City of REDLANDS "A CITY THAT WORKS"

APPENDIX TO

INFORMATION TECHNOLOGY MASTER PLAN REPORT

IT INITIATIVES

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Presented to Danielle Garcia, Interim CIO
City of Redlands
DoIT

by

CLIENTFIRST
TECHNOLOGY CONSULTING

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BEST PRACTICES

A best practice is a method that consistently provides 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. IT GOVERNANCE

Findings and Observations

The City requires cooperative technology to meet its goals. At present, we share systems and information across departments yet still have multiple synergistic needs. The IT Master Plan implementation provides a great opportunity for City departments to collaborate on future technology use and application.

IT Governance

Traditionally, key IT decisions are been 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 groundwork 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 from a variety of departments and disciplines that provide long-term direction and oversight for an organization's information technology systems. 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 are:

- Identification and development of technology initiatives
- Prioritization of initiatives
- Monitoring and reviewing initiatives
- 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
- 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.

Best Practices

- COBIT-PO4.3 - IT Steering Committee
- COBIT-PO4.11 - Segregation of Duties
- COBIT-ME4.1 - Establishment of an IT Governance Framework
- ITIL-SD-Corporate Governance

Return on Investment (ROI) Consideration

- A study conducted by Macquarie University discovered the following1:
  - Overall ROI in IT projects is around 30%
  - The percentage of projects that deliver at least some benefits should about be 52.5
  - Successful IT projects can have an ROI of around 400%.

Recommendations

- Implement an IT Committee to discuss and recommend priorities, assist in policy development, communicate with department staff, manage/oversee implementation of the IT Master Plan

Next Steps

- Determine potential IT Committee members
  - Interested in IT
  - Able to speak for Department Head
- Develop and implement an IT Committee to focus on
  - Determining priorities based on limited IT resources
  - Annual IT budget review and prioritization
  - IT policy reviews
- Involve all departments in an IT Committee for IT communication, education, and collaboration
- Assign a lead and committee for all IT Master Plan initiatives
- Monitor/discuss active initiatives at each committee meeting
- Form sub-committees as appropriate

[1] Macquarie University, 2006

2. MAINTAINING SOFTWARE UPDATES

Findings and Observations

- Best practice for the maintenance of application 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, making each upgrades more expensive, time consuming, and risking additional problems

Staff Feedback

- CMO - All City Departments need to work from the same version of Microsoft Office. Formatting issues result because of this, which delays the processing of documents and adds to unnecessary delays on collaborative projects.
- CMO - Uniform software/hardware upgrades throughout the City appear to be lagging due to lack of resources.
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- DSD - There is a lack of software version compatibility among computers
- HR - City has not stayed current on office productivity software such as Office, Windows, and email
- MUED - Need all users to be on same software versions citywide to avoid compatibility problems
- PD - Our department is having to use 3-4 different versions of Microsoft Office making it difficult to train staff, reduce version compatibility problems, and recapture losses in productivity
- PD - Our department is having to use at least three different version of Windows
- PD - Need regular upgrades for software, hardware, and other IT infrastructure to include PC's, phones, mobile devices, servers, MDC's, etc. The current state of the department's IT infrastructure illustrates the lack of planning and system management that leads to loss of efficiency and mobility to take advantage of modern technology to improve the services offered by the department. Most of the hardware and software is out of date and difficult for the limited IT staff to maintain. For example, we are currently running at least three versions of Microsoft Office products which creates a great deal of inefficiency due to incompatible versions. The inability to keep needed components readily available results in police units that are unusable because of problems with the MDC.

Best Practices

- COBIT-A2.10 - Application Software Maintenance
- COBIT-AI12.8 - Software Quality Assurance
- ITIL-SO-Technical Management Function

Recommendations

- Maintain consistent updates across all users
- Include software updates in sustainability and replacement planning
- Provide appropriate user training with each release

3. Social Media Policy

Findings and Observations

A Social Media Policy is a code of conduct that provides guidelines for employees who post content on the Internet either as part of their job or as a private person. Setting clear expectations for employees can positively affect the City's image within the community, as well as deter embarrassment and legal action.

Best Practices

- COBIT-PO6.4 - Policy, Standard and Procedures Rollout
- ITIL-SD-Corporate Governance

Staff Feedback

- PD - Facebook use is push (out bound) communication only due to the fact that we do not have the human resources to provide bi-directional communication
- PD - Twitter use is ad-hoc, but needs to be more coordinated and used more often to communicate with the public
- PIO - Need to update Web content and social media concurrent with other public communications

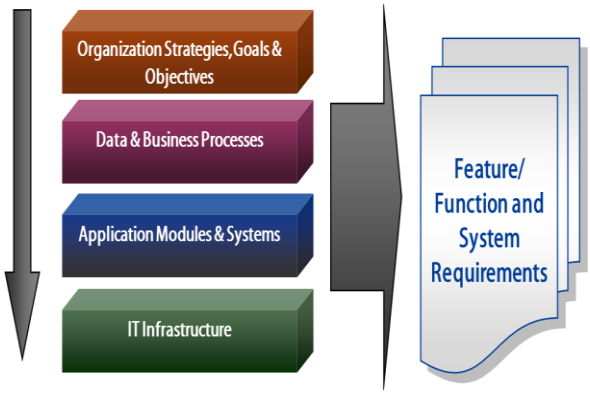
Recommendations

- Typical social media policy calls for municipalities to post updates, but not respond to posts
- Software products that automatically update several social media outlets from the webpage are readily available
  - Work with the City's website vendor for potential social media integration opportunities
  - Provide approval to employ a limited number of named social media sites subject to review by IT Committee
  - Provide tutorial for employees who use social media to promote City events and information

4. 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 demands. Additionally, many agencies must provide better service to their constituents while coping with greater budget constraints.



