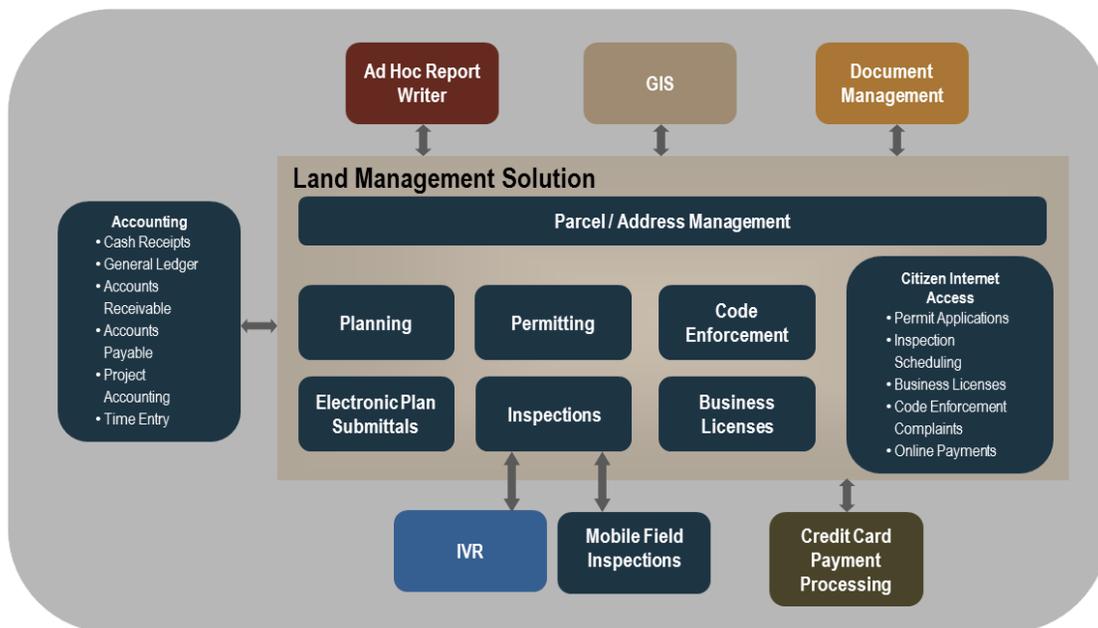
The City should expect significant productivity gains with the implementation of a new, next-generation, integrated land management application solution.

The City currently operates Permits Plus from Accela. Permits Plus is aged and is at its end-of-life. The use of Permits Plus is basic and the City has not turned to Accela to add additional capabilities for online services, payments, and mobile capabilities.

Planning and Building do not have resources on staff to make configuration changes to Permits Plus. The City hires a former City employee that formerly administered the Permits Plus system (Sam) to make configuration changes on a contract basis. The City recently had to hire this person to incorporate fee changes into the system.

Business licensing (business tax) and recurring billing/revenue is typically included in a land management suite, due to the connection to a common address and parcel database, as well integration to permitting and code enforcement. However, the City does not use Permits Plus Business licensing. The City currently uses a standalone application called HdL for this functionality.

The following illustration and table shows typical modules available in land management systems.





| Current Applications and Vendors | Currently Owned | Implemented | Potential Modules in Single-Vendor Solution |
|---|-----------------|-------------|---|
| <i>Land Management (Development Services)</i> | | | |
| PermitsPlus | | | |
| Planning | Yes | Yes | Yes |
| Permits | Yes | Yes | Yes |
| Inspections | Yes | Yes | Yes |
| Code Enforcement | No | No | Yes |
| HdL | | | |
| Business Licenses | Yes | Yes | Yes |
| Online Business Licenses (applications, renewals, payments) | Yes | Yes | Yes |
| Modules Not In Use Or Not Available | | | |
| Land Management | | | |
| Parcel/Address Management | No | No | Yes |
| Planning Projects and Zoning | Yes | Yes | Yes |
| Mobile Inspections | No | No | Yes |
| Mobile Code Enforcement | No | No | Yes |
| GIS Integration and Viewer | No | No | Yes |
| Online Services | No | No | Yes |
| Planning Projects | No | No | Yes |
| Permitting | No | No | Yes |
| Inspections Scheduling/Requests | No | No | Yes |
| Payments | No | No | Yes |

Recommendations

- Replace the Permits Plus software.
- Consider Business Licensing integration to Permitting, Code Enforcement and the financial modules within the overall ERP system.
- Conduct a comprehensive process review and develop feature/function requirements for all Land Management needs.
- Follow best practices according to the *Software Selection Best Practices* initiative.
- Budget for inclusion of a Land Management suite of modules as part of a new ERP solution (see *Enterprise Resource Planning (ERP) Replacement* initiative).





Benefits

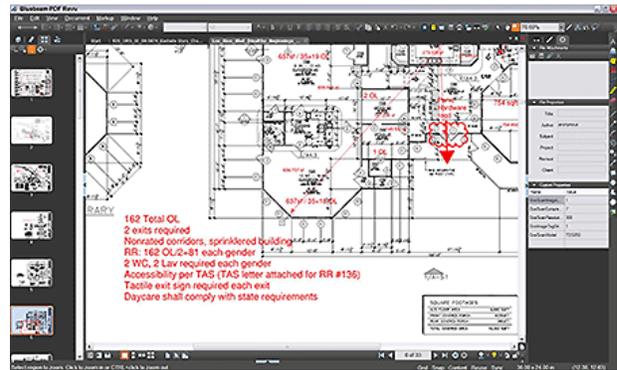
- Significantly greater workflow efficiencies
- Reduced stressors and workload due to improved automation and reduction in manual processes
- Reduced risk of institutional knowledge leaving the City due to staff turnover or retirement
- Improved project and permit tracking and reporting
- Ability to resolve inspections and code violations in the field with mobile computing
- Automated time tracking and workload tracking of billable and non-billable hours
- Online citizen access capabilities
 - ◆ Improve community relations through 24-hour citizen access
 - ◆ Ability to automate inspection scheduling online
 - ◆ Eliminate time-consuming "status check" phone calls
 - ◆ Ability to apply and pay for permits online
 - ◆ Instant inspection result retrievals by contractors and applicants

27. Electronic Plan Submittals and Reviews

Electronic plan reviews for development and architectural plans related to City permitting and planning processes can be submitted, reviewed, and marked-up electronically. Electronic plans can result in a reduction of lost plans and physical storage requirements while enhancing sharing, collecting, storing, and retrieving of plans during the process and through retention periods.

Findings and Observations

- The Planning Department and Building Division would like to consider and evaluate utilizing electronic plan submittal and review processing.
- Multiple solutions are available, including purchased and online-hosted solutions.
- Online solutions may be purchased in a traditional manner or paid on a per page/project/permit basis.



Recommendations

- Explore solution options and capabilities.
- Consider cost-benefit of available solutions.
- Select new software vendor according to the *Software Selection Best Practices* initiative.
- Consider the selection and implementation of electronic plan review software along with the land management system or as part of the new ERP purchase and implementation. See *Enterprise Resource Planning (ERP) Replacement and Land Management System Replacement* initiatives.



28. iWorQ Work Order Utilization Improvement

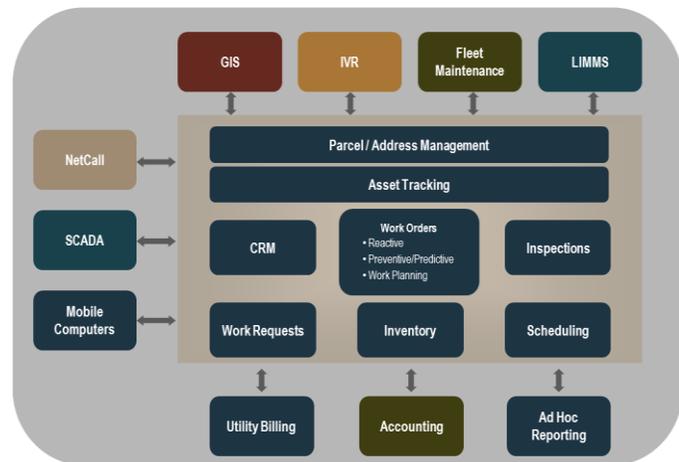
Maintenance and management of the City structures, streets, sidewalks, parks, trails, bridges, drainage, and culverts, etc., are currently managed via the iWorQ work order and maintenance management system and other manual processes on paper and Excel spreadsheets.

The following is a list of typical maintenance and asset management software system functionalities. It is not intended to be all-inclusive, exclusive, or organized by specific software modules.



Maintenance and Asset Management Functionalities

- Work Requests
- Inspections and Condition Assessment
- Work Orders
- Preventative and Predictive Maintenance
- Facilities Maintenance
- Asset Tracking
- Warehouse Inventory
- Parcel/Location Management
- GIS Integration
- Report Writing
- Budget Forecasts
- Mobile Field-Based Operations



Findings and Observations

The iWorQ system was implemented recently and at this time it is used in a semi-manual way which involves the printing of paper work orders that have been created in the system and then when maintenance teams return to the office staff enters usage, time, materials used, and other data that has been written down in the field.

The City is not using the iWorQ to do costing. This is a significant piece of most work order systems and should be considered by the City to determine the cost for a project before work is performed and to ensure there are the necessary funds to complete the work.

Recommendations

- Consider evaluation and replacement of the iWorQ. Such a replacement is not required, but could provide efficiencies resulting from the connection the ERP system, including general ledger, project accounting, inventory, and potentially requisition/purchasing.
- Conduct a comprehensive process review and develop feature/function requirements for all Land Management needs.
- Follow best practices according to the *Software Selection Best Practices* initiative.
- Consider budgeting for inclusion of Works Orders and maintenance Management suite of modules as part of a new ERP solution (see *Enterprise Resource Planning (ERP) Replacement* initiative).



- If the City determines that the Work Order and Maintenance Management capabilities of the potential ERP vendors will not meet their needs and chooses to stay with iWorQ, the City should include the need for the selected ERP vendor to interface/integrate iWorQ with the new ERP general ledger, project accounting, inventory, and requisition/purchasing modules.
- If the City chooses to keep iWorQ, the results of the needs assessment noted above should be used to determine automation and efficiency gaps and then develop a plan to close those gaps. Such a plan will increase efficiencies and it will also ensure the City is utilizing their investment in the iWorQ software. This plan will likely include electronic work orders, eliminating the current printing process; performing costing, implementing mobile field-based work orders, and tracking.

Benefits

- Significantly greater workflow efficiencies within Maintenance Management, Work Orders, and Infrastructure Asset Tracking
- Reduced time and effort to provision services
- Improved inspections
- Increased staff and citizen satisfaction
- Improved performance tracking, reporting, and measurement
- Reduced stressors and workload due to improved automation and reduction in manual processes
- Reduced risk of institutional knowledge reliant on highly manual processes leaving the organization due to staff turnover or retirement
- Improved project management and reporting



29. Fleet Management System Replacement

Fleet Management Software (FMS) provides the ability to perform tasks in the management of any or all aspects relating to the City's vehicle and equipment fleet. Fleet management, at a high level, encompasses all vehicle/equipment operations, from acquisition, through maintenance and life-cycle replacement analysis, to final disposal.

Findings and Observations

- Public Works Fleet Operations does normal maintenance and contracts to a local shop for major work, like transmission replacements, engine rebuilds, etc.
- Fleet includes vehicles and numerous types of rolling stock (vehicles) and equipment.
- The City is currently using TaskForce software system from Starry Associates for their fleet maintenance and tracking. There are no PC workstations in the maintenance bays. As a result, the Fleet staff performs the necessary fleet maintenance work and write down on paper the work performed, time, parts used, etc., for each vehicle or piece of equipment. These write-ups are then put in the office and, when time permits, they enter the data from the paper notes into the TaskForce software system. This produces a lag and means that internal charges from the various departments are delayed in the City's Financial/Budgetary system. Departments stated that this is problematic because departments cannot determine their expenses against budget if fleet charges have not been entered timely. Departments stated they are often surprised by internal fleet charges that impact their budgets as much as a month later.
- Public Works Fleet Operations would like to replace the existing TaskForce software due to its age, the fact that it is difficult to use, and because it does not fully meet their needs.
- Due to the large number and types of equipment, the City wants to ensure that any new system assists with maintaining vehicles, but also meets their needs in maintaining and managing the other equipment.
- Public Works Fleet Operations is piloting AVL (automated vehicle location) system to track the vehicles via GPS and also retrieve use data, which they want to integrate with any future Fleet Management system that will be implemented in the future.

Recommendations

- Replace the TaskForce software.
- Conduct a comprehensive needs assessment and process review, and develop feature/function requirements for all Fleet Management needs.
- Follow best practices according to the *Software Selection Best Practices* initiative.
- Consider budgeting for inclusion of a Fleet Management as part of a new ERP solution (see *Enterprise Resource Planning (ERP) Replacement* initiative).
- Because some work order/maintenance management solutions also incorporate fleet management, the City should consider combining these efforts. Refer to *iWorQ Work Order Utilization Improvement* initiative and also the *Enterprise Resource Planning (ERP) Replacement* initiative).
- Ensure new system can interface and accept data from the AVL system.
- Ensure the system can be interface with the new Fuel Management system (see *Fuel Management System Replacement* initiative).
- Work to ensure there is integration with the ERP financial system so that internal charges can quickly be processed and impact encumbrance and budget balances.

Benefits

- Reduced vehicle and equipment ownership costs



- Extended useful life of vehicles and equipment
- Improved life-cycle cost analysis and replacement decision making
- Increased equipment availability
- Increased warranty recovery
- Optimized inventory levels
- Improved labor productivity
- Enhanced the satisfaction of the people that use the vehicles and equipment
- Ensured regulatory compliance for vehicle management, maintenance, and parts inventory management

30. Fuel Management System Replacement

Finding and Observations

- Public Works currently uses a Fuel Management system called FuelForce from Multiforce Systems Inc. It should be noted that there is no relationship between the FuelForce fuel system and the TaskForce fleet management software. These two software applications are developed by two separate companies.
- Public Works would like to replace the existing FuelForce fuel management system because it is at end-of-life, does not fully meet their needs, and does not interface with the Fleet Management.

Recommendations

- Replace the FuelForce software.
- Conduct a comprehensive needs assessment and process review, and develop feature/function requirements for all Fuel Management needs.
- Ensure the system can be interfaced with the new Fleet Management system (see *Fleet Management System Replacement* initiative).



31. Electronic Document Management System (EDMS) Selection Services

Findings and Observations

Any critical, large-scale system that the City plans to select and implement, including the recommended EDMS Replacement of the existing SIRE system, should follow the recommendations and the processes described in the *Software Selection Best Practices* initiative.

This initiative is an important risk management prerequisite to the *Electronic Document Management System (EDMS) Replacement* initiative and would include a thorough process including:

- Kick-Off
- Needs Assessment
 - ◆ Needs Assessment Interview Workshops
 - ◆ Needs Documentation
 - ◆ Feature/Function Development
 - ◆ Vendor Research
- RFP Development
- RFP Proposal Analysis and Scoring
- Vendor Shortlist Workshop
- Demonstration Management
 - ◆ Development of Demonstration Agendas, Scripts, and Demo Evaluation Forms
 - ◆ Facilitation of Shortlist Vendor Demonstrations
 - ◆ Post Demonstration Issues/Questions Management
- Reference Checking Forms and Instructions
- Demonstration Results Analysis and Finalist Workshop
- Due Diligence of Selected Vendor
- Contract Review and Negotiations
- Pre-Implementation Planning and Transition

It should be noted that the EDMS selection process is where the implementation of the entire new EDMS system begins. Most EDMS implementations go over budget, significantly miss timelines, or even fail because *System Selection Best Practices* were not followed.

Recommendations

- Utilizing a third-party subject-matter expert (SME) for the assessment process and RFP process for the *Electronic Document Management System (EDMS) Replacement* initiative, including:
 - ◆ Conducting a comprehensive assessment, including documenting detailed needs, and developing feature/function requirements for all modules and components for the EDMS system
 - ◆ Following best practices according to the *Software Selection Best Practices* initiative
 - ◆ Closing out the project with contract review and negotiation assistance, and facilitation to transition to the implementation phase of the project

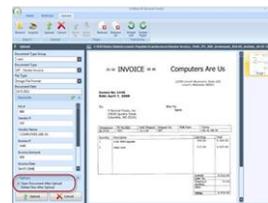


32. Electronic Document Management System (EDMS) Replacement

An *electronic document management system (EDMS)*, also referred to as an electronic content management system (ECMS) automates the management of electronic documents and files. For the purpose of consistency, we will be using the acronym EDMS throughout this document. An EDMS system can be utilized for much more than document scanning, document storage, and records retention management.

Additional uses include:

- Enterprise records management, including retention management
- Integrated document/process workflow management, including internal request management, and routing and distribution (accounts payable, accounts receivable, human resources, project tracking, etc.)
- Web publishing to City's public website and City's internal intranet
- Forms management
- Project/process collaboration
- Meeting minutes management
- Meeting agenda management
- Legislative management
- Media management, including synchronized meeting video streaming
- Web publication/posting for all above items, if desired
- Web access to EDMS, locally, and remotely



Findings and Observations

The City is currently using SIRE as well as internally maintained share drives to manage documents and other files and content.

The City uses SIRE as the centralized, citywide EDMS solution. SIRE has worked with a low-to-medium level of satisfaction. The level of satisfaction has been impacted by an implementation that did not completely deploy all the SIRE available functionality, but many are not satisfied with the ease of use and the user interface. A minor level of satisfaction due to the shortcomings of ApplicationXtender, many departments limit their use.