Software Selection Best Practices should be considered for the following initiatives:

- Applications & Departmental Systems
  - City Works Improvements
  - Fleet Maintenance
  - Public Safety Scheduling System Selection
  - Active Net Expansion
  - Electronic Document Management System (EDMS) Improvements
  - Business License Application Improvements
  - ERP Improvements
  - Time Entry System
  - Automated Agenda Management
  - In-Car Video Replacement
  - Performance Evaluation Software
  - Project Tracking/Collaboration Finding and Observations
  - Route Management Software
  - WebEOC
  - New Broadcast System
  - Public Meeting Video Synchronization
  - Alarm Billing Software
  - Collection Statistics Automation
  - Fuels Management
  - Investment Management Applications
  - Outsource Utility Bill Print
  - Paperless Animal Control Process
  - Paperless Citations
  - Smart Boards
  - Solid Waste Ticketing
- Gov 2.0
  - Citizen Request Management (CRM)
  - Mass Communication
  - Council Chamber Audio/Visual
  - Website Improvements
  - Online Payments

Best Practices

- COBIT-PO3.1 - Technological Direction Planning

Return on Investment Consideration

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

- Only 32% of projects are on-time, on-budget, deliver all required features and functions, and achieve measurable business and stakeholder benefits[2]
- Approximately 44% of projects are "challenged" (late, over budget, and/or with less than the required features and functions)[3]

[2] Standish Group, CHAOS Summary, 2009.
[3] Standish Group, CHAOS Summary, 2009.

- 69% of project failures are due to a lack of and/or improper implementation of project management methodologies[4]
- Nearly 40% of those surveyed said that a "*lack of employee buy-in and executive support*" was the biggest challenge facing a successful implementation[3]
- 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)[5]
- 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% over the planned implementation timeline.

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:

- Insufficient definition of system objectives and requirements
- Failure to adequately involve both management and users
- Underestimating the costs and effort required
- Failing to adequately plan for expansion
- Failing to properly evaluate software

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 ERP 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

[4] KPMG survey of 252 organizations
[5] Panorama Group, Based on a 2009 survey of more than 1,300 online respondents and focus group participants who had implemented ERP within the last three years.

Recommendations

- Utilize best practice selection methodology when evaluating new software solutions
- Consider third-party consults when selecting or improving complex or highly specialized solutions
- Include all stakeholders in each software evaluation and implementation project

5. Application Management Best Practices

Findings and Observations

The City utilizes over 150 different software applications or modules throughout all departments. Major systems include:

- Financial Management - BiTech
- Personnel Management – BiTech
- Land Management – CityWorks
- Maintenance Management - CityWorks
- CAD/RMS/Mobiles - Spillman
- Fire RMS – Going to Image Trend
- EDMS – Ademero (City Clerk), LaserFiche (Police)
- Geographic Information System (GIS) – ESRI
- Parks & Recreation - ActiveNet

A more comprehensive example listing of City applications includes:

- 311
- 3M RFID Checkout Software
- 3M RFID Conversion Station
- A Note – iPad
- Access
- Ademero
- Adobe
- Adobe Acrobat
- Adobe Acrobat Pro 9
- Adobe InDesign
- Adobe Photoshop
- Adobe Photoshop Elements
- Adobe Reader
- Aflac
- ArcGIS
- AutoCAD/AutoCAD 3D
- Baker & Taylor
- Basecamp
- Bi-Tech – GL
- Bi-Tech – HR
- Bi-Tech – AP
- Bi-Tech – AR
- Bi-Tech – Bank Reconciliation
- Bi-Tech – Person/Entity
- Bi-Tech – Fixed Assets
- Bi-Tech – Job Project Ledger
- Bi-Tech – Budget
- Bi-Tech – Purchasing
- Bi-Tech – Stores Inventory
- Bi-Tech – Bids
- Bi-Tech – Payroll
- Bi-Tech – Position Budgeting
- Bi-Tech – Employee Online
- Bi-Tech – Work Order Management
- Brivo
- Broadcast Pix
- Business Analyst Online
- Business License/Dog License
- Cal-ID
- CalPERS – my|calPERS
- Cal-Photo
- Camtasia 8
- Chameleon
- City Website
- City Works
- CLETS
- Cloud Cap
- Content Central
- Coplogic
- CORE FTP
- County online tax information (PIMS)
- County Resources
- Crystal Reports
- Dicksonware
- DIMS
- DocView
- DOJ
- Dragon Naturally Speaking
- Druple
- EIO Board
- Elsag
- Enquesta
- EnvisionWare LPT one
- Epson Scan

- Epson Twain Pro Network
- Eroad
- Facebook
- FinalCut
- Fire Records Management System (Fire RMS)
- Flash 1/2/3
- Gasboy DOS Based
- GIS ARC Map
- Goggle Intranet Web Page
- Google Analytics
- Granicus Media Manager
- HealthNet
- IA Pro
- iCalendar – iPad/iPhone
- ICAP
- ID badge printer
- IE, Firefox, Chrome
- Indigo Vision
- iOS
- L3 and Digital Patroller
- LaserFiche
- Law Room
- Leightronics
- LIMS-Access Based
- Lockheed/Exostar
- MES Vision
- MES Vision
- Microsoft Access 7
- Microsoft Excel
- Microsoft Office
- Microsoft Office Pro
- Microsoft Outlook
- Microsoft PowerPoint
- Microsoft Project
- Microsoft Publisher
- Microsoft Word
- Mobile Iron
- MSDS Online
- MSDS Online
- NeoGov
- NFIRS Data Entry Tool
- Notes – iPad/iPhone
- Office Tracker
- Omega Crime View Dashboard
- One Stop Map
- OrgPlus 8
- Parole LEADS
- PastPerfect Museum Software
- PC Reservation
- Performance Pro
- Primavera Contract Management
- Primavera P6
- Principal Dental
- Quartermaster
- Quick Books
- QuickTime
- Rapid Learning
- Reader
- Redlands 311
- Reverse 911
- Route Management
- RTA
- Signal Software
- SIMS
- SirsiDynix Horizon 7.5.1
- Smart Draw
- Smart Track
- SnapStream
- SPILLMAN
- Turbodata
- Valley Oak ivos
- Volunteer2
- VPN
- Web Page Management
- Webinars
- West Coast Arborist
- WIMS
- Window
- WordPress

Many City software applications/modules and systems are underutilized, resulting in loss of productivity do to manual process, inefficient work-arounds, and inefficient or unnecessary reconciliations. Additional user training is needed for many software applications (see *User Training and Support* initiative). The City does not appear to have sufficient resources to document practices and procedures regarding developing needs for systems and technology, prioritizing, evaluating solutions, and identifying sufficient implementation, ongoing management, and support resources for these solutions. Additionally, the City has insufficient effective IT resources to ensure quality utilization, increase department process improvements and gain significant efficiencies.