The SIRE system is aging and has not been enhanced over time due to the acquisition of SIRE by Hyland Software Inc. Hyland has not made investments in SIRE because Hyland is focusing on their OnBase product as a central strategy and have recommended that existing SIRE customers, like the City, migrate off SIRE and over to OnBase.

If the City were to consider other prominent options (which would include Hyland's OnBase), the City would be able to take advantage of additional functionality and would gain from additional benefits, including:

- **Compliance** – Improved and more efficient ability to comply with increasing volume and complexity of regulations and retention requirements
- **Security** – Improved physical abilities and accessibility 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 citizen access to information via the Web, including full automation of some documents immediately upon creation without additional processing or labor
- **Disaster Recovery** – Protection of vital records through storage redundancy

Return-on-Investment (ROI) Considerations

- A study conducted by Coopers and Lybrand found the following:
 - ♦ The average document is copied 19 times in its life.
 - ♦ 90% of documents that are handled in an office are merely passed along or shuffled through.
 - ♦ Costs to manage a single document:
 - \$20 to file a document
 - \$120 to find a misplaced document
 - \$220 to replace a lost document
 - ♦ 7.5% of all documents become lost.
 - An office that generates 200 documents a week will lose 15 of them, costing a total \$3,300.
 - ♦ 3% of all documents are misfiled.
 - An office generating 200 documents a week will misfile six of them, costing the company \$720.
- A feasibility study by the North Dakota Information Technology Department regarding EDMS technology found the following:
 - ♦ An organization that scans 600 documents per day can have the following benefits upon implementing an EDMS:
 - Potential ROI payback period of 15 months
 - Gained productivity of almost \$114,375
 - Subsequent annual savings of \$110,295
 - An overall three-year benefit impact of \$531,990
- A study conducted by Prescient Digital Media found that an EDMS reduces time spent searching for documents by between 50-60%.

Recommendations

- Consider conducting a needs assessment and process review with all departments to gain an understanding of how the system should work and what configurations, training, etc., would improve staff's ability to utilize an EDMS system to its fullest, provide more transparency to citizens, and what other departmental applications integration would help improve the departments' business processes.
- Follow a software selection best practices approach to build an RFP, apply the needs assessment results, and identify a vendor that meets citywide needs.
- EDMS implementations on an organization-wide basis are commonly under-scoped and under-funded, leaving municipalities with limited benefits.



- EDMS implementations on a citywide basis are commonly spread over several fiscal years using a phased approach. The following is an outline of recommended implementation phases.
 - ◆ **Phase 1: City Clerk Records Management** – Convert from SIRE, to implement City Clerk records management and configure records retention.
 - ◆ **Phase 2: Agenda Management and Media Management** – Implement records management with Media Management or Media Management Integration with publishing to the Web for public access.
 - ◆ **Phase 3: Departmental EDMS (Store and Retrieve)** – Implement EDMS throughout the departments and convert shared drive files to EDMS.
 - ◆ **Phase 4: Citywide/Departmental Workflows** – Implement workflows throughout the City, department by department.
- Review EDMS implementations in other local/regional municipalities that use it in a similar manner as intended by the City.
- Any solution considered should include integrated modules for agenda management, legislative management, and media management.
- Ensure the system can be interfaced/integrated with the new ERP system.

Benefits

- Automated workflow and routing
- Reduction in paperwork and related costs
- Online document retention and archiving
- Improved version and authorization control
- Improved public records access
- Increased information-sharing capabilities
- Ability to provide Web posting and public access to residents
- Integration with agenda management/legislative management/media management



33. Agenda Creation and Management Software

Automated agenda management systems provide access to information for all departments involved in the agenda process, and are sometimes offered as a stand-alone module or as part of an enterprise document management system (EDMS), refer to *Electronic Document Management System (EDMS) Replacement* initiative. Staff members submit proposed agenda items online, and supporting documentation or packets can be attached, where they can be automatically routed for approval through pre-configured workflows. Approvers can receive email notifications with links to items awaiting review. The system administrator or other responsible parties add items to meetings, then prepare agendas, finalize packets, and publish them. Agenda content is available online throughout the process and is easily accessible to those with a role in the process.



In many instances, agenda management is also integrated with media management systems to stream and record video and audio information, time stamp it, and tie it to the correlating meeting agenda. Then, there is the ability to push/publish agendas, minutes, and media to the City's website.

Findings and Observations

- The City's agenda preparation and management processes are currently semi-automated within SIRE and agendas and agenda packets are uploaded to the City's website from SIRE.
- The City stores the meeting minutes in SIRE, but does not publish minutes to the Web from SIRE, although the capability exists to perform this function in SIRE.
- The City Clerk believes improvement could be made to properly use workflows for routing and revisions of packets during the preparations process, including ticklers and notifications for due dates.
- Users of SIRE are not fond of the user interface and feel the system is not "user friendly".
- They use the SIRE capabilities to do live streaming over the Internet. The public can also see meetings live on the cable channel.
- SIRE has the ability to time stamp video and the corresponding agenda so that citizens on the web can pull up the agenda and click on an agenda item and see the video specific to that item. However, this is not an automated process and time stamping has to be done manually after the video recording is completed. This manual process is often completed well after the meeting date, so citizens cannot access the time-stamped version in a timely manner.
- The Planning Commission also uses SIRE for their Agenda Management needs.

Recommendations

- Conduct a comprehensive needs assessment, process review, and document needs, including the development of detailed feature/function requirements for a new EDMS system.
- Apply the needs and feature/function requirements from the process review to solicit proposals and evaluate system options from various vendors.
- Follow best practices according to the *Software Selection Best Practices* initiative in order to select an appropriate system.
- It can be advantageous to coordinate the purchase and selection of an agenda management system with the selection of a new EDMS, because it includes the ability to



ensure that the solution is integrated with the EDMS system. Many EDMS vendors have agenda management system partners that have built-in integration with their system and integration with media management (see *Electronic Document Management System (EDMS) Replacement* initiative).

- Consider utilizing a third-party SME or consulting firm for the needs assessment, process review, and feature/function development (see *Enterprise Resource Planning (ERP) Selection Services* initiative).
- Consider applying agenda management of other City boards and commissions to provide better management, tracking, and access by the public.

34. Legislative Management

Findings and Observations

Legislative management and reporting is the capability to manage legislative activities, including resolutions, ordinances, ordinance numbers, dates, and related actions, that are captured in real-time and retained to enable inquiry and reporting. In a manual environment, this legislative information, such as ordinances, is often entered numerous times. When automated, it only needs to be entered a single time.

Recommendations

- Conduct a needs assessment and process review, and document needs.
- Apply the needs and feature/function requirements from the process review to solicit proposals and evaluate legislative management system options from various vendors.
- Follow best practices according to the *Software Selection Best Practices* initiative to select the appropriate system.
- Several EDMS vendors or agenda management vendors have incorporated legislative management into their agenda management functionality. If this is not the case for the system the City chooses, the City should ensure that the legislative management system selected can be integrated with the agenda creation and management system, as well as the citywide EDMS system (see *Electronic Document Management System (EDMS) Replacement* and *Agenda Creation and Management Software* initiatives).
- Consider utilizing a third-party SME or consulting firm for the needs assessment, process review, and feature/function development.



35. Council Meeting Management (including Automated Voting)

Finding and Observations

Many agenda management and EDMS solutions provide meeting management tools. These are often included with or integrated with agenda management functionality. Some of the capabilities include but are not limited to the following:

- Digitally record roll call, motions, votes, and notes
- Capture meeting actions directly into the public record
- Run more productive meetings with agenda viewing and touch-screen voting displays for elected members
- Help the audience follow meeting actions with a public display, including a picture-in-picture view of roll calls and votes by elected official

Recommendations

- Conduct a needs assessment and process review, and document needs.
- Apply the needs and feature/function requirements from the process review to solicit proposals and evaluate legislative management system options from various vendors.
- Several EDMS vendors or agenda management vendors have incorporated meeting management into their agenda management functionality. If this is not the case for the system the City chooses, the City should ensure that the meeting management system selected can be integrated with the agenda creation and management system, as well as the citywide EDMS system (see *Electronic Document Management System (EDMS) Replacement* and *Agenda Creation and Management Software* initiatives).
- Consider utilizing a third-party SME or consulting firm for the needs assessment, process review, and feature/function development.



36. Council Meeting Media Management (EDMS)

Findings and Observations

Governments and quasi-governmental entities all have councils, boards, commissions, supervisory committees, etc. These board meetings require agendas, minutes, and recordings management. Recording technology has expanded to include the capturing of audio and video during these meetings. As a result of capturing these recordings, some open-access laws now require access to this media by the public. Media Management systems provide the ability to broadcast and manage media.

Media management systems:

- Give citizens and the public convenient access to live and archived streaming through the website
- Reduce public inquiries with searchable, self-service access online
- Import agendas and synchronize indexed video to eliminate hours of work
- Manage and distribute unlimited meetings and events (all completely automated)
- Reach a broader public audience
- Integrate closed captions with video
- Help the organization understand and measure public participation with video analytics



The City has expressed the desire to continue improvement of the existing process of live streaming and post-meeting Web video streaming of Council meetings with integration and links to Web-posted agenda and minutes.

Recommendations

- Conduct a needs assessment and process review, and document needs, including the development of detailed feature/function requirements for a Council/Board meeting media management system.
- Apply the needs and feature/function requirements from the process review to solicit proposals and evaluate media management system options from various vendors.
- Ensure that the media management system selected can be integrated with agenda creation and management system, as well as the citywide EDMS system (see *Electronic Document Management System (EDMS) Replacement* and *Agenda Creation and Management Software* initiatives).
- Consider utilizing a third-party SME or consulting firm for the needs assessment, process review, and feature/function development.

Benefits

- **Reporting and Metrics** – Use system reporting and metrics to monitor the public engagement level, mobile usage, page visits, etc.
- **Event Management** – Schedule events to broadcast live or record from any video source (camera, cable TV, tape).
- **Archive and Publish** – Archived files automatically transfer to internal and external storage and can be automatically published to the organization’s website.
- **Streaming** – Leverage a media server for public streaming.



- **Integration with Agendas and Minutes** – Import agendas and synchronize indexed videos during meetings and, afterward, produce a public record on the website with the agenda linked to the video.
- **Anywhere and Anytime Access** – The public and staff can watch live streaming broadcasts or play archived videos through the website. Viewers can jump to desired topics through index points to review only the information or agenda items that are important to them.
- **Public Searching** – Public can find what they want through a searchable public record on the website. All meeting audio, video, minutes, and agendas can be integrated.
- **Notifications** – The public can subscribe to the agenda, or to a particular search, to receive notifications when new content is available.

37. Staff Reports Agenda (EDMS and Agenda Management)

Findings and Observations

- The existing City Council Agenda creation process is completely manual.
- All reports are paper-based until they are scanned into the final agenda.

City Manager Office and Department Directors expressed the desire to manage staff meetings and staff report process, including:

- Scheduling and publishing of meetings
- Staff Meeting agenda management
- Ability to use workflows to ensure staff reports are completed on time, which would include notices, ticklers, and processes for review and finalization of reports

Recommendations

- This functionality desired for Staff Reports and Staff Meeting Agendas are standard features within agenda management or as a module within an EDMS system. Refer to *Electronic Document Management System (EDMS) Replacement and Agenda Creation and Management Software* initiatives).
- The City should ensure that this capability is included in the needs and feature/functions provided to vendors that will propose the EDMS system and the agenda management capability.



38. Public Records Request Tracking and Responses (EDMS)

Findings and Observations

The City Clerk's Office and the City Manager's Office expressed a desire to better track public records requests. Some of the needs identified include:

- The ability to log, track, and close public records requests
- The ability to use search capabilities and annotation and redaction tools to prepare the records for release
- To use workflow to route to appropriate review and preparation participants, with the ability for proper approval of final records to be released
- To provide the ability for the public to submit a public records request online, and for the owner of the request to be able to track progress and see the closure of the request

Recommendations

- This functionality desired for managing public records requests has been implemented by peer municipalities. To meet this need, several EDMS vendors have built forms, applied Web publishing, and developed workflows that they include this functionality with their EDMS solution. Refer to the *Electronic Document Management System (EDMS) Replacement* initiative).
- The City should ensure that this capability is included in the needs and feature/functions provided to vendors that will propose the EDMS system.
- If the City's chooses an EDMS vendor that does not offer this capability within their solution, the City can contract with the vendor or build for themselves the workflows and forms necessary.
- There are some other third-party tools for tracking and managing public records requests. If that is the chosen route for the City, this third-party alternative must have the ability to integrate with the City's EDMS system.



39. Candidate Election Filing and Form 700 Tracking (EDMS)

Findings and Observations

- The City Clerk expressed a desire to better track candidate election filing and the necessary Form 700s.

Recommendations

- This functionality desired for managing public records requests has been implemented by peer municipalities. To meet this need, several EDMS vendors have built forms, applied Web publishing, and developed workflows that they include this functionality with their EDMS solution. Refer to the *Electronic Document Management System (EDMS) Replacement* initiative).
- The City should ensure that this capability is included in the needs and feature/functions provided to vendors that will propose on the EDMS system.
- If the City's chooses an EDMS vendor that does not offer this capability within their solution, the City can contract with the vendor or build for themselves the workflows and forms necessary.
- There are some other third-party tools for tracking and managing public records requests. If that is the chosen route for the City this third-party alternative must have the ability to integrate with the City's EDMS system.

40. Microfiche, Microfilm, and Paper Conversion to Digital

Findings and Observations

- The City Clerk and several other departments have a significant amount of historical information on microfiche, microfilm, and paper.
- The equipment required to view and print microfiche and microfilm is obsolete and difficult to maintain.
- The City Clerk and other departments still need access to this historical information that is on microfiche, microfilm, and paper. This information is viewed on a regular basis.
- This media is aging, and is vulnerable to permanent loss.

Recommendations

- Many EDMS vendors have the personnel and equipment resources to convert microfiche, microfilm, and paper to a digital format that can be indexed and stored for retrieval from the EDMS system.
- It is recommended that the City include these conversion services as a requirement when selecting and contracting for the new EDMS system. It is also recommended that this conversion be completed over the course of the multi-year implementation period with "critical" microfiche, microfilm, and paper being digitized in the first phase of the EDMS implementation. Refer to the *Electronic Document Management System (EDMS) Replacement* initiative.



41. Campaign Contribution Tracking and Public Access

Findings and Observations

The City Clerk's Office and the City Manager's Office expressed the need for a tool to track Campaign Contributions. Some of the needs identified include:

- The ability to log and track campaign contribution reporting information

Recommendations

- This capability could be implemented at two levels (scenarios):
 - ♦ *Forms capture and publishing* – This would allow for the submitted campaign forms to be captured in the EDMS system, indexed for searching, and then posted to the City's public website for public access. This would be a repository of filed reports to access and would not allow for the aggregation of data or reporting of aggregate data that is contained within the campaign filing forms. This scenario can be accomplished through EDMS system's workflow and publishing capabilities.
 - ♦ *Data capture and public analysis access* – There are some COTS (commercial-off-the-shelf) systems in the market space that would be feasible. The most prominent COTS solution in California for paperless e-filing system for local campaign disclosure is "NetFile".
- The City should complete a review and needs assessment of City's needs and requirements.
- The City should apply the needs assessment to proceed with a selection of a system following the recommendations in the *Software Selection Best Practices* initiative.
- It should be noted that there is activity on a state level in California that will update Cal-Access with a new, data-driven disclosure system for campaign finance and lobbying. The long-term plan is to accept electronic campaign statements from local jurisdictions so that this information would be available at a state level. The City should track the progress of this new Cal-Access system and determine how any City efforts in this area will effect what the City may want to implement.



42. Third-Party SME Retention Schedule Resource

Finding and Observations

- The City's document and data retention schedule has become outdated. The City Manager's Office would like to update the retention schedule and retention guidelines, but does not have the necessary experience and personnel resources to complete this effort.

Recommendations

- Use the California Secretary of State's records retention guidelines (SOS RRG) standards as the starting base for this effort.
- Employ a third-party SME (subject matter expert) as a consultant to cooperatively develop a retention schedule and retention guidelines. There are a small number of firms that assist with these services. Gladwell Governmental Services, Inc., has assisted some of our clients with an acceptable level of satisfaction. However, the City should investigate the resources available and compile a list of consultants before requesting proposals.
- The following are additional resources for this effort:
 - ◆ California State Records and Information Management Program (CalRIM)
 - ◆ State of California – Records Retention Handbook
 - ◆ State of California – Local Government Records Management Guidelines
 - ◆ CCAC (City Clerks Association of California) is also a good resource for peer support and collaboration.
- Apply the elements of the *Software Selection Best Practices* initiative to select the best third-party consultant to meet the City's needs.
- Any effort for this should apply the following best practices:
 - ◆ Obtain City Manager and Departmental Management Support.
 - Meet with the department/division managers to explain the process for amending the resolution.
 - Request department/division records coordinator as a task force or committee.
 - Prior to Council adoption, distribute revised schedule for final management discussion.
 - ◆ Establish and Coordinate a Task Force (Project Team).
 - Meet to describe task and set a timeline for completion.
 - Meet regularly to assist and train new records coordinators.
 - ◆ Develop a Project Plan/Timeline.
 - Inventory records and separate files not listed in schedule.
 - Appraise files, including files of departments no longer in existence.
 - Review department schedules with department records coordinator.
 - Review revised departmental schedules to confirm legal retentions.
 - Request City Attorney review.
 - Review newly revised schedule with management staff.
 - Schedule adoption of Council resolution.
 - ◆ Post Council Action and Ongoing Update/Maintenance.
 - Implement adopted policies and procedures.
 - Protect historical records.
 - Distribute Council action to all departments.
 - Review requests to destroy.