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.

Best Practices

- COBIT-PO1.6 - IT Portfolio Management

Return on Investment (ROI) Consideration

- A study conducted by Express Matrix discovered that on average 1.5 licenses per PC go unused. This can result in a cost savings of around $38,000 for 500 users[6].

Recommendations

- The City should encourage departments 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 and should remain the responsibility of IT personnel, unless user(s) gain the aptitude to learn this within a specific department. However, there is currently no capacity to provide such support from IT.
- The City should also make efforts to reduce and/or limit the total number of software vendors, databases, and instances of hardware requirements whenever possible, thereby reducing or limiting overall cost of ownership, support requirements, training and reporting needs, and improving overall integration capabilities.
- Over time, we believe that application utilization by departments will improve if application sponsors take a more active role in monitoring upcoming features and their benefit to the City. In addition, it would be helpful if application sponsors and sponsoring departments monitored and discussed application usage with other municipalities to gather information and potential productivity improvements that could be incorporated into the City's systems.
- Conduct a complete inventory of software applications and/or key technology systems currently utilized and needed in the future, at the department level.
- Inventory specific users by software application.
- Inventory current and future feature/function, reporting, training, and support gaps.
- Specifically assign a process owner, application "super user(s)", primary business analyst(s), application administrators (set-up and configuration responsibility), and ad hoc report writer(s) for each application or module.
- Key assignments should encompass responsibility for understanding industry best practices and solutions/processes available, and taking the lead in continually assessing and inventorying needs.
- The IT Governance strategy and implementation 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.

Future Application Management Best Practices

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

Business Department Application Training

As application 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 application software will pay off significantly in increased staff effectiveness and

[6] Study conducted by Express Matrix

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.

Future Application Roles and Responsibilities

Application support and management roles /responsibilities will have to be identified and assigned to departments' operational applications and modules. Identification and assignment will help the City spot capable resources to fulfill the roles and responsibilities for Applications Management Best Practices in the future. Please note that the City 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.

- Process Owner
  - Staff "resident expert" who is responsible for a given departmental process/function
  - May also be responsible for oversight and delivery of the daily, weekly, monthly, and annual processes that the application/module is utilized to fulfill
  - Stays current with the applicable industry best practices, technology, and application capabilities
  - Stays current with current application vendors' capabilities, offerings, and enhancements
  - Primarily makes final decisions on process policies, procedures, and deliverables for their area of expertise
- Super User
  - City expert on application/module
  - Possesses greatest knowledge of application/module
  - Lead trainer/support person for other staff that utilizes application/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/module
- Process/Application Analyst
  - Assigned to work with process owners, super users, report writers, and users
  - Reviews business processes, current utilization of application, manual processes, and shadow systems (e.g., 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.
- Report Writer
  - Aptitude to develop ad hoc reports using vendors' report writing tools, which may include third-party tools such as Crystal Reports 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 Responsibility

- Identify role of IT for a given application/module *(Note:* For some applications, it is appropriate for IT to fulfill most, if not all, of the above roles)
- Departments are to take as much responsibility as possible for application management of modules utilized by their primary business process functions
  Note: The IT Department does not have the resources to fulfill all application management support and maintenance roles for the entire City

Next Steps

- Each department and the IT Steering Committee should review an Application/User Matrix for current and future application usage and application management roles
- Identify process owner(s) for each module, or insert N/A if not applicable
- Identify super user(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 future with additional training
- Define IT Department roles and responsibilities for all applications/modules
- 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

6. USER TRAINING AND SUPPORT

Software systems are tools utilized to conduct business operations. Like other tools (phones, shovels, backhoes, plotters, treatment plants, etc.), gaining greater utilization of these tools through sufficient training and installation of other available modules (tools) is key to significant increases in productivity and greater efficiency with the City's application modules and achieving costs savings in some areas.

Findings and Observations

- Some software applications are underutilized due to limited resources and the diversity of application providers in use, causing a lack of sufficient training and IT resources to effectively increase department process improvements that would, in turn, gain significant efficiencies
- An application and/or module list by department and user does not exist
- This list can be helpful in understanding and confirming licensing compliance, over/under seat license requirements, and identifying training needs and user roles (discussed in *Application Management Best Practices* above)
- The City has limited IT resources to effectively ensure quality utilization of all systems, increase department process improvements, and gain significant efficiencies
- Examples of requested training are included below:

Best Practices

- COBIT-PO7.4 - Personnel Training
- COBIT-AI7.1 - Training
- COBIT-DS7.1 - Identification of Education and Training Needs
- ITIL-ST, CSI-Knowledge Management

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 trainings[7].
- ITS - Industry study reveals that productivity increases by as much as 50% as a result of successful deployments
  - Even if 10% increase in efficiency for 1/4 of staff, staff savings $247,000/year

Staff Feedback

- CMO - Need Microsoft Outlook, Word, Excel, PowerPoint (Intermediate User)
- CMO - Need Adobe Acrobat Pro (Intermediate User)
- CMO - Need Microsoft Access (Intermediate User)
- CMO - Need Microsoft Publisher (Intermediate User)
- CMO - Need Granicus Media Manager (Agenda development training)
- CMO - Need Druple/CoreFTP
- Attorney - Microsoft Outlook, Word and Excel (Intermediate User)
- Attorney - Adobe Acrobat Pro (Intermediate User)
- Attorney - Basic Windows application and searching techniques
- Attorney - Microsoft Access (Intermediate User)
- Clerk - Need to train all applicable City staff on EDMS software solution, Ademero
- DSD - Need Excel training especially shortcuts
- DSD - Need training for content updates
- DSD - ArcGIS and associated mapping software
- DSD - CityWorks permit system training, and reporting options
- DSD - NeoGov training
- DSD - Performance Pro training
- DSD - BAO (business analysis online) demographics
- DSD - GIS Inquiry Training
- Fin - Need better report writing capability and training
- Fin - Departments need Bi-Tech training for self-inquiry and reporting
- Fin - Need HdL Business License reporting training
- Fin - Microsoft Office
- Fin - City website content updating and maintenance
- Fin - CDD report writing
- Fin - Bi-Tech workflow management
- Fire - Need Excel training for several users
- Fire - Need training on everything. From basic introductions to more advanced user training. HR - MS Access training needed
- HR - Need Volunteer application training
- HR - Currently we cannot pull ad-hoc reports to get data for negotiations etc. Information has to be pulled in bulk or manually pulled and then put into Excel to analyze almost any type of employee data. We could save 600+ hours per year with further training and support for Crystal Reports

[7] Nucleus Research, 2010

- HR - Query reporting on Bi-tech for negotiations and other issues. Need to be able to have accurate numbers at my fingertips when I need them and not having to ask Finance to put together a manual report each time. Sometimes there is a need for a basic idea of the total number to see if something is even feasible but can't because we would have to interrupt Finance to find out. Previous experience was running queries and writing reports constantly for the City Manager and Deputy City Manager for long range planning purposes.
- HR - Training employees on how to use intranet
- MUED - MS Office Training 40 - 50 staff
- PD - MS Suite training: many people throughout the department need updated training in the use of MS Suite products such as Outlook, Excel, Word, and PowerPoint.
- PD - iPhone/iPad backups, updates: many people throughout the department need training on how to properly back up and update their department issued iPhones and/or iPads.
- PD - IT Certifications (on going): members of the IT staff need the training necessary to maintain their certification for the software and hardware products in use by the department.
- PD - Beast: Beast is the department's evidence system and ongoing training in its use would benefit many members of the department.
- PD - DIMS: DIMS is the department's repository and retrieval system for nearly all digital information such as photographs, videos, and digital recordings. Additional training for this program would benefit many members of the department.
- PD - Web page content updating training was only a six minute video
- PIO - Need continued training in video production and editing programs
- PIO - Website content updating training was not adequate and difficult to understand.
- QoL – Did not receive adequate training for CityWorks applications
- QoL – Need Standard Operating Procedures (SOP's) for some business processes in order to maintain continuity of institutional knowledge as staff leave or promote/move to other City roles
- QoL - Need training on RTA Fleet Management
- QoL - Need advanced functions training for Excel
- Fire - Need Crystal Report Writer training
- MUED - Need annual training on software applications to ensure staff time is not wasted
- MUED - Need training on all new versions of Microsoft before installation
- MUED - Weekly tips of the day would be helpful
- QoL - Only received an 8 minute video training how to update website content

Recommendations

- Consider efforts to reduce and/or limit the total number of software vendors, databases, and instances of hardware requirements whenever possible, thereby reducing and limiting overall cost-of-ownership, support requirements, training and reporting needs, and improve overall integration capabilities
- Complete the application inventory 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 (should be driven by department managers to elicit participation when training is made available)
- Determine strategies for accomplishing training needs:
    - Self-learning aids
    - Internal classes (internal or external trainers)
    - Onsite vendor training (e.g., Sigma Plot, Jump, SAS)

  - Lunch and learns
  - Go to Application Champions
- Create a repository of basic "how to" training aids and other training information (videos, past class information, etc.)
- Consider developing customized training for certain applications:
  - Beginner (4 hours)
  - Intermediate (4 hours)
  - Advanced (4 hours)
- Current and future needs can be evaluated and prioritized through a combination of mechanisms, including an IT committee
- 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

7. SUSTAINABILITY PLANNING

Findings and Observations

Replacement planning is the best practice benchmark for the replacement of hardware and software. This process is always ongoing and important since it brings about change and performance improvements. Although there are cost benefits to retaining equipment and software, the extended use of such items will increase likelihood of failure.

IT Replacement Planning has become an industry best practice for hardware, equipment and productivity software such as Windows Operating System and MS Office products. However, in order to reduce the large periodic spikes in capital expenditures of large implementation software solutions and avoid putting off upgrades and replacements of departmental business application systems, 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. Software applications are the primary technology tools of the business 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.

Sustainability Planning includes mapping over a long-term 5 to 10 year period, the acquisition, maintenance, upgrade, improvements, training and eventual replacement of not only hardware and equipment, but of all application systems citywide based upon their typical life cycles.

Best Practices

- COBIT-PO1.1 - IT Value Management
- COBIT-PO5.1 - Financial Management Framework
- ITIL-SD SO, CSI-Capacity Management

Return on Investment (ROI) Consideration

In a study conducted Aberdeen Group, the following were the cost savings that occurred after incorporating a sustainability plan8:

- System automations reduced paper costs by up to 11%
- Efficiencies reduced facility costs by up to 10%
- Energy costs were reduced by up to 9%
- Waste and disposal costs were reduced by up 8%
- Transportation and logistics costs were reduced by up to 5%

A study conduct by Express Matrix found the following9:

- The annual computer maintenance savings for 500 computer devices are between $11,000 and $13,000.
- Automated asset management tools can provide a 10% cost reduction in hardware and software alone.

Staff Feedback

- DSD - Our software maintenance budgets were moved to the IT budget, only to then be cut
- PD - Continued funding for maintenance and upgrade of IT infrastructure including surveillance cameras, MDC's, etc.
- PD - Computer and infrastructure replacement - most of the department's IT infrastructure is outdated and in need of replacing most of the MDC's, desktop computers, and servers.
- PD - Need regular upgrades for software, hardware, and other IT infrastructure to include PC's, phones, mobile devices, servers, MDC's, etc. The current state of the department's IT infrastructure illustrates the lack of planning and system management that leads to loss of efficiency and mobility to take advantage of modern technology to improve the services offered by the department. Most of the hardware and software is out of date and difficult for the limited IT staff to maintain. For example, we are currently running at least three versions of Microsoft Office products which creates a great deal of inefficiency due to incompatible versions. Additionally, the inability to keep needed components readily available results in police units that are unusable because of problems with the MDC.
- PIO - Hardware for video recording, playback and dissemination is 7-8 years old, has not been serviced properly and needs to be replaced
- PIO - Routine maintenance of video equipment is non-existent and there is no provision for equipment maintenance or replacement
- Admin - Some staff use personal computers due to software incompatibility problems
- CMO - All City Departments need to work from the same version of Microsoft Office. Formatting issues result because of this, which delays the processing of documents Fin - Need to upgrade mobile equipment and computers
- HR - Some computers have reliability problems and crash too often
- HR - Use a personal laptop, so we know it will work
- MUED - 6 year old donated hand-me-down computers are not sufficiently helpful for user needs
- PD - Need updated infrastructure: PC's, software, mobile devices (iPhones/iPads), Mobile Data Computers, servers, etc.
- PD - Adequate supply of spare parts to avoid down-time