- Forward requests to destroy to City Attorney.
- After approval by the City Attorney, send copy to department.
- Prepare certificate of destruction, and send copy to department.
- Destroy paper documents, or delete obsolete electronic records.
- Maintain original certificates with listing.
- Begin new file for next update.



43. GIS Assessment and Master Plan

Geographic information systems (GIS) are becoming a critical citywide component to any municipality. They provide a geographical map or picture to constituents and city staff to interact with City services or for City staff to deliver service. GIS is a system that manages and displays digital maps with various features and functionalities. GIS stores the shape of individual map features (a street segment, or a parcel of land) along with descriptive information (often called feature “attributes”). In a GIS map of streets, the shape of each segment is stored along with the street name. The segment can be located, queried, or labeled using that name. A parcel of land will be linked to one or more tax records which can identify the owner, valuation, use, or many other attributes. Layers of information can also be stored and selectively displayed, including utilities and other services (water, sewer, gas, electric, telephony, data, etc.)

The development of a Geographic Information System (GIS) Master Plan is a detailed and comprehensive process. Geography and GIS services play a role in nearly every decision the City makes. Choosing sites, assets maintenance, planning distribution networks, responding to emergencies, or redrawing boundaries—all of these issues involve questions of geography. A GIS Master Plan would set forth procedures and methods used to determine where the City envisions going with GIS in the future, which will include, but not be limited to:

- Improvements to the GIS enterprise
- Evaluating potential data sources and data needs
- Evaluating hardware and software solutions
- Updating the GIS database
- Developing additional GIS applications
- Staffing requirements
- Prioritized resource requirements
- Planning for the long-term maintenance of the GIS system and the data
- Development of a GIS-specific budget tied to the various elements or initiatives within the GIS Master Plan

Findings and Observations

- The City deploys a disjointed use of GovClarity and Esri, with the Esri databases and layers being inadequate to meet today’s needs.
- GIS is critical to:
 - ◆ Public Works
 - ◆ Public Safety (Police/Fire)
 - ◆ Land Management (Planning & Building)
 - ◆ Public-Facing Applications (on Web)
 - ◆ ... and much more
- Nearly all municipal applications are “spatial” in nature (address, parcel, coordinates, etc.) The new systems that the City is planning to deploy will need to be spatially driven and will need to integrate with GIS.
- Many departments expressed the need to assess the GIS requirements of the City and to better plan for future GIS needs.
- Due to the extensive demands the various departments are requiring from the GIS Division, there needs to be a more comprehensive study for the City’s GIS needs. There is a tremendous role for GIS within the organization, and a detailed study is needed to address and plan for future growth.



Recommendations

- Develop a comprehensive GIS Master Plan utilizing independent subject-matter expertise.
- The Master Plan should include but not be limited to:
 - ◆ Improvements to the GIS Enterprise
 - ◆ Evaluating potential data sources and data needs
 - ◆ Evaluating hardware and software solutions
 - ◆ Establish the database and cartographic standards of the City
 - ◆ Updating the GIS database
 - ◆ Developing additional GIS applications
 - ◆ Staffing requirements
 - ◆ Training requirements
 - ◆ Benefits to the public using GIS as the entry point to online services
 - ◆ Prioritized resource requirements
 - ◆ Planning for the long-term maintenance of the GIS system and the data
 - ◆ Development of a GIS-specific budget tied to the various elements or initiatives within the GIS Master Plan

44. Bid Management with Integration to Bid Tracking

Finding and Observations

Bids Management software solutions provide e-procurement tools designed to give government agencies the ability to setup electronic bid packages to manage the bidding and contract award process. These solutions can provide bid details, workflows, transparency, and audit trails. Many solutions for this functionality are described as Software as a Service (SaaS). SaaS solutions are systems that can be subscribed to, versus purchased, and can even manage credit card payments for plan sets.

Example vendors include:

- BidSync
- BidNet
- Planet Bids
- eBid Systems
- Onvia DemandStar
- Many others

Recommendations

- Select software vendor according to the *Software Selection Best Practices* initiative
- Ensure that the vendor selected will be able to interface/integrate with the bid tracking capability in the new ERP system.

Benefits

- Centrally managed information
- Quicker procurement process
- Increased automation and vendor communication
- Increased and improved bids and proposal responses
- Easy access to procurement documents
- Interface/integration capabilities to flow into bid tracking and purchasing within the City's ERP system.



45. Project and Construction Management

Project and construction management software typically includes:

- Management and tracking of construction projects
- Documenting project and contract progress
- Initiation and notification of milestone completions for contractor payments
- Communication and interfaces to central financial systems, including grant and project accounting

Many of these government-based construction software systems are now offered in a service-oriented, cloud-based product. Many also offer field-based access and usage for inspections and tracking in the field.



Findings and Observations

- Project Managers are using different methods in managing their projects, some of which include manual processes, Microsoft Project, Excel, and Access, as well as other planning systems.
- Tracking costs, schedules, scope, and task completion for projects is challenging with existing methods and the various systems being used.
- Project information is not readily accessible by multiple staff in real time.

Recommendations

- Complete a review and needs assessment of City's project and construction management requirements and document the results. This should be a single system that all departments and divisions within the City can use in a cooperative fashion.
- Apply the results of the needs assessment to research options and solicit quotes for the project and construction management software solutions. Examples include:
 - ◆ PMWeb
 - ◆ e-Builder
 - ◆ CapitalSoft
 - ◆ Aurigo
 - ◆ Primavera
 - ◆ Systemates
 - ◆ FieldManager
 - ◆ Projectmates
 - ◆ and others
- Follow best practices according to the *System Selection Best Practices* initiative, to select the appropriate system.
- Ensure that integration between the new system and Project and Grant Accounting software in the ERP System is available.
- Consider utilizing a third-party SME or consulting firm for the needs assessment, process review, and feature/function development.



46. Police Implementation of InTime Scheduling Software

Findings and Observations

- The Police Department is in the process of implementing InTime Solutions' public safety scheduling software.
- The InTime solution not only performs the traditional time entry/time keeping operations, it also performs scheduling operations which, for public safety organizations, is complex.
- InTime can also track and perform unique accrual processes that are required by union/bargaining unit requirements that often cannot be accommodated in traditional payroll timekeeping modules.
- The Police Department is approaching the end of the InTime implementation project. The project is proceeding with success and is working through minor challenges typical for a project of this type. The Police Department InTime implementation is scheduled for completion by the end of the 2016 calendar year.

Recommendations

- As the City progresses with the replacement of the ERP System, the City may need to turn to InTime to track and perform unique accrual processes that are required by union and bargaining units that the payroll system within the selection ERP system may not be able to perform.
- The implementation of InTime appears to be moving along successfully, but it is recommended that interfaces/integrations with the new ERP system are included in the scope of the selection activities for the new ERP system (see *Enterprise Resource Planning (ERP) Replacement* initiative).

47. Fire TeleStaff Updates and Utilization Improvements

Finding and Observations

- The Fire Department uses TeleStaff for scheduling staff and firefighters.
- The existing TeleStaff server is past its end of life, and the TeleStaff software that runs on this server is behind by numerous versions.
- Previously the Fire Department had a person that managed the TeleStaff and FIREHOUSE software applications and since the departure of this resource the Fire Department has lost ground on the maintenance and use of the software.
- TeleStaff is interfaced with FIREHOUSE (one-way interface) with the roster being pushed to FIREHOUSE.
- The Fire Department would like to use more capabilities in the TeleStaff system, but they have not had the opportunity to focus on this effort as part of an official project.

Recommendations

- Determine the existing TeleStaff software version level in use.
- Determine the latest TeleStaff software version available.
- With TeleStaff's (Kronos) assistance, determine the process—as well as the resources and time—required to upgrade to the latest version of TeleStaff.
- Obtain and review all the release notes and all the functionality included in the Fire Department's current version release to the most current software version available from TeleStaff.



- Upgrade the server, and also upgrade to the latest version of TeleStaff software. Use TeleStaff and City IT to complete these upgrades.
- Using the release notes and TeleStaff's list of available functionality, assess and document gaps that exist, and that the Fire Department would like to close, including:
 - ◆ Manual processes that can be automated
 - ◆ Efficiencies that can be gained through setup and improving/streamlining processes with the software
 - ◆ The available TeleStaff functionality the Fire Department is not using but would like to implement and activate
- Using the assessment and gap analysis described above, work with TeleStaff and the City's IT Department to develop a plan and implement the plan to close these gaps.
- Ensure that the existing interface between TeleStaff and FIREHOUSE can be preserved during this update and utilization project.
- Use a third-party subject-matter expert if the City cannot dedicate the necessary business analyst resources to accomplish the recommendations above

48. FIREHOUSE Gap Analysis and Utilization Improvements

Finding and Observations

- The Fire Department uses FIREHOUSE software from Xerox Governmental Systems LLC for managing their general operations.
- The existing FIREHOUSE server is past its end of life, and the FIREHOUSE software that runs on this server is nearly 10 years behind (version from 2006).
- Previously, a staff member was responsible for managing FIREHOUSE and TeleStaff. Since the departure of this resource, the Fire Department has lost ground on the maintenance and use of these applications.
- The Fire Department uses the following FIREHOUSE software modules:
 - ◆ Records Management System
 - ◆ Prevention (includes inspections)
 - ◆ Suppression
- Dispatched by Police, and CAD calls from the CAD get pushed to, and create, an incident in FIREHOUSE, which is the starting point for a case in FIREHOUSE.
- TeleStaff is interfaced with FIREHOUSE (one-way interface), with the roster being pushed to FIREHOUSE.
- There is no interface between FIREHOUSE and the Land Management System (Permits Plus), which means that inspection information is entered twice into both FIREHOUSE and Permits Plus.

Recommendations

- Determine the existing FIREHOUSE software version level in use.
- Determine the latest FIREHOUSE software version available.
- With the assistance of FIREHOUSE, determine the process—as well as the resources and time—required to upgrade to the latest version of FIREHOUSE.
- Obtain and review all the release notes and all the functionality included in the Fire Department's current version release to the most current software version available from FIREHOUSE.
- Upgrade the server, and also upgrade to the latest version of FIREHOUSE TeleStaff software. Use FIREHOUSE and City IT to complete these upgrades.



- Using the release notes and FIREHOUSE’s list of available functionality, assess and document gaps that exist and that the Fire Department would like to close, including:
 - ◆ Manual processes that can be automated
 - ◆ Efficiencies that can be gained through setup and improving/streamlining processes with the software
 - ◆ The available FIREHOUSE functionality the Fire Department is not using but would like to implement and activate
- Using the assessment and gap analysis described above, work with TeleStaff and the City’s IT Department to develop a plan and implement the plan to close these gaps.
- Ensure that the existing interface between FIREHOUSE and TeleStaff can be preserved during this update and utilization project.
- Use the above described plan to also document and identify the effort and costs to develop an interface between FIREHOUSE and the new Land Management system that would provide the ability to push the Fire Inspection information from FIREHOUSE to the new Land Management system to eliminate the need for dual entry (see the *Land Management System Replacement* initiative).
- Use a third-party subject matter expert if the City cannot dedicate the necessary business analyst resources to accomplish the recommendations above.

49. Patient Care Reporting Implementation

Finding and Observations

- The Fire Department has a strong need for Patient Care Reporting (PCR).
- A good portion of this work today is manual and time-intensive, especially for mobile rescue and EMS staff, who must be timely and are always on the move.
- Fire Departments and EMS staff need to move from manual paper PCR to electronic PCR (ePCR).
- The Fire Department has acquired software called DigitalEMS from Digital EMS Solutions Inc., with headquarters in Monterey Park, CA.
- When patients are brought to the hospital, a PCR report needs to be provided.
- Some hospitals still take paper reports, but most are moving to the receipt of an electronic report (ePCR), and it is likely that electronic reports will eventually be the required standard.
- The Digital EMS software can provide a written report from a portable printer in the EMS vehicles or can submit electronically if the hospital requires an electronic report.
- Even though the Fire Department has acquired the Digital EMS software along with all the iPad mobile devices, it has not been implemented and is not yet in use.



Recommendations

- Work with Digital EMS Solutions to layout and develop an implementation plan that will include all the necessary components, Integration assistance, mobile connections, project management requirements, required implementation services, training requirements, and acceptance testing with go-live support.
- Review the Digital EMS agreement to determine if there is a gap between the above noted plan and what implementation deliverables are to be provided in the agreement.



- If gaps exist between the implementation services needed and what is to be delivered per the agreement, the cost to close this gap needs to be documented and determined.
- Follow the recommendations listed in the *Project Planning and Implementation Best Practices* initiative.
- Since some hospitals do not yet take PCR reports in electronic form, the implementation should include the acquisition of mobile printers in the vehicles so a printed report can be printed when delivering patients to the hospital.
- Ensure Digital EMS provides the necessary implementation services. The Fire Department may wish to consider hiring an outside subject-matter expert (SME) to assist in the planning and oversight of the implementation.

50. Digitization of Fire Map Book into GIS

Finding and Observations

- Existing maps (emergency response maps) are comprised of maps printed from the Web, from other printed sources and, in many instances, have been drawn by hand.
- These maps are put into a map book for access while in the vehicles for normal prevention work, but more critically, for actual incident runs.
- The existing paper maps and map books are very difficult to update and are aged to the point that they may have inaccuracies.
- The current map book includes:
 - ◆ Maps for all districts
 - ◆ All City streets
 - ◆ All business and residential addresses
 - ◆ Fire hydrants
 - ◆ Other important landmarks and locations
 - ◆ Notations and markings for high-risk occupancies
 - ◆ Trouble or hazardous locations
- Fire Departments are moving to digital map books imbedded in their cities' GIS systems, with dedicated map layers that are accessible in real time from mobile devices in the vehicles.
- With the electronic version of the map book, additional features and benefits can be realized, including:
 - ◆ Additional layers with location details for hazardous material and other risk-oriented factors
 - ◆ Route planning
 - ◆ Real-time traffic conditions
- Options like Esri's Fire Run Book include an entirely electronic capability that can be viewed in real time or printed and provides:
 - ◆ Book cover
 - ◆ Map pages
 - ◆ Street index
 - ◆ Ability to summarize into a single document for view and print
 - ◆ Individual books or section for individual stations or for an entire fire district
 - ◆ Tools to further personalize:
 - A series of map document templates
 - Tools to create your own street-index report



- Features to personalize the assembly of the map book in landscape and portrait orientations
- Other electronic Fire map book tools are also available that are compatible with Esri.
- It should be noted that the Esri Local also includes other map and correlating database templates for Fire Departments including:
 - ♦ Fire Station Wall Map
 - ♦ Pre-Incident Planning
 - ♦ Fire Hydrant Inspection

Recommendations

- This initiative is very dependent upon and will be included as an important need during the implementation of the *GIS Assessment and Master Plan* initiative.
- The GIS plan should include the digitization and rebuilding of an electronic Fire map book.
- Digital, real-time, in-vehicle fire map books are an industry trend, and there are several approaches to consider. Digital fire map book evaluation should be included in the Scope of Work for the *GIS Assessment and Master Plan* initiative.
- Once this Fire map book project has been documented in the City's GIS Plan, the Fire Department will need to develop an implementation plan and follow the recommendations listed in the *IT Project and Implementation Best Practices* initiative.

51. Fire Alarm Tracking and Billing Software

Alarm tracking and billing software is designed for police departments, fire departments, and other government organizations that have a need to monitor and record alarms and assess fees for multiple occurrences of false alarm runs. These systems are designed to work with public safety dispatch, RMS/CAD/911 systems, and typically have an export capability for uploading to the municipality's central financial system.



Findings and Observations

- The Fire Department tracks false alarm billing through Permits Plus.
- The data is entered into Permits Plus manually, and then printed for re-entry and billing by Finance.
- The Police Department uses a different method for false alarm billing that is equally labor-intensive.

Return-on-Investment Considerations

- A study conducted by Fidesic Corporation found that by using electronic invoicing and payment, organizations can cut the labor required to send an invoice and process a payment by almost 50%⁸.
- Sizable annual revenues from alarm and false-alarm billing have been recognized by other municipalities in the City's regional area.

⁸ Fidesic Corporation study, 2002



Recommendations

- Investigate availability and the potential ability to use a single system (premise- or cloud-based) for both Police and Fire alarm billing.
- Investigate the ability for this system to provide online alarm billing and payment module.
- Estimate approximate savings from payment timeline reduction, manual processing, paper savings, and reduction in phone call inquiries.
- Follow the recommendations listed in the *Project Planning and Implementation Best Practices* initiative.

Benefits

- Allows registration of alarm systems
- Imports false alarm data from Computer-Aided Dispatch (CAD) systems
- Prints warning letters and invoices
- Exports to municipal financial systems are possible to streamline invoice and collection processes
- Allows alarm owners to register and pay online with credit cards

52. Notifications System (Public/Employee/Emergency)

Findings and Observations

Outbound communication systems, such as Reverse 911, have gone through a significant transformation in the last five years. There are many more system providers, and pricing has come down significantly. Enhanced emergency notification systems can also integrate with severe weather warning systems, emails, texts, RSS feeds, etc. These systems can be used for non-emergency mass notifications as well. Examples include: street closures, interruptions in water service, major organization events, etc. Additionally, an increasing number of cities are using this technology for frequent mass communications to their public and to employees.

Recommendations

- Research options for a single solution to manage the notification needs and desires of the entire organization.
- Select new solution vendor according to the *Software Selection Best Practices* initiative.
- Consider including emails, texts, and RSS feeds for more than just mass emergency notifications (e.g., street closures, street cleaning, special events, etc.)
- Consider utilizing various public-facing applications to collect citizens' communication preferences (e.g., mail, email, text, website, opt in or out for specific types of communications, such as public safety, emergency, community events, general info, etc.)
- Determine costs of greater usage. Costs are usually measured per contact, but some vendors have gone to an annual-subscription model based on agency population.
- Consider integration with Severe Weather Warning System, automating certain emergency notifications.

Benefits

- Increased community outreach
- Improved public relations
- Increased citizen engagement
- Easier management with time savings if a single notification tool can be identified and implemented



53. Standardized Building/Security Access

Managed access control and security, or keyless entry, is an effective way for the City to manage security and access to various buildings, facilities, or other controlled locations. Secured access control systems allow the City to track and restrict who can access facilities where and when.

This limits security risks and allows for the management of access by employees and for the public. Many municipalities are moving to a single, organization-wide system to manage security and access to facilities.

Findings and Observations

- The City has a number of different and separate security systems, including keyed and wireless security systems for buildings, facilities, and external locations.
- Systems are a mix of physical and controlled.
- Many departments have suggested and are open to a centrally managed, citywide system for security and access, if it can accommodate everyone and also provide access to constituents enrolled in services or programs.

Recommendations

- Complete a review and a needs assessment of the City's facility access and control requirements and document the results. This should be a single, citywide system that all departments and divisions within the City are covered under in a cooperative fashion.
- Access should also allow extending to constituents and others, as appropriate (e.g., Community Services for another city extended if for tennis court access).
- Many cities have combined the access system with employee identification cards or access fobs for convenience, elimination of multiple systems, and management consistency.
- Follow best practices according to the *Software Selection Best Practices* initiative to select the appropriate system.
- Ensure that integration between the new system and other systems (e.g., Police CAD/RMS system, the Dash Parks and Recreation system, and potentially others).
- Consider utilizing a third-party SME or consulting firm for the needs assessment and feature/function development.

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 need for on-site security personnel
- Allows for more efficient temporary access by outside personnel, like visitors or vendors
- If integrated with the Police CAD/RMS system, aids more timely response to alarms
- Decreases liability and risk from greater access control



54. OpenCounter

Findings and Observations

- The City Manager’s office has discussed the use of a software application called OpenCounter with their peers in the cities of Santa Cruz and Palo Alto.
- OpenCounter is a front-end business registration tool to help new business developers/entrepreneurs get their businesses up and running more quickly and easily by providing an “online interface” to the permitting and licensing process at City Hall.
- OpenCounter asks questions in the proper order, so business owners see the requirements, fees, and processing time that will apply to their planned business use and location.
- OpenCounter was founded to provide these front-end services, but also to provide cities with new insights on economic development, zoning, public transportation, etc.
- It should be noted that OpenCounter is a “front-end” system for easy online business registration; it is not a land management system, nor does OpenCounter provide business licensing software application capability.
- Experience and research have shown that Accela’s land management system is the primary back-end land management solution that OpenCounter is interfacing with at this time.

Recommendations

- Further review and information gathering should be conducted to fully understand the OpenCounter solution and the benefits it delivers to the City and the City’s business community, including ROI analysis.
- Further investigation should be conducted to determine if OpenCounter can interface and front-end land management systems other than Accela, including at a minimum, SunGard/CRW, Tyler, CRW and potentially others.
- Since OpenCounter is a front end to Land Management the City should incorporate the option for OpenCounter into the effort recommended in the *Land Management System Replacement* initiative.
- The evaluation, review, and selection of the OpenCounter solution should follow the recommendations included in the *Software Selection Best Practices* initiative.



Other Initiatives

| Initiative | Department(s) | Recommendation |
|--|---|---|
| 55. DASH Integration to New ERP | <ul style="list-style-type: none"> Community Services, Finance | <ul style="list-style-type: none"> Investigate the option for an interface to export cash receipt data processed in DASH and push it to the new ERP system for accounting purposes. As part of executing the recommendations defined in the <i>Enterprise Resource Planning (ERP) Replacement</i> initiative, the interface with DASH should be included as a component Costs for this interface should be manageable, but it should be noted that costs for this interface may be assessed by both DASH and the City's new ERP vendor. |
| 56. Property, Space, and Tower Billing (Leasing) | <ul style="list-style-type: none"> City Manager's Office and Finance | <ul style="list-style-type: none"> A number of ERP solutions vendors have accounts receivable (AR) modules or general billing sub-modules for cities that need to create invoices and bills for miscellaneous charges, such as rented building space, charges for parking spaces, or certain types of permits/leases. Invoices from these modules contain itemized charges at calculated rates, accumulated totals, and payment history, and integrate to the general ledger to provide real-time accountability. Some of the common features in ERP AR modules and or general billing sub-modules include, but may not be limited to: <ul style="list-style-type: none"> ◆ Customized invoices ◆ Automatic calculation of sales tax ◆ Automatic calculation of interest ◆ Automatic generation of recurring invoices for leases, permits, etc. ◆ Consolidated statements for customers with multiple accounts (leases, etc.) ◆ Amortization Schedule for loan or lease management ◆ Various fee calculation methods, including, but not limited to, late fees It is recommended that the City investigate these capabilities offered in the new ERP system, and if they do not meet the City's needs, a third-party loan/leasing system could be investigated as an alternative. Any third-party option should provide integration to the new ERP for accounting purposes. An ROI exercise, or a cost-benefit analysis, should be completed to determine the cost effectiveness of a third-party option considering the amount of rental and leasing accounts the City has and needs to manage. |



| Initiative | Department(s) | Recommendation |
|---|--|--|
| 57. Improved HdL User Access | <ul style="list-style-type: none"> Finance and other City users | <ul style="list-style-type: none"> There are issues with necessary staff having access to HdL and access to particular functionality within HdL, due to the exiting setup of user roles and security. |
| 58. Benefits Administration System Selection (in-process) | <ul style="list-style-type: none"> HR and Employees | <ul style="list-style-type: none"> It should be understood that costs may be incurred for this integration from both the Benefits Administration software vendor and the ERP software vendor. As part of executing the recommendations defined in the <i>Enterprise Resource Planning (ERP) Replacement</i> initiative, the integration with the selected Benefits Administration System should be included as a component. |
| 59. Insurance Compliance Service (third-party outsource) | <ul style="list-style-type: none"> HR and City Clerk | <ul style="list-style-type: none"> HR (Risk) is close to selecting a vendor to outsource the review of contractors/vendors to ensure that their required insurance coverages are with insurance providers that have the required ratings. This third-party vendor should provide the ability to export the compliance results information so this information can be imported into the new ERP system's requisitioning/purchasing system, which includes the updating of the contractor/vendor database in the new ERP system. |
| 60. General Liability Claims and Damages Tracking | <ul style="list-style-type: none"> HR and City Clerk | <ul style="list-style-type: none"> HR (Risk) and the City Clerk identified the need to track liability and damage claims. This functionality has been implemented by peer municipalities. To meet this need, several EDMS vendors have built forms (claim/damage forms), applied Web publishing, and developed workflows and included this functionality with their EDMS solution. See the <i>Electronic Document Management System (EDMS) Replacement</i> initiative). The City should ensure that this capability is included in the needs and feature/functions provided to vendors that will propose the EDMS system. If the City chooses an EDMS vendor that does not offer this capability within their solution, the City can contract with the vendor to create the workflows and forms necessary, or build it for themselves. |



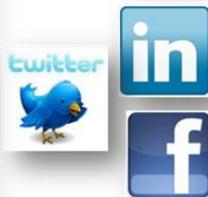
| Initiative | Department(s) | Recommendation |
|--------------------------------------|---|--|
| 61. Large-File Sharing Tool | <ul style="list-style-type: none"> All Departments | <ul style="list-style-type: none"> Large-file sharing is often necessary when email systems or other sharing methods have size restrictions. SharePoint Online (part of Office 365) is a potential option. Complete a review and needs assessment of the City's large-file sharing needs. Follow best practices according to the <i>Software Selection Best Practices</i> initiative to select the appropriate solution. Ensure that this solution operates in a secure, supported environment, managed by the City's IT Department. |
| 62. Instant Messaging | <ul style="list-style-type: none"> All Departments | <ul style="list-style-type: none"> There are numerous options available. Options for instant messaging can be configured with Exchange Server/Outlook. Skype for Business is also available with instant messaging capabilities under Office 365. Cost and options should be investigated and a standard chosen and installed. It should be noted that instant messaging does not retain or capture history in all instances. The City should work with their City Attorney in establishing policy and retention requirements. |
| 63. Constituent Satisfaction Surveys | <ul style="list-style-type: none"> All Departments | <ul style="list-style-type: none"> Some Customer Relationship Management systems have this capability and should investigate if their citizen request management system would have this capability. Many website providers provide a module for this capability. The City should also investigate if Vision (their website vendor) offers this capability. Survey Monkey is another very popular alternative. The key to results for this is a very affective survey gathering and reporting capability to capture the necessary data and perform the necessary analysis. It is also beneficial to have a single tool as a standard so that it is easy to share information across the City (between departments). Follow best practices according to the <i>Software Selection Best Practices</i> initiative to select the appropriate solution. |



| Initiative | Department(s) | Recommendation |
|---|---|--|
| <p>64. Computer Lab Updates for Senior Center</p> | <ul style="list-style-type: none"> Community Services and the Public | <ul style="list-style-type: none"> The Computer Lab for the Seniors in the City Center: <ul style="list-style-type: none"> Have old, outdated PC workstations and need to be replaced. The participation of these computers and their connection to the City’s network and the Internet should be investigated. The use of the computers is open and does not include any Internet filtering. There is also not an environment for printer use, control, and management. The City should replace the PC workstations. The use of these public computers should be managed per the recommendations and as part of the implementation of the <i>Create Best Practice Internet Connectivity (DMZ)</i>, <i>Network Redesign</i>, and <i>IT Security Review</i> initiatives. Apply the necessary tools available for filtering and managing printer usage. |

Gov 2.0 (E-government) 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.

65. Citizen Request Management (CRM)
66. Online Payments, Transactions, and Services Strategy
67. Internal Intranet
68. Council Chambers Audiovisual Systems
69. Conference Room Audiovisual
70. Video/Web Conferencing
71. Social Media Risk Management and Controls
72. Mobile Computing
73. Employee Remote Access





With the advent of computer technologies, the world is experiencing an unprecedented explosion in communications options.

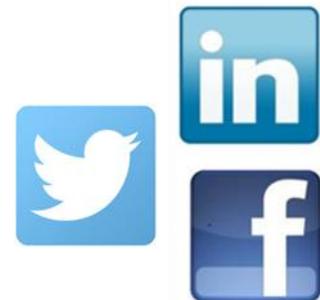


The principles of Gov 2.0 include:

- Principle 1:** Serve as the primary source of reliable, accurate, and timely organization information delivered to the customer on their platform of choice.
- Principle 2:** Maintain a real-time, interactive, and user-centered website that offers easy access to public information and online services.
- Principle 3:** Offer opportunities for online civic engagement and social collaboration.

Some examples of Gov 2.0 technologies include:

- **Online Transactions** – Applications, registrations, requests, and payment processing are some of the 24/7 examples being employed.
- **Online Information Requests and Queries** – As more transparency is demanded and Freedom of Information Act (FOIA) requests increase, common types of documents are readily available through query or menu on the website, which creates efficiencies for organization staff and constituents.
- **CRM (Citizen Request Management)** – Online citizen request tracking includes automated internal routing, status reporting, etc.
- **311** – 311 is a service available in some communities around the country as a non-emergency, general information phone number to a citizen service center. These centers typically centralize the inquiry and response of general and/or routine questions from citizens and customers.
- **Blogging** – This is a Web-based process (Web logging) that allows regular posting of commentary, news, events, and other materials in a more casual and interactive manner. Visitors may leave comments or communicate with each other through the blog.
- **Podcasting** – Digital media files utilizing audio, Web protocols, and a media player are released on a regular schedule and often downloaded through a Web-based subscription.
- **RSS** – Really Simple Syndication (RSS) is a group of formats used to publish works such as blog entries, news headlines, and media files, in a standardized format. This allows publishers to automatically "feed" their entries to a syndicated audience, often used with podcasting.
- **Social Media** – Ranging from blogs (WordPress, LiveJournal, Tumblr) and social and/or professional networking (Facebook, Twitter, LinkedIn, MySpace) to virtual worlds where people can interact in real time (Second Life), social media is, by far, the fastest-growing form of interactive communication. Andreas Kaplan and Michael Haenlein define social media as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content."⁹
- **Wikis** – A wiki is a website that allows collaborative creation and editing of Web pages to produce a simplified exchange of information.



⁹ Kaplan, Andreas M., Michael Haenlein (2010). "Users of the World, Unite! The Challenges and Opportunities of Social Media". Business Horizons 53 (1): 59-68. doi:10.1016/j.bushor.2009.09.003. ISSN 0007-6813. Retrieved 2010-09-15.



The possible benefits of developing such communication methods go beyond simple release of information. Among the advantages are the following:

- Increased efficiency and cost reduction for public services offered electronically
- Allowance of greater government transparency
- Better-informed and involved public
- More collaborative efforts between the organization and the public
- Faster and more convenient access, which promotes public approval

65. Citizen Request Management (CRM)

Findings and Observations

Citizen request management solutions are used to receive, track, and manage all types of requests and complaints. These solutions can categorize requests, prompt for typical information required, assign and route information to specific staff or departments, track the status, and fulfill overall reporting requirements for more effective handling and response. The primary objective is to ensure all inquiries, requests, and complaints are captured when received, routed to the proper resource, and responded to or resolved in a timely manner, ensuring that the loop is closed on each and every contact. An ideal CRM functionality includes:

- Citizen responsiveness (requests captured and completed, responses provided to citizens, including when and how resolved)
- Prompt request routing (departments/persons)
- History (complaints, requests, timeliness of responses, who completed, how resolved, cost analysis)
- Interdepartmental resource linking
- Managing resources
- Benchmarking and performance-based measurements
- Planning and budgeting
- GIS integration
- Online customer surveys



The City currently has deployed some CRM type services including property Maintenance Violation reporting, and Waste and Fraud Reporting. However the City does not have a true CRM solution deployed and is currently investigating options. The desire by nearly all departments is to move forward with a primary Citywide CRM system that can deliver the capabilities needed with a single standard

Recommendations

- Consider alternatives to deploy short-term to meet this need.
- As part of the *Enterprise Resource Planning (ERP) Selection Services and Land Management System Replacement* initiatives, consider the CRM modules that these ERP and Land Management vendors provide.



Benefits

- Increased customer satisfaction
- Centrally managed information
- Less time manually managing and monitoring
- Increased use of features
- Improved access to information

66. Online Payments, Transactions, and Services Strategy

A variety of online payments can be accepted through numerous alternatives, while the most convenient for citizens are offering these capabilities using the organization's public website (Vision). The result will be increased efficiencies due to reduced labor and easy, digital retrieval of information for both customers and organization staff. Online payments also provide citizens with 24/7 transaction capabilities and the convenience of not having to involve staff or go to City offices.

Some of the information, transactions and types of payments the City currently deploy online for citizens includes:

- Parking tickets (paymycite.com)
- Activity/Program registrations (DASH link on website)
- Business License (application, renewal and payment per hdlgov.com)
- Property Maintenance Violations Reporting
- Waste and Fraud Reporting (link to "The Network" service site)
- City Council meeting agenda, minutes, and video (SIRE)
- Online Employee Applications (NeoGov)
- Accident Reports
- Graffiti Abatement (email)
- Planning Applications (forms download only)
- Permit applications (forms download only)
- Bid Applications (forms download only)
- Numerous forms for download



Other example online payments could include, but would not be limited to:

- Planning applications and fees
- Permit applications and fees
- Miscellaneous receivables
- Miscellaneous permits
- Citizen requests and status inquiries
- Activity registrations
- Facilities reservations
- Volunteer applications
- Job postings and online application submittals
- GIS map inquiries
- Official online records requests (e.g., agendas, minutes, documents, etc.)



Recommendations

- Conduct a citywide needs assessment to determine all useful online payment types that could be implemented to improve constituent service.
- Conduct cost-benefit and prioritization analysis.
- Select other software payment vendors according to the *Software Selection Best Practices* initiative.
- Based on the trend of applications providing these capabilities in their system the organization should consider existing core business applications options, such as ERP, parks and recreation software, permit management, ticket/citation management, among others, before pursuing new third-party solutions, in order to eliminate requirements to integrate new solutions with back-end operational systems.