[8] Aberdeen Group, 2009
[9] Study conducted by Express Matrix

- PD - Many of the department's most commonly used communication devices were purchased on grants and are now in need of replacement with no funding mechanisms in place.
- PD - Computer and infrastructure replacement - much the departments IT infrastructure is outdated and in need of replacing most of the MDC's, desktop computers, and servers.
- PIO - Video editing equipment is Mac based and computers are aging and showing wear. The City has no support set up for Mac computers.
- QoL - Need to upgrade users from MS Office 2003 to 2010
- PD - Police MDC equipment is aging and police is having difficulty connecting via cellular network
- DSD - Ibid computers are old and slow
- MUED - Need 12 new computers at waste water plant

Recommendations

- Develop a replacement plan for all IT equipment and information technology software applications
  - With virtualization, include PC replacement at seven years
  - Switch replacement - every seven years
  - Phone system upgrade - every five years
  - Servers - every five years
  - Laptops - every four years
  - Mobile devices - every two years
  - Wireless devices:
    - Point-to-point - every five years
    - Wireless LAN - every four years
  - Microsoft licenses should be replaced N+1 (every other version)
- 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 5 to 10 year period

8. IT Procurement Practices

Findings and Observations

- For complex systems, the City should consider procuring installation from the vendor supplying hardware and software, or other third-party implementer
  - Reduces the chance of finger pointing for poor design, damaged product or power installation
- For commodity systems where several vendors provide very similar products, if three quotes are required by ordinance, the City should consider creating an open RFP that does not specify a product, but provides vendors with requirements that must be met
  - Encourages increased vendor participation
  - Increased vendor participation often results in lower pricing and better products
  - Increased vendor participation also is the recommendation of elected officials

- For complex or expensive systems, the City should consider including all components in the RFP; Final design, installation, construction, testing, conversion, post-implementation support and knowledge transfer
  - This includes the procurement of complex systems that may cross budget years because of cost considerations
  - All components should practically considered and integrated
- For oversight, before approval of purchase of a complex system or a system requiring three bids, Finance should require the following of IT:
  - A diagram of the system
  - High level implementation plan (can be one page of bullet points)
  - A bill of material that includes all components, list price, quantity, discounted price, ongoing maintenance
  - Costs associated with final design, installation, any construction, testing, conversion, post-implementation support and knowledge transfer
  - A vendor cost matrix and assurances that all responses are truly comparable
  - A written recommendation

Best Practices

- COBIT-AI5.1 - Procurement Control
- COBIT-AI7.3 - Implementation Plan

Recommendations

- The City should keep maintenance contracts on critical equipment and on equipment that is integral to IT Security
- The City should follow best practices for IT hardware and software replacement and sustainability planning

9. Return-on-Investment Considerations

IT Infrastructure, Operations, and Support

Limiting the number of software vendors supporting City functions will decrease IT infrastructure, operational costs, and support costs in the medium-to-long term. Following is a list of IT functional areas impacted when determining the number of applications required to support a municipality's core business solutions:

- **Hardware** – Servers required to house the applications
- **Software** – Additional software, such as database applications, required to support core applications
- **Licensing** – Increased licensing due to increased number of vendor applications
- **Business Continuity** – Increased Disaster Recovery Planning to support multiple-vendor applications
- **Support Costs** – IT support costs for hardware and software as vendor applications increase
- **Operation Costs** – The number of employees, training, and expertise requirements can increase as more vendor applications 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 (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 10 years, making the savings from the avoidance of just one new-hire and/or elimination of vacant positions the equivalent of $400,000 to $700,000 over ten years.

Return on Investment (ROI) for Application Systems

Improved utilization of application 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 or the residents or cumulative savings from reduced long-term personnel needs.

User Training and Support

Application 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 during initial implementation. Therefore, it is important for the organization to develop methodologies to carryout functionality, 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 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 herein, 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, Consolidating work load/positions, etc.

Hard Cost Savings

- Hardware
- Software
- Maintenance
- Inventory Reductions

Intangible Benefits

- Increasing Levels of Service
- Improved Constituent Service
- Safety
- Transparency
- Improved Community Communication
- Improved Employee Communication and Satisfaction
- IT Planning and Improvements

IT Planning and Improvements

The following initiatives may produce varying levels of tangible and intangible ROI.

Initiative Examples:

- Best Practices
  - IT Governance
  - Software Selection Best Practices
  - Application Management Best Practices
  - User Training and Support
  - Sustainability Planning
  - IT Procurement Practices
  - IT Project and Services Portfolio
  - IT Cost Recovery (IT Budget Allocations)
  - Replacement Planning
  - Project Planning Best Practices
  - Cloud Computing
- Applications & Departmental Systems
  - Mobile Computing
  - City Works Improvements
  - Fleet Maintenance
  - Public Safety Scheduling System Selection
  - Active Net Expansion
  - Electronic Document Management System (EDMS) Improvements
  - Business License Application Improvements
  - ERP Improvements
  - Time Entry System
  - Automated Agenda Management
  - City Intranet
  - GIS Needs Assessment Finding and Observations
  - Performance Evaluation Software
  - Project Tracking/Collaboration Finding and Observations
  - Route Management Software
  - Access Gate Cards

- Alarm Billing Software
- CAD/RMS Improvements
- Collection Statistics Automation
- Fuels Management
- ID Badge Printer
- Investment Management Applications
- Outsource Utility Bill Print
- P6 Improvements
- Paperless Animal Control Process
- Paperless Citations
- Police Paperless Reporting
- Solid Waste Ticketing
- Speed Count Automation

- Gov 2.0
  - Citizen Request Management (CRM)
  - Mass Communication System
  - Online Payments
- IT Infrastructure
  - Computer Refresh
  - Mobile Device Refresh
  - Consolidated Computer Room
  - Server Upgrade
  - Metropolitan Area network (MAN)
  - Electronic Mail Upgrade
  - Office 2010 Upgrade
  - Local Area Network (LAN) Upgrade
  - Storage Area Network (SAN)
  - Wi-Fi
  - Server Virtualization
  - Remote Access
  - Video Conferencing
- IT Operations
  - Asset Management Automation
  - Mobile Device Management
  - Help Desk Ticketing System
  - IT Automation Tools
  - Network Management Tools
  - Printer/Copier Management
- IT Staffing
  - Managed Services
  - IT Staff Training
- Telecommunications
  - VoIP Phone System Replacement
  - Telecommunications Audit
  - Smart Phones
  - Squad Car MDC Cellular Coverage

Best Practices

- COBIT-PO1.1 - IT Value Management
- ITIL –SS – Return on investment

Go-Forward Return on Investment (ROI) Analysis

Note: The ROI example information contained in this report is a combination of internal calculations from city staff or *CLIENTFIRST.*

The initial IT Master Plan provides ROI information as much as time allowed. Going forward the IT Steering Committee will be conducting additional ROI analysis for the full five-year IT Plan, so that information can be included in future staff reports to Council as projects are submitted to Council for approval.

10. Application Inventory

Findings and Observations

A Citywide application inventory can be helpful in understanding/confirming licensing compliance, over/under seat license requirements, and identifying training and user roles mentioned in the *Application Management Best Practices* initiative.

Best Practices

- COBIT-PO1.6 - IT Portfolio Management

Recommendations

- Create an inventory of all organization software applications currently in use, as well as needed
- Identify all current user license holders, as well as those that need additional licenses
- Determine which users can transfer their licenses to others users, if applicable
- Determine software applications that can be run centrally from a server or shared computer for infrequent users
- Determine Application user roles (application sponsors, process owners, application champions, report writers, etc.) by application module
- Determine strategy/options for different modules
- Obtain ongoing sustainability cost estimates
- Consider development of IT application support portfolio to document departmental ownership, IT SLAs (service level agreements)

11. 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 x 7 support required, disaster recovery priorities, and uptime requirements). Application support, partially addressed in the *Application Management Best Practices* initiative, is only one aspect of the complete portfolio. Other IT services include projects, helpdesk, data network, telephone systems, IT security, etc.

Best Practices

- COBIT-PO1.6 - IT Portfolio Management
- ITIL-SS,SD-Service Portfolio Management

Recommendations

- We recommend that IT create an IT Projects/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 Master Plan as the basis for a five year project portfolio and budget
- Utilize the *Application Management Best Practices*, Application Inventory, and User Training and Support initiatives as a basis to complete the services portfolio

12. IT Cost Recovery (IT Budget Allocations)

The IT Department best practice is that of an internal support function to all departments and users of the City and in some instances the City's constituents. The departments, users and constituents are the customers of the IT Department.

IT Cost Recovery is the concept of funding the IT Department budget from all other departments based upon various metrics utilization and services provided. Examples could include number of users, computers, servers, network devices, phones, and time estimates for supporting specialized systems and applications.

In this way, IT department costs can be spread fairly among departments, and the organization can gain a true understanding of the costs to support the IT infrastructure and support services in order to make better management decisions.

Best Practices

- COBIT-PO1.4 - IT Strategic Plan
- COBIT-PO5.3 - IT Budgeting
- COBIT-PO5.2 - Prioritization Within IT Budget
- ITIL-SS-Financial Management

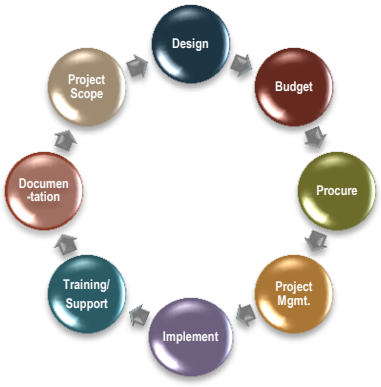
Recommendations

- Consider developing an IT cost recovery model to allocate IT costs fairly
- Conduct a holistic review
  - Assure that departments using services are charged proportionately
  - Assure that all project costs are attributed to the projects
- Explore potential ways to track actual time spent at some levels

13. Project Planning & Implementation Best Practices

Findings & Observations

A best practices approach should be followed for all projects. The complexity and risk determine the actual level of due diligence that is completed. The City has been inconsistent and has had mixed results regarding the outcomes of various projects over the years. 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.

Collaborate – Include input and requirements of all stakeholder groups to ensure all requirements are included in specifications and all stakeholders buy-in to final solution.

Develop Budget – Project budgets include hardware, software, and consulting costs. Consulting costs are estimated by outlining the various work steps and estimating the hours required to complete them. We also discuss areas of cooperative effort that have the potential to reduce costs via additional client involvement.

Gain Sign-off – Once the budget is complete, we review the scope of work and costs with the client and gain their approval before continuing.

Create Project Plan – Based on all stakeholder needs, delivery dates, and the tasks to be completed, we 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 – Utilize planning methodologies and technical expertise, we configure the necessary system components and implement the solution with the least possible impact to staff and productivity.

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 our documentation as part of the project.

Staff Feedback

- DSD - No training was received
- DSD - Final implementation was not adequate due to limited user training (DSD Director received 4 hours of training while other department users received 0-2.0 hours of training).
- DSD - Need to convert historical data from Permits Plus
- DSD - Need to convert planning logs and map data
- DSD - Need to implement entitlement work flow process
- DSD - New city issued cell phone is not compatible with City's new "Redlands 311" phone application for public work requests
- Fire - DoIT has shown a tendency to leave our issues un-addressed when new systems are designed. The CityWorks system is a classic example. Little of our processes were built into the system. PD - There is still old information on the website

Best Practices

- COBIT-PO10.1 - Program Management Framework
- COBIT-PO10.8 - Project Resources
- ITIL-ST-Transition Planning And Support

Recommendations

- Develop a projects portfolio for all information technology related projects
- Follow planning and implementation best practices
- Review all major active projects during IT Committee meetings

14. CLOUD COMPUTING

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 a city or facility other than your own, accessing information from a portable device, procession requests from the field, etc. The benefits of cloud computing allow individuals to collaborate and remain centralized regardless of location.