Benefits

- More accurate and consistent information
- Timely and reduced reconciliation
- Increased awareness of citizen self-service
- Reduced over-the-counter time for transactions
- Increased staff and citizen satisfaction

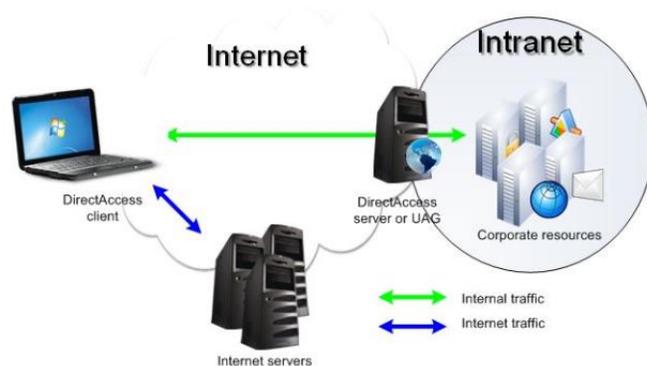
67. Internal Intranet

Findings and Observations

An *intranet* has a similar function to the Internet and uses the organization's internal computer network to house a website-structured presence to share information in a private and secure manner. Generally, it is dedicated to internal use by the organization, staff, and management.

Intranets provide useful information, such as the ability to communicate within the organization and reduce miscommunication by providing consistent informational and instructional content. It also reduces the time spent requesting and distributing documents between and throughout departments and the need for maintaining physical documents. Intranets can be used to:

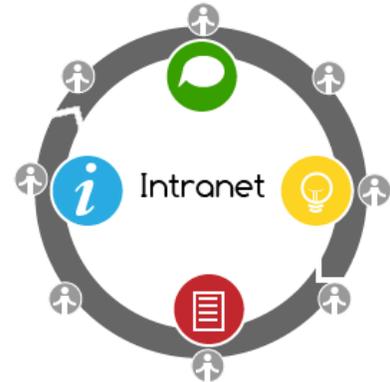
- Quickly communicate news, changes in policies or benefits, and emergency information
- Promote a common culture
- Offer a dynamic calendar of events, activities, due dates, etc.
- Important news and newsletters
- Allow easy access to policies and procedures, training manuals, or forms
- Provide contact information for departments, supervisors, and other staff
- Collaborate on City projects with contractors and vendors
- Contain links to application-supported services (i.e., there may also be a link to Employee Self-Services that are tied to the Human Resource and Payroll applications, enabling employee capabilities to access electronic check stubs, access to electronic W-4 forms for filing changes, or other HR services)





Other potential citywide intranet uses could include, but would not be limited to:

- Increased City-employee communications
- Tricks and tools that would benefit users
- Contact information (internally and externally shared)
- Major project-related information
- Personnel forms
- Benefits information
- Policies and procedures
- Administrative forms
- Training libraries



Those who are most successful setup staff personal computers to have the organization’s intranet site as the homepage that launches whenever a browser is opened.

Recommendations

- Conduct a Citywide needs assessment for internal Department communications that could be posted or stored on the intranet, such as frequently asked questions and frequently requested information, so that employees can utilize the intranet’s self-service capabilities.
- Consider integration of the intranet with future EDMS capabilities (see the *Electronic Document Management System (EDMS) Selection Services* initiative).
- Make the intranet the default Internet browser home page for all City staff.
- Use the intranet site as a method to reduce other mass employee communications, such as email, flyers, and bulletin board posters (as applicable).
- Design the intranet with tools to automatically convert the intranet content and presentation components to a mobile-compatible display format, so employees can use their smart phones and tablets to access the City’s intranet.
- Provide training for employees to access self-service capabilities as users. In addition, provide training for staff that needs to post content and provide self-service information to ensure they are able to post and maintain content regularly.
- There are many parallels between implementing an organization’s public facing website and implementing an internal organization-wide intranet. It is recommended that the City consider designing and building the intranet with the same tools and resources that were, and are used, for the City’s public website. The City’s existing website vendor, Vision, offers templates and structure for local governments. This will result in website/intranet tool costs savings and keep the knowledge and skills required consistent for City IT staff that will support the website and the intranet site.
- Implement practices and make the intranet a component of the Governance and Steering Committee responsibilities to ensure that the site is maintained regularly and remains relevant and up-to-date for the City’s employee community (see *IT Governance* initiative).

Benefits

- Reduction in miscommunication due to the use of a single-source communication location
- Electronic Documents (decrease in the need for physical documents, such as procedure manuals or paycheck inserts)
- Electronic Forms (decrease the need for physical employee forms)
- Increased employee productivity and collaboration
- Remote access to information when outside the office



68. Council Chambers Audiovisual Systems

Findings and Observations

- Council chambers audiovisual and lighting are older, but still functional.
- The system in use is an older three camera system
 - ◆ The primary camera located in the back of the room displays limited picture clarity when viewing the entire dais
 - ◆ Lighting systems are older and inefficient
- A third party is responsible for Council meeting cable TV feeds.
 - ◆ The third party validates that systems are working appropriately before each meeting
- The Council Meeting agenda and the audio/video for the meeting are not integrated
- The City collects Public Educational and Government Access (PEG) fees that can be used for Council Chambers audio/video improvements

Recommendations

- Utilize current or replacement document management system capabilities to integrate agenda items with audio/video
- Design and develop an RFP for replacement of audiovisual equipment and lighting systems in Council Chambers.
- Utilize PEG fund balance and PEG fees over time to keep improvements budget-neutral, if possible.

Benefits

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

69. Conference Room Audiovisual

Conference room audiovisual tools are used to enhance meetings, which include projectors, video conferencing software, smart boards, and other technology aids.

Findings and Observations

- Currently, conference rooms lack 21st century audiovisual capabilities.
 - ◆ As portable devices proliferate, demand for audiovisual capabilities will increase.
 - ◆ Wall-mounted monitors can provide very cost-effective audiovisual capabilities in smaller conference rooms.
 - ◆ Projectors are a good choice for larger rooms that will require a larger screen for full audience viewing.





Recommendations

- Each conference room should have nearly the same configuration.
- Similarities in configuration across all rooms allow for employees to go to any conference room and be familiar enough to quickly setup to conduct meetings with all the required technologies.
- A recommended AV design would include:
 - ◆ Large screen TV or LCD panel
 - ◆ Cabinet with PC connected to the network and LCD panel
 - ◆ Wireless keyboard and mouse to increase portability
 - ◆ Separate VGA & HDMI connections for laptops
- To control costs, a plan can be provided to update conference rooms over several years as the budget allows.

70. Video/Web Conferencing

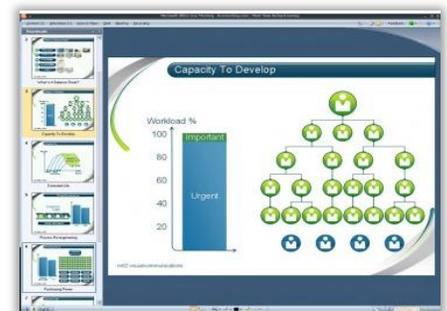
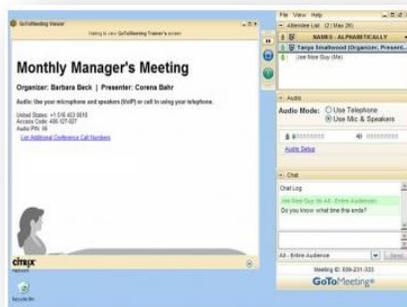
More users want a user-friendly approach to teleconferencing in the future. Web conferencing is being used more and more instead of face-to-face meetings and group training. Common Web conferencing capabilities also include:

- One-to-many
- Conference room meetings with video conferencing
- From an office or home site
- Classroom
- Conference room presentations
- Group meetings
- Simultaneously training multiple users in multiple locations with video and audio sharing of all locations

A few vendor examples including WebEx include:

GoToMeeting

- Screen sharing
- Application sharing
- Remote control
- Annotations
- Teleconferencing
- Web chat
- Recording



Office 365 – Skype for Business

- Presentation upload
- Screen sharing
- Application sharing
- Remote control
- Annotations
- Teleconferencing
- Web chat
- Recording

WebEx

- Presentation upload
- Screen sharing
- Application sharing
- Remote control
- Annotations
- Teleconferencing
- Web chat
- Recording



Recommendations

- Review current needs and number of users for each department.
- Research most cost-effective solutions for the organization.
- If the City migrates to Microsoft Office 365, consider its solution before other third-party vendors.
- Determine best overall solution, required users, and alternative costs.
- Conference rooms should be configured to support Web conferencing (see *Conference Room Audiovisual* initiative).

Benefits

- Reduced transportation costs
- Meeting recording and storage capabilities
- Effective remote control features
- Enhanced group training capabilities

71. Social Media Risk Management and Controls

Findings and Observations

A Social Media Policy is under final review by City Management. Implementation of the Social Media policy entails fulfilling City responsibilities for records retention and retrieval. Systems and procedures are required to properly ensure compliance with Public Records Act and other needs for audit trails and retrieval of Social Media records. Setting clear expectations for departments and employees can positively affect the organization's image within the community, as well as avoid embarrassment and legal liabilities.

Recommendations

- As a part of the implementation of the Social Media Policy, include systems to manage records retention and retrieval requirements
- If two-way blog posts are allowed, most municipalities monitor them every day.
- Software products that automatically update several social media outlets from the webpage are readily available and should be used to realize efficiencies.
- Consider potential social media integration opportunities with the organization's websites.
- Provide approval to employ a limited number of named social media sites subject to review by IT Committee and approved by management.
- Provide tutorial for employees who use social media to promote organization events and information.

Benefits

- Increased community involvement
- Improved public records access
- Enhanced communication
- Improved public relations
- Fulfillment of public expectations
- Increased promotion of business growth
- Mitigation of risk through education of staff on policy and practices



72. Mobile Computing

Findings and Observations

The 21st century has brought an increasing demand for time and resources. Because of the need for maintenance personnel, inspectors, code officers, general field employees, and other employees to work in the field or offsite, mobile computing technology relieves bottlenecks in obtaining information and producing reports necessary to perform their functions and meet these demands. By providing field and remote workers with the necessary equipment and software, they are able to:



- Interact with necessary applications and databases in real time
- View data or enter data in the field
- Interact with GPS and field devices
- Review, change, or request inspection and maintenance scheduling
- Remotely submit inspection and maintenance reports
- Respond quickly to requests and questions from the public

Such off-site capabilities offer:

- The ability to break the bonds of office facilities to complete work in the field
- Increased productivity and improved time management
- Centralized data that can be monitored in real time
- Improved accuracy and reporting
- Reduced paperwork and elimination of need to reenter data upon returning to the office

This is primarily a hardware and secure-wireless networking challenge, as software applications that use browser technology require no additional software. For software programs that are not browser-based, we recommend virtual desktop technology.

- Demand for remote access will continue to grow as staff becomes more portable.
- Access to mobile applications for smart phones and tablets will be a portion of remote access demand.
- The other major demand segment will continue to be remote access from laptops and desktops.

Some software solutions that are designed for specific field operations, such as maintenance work and inspections, may have smart applications (downloaded from an app store) or native-written mobile device modules. These software modules generally have less functionality than the full applications that are accessible from laptops or Toughbooks. One major advantage of these types of modules, however, is store-n-go technology, which allows a user to continue working on a record, even if they are disconnected from a cellular or Wi-Fi connection. Once the user is back in range with the cellular or Wi-Fi signal, the store-n-go capability recognizes the reconnection and updates the information in the background. Store-n-go functionality becomes even more critical if the jurisdictional/geographical service area does not have full cellular or Wi-Fi coverage. It should be noted that virtual desktop technology does not have Store-n-go functionality.

Return-on-Investment (ROI) Consideration

The Center for Digital Government (CDG) reports that one agency's wireless laptop-based inspection solution helped its land management division increase the number of daily



inspections. Another agency used laptops and electronic inspections to increase inspector efficiency by 30 percent, saving the agency approximately \$500,000.

A pilot mobility program in San Diego County helped the Land Use and Environment Group (LUEG) save \$130,000. Inspectors that participated in the project used mobile devices connected via a mobile VPN and were 31 percent more productive than before. They completed more inspections each day, and the agency was able to use less office space and fewer telephone landlines.

Recommendations

- Determine and inventory mobile/field computer needs by specific staff and department including the full-use and mobile applications needed in the field or for required remote access. These inventories should also be categorized based on the level of productivity and public service gains/benefits.
- Follow recommendations for mobile hardware recommended and supported by existing and future core business department applications (see *Enterprise Resource Planning (ERP) Replacement*, *Land Management System Replacement*, and *iWorQ Work Order Utilization Improvement* initiatives), such as inspections, work orders/maintenance management, and any other applications that involve field-based activity.
- Implement a mobile device management (MDM) solution early in the deployment cycle and integrate the MDM with inventory and Help Desk functionality.

Benefits

- Improved operations management
- Secure sharing of information
- Enhanced communication
- A more mobile and productive workforce
- Faster, well-informed decision making
- Real-time access to information from the field
- Increased ability for team members to communicate/collaborate from separate locations

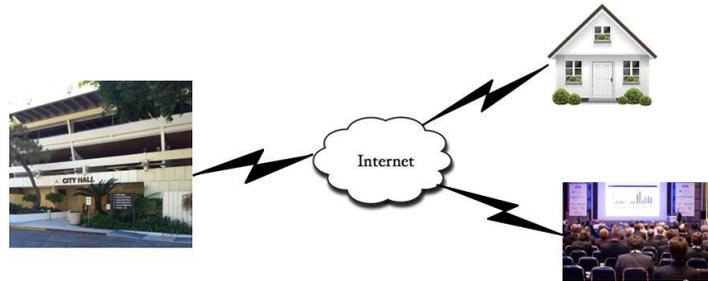


73. Employee Remote Access

Findings and Observations

The goal for key employees is to provide capabilities to allow them to maximize their productivity. This initiative is intended to address the fact that:

- Employees are often Mobile – Key employees may need to attend conferences or off premise functions in their normal course of duties. During these times they need to be able to perform many if not nearly all of the functions that they would perform when in their office or at their desk.
- Employee Hours are not always fixed – Key employees have responsibilities that often have due date and time sensitive requirements. This means they may need to perform work remotely (from home or elsewhere) to meet these time sensitive demands.
- Employees have Incidents that require flexibility – Key employees are like anyone else. A family matter or some other incident may create a temporary need to work while trying to deal with these other matters. The ability to allow these employees to have access key systems allowing them to ensure City operations continue to function is important if not critical.



Recommendations

- The above circumstances require that key employees are provided access remotely to critical applications (ERP, etc.). This will ensure that work continues, that productivity is maintained and that citizen services are not impacted. Employees that require this type of access should be identified and accommodations for them to have remote access should be made.
- Laptops should be the workstation of choice for these key employees. Their environments should be configured with docking station capabilities that will make it easy to connect when in the office and disconnect when leaving.
- This remote access needs to be provided under a secured environment including (VPN), see *Mobile Computing* initiative.

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

74. Desktop Computer Standardization
75. Office Software Upgrades
76. Computer Room/Data Center Improvements
77. Converged Network Design
78. Core Switch Replacement
79. IT Infrastructure Roles and Responsibilities
80. Structured Connectivity System
81. Create Best Practice Internet Connectivity (DMZ)
82. File Servers
83. Metropolitan Area Network (MAN)
84. Local Area Network (LAN) Upgrade
85. Network Redesign
86. Traffic Management System
87. Consolidated Radio Operations
88. Power Distribution Units/Computer Room Power
89. Storage Area Network (SAN) Implementation
90. Virtualization
91. Staff Wireless Network
92. Technology Support for the EOC
93. Redundant CAD/RMS System
94. Firewall Replacement
95. SQL Server Database Consolidation
96. Data Center Improvements
97. Body Cameras
98. Expand PD Wireless
99. CAD/RMS Assessment
100. MDCs
101. Workstations
102. VDI Terminals
103. Backup Software Maintenance
104. Microsoft EA
105. Cloud-Based Storage
106. Cloud-Based Storage Connectivity
107. Firewall
108. Maintenance for Software Applications
109. VMware
110. Servers
111. Switches
112. SAN





74. Desktop Computer Standardization

Findings and Observations

- An imaging platform to distribute applications to desktops is not currently utilized.
- *CLIENTFIRST* reviewed twelve desktop computers, and the configuration was not consistent.
 - ♦ Some desktops had IPV6 configured, which can create broadcast storms.
 - ♦ Local administrative rights are enabled on many desktops, increasing the risk of virus infection.
 - ♦ Not all antivirus updates are not centrally managed and properly functioning.
- Microsoft and other vendor patches are not centrally managed and distributed.
- A reliable inventory of all desktop and laptop computers does not exist.

Recommendations

- Develop a standardization checklist and inventory control document that can be completed for each desktop and laptop.
- Visit each desktop and laptop and standardize and document the configuration, and use the results as the basis for an updated inventory.
- Update antivirus management to properly manage all devices.
- Procure and install a patch management system, such as LanGuard or Microsoft SCCM to allow automated distribution of Microsoft and other vendor updates.
- The few remaining XP desktops and laptops running Windows XP should have their operating system upgraded to Windows 7 or 8.1, or be replaced with a new computer when the application software allows.
- Evaluate and procure a desktop imaging system.
 - ♦ Acronis has become our standard recommendation.
- Remove local administrator rights unless absolutely necessary for desktop application operation.
- Staff to prioritize potential dual-monitor implementations.
- All new PCs should be purchased with the ability to natively connect two monitors.

75. Office Software Upgrades

Findings and Observations

- Current desktop and laptop computers primarily utilize Office 2013.
 - ♦ Approximately twenty (20) computers utilize Office 2010.
- Office 2016 is in general release, and this Assessment was written using the product.
- Training on IT applications in general appears to be very limited across the organization.

Recommendations

- Standardize on Office 2013 and upgrade necessary computers to this version
- Budget for classroom training as a part of the Office 2013 upgrades.
- Probably best to skip Office 2016 and adopt the next version in a few years.