Cloud computing is one the most prominent discussions in information technology trends. 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.

Finding and Observations

- The City has already utilized some forms of cloud computing
- The City is interested in exploring off-site hosting for most of its data center/computer room needs

Best Practices

- ITIL-SD, CSI-Availability Management

Recommendations

- Given the level of infrastructure catch-up that needs to be made and future budget realities of the City, cloud computing options should be considered for all projects.
- Cost/benefit should be the over-riding factor for most final decisions
- Public safety system are not commonly hosted in the cloud

15. CLETS IT SUPPORT REQUIREMENTS

Finding and Observations

CLETS is a data interchange switcher for state data files. CLETS is an acronym standing for California Law Enforcement Telecommunication System. CLETS is a high-speed message switching system which became operational in 1970. CLETS provides law enforcement and criminal justice agencies access to various databases and the ability to transmit and receive point-to-point administrative messages to other agencies within California or via the National Law Enforcement Telecommunications System (NLETS) to other states and Canada.

Certain protocols must be followed for CLETS users including volunteers and IT support professionals that work on public safety systems. Note: There is "No" CLETS certification process for IT support personnel, employed or contracted. See CLETS Policies, Practices and Procedures, rev 10/11.

Best Practices

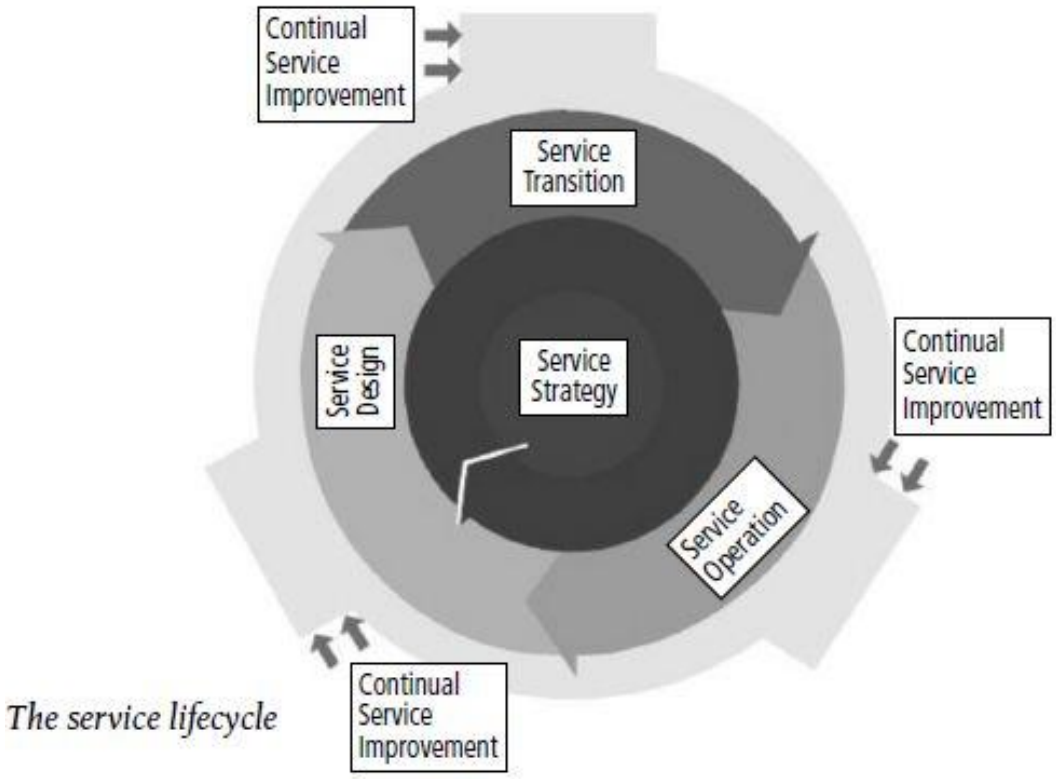
- COBIT-PO2.3 - Data Classification Scheme
- COBIT-PO7.2 - Personnel Competencies

Recommendations

- Obtain Live-scans and conduct background checks on all IT staff (city employed or contract) that may have access to any Public Safety computer or network systems
- Provide security awareness training with six months of IT support personnel start date
- Obtain signed one page Private Contractor Agreement for all non-employees that work on computers systems connected to the CLETS hardware or software

16. ITIL

Information Technology Infrastructure Library also known as ITIL, is a framework intended to assist organizations with the alignment of IT operations and the Business through an IT service strategy that continually realigns IT operations with the Business. 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 five (5) categories:



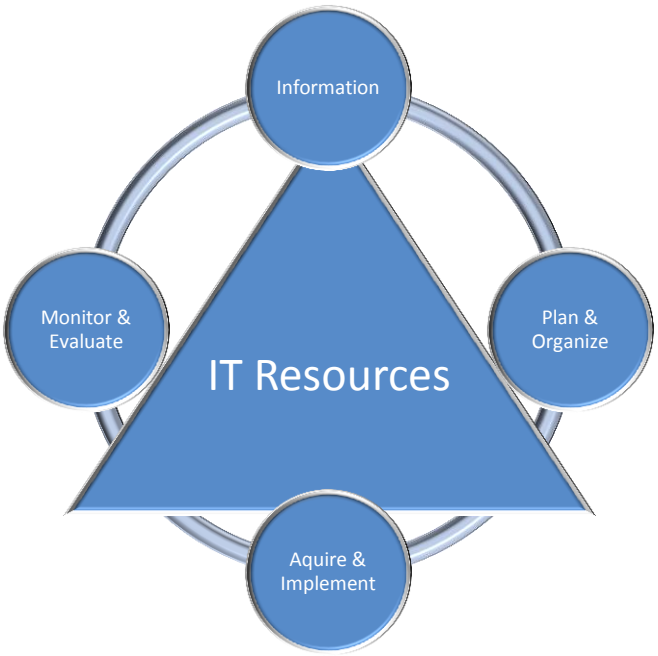
The service lifecycle

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 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 THIS APPROACH TO SERVICE DELIVERY THROUGHOUT ITS IT MASTER PLANNING PROCESS TO PROVIDE A SOUND APPROACH TO SUPPORT IT INITIATIVES. (WWW.ITIL-OFFICIALSITE.COM - ITIL, 2009).