76. Computer Room/Data Center Improvements

Findings and Observations

- Police Department computer room improvements are underway.
 - ◆ Organizational and racking improvements have been made.
 - ◆ Cable management improvements have not yet been completed.
 - ◆ Fire suppression system installation is planned.
- In City Hall and Police Department computer rooms:
 - ◆ Grounding is not universally available.
 - ◆ Some residential grade power strips are in use.
 - ◆ Environmental and water alarms are not in use.
- At City Hall, all Teledata Closets have limited space for equipment and cabling.
 - ◆ Conduits throughout the City Hall facility are undersized, limiting future cabling flexibility.



Recommendations

- Continue improvements to the Police Department computer room.
- Add electrical ground and alert and alarming systems to all computer rooms.
- Add additional UPS and Power Distribution Units to better manage electricity.
- Increase the use of best practices cable management techniques to decrease intercabinet cabling.
- For fire suppression, consider:
 - ◆ Two-stage sprinklers that remove water from the room and provide additional time to avert accidental sprinkler activation.
 - ◆ Installation for an FM 200 or similar clean, fire suppression system.
- As a part of the Structured Cabling System upgrade, survey the Teledata closets and improve racking and cable management capabilities.
 - ◆ We believe that the limited conduit size in City Hall will limit the number of cables that may be installed, increasing reliance on wireless for growth and flexibility.

Benefits

- Improved productivity for IT Staff as a result of more space and better organization
- Increased environmental monitoring of temperature conditions
- Reduced application and network crashes
- Improved service assurance (uptime and reduced risk)



77. Converged Network Design

Findings and Observations

- The City is running two physically separate networks (separate data cabling and network switches) for its data and Voice-over-Internet Protocol (VoIP) communications
- Separate networks for voice and data increase complexity and costs by doubling the physical plant required to operate and maintain both systems
- A converged network, which is a single physical network with the ability to carry a combination of data, voice and video traffic, is a common feature of most corporate networks and is considered best practice

Recommendations

- Implement new Power-over-Ethernet Plus (PoE+) edge switches as part of the program to replace the edge switches that are past their end-of-life
- Redesign the MAN and LANs to allow for routing of VoIP traffic on a Virtual Local Area Network (VLAN) on the network distribution layer of the new converged network

78. Core Switch Replacement

Findings and Observations

- A core switch should be used to interconnect all City Hall servers and the network.
 - ◆ Existing core switches are not adequate for the City's current and future needs.
- Existing core switches have limited ability to support current bandwidth requirements.
- Physical redundancy does not exist.
- Additional network segmentation within the core switching environment will improve performance.

Recommendations

- Upgrade core network switching capabilities to resilient, 10 GB switches.
- Implement redundant core switching capabilities.
- Increase support for core switching infrastructure to 24/7.
- Procure one new core switch in the current budget year as a part of the server and backup project.
 - ◆ Procure a redundant core switch next budget year.

Benefits

- Unified network platform, improving functionality and reducing potential compatibility issues.
- Centralized management and visibility of network.



79. IT Infrastructure Roles and Responsibilities

Findings and Observations

- City IT staff perform non-PD Help Desk and management services.
 - ◆ Telephone system management and support was recently transferred from Finance to IT.
- Public works staff is responsible for the local and wide area data networks.
 - ◆ Public works staff is responsible for mobile data terminals in Fire apparatus, some radio support, and many electronic devices around the City.
- Police Department IT staff perform PD Help Desk services.
 - ◆ Police Department data networking and CAD/RMS infrastructure support is outsourced.

Recommendations

- Consolidate City, Police Department, and Public Works staff into a single IT function.
 - ◆ Continue to outsource PD network infrastructure support, as the current arrangement is working well.
- Utilize the existing IT Help Desk product throughout the City.

80. Structured Connectivity System

A *Structured Connectivity System* is a complete set of cabling and connectivity products that integrate voice, data, and other technology systems into a comprehensive infrastructure.



Findings and Observations

- Communications system patch panels, wiring blocks, and faceplates are not labeled in a reliable manner, and/or in some cases, are not labeled at all.
- Quantity of data/voice jacks deployed at work area locations is not consistent.
- Copper horizontal cabling system is comprised of different cable types with varying bandwidth capabilities, mostly Category 5 (100 Mbps), with some Category 5e (1 GB) cabling.
- Fiber-optic backbone system between City Hall and Police Department is multi-mode and provides limited room for growth.
- Equipment racks and cabinets are not sized properly for current and future growth. Additionally, appropriate patch cord management is deficient.
- Equipment racks and cabinets are not properly fastened to floors and walls.
- Equipment racks and cabinets are not grounded.
- Communications wiring rooms are not adequately sized for current and future growth. Additionally, many spaces do not have sufficient cooling, power, and/or emergency backup equipment.
- As-built record documentation related to horizontal and backbone communications system does not exist.

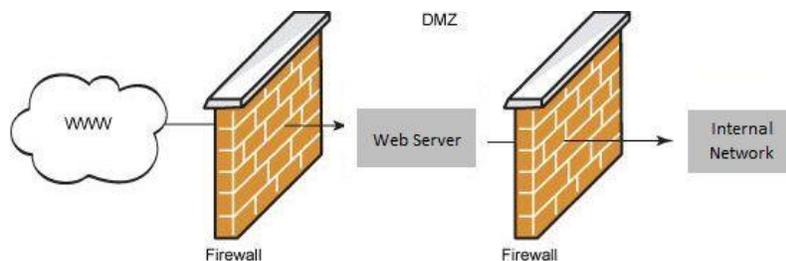


Recommendations

- City should develop an RFP for a complete replacement of Structured Cabling System (SCS).
 - ◆ An updated SCS will be required before high-speed data networking or Voice-over-IP (VoIP) can be implemented to the desktop.
- As a part of the RFP process, the City should develop a Structured Cabling System (SCS) Standards Document. This document will be used to support ongoing needs of the City as it relates to maintaining the existing SCS, and can also be provided to architects and/or contractors as part of construction specification for future projects. SCS Standards Document should have the following as its goals:
 - ◆ Implement a non-proprietary cable infrastructure system supporting multi-vendor equipment and services.
 - ◆ Provide reduced cost for future cable installation, support, and management.
 - ◆ Maintain consistency providing reduced training requirements for employees.
 - ◆ Improved troubleshooting and support for ongoing management/maintenance.
 - ◆ System based on recognized industry standards (ANSI, TIA/EIA, IEEE and BICSI).
- Develop and implement a unified labeling system.
- Provide suitable patch cord management system at equipment racks and/or cabinets.
- Begin documentation process for as-built record system management.

81. Create Best Practice Internet Connectivity (DMZ)

A Demilitarized Zone (DMZ) is the area of a network that is accessible to the public. This area is separate from an internal network that is used only by internal staff. DMZs are utilized to maintain online services used by the public, such as viewing the website or online applications (i.e., license renewals, online permitting, online utility billing information, online payment transactions, applications, and other online public inquiries).



Findings and Observations

- Security policy outlining DMZ and external to internal network connections has not been created by the City.
- A DMZ does not exist to proxy applications between the Internet and the City's internal network.
 - ◆ DMZs are best practice security tools used to create an additional layer of security between the Internet and an internal network.
 - ◆ Email Services, such as OWA and mobile services, exist internally.
 - ◆ VPN Services exist internally on the network.



Recommendations

- Develop security policy, including a section outlining external to internal connection security.
- Create a DMZ using one of the field office small file servers running virtualization to provide for growth.

Benefits

- Improved security and management
- Proper segmentation of publically accessible resources for external to internal network connections

82. File Servers

Findings and Observations

- The existing file servers, disk storage, and network operating systems are obsolete and no longer supported.
- A third party provides management and support for the server environment and local and cloud-based backups.
- A request for proposals (RFP) has been developed to procure a replacement system and expand it to include a new core switch and Disaster Recovery capabilities.

Recommendations

- *CLIENTFIRST* has been working with staff to facilitate the above mentioned RFP.
 - ◆ We recommend procuring the necessary equipment and installation services as soon as possible.
- We recommend a resilient virtual server environment, local and cloud-based backups, and the ability to recover servers on-site or in the cloud.
- Implement an enhanced storage area network for disk storage for the server environment (see *Storage Area Network (SAN) Implementation* initiative below).
- Implement a Capital Replacement Plan to replace servers and storage on a regular, best practices-based schedule.

Benefits

- Elimination of unexpected space availability
- Better management of data retention and management
- Improved availability for storage and access to user community

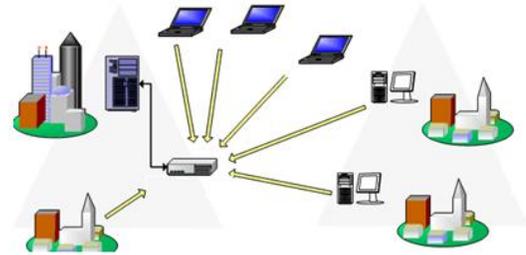


83. Metropolitan Area Network (MAN)

A *metropolitan area network (MAN)* is a network that typically spans multiple city facilities. Normal MANs interconnect multiple local area networks (LANs) to allow for better communication among organizations where a physical presence cannot be accommodated.

Findings and Observations

- City Hall campus is interconnected using private fiber.
- Other sites are connected to City through wireless and radio.
 - ◆ Many of these devices are not covered by maintenance agreements.
- MAN speeds vary by site, but are generally slow. Slow network speeds affect staff productivity by increasing application response time. Slow network speeds may be related to reported voice call quality issues.



Recommendations

- Document all interbuilding connectivity and inventory all MAN equipment.
 - ◆ Procure maintenance agreements for all equipment currently supported by the manufacturer.
- Review the current configuration and develop a long-range strategy to upgrade speed and reliability.
 - ◆ Consider fiber-optic connectivity where feasible.
 - ◆ Consider reducing or eliminating single points of failure.
- Consider utilizing existing City Hall and Police Department Internet connections to create resiliency.



84. Local Area Network (LAN) Upgrade

A *local area network (LAN)* is a group of interconnected computers that span a building using Ethernet cables or Wi-Fi as a means of communication. A LAN allows only permitted users access to the network and use resources and applications assigned to them. LANs are very common due to their small size, low maintenance, fast speeds, and basic complexity.

Findings and Observations

- The City currently has a mixed deployment of switching hardware.
 - ◆ The main network switch platform is HP.
- The majority of switches are end-of-life and end-of-service.
- Virtual LANs are not defined in a best practices manner for data networking or VoIP.
- The City does not have centralized management software to configure switching and routing equipment.
- There is not a patching schedule or deployment templates for new or existing switches; The City would like to establish a bi-monthly deployment schedule for all switches, firewalls and routers.
- No network monitoring system in place to monitor traffic and health of network hardware.



Recommendations

- Replace switches that are end-of-life and standardize on HP
- Implement provided VLAN design.
- Utilize a Subject-Matter Expert (SME) for a minimum of design and peer review to validate best practices installation.
- Plan future switch upgrades as a part of capital replacement cycle.

Benefits

- Improved network performance and reliability
- Increased security on network and resources
- Reduction in costs associated with replacements and failures
- Ability to establish an internal SLA (99.9% would be standard for local government)



85. Network Redesign

Findings and Observations

- The City's data network grew organically.
- Staff was not trained in network design or configuration.
- Limits in cabling and funding caused work-arounds and quick fixes that are expensive to maintain.
- The City Hall and Public Works data networks are not ready to support VoIP protocol.
- Network documentation does not exist.
 - ◆ Unnecessary and unsupported devices were located on the network.

Recommendations

- Develop a network diagram and normalize the network.
 - ◆ Eliminate all non-IT supported wireless access points and switches.
 - ◆ Eliminate all non-managed switches that are located outside of the Teledata Closets.
- Implement new Power-over-Ethernet Plus (PoE+) edge switches as part of the program to replace the edge switches that are past their end-of-life.
 - ◆ Implementation is dependent on structured cabling system improvements
- Redesign the MAN and LANs to allow for routing of VoIP traffic on a Virtual Local Area Network (VLAN) on the network distribution layer of the new converged network.
- Utilize an experienced third party for design and installation assistance.
- Train staff to provide ongoing maintenance and support.



86. Traffic Management System

The City's traffic management system controls all City-owned traffic signals (excluding State Highways). Adjustments to traffic signal schedules are made as necessary based on traffic patterns and other issues, including construction projects, City events, emergencies, and other special cases.

Findings and Observations

- The current City traffic management system is interconnected using copper cabling (via Ethernet).
 - ◆ The system is called TransSuite, from a company called TransCore.
 - ◆ TransCore updates the system over the Internet on a regular basis.
 - ◆ The copper cabling used to communicate with the traffic signals is old and deteriorating.
 - ◆ There have been instances of failure due to this cabling deterioration, and breaks are hard to find and repair.
- Most current generation traffic management systems are either:
 - ◆ Fiber-optic based, allowing for high-resolution video of traffic situations, in addition to control of the traffic signal.
 - ◆ Wireless, allowing for control of the traffic signal (and low resolution “snap-shot” video, if desired by the City).
 - ◆ The existing TransSuite system can be updated to run on fiber or wireless.
- Many other communities we work with have received state grants to install fiber-optic-based traffic management systems.
 - ◆ Fiber-optic systems can often be extended to incorporate inter-building connectivity at minimal additional cost.

Recommendations

- Explore state grants for fiber-optic-based traffic management systems to fund the upgrade to fiber-optic or wireless.
- Investigate wireless alternatives for traffic management.
 - ◆ Implement wireless traffic management connectivity, if state funding cannot be obtained for fiber-optic connectivity.
- Implement the upgrade per recommendations made in the *Project Planning and Implementation Best Practices* initiative.



87. Consolidated Radio Operations

Findings and Observations

- The existing radio system is no longer available, but continues to be supported.
- The current radio system does not communicate well.
 - ◆ Ongoing maintenance and support of the radio system has been limited.
 - ◆ Existing radios are not configured consistently.
 - ◆ Integration with the ICIS system of neighboring agencies has been lacking due to ICIS implementation issues.
 - ◆ Upcoming integration with LA County radio (LARICS) will require additional support.
- Radio features have been purchased and have never been implemented.
 - ◆ The Emergency Button for Police alarms has not been configured on all radios.
 - ◆ The inventory of radios assigned to officers is not regularly maintained.
- Other departments would like to leverage radio features, but have not been able to do so.
 - ◆ Push-to-talk is an available radio feature that has not been implemented.

Recommendations

- Develop an ongoing preventative maintenance program for all City radios.
- Coordinate responsibility for PD radios, radio features, and integration with other agencies with the newly hired Police Communications Manager and radio maintenance staff.
- Assess and identify all features that other radio user departments would like to see incorporated, and develop an improvement schedule.
- Inventory existing radios, and develop a capital replacement plan.
 - ◆ Investigate grants for replacement of radio systems.
- Improve integration with neighboring communities.

Benefits

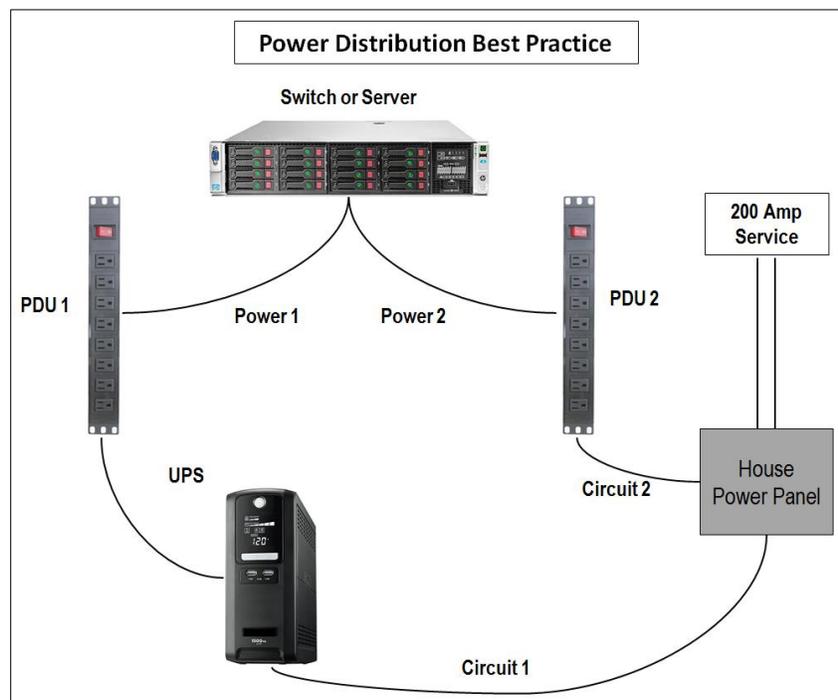
- Improved public safety
 - ◆ Better integration with neighboring community public safety organizations



88. Power Distribution Units/Computer Room Power

Findings and Observations

- Some computer room electric power sources utilize UPS systems, while other servers are plugged directly into generator-driven power outlets.
 - ♦ Generators have been known to create power spikes and brown-outs that decrease the life of attached equipment.
- Power distribution units (PDUs) are used within the computer rooms of most organizations to control and monitor power to particular network devices, such as servers and switches.
- PDUs can extend the life of network hardware by utilizing power more efficiently.
- PDUs can be used to monitor and remotely control power distribution to computer infrastructure equipment.
- The City utilizes PDUs in most cases, in the City Hall and Police Department computer rooms.
- The PDU units that are in place are not advanced enough to support Best Practices monitoring and management functions.



Recommendations

- Budget for additional UPS capabilities as a part of the data center remodeling project.
- Budget for and implement PDUs within the City Hall and Police Department computer rooms.
- Consider procuring network management software for the UPS.
- Create battery and PDU replacement cycle.



Benefits

- Improved support for electronic devices
- Improved management and monitoring capabilities
- Longer-lasting equipment
- Reduce cost in replacement of failed hardware

89. Storage Area Network (SAN) Implementation

Storage area networks (SANs), or the use of shared storage using a data communications infrastructure, provide several unique benefits over direct attached storage, including: scalability, centralized management, and increased disk utilization. SANs became increasingly popular with the advent of the Fibre Channel (FC) standard in 1994. The IP SCSI (iSCSI) storage networking protocol was standardized in 2004 and is generally considered to be easier to manage and less expensive than Fibre Channel. iSCSI is slightly slower than Fibre Channel, but ease in manageability makes iSCSI the right choice for most small- to mid-size organizations.



Findings and Observations

- The City SAN is obsolete and has limited functionality.
- Some servers utilize the SAN, while others utilize local storage.
- The current environment creates lower disk utilization and increases operational costs.
- When compared to Fibre Channel SAN, the advantages of iSCSI SAN (manageability) outweigh its disadvantages (speed), especially in the relatively small environment in which the City operates.
- A replacement SAN is included in the network infrastructure RFP.

Recommendations

- Procure an iSCSI-based SAN as a part of the current RFP process
- Note: Best practice for iSCSI SAN includes the implementation of dedicated SAN switches.
- Utilize third-party SMEs for design, procurement, and installation.

Benefits

- An enhanced SAN will enable the City to more fully utilize a VMware virtual server environment.
- An enhanced SAN will provide many benefits for VMware, including centralized management, failover, and load balancing.

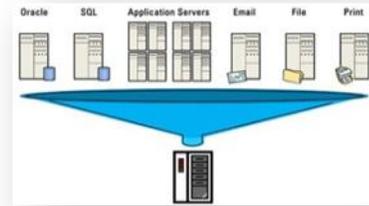


90. Virtualization

Hardware virtualization refers to the creation of a virtual machine(s) that acts like a real computer with an operating system. Software executed on a virtual machine is separated from the underlying hardware resources. Virtualization enables servers to be easier to implement and less costly to own and manage.

Findings and Observations

- Server virtualization has been limited.
 - ◆ IT staff is actively working to virtualize servers.
- There are many legacy servers in productions which are two or three generations behind.
- A capital replacement plan does not exist.



Recommendations

- Create a capital replacement plan for existing servers.
- Continue to virtualize servers.
- Utilize advanced virtualization management to increase server resiliency.
- Establish active Simple Network Management Protocol (SNMP) monitoring and logging.
- Enable additional features on virtual environment:
 - ◆ Fault Tolerance
 - ◆ Network Interface Bonding
 - ◆ DR and Failover Services

Benefits

- Reduced data center space needs
- Reduced power requirements
- Improved failover and reliability



91. Staff Wireless Network

Findings and Observations

- City utilizes various unmanaged wireless devices for Wireless LAN (in-building wireless).
 - ♦ The wireless access points will be at least two generations behind by the time this report is published.
 - ♦ Unknown wireless access points were discovered on the network.
- Due to physical limitations at City Hall, over the long run, staff may be more dependent on wireless than at peer Cities.
- Cloud-based control of wireless is becoming the new standard.
 - ♦ Cloud-based wireless controller would eliminate the need for a controller and reduce support costs.
- The City does not currently utilize a wireless “splash page” outlining terms of use.



Recommendations

- Survey existing wireless at each facility, and identify and document all wireless access points.
 - ♦ Remove any unknown or rogue access points.
- When refreshing the wireless infrastructure, develop an open RFP, and evaluate cloud strategies from multiple vendors.
- Provide secure guest wireless for authorized contractors and visitors
 - ♦ Add a “splash page” to the guest wireless sign-on process.

Benefits

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



92. Technology Support for the EOC

Findings and Observations

- The Police Department is currently remodeling and improving the EOC.
- City's Emergency Operations Center (EOC) does not have sufficient technology to function optimally in large-scale emergency. Existing technology includes:
 - ◆ Voice-over-Internet Protocol (VoIP) phones
 - ◆ Cable TV and a large, flat-panel TV/Monitor
 - ◆ Limited wireless network
 - ◆ Available backup Internet
 - ◆ ePrint for mobile devices

Recommendations

- Add additional wireless capabilities to provide high-speed support for up to 20 individuals or 60 total devices.
- Conduct a study of EOC needs, and provide budget for recommended improvements accordingly.
 - ◆ Budget for additional EOC technology improvements in future years.
- Include EOC equipment in the Capital Replacement Plan.

Benefits

- **Alignment with Disaster Recovery Plan**
- **Support for Incident Command System**
- **Event Information Tracking**
- **Coordinated support for emergency responders**
- **Basis for communication to the public during local incidents and for recovery activity**

93. Redundant CAD/RMS System

Findings and Observations

- A Radius & ISP Management Server (RIMS) server is the platform for the Computer-Aided Dispatch (CAD) and Records Management Systems (RMS) that support the City's Public Safety departments.
- The City has only one RIMS server in place for the City's CAD/RMS environment. A redundant, secondary server, in a physically separate location, is a best practice to provide critical public safety applications functionality in the event of a failure of the primary server.

Recommendations

- Budget for the purchase and implementation of a secondary RIMS server and associated network systems, and make arrangements for the installation of this server in a separate location.
 - ◆ Test failover to the second server on a regular basis.



94. Firewall Replacement

Findings and Observations

- Currently, the City utilizes a Cisco ASA firewall.
 - ◆ It is expected that the current firewall will be supported by the vendor for two more years
- The firewall service is leased and not directly under City control
- The City does not have Intrusion Protection and other advanced antivirus, anti-malware, and anti-intrusion subscriptions enabled.
- E-mail is scrubbed by a 3rd party vendor before reaching The City's mail server.
 - ◆ There is not currently an internal anti-virus product running on Exchange

Recommendations

- Procure and install the advanced threat package sold by Cisco for the main firewall.
 - ◆ The product will include Intrusion Prevention Systems (IPS), anti-malware, and content filtering.
- Procure and install a distinct antivirus product for the Exchange server.
 - ◆ We often recommend Trend-Micro's exchange engine.

Benefits

- Improved security and reduced risk of viruses
 - ◆ If the City does get an infection, an antivirus engine on exchange could prevent its spread.
- Content filtering reduces risks related to inappropriate staff use of the Internet



95. SQL Server Database Consolidation

Findings and Observations

- The City utilizes the Microsoft SQL Server database management system for several applications.
 - ♦ The City has three or four SQL servers today
- The proposed future enterprise application implementations will likely require an SQL Server database.
- Deploying a unique, standalone instance of SQL Server for each individual application will lead to multiple versions of SQL Server, limited centralized database management, and unnecessary additional physical or virtual servers.

Recommendations

- Consider budgeting for and implementing SQL Server at the newest version supported by each software application.
- Implement the upgraded SQL Server database management system on a virtual server in the new, upgraded VMware environment.
- Migrate the database to the new version of SQL Server for applications that are currently in use, such as Sire.
 - ♦ Revise backups, as appropriate.
- Implement all future applications using the centralized SQL Server database.



PD Improvements

The City indicated that no descriptions are necessary for the following IT initiatives:

| Initiative |
|------------------------------|
| 96. Data Center Improvements |
| 97. Body Cameras |
| 98. Expand PD Wireless |
| 99. CAD/RMS Assessment |



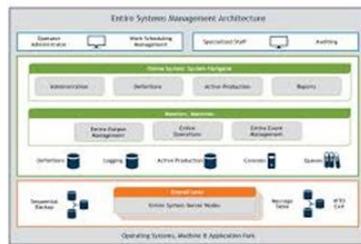
Public Safety Capital Replacement Plan

The City indicated that no descriptions are necessary on the following IT initiatives:

| Initiative |
|--|
| 100. MDCs |
| 101. Workstations |
| 102. VDI Terminals |
| 103. Backup Software Maintenance |
| 104. Microsoft EA |
| 105. Cloud-Based Storage |
| 106. Cloud-Based Storage Connectivity |
| 107. Firewall |
| 108. Maintenance for Software Applications |
| 109. VMware |
| 110. Servers |
| 111. Switches |
| 112. SAN |

IT Operations refers to the daily support and maintenance of all IT infrastructure and user support.

- 113. IT Policies and Procedures
- 114. Desktop Management
- 115. Help Desk Ticketing System
- 116. Imaging Software Tool
- 117. IT Automation Tools (Patch Management, Packaging Changes)
- 118. Mobile Device Management
- 119. Asset Management Automation
- 120. Network Management Tools (Alerts/Alarms)





113. IT Policies and Procedures

Findings and Observations

The City IT Division has an Acceptable Use policy, but does not have any other IT-related policies. The City expressed the desire to expand and tighten policies. They also want to ensure policies are in place to protect the organization.

Recommendations

- Revise the Acceptable Use policy, and create a limited number of IT policies and procedures, including, but not limited to, the following:
 - ♦ IT Security Policy
 - ♦ Remote System Access
 - ♦ Password Policy
 - ♦ Security Awareness Training Policy
 - ♦ Web Filter Exceptions
 - ♦ Electronic Information and Email Retention Policy
 - ♦ Computer Security Incident Response Policy
- Utilize the IT Steering Committee to review policies and procedures and facilitate communication throughout the organization.

114. Desktop Management

The concept of *desktop management* refers to the comprehensive approach to managing all computers within an organization, including laptops and other devices. Tasks include installing and maintaining hardware and software, setting up spam filters, and providing user permissions. As security-related tasks have increased over the years, desktop management is also providing more patch management (code changes), corrections against viruses and spyware, and controlling greynet applications (programs installed without permission).

A desktop management (DM) interface is a framework for managing and keeping track of the hardware and software components of an organization's computers.

Findings and Observations

- Currently not utilizing a desktop management system.
 - ♦ Desktop management will become less important, over time, as the City moves to Virtual Desktops.
- Centralized patch management and distribution is not implemented.
 - ♦ Centralized patch management can reduce Internet bandwidth utilization significantly.
- Staff is utilizing manual and redundant processes to maintain desktop environment which is very time-consuming and inefficient.



Recommendations

- Implement WSUS while evaluating enterprise desktop management products.
- Implement an inexpensive desktop management solution to provide patching for products other than Microsoft. Note: since the initial writing of this report, the City now uses GFI (now ThreatTrack Security) VIPRE Business Premium which includes integrated patch management for commonly used non-Microsoft products.
- Standardizing hardware and software platforms provides the following:
 - ◆ Reduced spyware infections
 - ◆ 30% reduction in Internet bandwidth usage
 - ◆ Reports summarizing PCs that are not updated
 - ◆ Increases distribution of antivirus updates
 - ◆ Reduced time spent managing virus protection

115. Help Desk Ticketing System

Help Desk systems provide an easy way for users to submit requests. IT Staff can assign tickets. The automated electronic, mail-based communications included in Help Desk systems can allow users to track the progress of their tickets as IT Staff updates the status. Help Desk systems prevent items from “falling through the cracks” by logging all requests. Another key benefit of Help Desk ticketing systems is metrics related to the number of requests submitted, resolved, and remaining open.

Findings and Observations

- The City utilizes Spiceworks as a Help Desk ticketing system only for non-PD-related desktop and laptop problems.
 - ◆ Spiceworks is a “shareware” product that is free and supported by the Spiceworks community
- Help Desk is not implemented in the following areas:
 - ◆ PD desktop support
 - ◆ Public Works device and network support
 - ◆ Phone system and telecommunications support

Recommendations

- A more robust Help Desk ticketing system should be utilized to track all IT staff productivity and service.
- Metrics related to meeting Help Desk service levels should be developed and tracked on a weekly and monthly basis.
- Each month, summaries of Help Desk tickets opened and closed should be presented to the IT Steering Committee.
 - ◆ IT Steering Committee members should be prepared to discuss any Help Desk issues or festering problems during the monthly meeting.

Benefits

- Central ticketing system
- Availability to many users
- Increased resolution rates
- Support for all devices



- Improved user communication, experiences, and satisfaction
- Better diagnostics and problem identification

116. Imaging Software Tool

Most successful IT departments utilize an imaging tool to quickly populate PCs with a basic package of applications. Many of these tools can also track inventory, create packages of updates for download, and perform other PC support tasks.

Findings and Observations

- The City is currently not using an imaging tool for new equipment or re-imaging.
- The City utilizes a hard-drive duplicator to image new computers.

Recommendations

- IT staff should evaluate and procure an imaging tool, such as Acronis, for creating new images and re-imaging equipment.

117. IT Automation Tools (Patch Management, Packaging Changes)

Findings and Observations

- Patches and security updates are performed manually.
- Patches are not pushed to a “sand box”, including PCs from various departments.
- Staff does not currently have access to patch management forums.
- Without a comprehensive patch management solution in place, individual servers, PCs, and laptops may not receive important security updates, which exposes the City to security risks.
- Server patches occur periodically, but not on a regular schedule.
 - ◆ With a staff of three, dedicating off-hours time to server patching is difficult.

Recommendations

- IT staff should evaluate and purchase a patch management solution, such as GFI LanGuard or Microsoft Systems Center for desktops and servers.
- Create a Best Practices patch deployment methodology that includes a small subset of desktop deployments to verify patch performance before full deployment.
- Solarwinds or What’s Up Gold can perform the same services for patch and configuration management on network equipment.



118. Mobile Device Management

Mobile Device Management (MDM) is software that allows management, distribution, usage, and maintenance of laptops, tablets, and smart phones. Additional features allow configurations to be implemented on devices to discourage wrongful use and reduce individual device maintenance.

Findings and Observations

- MDM provides the ability to see and control all mobile devices entering the enterprise, whether they are provided by the City or are part of a Bring Your Own Device (BYOD) program.
- The IT Division currently supports less than twenty (20) mobile devices, including laptops, smart phones, and tablets.



Recommendations

- Research, pilot, and select Mobile Device Management software.
 - ◆ Products that integrate with the Help Desk system or inventory system should be given top priority in any evaluation.

Benefits

- Improved staff efficiency and mobility
- Support for all devices
- Less time manually managing and monitoring
- Increased use of remote access
- Easier distribution of software



119. Asset Management Automation

Asset Management Automation is a system for maintenance and asset management functionalities, which include asset management, inventory, deployment, and security patch management. The automation features allow reduced manual processes, allowing more efficient processing and monitoring of activities.

Finding and Observations

- Staff utilizes Spiceworks on a limited basis for inventory creation.
- Asset management (the tracking of purchase date, maintenance contracts, and inventory information) is not currently implemented.

Recommendations

- Utilize Spiceworks (shareware) asset management system, initially.
 - ◆ Expand Spiceworks to include assessment management tracking.

Asset Inventory Management

The image displays three screenshots from the Spiceworks software interface. The top-left screenshot shows a 'Reporting Period' summary for 'NetOffice' with a 'Report Generation Date' of 6/16/2008 11:30:32 AM. It lists 'Operating System' and 'Software' counts. The top-right screenshot shows a similar report for 'NetOffice' with a 'Report Generation Date' of 6/16/2008 11:29:52 AM, listing 'Software' and 'Hardware' counts. The bottom-left screenshot is a detailed table of configurations for various devices, including columns for device name, IP address, and software versions. The bottom-right screenshot shows a list of hardware assets, including 'ATI Display Driver', 'SAMSUNG Network Connections 2.2.A.36.A', and 'SAMSUNG P80 Network Connections 2.2.A.36.A', with columns for device name and status.



120. Network Management Tools (Alerts/Alarms)

Network management is the general term used for the activities, procedures, and tools that relate to the operation, administration, provisioning, and maintenance of computer network systems, effectively keeping the network up and running smoothly, while also monitoring the system to quickly identify potential problems.

Findings and Observations

- The City does not utilize a network management tool for alerts and alarms.
- The City does not currently maintain a baseline of bandwidth utilization.
 - ◆ This baseline is very valuable in justifying bandwidth upgrades.
 - ◆ Bandwidth utilization is also a critical component in troubleshooting slow response times.
- IT does not use a comprehensive tool for monitoring alerts and analysis of performance data from routers, switches, servers, and other Simple Network Management Protocol (SNMP)-enabled devices.
 - ◆ Some alerts and alarms are precursors to failure.
 - ◆ Others provide IT with early notification of failures.
 - ◆ Monitoring can provide IT 24-hour notification to problems, even if users are not present.
- Network management software can also provide availability metrics for IT applications.
- In many cases, will notify IT of problems before user community notices.
 - ◆ Moves IT from reactive to a more proactive posture.

Recommendations

- Procure and implement a network management system that can provide alerts and alarms across the enterprise (i.e., Solarwinds, What's Up Gold, etc.)
- Provide for the development of baseline bandwidth and usage measurements.
- Create alerts and alarms to notify staff before a failure.
- Provide justification for bandwidth and/or performance upgrades.
- Develop a matrix of triggers for various devices (e.g., server disk space, bandwidth utilization percentage, etc.)
- Implement matrix values and adjust.
- Develop bandwidth utilization baseline over time.
- Develop availability metrics for applications and systems.

Benefits

- Less time manually managing and monitoring
- Increased utilization
- Increased resource access
- Centralized access to multiple applications and platforms
- Early warning capability, allowing for intervention and incident avoidance

Network Management

- Network Device Monitoring
- Performance Monitoring
- Bandwidth Monitoring
- Firewall Management
- Router/Switch Management
- Proactive Monitoring
- Threshold Customizations
- Altering
- Network Interface Stats

IT Security refers to all security systems and practices, including disaster recovery, to protect systems and data.

- 121. Disaster Recovery Planning
- 122. Backups
- 123. IT Security Review
- 124. SCADA Security
- 125. Virus Updates
- 126. Two-Factor Authentication
- 127. Records and Data Retention – Email Archiving





121. Disaster Recovery Planning

Findings and Observations

- A Disaster Recovery plan is not currently implemented.
- Based on a tour of City facilities, a good candidate was not found for a secondary data center for disaster recovery planning.
- Service-level agreements (SLAs) are not in place for recovery of application in the event of a disaster.

Recommendations

- Develop a Disaster Recovery Plan and strategy.
- Consider two disaster recovery scenarios when developing strategies:
 - ◆ Loss of main computer room
 - ◆ Major disaster eliminating all area communications, the Administrative Offices, and IT infrastructure
- Consider cloud-based disaster recovery for non-public safety systems.
- Evaluate applications portfolio and determine the SLA for each application for restoration.
- Develop strategies for restoration of high-priority applications.
 - ◆ Begin to implement, based on strategy and application priority.
 - ◆ Test portions of plan each year.



Benefits

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



122. Backups

Findings and Observations

- Backups are included in the existing agreement for server infrastructure management.
- Backups are made to disk and then copied to the cloud.
 - ◆ Cloud-based recovery has not been tested.
- The City does not have sufficient equipment to test a full system restoration.



Recommendations

- Backup system replacement is included in the current server infrastructure RFP.
- When possible, test full system restoration.
 - ◆ Test full restoration of a major data base or system every six months, at a minimum.

123. IT Security Review

An IT Security Review is a complete review of IT assets and the development of recommendations for improvements to security-related policies, security systems, physical security, servers, workstations, laptop security, and compliance with existing policies and procedures. The focus of an IT Security Review is on the security of the IT infrastructure, including the physical computer room(s) and environment, data network, file servers and backups, desktop PCs, laptops, and disaster recovery.

Findings and Observations

- IT Staff members made the following observations which are considered security risks:
 - ◆ Network documentation is not available
 - Network device hardening has not occurred
 - ◆ VLAN configuration and functionality is not defined.
 - ◆ Weak username and password requirements are currently in place.
 - ◆ No password refresh policy exists.
 - ◆ Local administrative rights are available on many desktops.
- *CLIENTFIRST* conducted an external penetration test.
 - ◆ Findings were generally good.
 - ◆ Security-related issues were mainly related to Internet-facing traffic-system devices.
- An Internet penetration test was not feasible, because most internal systems are obsolete.



Recommendations

- Utilize best practices for network security as a part of the network redesign.
- Implement other changes, as specified, to improve security.
- Redesign and implement IT security as a part of the Active Directory upgrade implementation.
- Develop security policies and procedures, as recommended.
- Upon completion of the above recommendations, conduct a third-party IT Security Review.

Benefits

- Improved performance and efficiency
- Meet compliance requirements and industry best practices

124. SCADA Security

Findings and Observations

- The City does not utilize a supervisory control and data acquisition (SCADA) system for waste water device management.
 - ◆ Public Works has stated a desire to acquire such a system.

Recommendations

- When procuring a SCADA system, implement firewalls between all SCADA networks and the administrative network.
- Implement two-factor authentication (i.e., “something you have, plus something you own”) when providing remote access to SCADA.

References

- NIST SP 800-82, Guide to Industrial Control Systems (ICS) Security

125. Virus Updates

Findings and Observations

- Antivirus updates occur on most systems, but they are not centrally managed.
- Anti-malware and intrusion prevention and detection systems are not in use.

Recommendations

- Procure and implement an anti-malware product on all desktops and laptops.
- Procure and implement intrusion prevention and detection systems in conjunction with the firewall.
- Procure and implement additional antivirus scanning from a separate vendor for Exchange.



126. Two-Factor Authentication

The need for both increased information sharing and access to government data networks creates new requirements to certify confidence in the identity of the individuals accessing information. To meet these new requirements, many agencies at all levels of government are using a strategy known as “advanced authentication” or “two-factor authentication”. This approach supplements traditional username and password authentication with alternative forms of verification based on a user’s physical characteristics (such as a fingerprint) or an object in the user’s possession (such as a smart card or a token).

Findings and Observations

- Two-factor authentication is a network protection strategy based on the principle of defense-in-depth.
- Two-factor authentication is not currently implemented.
- Federal Bureau of Investigation (FBI) systems Criminal Justice Information Services (CJIS) Security Policy (Version 5.2) requires advanced authentication methods for remote access to all systems that contain Criminal Justice Information (CJI) beginning September 30, 2014.
- The CJIS mandate includes access to data from City police vehicles or any location that cannot be physically secured.
- Other systems that the City maintains that should use advanced authentication for remote access include electric, water, and wastewater utility supervisory control and data acquisition (SCADA), HVAC/building control systems, and IT system administration.

Recommendations

- Budget for and implement two-factor authentication for remote access to SCADA systems and for IT staff remote network access.

Benefits

- Enhanced security and compliance.



127. Records and Data Retention – Email Archiving

Findings and Observations

- Electronic records retention durations should mirror paper records and data retention durations.
 - ♦ As with paper records, timely destruction is important.
- Detailed records classifications and retention guidelines are maintained by the City Clerk's Office.
- A policy for email retention is not in place.
- Email records are retained in three places:
 - ♦ Monthly CDs from the existing Email system
 - .PST files
 - Web-based email accounts
- Records retention is not applied to backup tapes.

Recommendations

- Purchase an electronic mail archive appliance and combine all types of email archives into that device.
 - ♦ We often recommend Barracuda Mail Archiver.
- Inventory all forms of electronic records storage at the City.
- Work with the Clerk's office to develop procedures for electronic records retention for the various record types.
- Implement procedure for records retention and subsequent destruction of electronic records.

Telecommunications is an important 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.

128. VoIP Phone Replacement





128. VoIP Phone Replacement

Voice-over-IP (VoIP) technology uses an Internet connection to accommodate calls. It is highly reliable and fast when compared to conventional telephone systems, and is an accepted communication standard. Benefits include reduced costs, ability to easily change numbers as needed, and increased features and support. VoIP hardware upgrades can occur automatically and seamlessly.

Findings and Observations

- The existing telephone system is obsolete and no longer supported.
 - ◆ Parts for the existing system may only be procured through eBay.
- Current-generation VoIP systems are in use at the Senior Center and Community Center.
- The existing voicemail system is obsolete and not covered by a maintenance contract.
- Annual maintenance costs for the existing system continue to increase at a rapid rate.
- In order to upgrade to VoIP, the cabling infrastructure and data network switches must be replaced.
- Based on our initial review of telecommunications expenses, ROI on a VoIP phone system should be in the five- to eight-year range.

Recommendations

- Select a new VoIP system according to the *Software Selection Best Practices* initiative, utilizing an independent telecommunications consultant/Subject Matter Expert (SME).
- It is prudent to compare multiple vendors to get best price and value.
- Conduct an RFP for a replacement telephone system.
 - ◆ Include in the process development of ROI to justify the project.

Benefits

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

IT *Staffing* can be one of the most important and critical areas of business management, especially in view of the impact IT decisions can have on the organization's productivity, budget, morale, and overall success.

129. Interim IT Assistance

130. IT Staffing

131. IT Staff Training

132. Enterprise Applications Support Specialist





129. Interim IT Assistance

Findings and Observations

- In order to move this plan forward, additional assistance with complex procurements and design questions will be necessary
- An IT Manager can fulfill the role of Champion for the Plan, and will be able to provide significant assistance where the individual has expertise
 - ◆ Third-party assistance will reduce risk in areas where the IT Manager does not have expertise
- The City is also interested in third party advice in the selection of an IT Manager

Recommendations

- Utilize a qualified third party during the selection and transition to an IT Manager led plan implementation
- Utilize the third party to provide additional technical assistance for highly complex, high risk or high visibility projects
 - ◆ Examples include:
 - Large software selections such as ERP or EDMS
 - Large procurements, requiring specific expertise such as cabling or VoIP

130. IT Staffing

Findings and Observations

- Current IT Staff includes an Information Technology Administrator, an IT Technician, and a part-time Telecommunications Coordinator.
- Server infrastructure, firewall, and backup support are handled by a third party.
- It is difficult to determine Help Desk and support needs because documentation is lacking.
- Due to limited funding, many systems require more maintenance than normal.
- Many systems are not utilizing maintenance contracts. Instead they are repaired on a time-and-materials basis.
 - ◆ In at least one case, it was determined that a maintenance contract would be less expensive than the existing time and materials arrangement.
- Staff training has been very limited in recent years.
- The IT Administrator is a hands-on position Help Desk assistance, in addition to assigned administrative duties.
- Overall staff and third-party expenditures will be higher over the next three years, because many infrastructure components must be upgraded and systems replaced.
 - ◆ Moving more telecommunications systems to maintenance contracts will save staff time.

Recommendations

- Move existing network administration staff from Public Works to IT as soon as feasible.
- Inventory existing systems and move as many as feasible to maintenance contracts.
- Develop training plans for IT staff.
 - ◆ Include one week of offsite training for each individual each year.



- We feel that sufficient staff is available to provide for ongoing support of the IT environment.
 - ◆ It will take several years before they are fully trained and are able to implement and upgrade systems in a best practices manner.
- We recommend that the City develop a relationship with a third party who has strong expertise in infrastructure-related projects.
- We recommend that the City contract with an independent consultant (not a reseller) for the initial procurement and management of this plan.
 - ◆ An RFP would be developed, including definition of a scope of work for ongoing network engineering needs.
 - Project-related improvements would be defined through a scope of work for each project.
 - As a part of the plan, budget for new technology implementations, including necessary consulting, or contractor design and implementation services.
 - ◆ Third-party subject matter experts are recommended to lead application systems selection and provide project management expertise.
- Next budget year, consider moving the Police Department IT Technician to IT in order to create a single, citywide IT function.

Benefits

- Increased institutional knowledge
- More completed projects
- More effective projects
- Increased anticipation and management of technology upgrades

131. IT Staff Training

Findings and Observations

- Some IT staff have received limited training opportunities
 - ◆ Internal expertise is lacking in networking, virtualization and Microsoft server administration
- Best practices for IT training includes one week of classroom training
- Many organizations also subscribe to online video training libraries to provide additional training opportunities

Recommendations

- Increase the IT budget to include one week of classroom training for each IT staff member
- Utilize the Municipal Information Systems Association of California (MISAC) training where possible to introduce staff to peer individuals at other agencies



132. Enterprise Applications Support Specialist

Findings and Observations

Local government agencies increasingly understand the direct correlation of effective applications utilization, organizational efficiency, and productivity gains. As described throughout this document, increasing applications utilization is key for the organization to do more with the same labor resources. Additionally, institutional knowledge too often leaves the organizations, through retirements and other employment separations, due to many processes and procedures being inadequately automated. Typically, agency goals of improved transparency and constituent services are also accomplished through various software programs that automate and streamline processes.

Most organizations have a blend of application/business analyst skill sets within the business departments and the IT department. However, we have yet to encounter a mid-sized agency with adequate resources to meet the organization's needs.

In order to meet these needs, IT departments are beginning to transform their overall department structures (over time) to take on more responsibility in hiring, training, retaining, and managing applications support services. This trend is being made possible, in some measure, by the streamlining of typical IT department operations through productivity and monitoring tools.

Typical applications support staff proactively handles: Help Desk needs related to business department applications, business process analysis, applications training, applications setup and configurations, ad hoc report writing, and database administration.

It is not unusual to designate applications support staff for the following major applications systems:

- ERP (Accounting, Finance, and People Management)
- Maintenance Management (Work Orders and Asset Management)
- EDMS (Electronic Document Management)
- Personnel Management
- Permitting
- Contact Management
- CAD/RMS and Citations

Recommendations

- In the future, the organization should consider adding an application/business analyst position(s) to the IT Division to provide better support to department software programs that are the backbone of organization operations.
- Develop an Information Services Portfolio documenting IT roles and responsibilities related to all organization applications.
- Departmental staff should be provided with additional training in applications systems and report writing.
- Below is an example job description for an Application Support Specialist.



Enterprise Applications Support Specialist (SAMPLE)

Description

Under general direction, coordinate and manage activities related to the support, deployment, configuration, and usage of departmental applications systems. This includes assistance with applications system selection, implementation, project coordination, management of interfaces, applications setup and configurations, business process reviews, and custom reporting.

This individual will apply technical, communication, analytical, and problem-solving skills to the analysis of business processes for business applications software systems in order to improve productivity and efficiency in the organization's departments.

The position will be responsible for providing expert troubleshooting, resolution, and reporting on business applications issues.

Functional areas this individual will support may include finance, human resources, public works, building and safety, public safety, and water utility applications, as well as other associated functions.

Other related duties may be required, as assigned.

Duties

- Assist department subject-matter experts in the resolution of enterprise applications software-related Help Desk tickets.
- Work closely with department managers, division leads, and applications users, to document and/or design/redesign effective business processes and associated business applications, including projects that require effective implementation or reimplementation.
- Make recommendations on improvements to business processes and applications, with the goal of delivering enhanced service and outcomes (e.g., faster permit processing times, automating current manual or inefficient processes, etc.)
- Manage software improvements for various departments. These activities include procurement recommendations (e.g., cost-benefit analyses, software configuration and implementation/re-implementation, etc.); collaboration in testing configurations with personnel of affected departments; communication with internal customers, network and server administrators, and vendors to ensure that applications systems are being utilized to their full potential.
- Provide project coordination and oversight of multiple applications system projects.
- Assist with research of applications software products and services and coordinate feasibility studies for applications, software, and system products under consideration for purchase, and provide findings.
- Develop and deploy standards, methodologies, and best practices for applications deployment, business process improvement, applications interfaces, and report writing. Document procedures, applications interfaces, service-level agreements, and other methodologies related to applications systems.
- Collaborate in the testing of applications, and communicate with network and server administrators, vendors, and software developers to ensure quality assurance and fulfillment of contractual obligations.
- Develop, implement, and disseminate information on best practices for information technology and applications support.
- Compile and maintain an inventory of all applications software and system assets and their corresponding contracts and agreements, documenting system configurations and change management.



- Coordinate training, including oversight of training materials and user procedures and training curriculum; facilitate training sessions as necessary. Develop and maintain user documentation, implementation, and maintenance plans.
- Oversee the maintenance, support, and upgrade of existing software applications and systems; coordinate and communicate upgrades, enhancements and changes with vendors and internal customers.
- Maintain a secure information technology environment for software applications. Oversee applications security administration, update processes and schedules, notifying users of any potential service interruptions.
- Participate in integration, initialization, and interfacing between multiple systems, either through in-house or outsourced development, when required.
- Analyze technical literature for systems, and provide explanations understandable to end-users, often in the form of user manuals or training materials.
- Perform related duties as assigned.

Qualifications

The following generally describes the knowledge, ability, and education required to successfully perform the job duties.

Knowledge

- Windows operating systems and applications, including MS Office, MS SQL, Outlook, and other applications software
- Government business processes and the systems that support them; agency business systems may include: Financials, time keeping, utility billing, human resources, payroll, asset control systems, inventory, work orders, police dispatch, police records management, land management, building permits, utility billing, and citizen request management, among others
- Current technology goals, objectives, and technological trends
- Database knowledge, including a working understanding of MS SQL, SQL queries, report writing, applications interfaces, and data import/export methodologies
- Principles of project management, including training and vendor management
- Office procedures, methods, and equipment, including computers and applicable software applications such as word processing, spreadsheets, and databases.
- Principles and practices of applications system development, evolution and product life cycles, including sustainability planning for applications systems
- Applications system security principles and best practices for ongoing system security, including related concepts of user applications roles/passwords, single sign-on, and Active Directory

Abilities

- Understand, plan, and coordinate business applications systems implementations and upgrades.
- Review and assist in evaluating the work of professional and support staff.
- Gather and document business requirements and processes.
- Communicate ideas, directions, and requirements clearly and concisely, both orally and in writing.
- Understand and communicate ideas in a technical, but user-friendly language.
- Perform duties appropriate to classified system privileges. Maintain professional handling of and protection of confidential and secure information.



- Commit to the highest standards of moral and business ethics, including organizational values.
- Work in a team environment, understanding the customer service and supplier model and how it is used in an internal support environment.
- Prepare clear and concise reports, including metrics, service-level agreement summaries, test plans, cases, and test scripts.
- Interpret and explain agency policies and procedures.
- Manage projects in a timely manner.
- Work with information system users under challenging conditions and short deadlines.
- Set priorities based on value to the organization.
- Operate office equipment, including computers and related word processing, presentation, spreadsheet, and database applications.
- Foster communications between the user community, project management, contractors, and all levels of management.

Education and Experience

Any combination of education and experience that would likely provide the required knowledge and abilities qualifies a candidate for the position. Typical education, training, and experience may include:

Education/Training

- Bachelor's degree from an accredited college or university, with major course work in computer science, information technology, business administration, etc.

Experience

- Three years as a business or systems analyst, supporting a broad range of departmental applications systems, including business process improvement, and applications administration, implementation, and upgrades
- Five years of general IT support or IT analysis (or similar) for a medium-sized organization supporting Microsoft applications
- One to three years in coordination and/or project management of applications implementation or upgrades.