17. 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 board of directors, and consists of the leadership, 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 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, understandable to management, of what IT does
- Clear ownership and responsibilities, based on process orientation
- General acceptability with third parties and regulators
- Shared understanding amongst 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 GOOD PRACTICE FOR IT CONTROL THROUGHOUT ORGANIZATIONS. COBIT EMPHASIZES REGULATORY COMPLIANCE, HELPS ORGANIZATIONS TO INCREASE THE VALUE ATTAINED FROM IT, ENABLES ALIGNMENT AND SIMPLIFIES IMPLEMENTATION OF THE COBIT FRAMEWORK. CLIENTFIRST UTILIZES THE CONCEPTS FROM COBIT THROUGHOUT ITS IT MASTER PLANNING PROCESS. (WWW.ISACA.ORG - COBIT, 2009)

APPLICATIONS & DEPARTMENTAL SYSTEMS

The Applications and Departmental 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 to overall productivity, enhanced communications and information sharing, improved constituent service, improved transparency, and in some cases, cost efficiencies.

18. MOBILE COMPUTING

Findings and Observations

The 21st century has brought an increasing demand for time and resources. Because of the need for maintenance supervisors, building/planning inspectors, and other employees to work off-site, bottlenecks in obtaining the information and producing the reports necessary for building safety, code enforcement and permitting, and project management can occur. By providing field workers with the necessary equipment and software, they are able to:

- Interact with necessary applications and databases in real-time
- View, change, or request inspection/maintenance scheduling
- Create new cases "on the go"
- Remotely submit inspection/maintenance reports
- Respond quickly to requests and questions from the public

Such off-site capabilities offer:

- Increased productivity and improved time management
- Centralized data that can be monitored in real-time
- Improved accuracy and reporting
- Reduced paperwork

This is primarily a hardware and secure wireless networking issue, as software applications that use browser technology require no additional software. Software programs that are not yet browser-based will require a remote access software solution, such as Terminal Services.

- 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
  - Demand for remote access will continue to grow as staff becomes more portable

Best Practices

- Cloud Computing
- ITIL-SD, CSI-Availability Management

Return on Investment (ROI) Consideration

- Mobile devices can reduce mileage and time spent traveling back and forth from the office. The Center for Digital Governments (CDG) reports that one city's wireless laptop-based inspection solution helped its code enforcement division increase the number of daily inspections. Another municipality used laptops and electronic ticketing to increase building 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 landlines
- ITS - Already purchased - must successfully configure, deploy and train.
    - $14,280/year

Staff Feedback

- CMO - Mobile computing could be improved.
- DSD - Need tablets or laptops for field inspectors to keep current inspection records and automate correction times and correspondence with the public
- Fire - Need to automate fire prevention inspections with tablets and integrate with city billing
- Fire - Fire data management is going to mobile devices to reduce duplicate and triplicate manual data entry
- Fire - Need access to GIS data in field by inspectors, Fire, Police and maintenance staff
- Fire - Need to run ICAP (web-based emergency incident software) on tablets
- Fire - We have equipped each chief and unit with an iPhone. As mentioned above, tablets will be deployed in the coming months as the result of a Countywide ICEMA driven initiative to automate patient care records. We already have plans in place to use the tablets to help automate our fire prevention process. Our hope is that we can continue to find and exploit as much utility for our personnel as possible. While CONFIRE will provide the bulk of this effort, our hope is that integration of the CONFIRE data into the citywide systems will happen.
- PIO - Interface between mobile devices (iPhone, iPad, etc.) and desktop computer programs
- QoL-Field - Need to mobile units to close out work orders in the field. 100 per day.
- Field Tablets & Laptops
    - Generally speaking, the manual, handwritten processes can lead to more human errors, fewer appointments completed daily, and slower inspection completion rates which leads to greater taxpayer dissatisfaction.
    - Staff will be able to retrieve zoning and building code information to respond to customer queries and verify/confirm requirements. No need to carry around large unwieldy code books or return to the office to retrieve the information.
    - Staff will be able to retrieve parcel information and permit history and specific project related information such as conditions of approval, minutes, etc. There will be no need to take project files out of the office and eliminates the need to contact office staff for information or tote around piles of paperwork, and file folders.
    - Mobility allows Staff to remotely prepare detailed project correction reports, which can be instantaneously included and stored within the electronic project file. Currently, corrections are handwritten on a separate notice, a paper copy is kept in the file jacket and discarded when the project is completed.

  - Mobility also allows inspectors to check appointments, add same day inspections, identify routes and complete other administrative tasks.
  - Reports and records are electronically created and delivered on the spot, not hours or even days after the fact.
  - Devices such as tablets with integrated cameras can be used to take property photos that can be instantly attached to the inspection record, and integrated mapping software can help map out inspection routes without the need for a separate GPS device.
- Planning Staff will have the ability to work from home on weekends or in the evenings during the week. This will enable deadlines to be met and an increase in the work output resulting in accelerated processing times for special projects. This will capture additional hours of Staff time as much as 8 hours per week per Staff member.

Recommendations

- Determine and inventory mobile/field computer needs by specific staff and applications needed, based upon productivity and customer service benefits
- Review applicable manual processes and shadow systems that can be eliminated through mobile automation improvements that will result in labor efficiencies
- Pilot tablet PCs first (much less expensive than laptops)
- Estimate efficiencies, cost/benefit, and resources of hardware and network set-up
- Expect initial version life expectancy to be two (2) years for tablets
- Establish ruggedized laptop standards and include hardware in PC replacement planning and budgeting
- NOTE: A fully fitted tablet with in-vehicle mounting and charging, wireless keyboard, mouse and thermal printer is less than $1,500 total, versus $4-6,000 for a ruggedized notebook computer
- Plan for continued growth and remote connectivity demands
- Were ROI can justify, enable optional mobile application modules
  - Where ROI can justify, if mobile applications are not available, consider virtual desktop technology
  - Staff will want to bring their own devices to work and use them for applications
  - If the staff-owned devices can be properly secured, this is not a bad thing

19. CityWorks Improvements

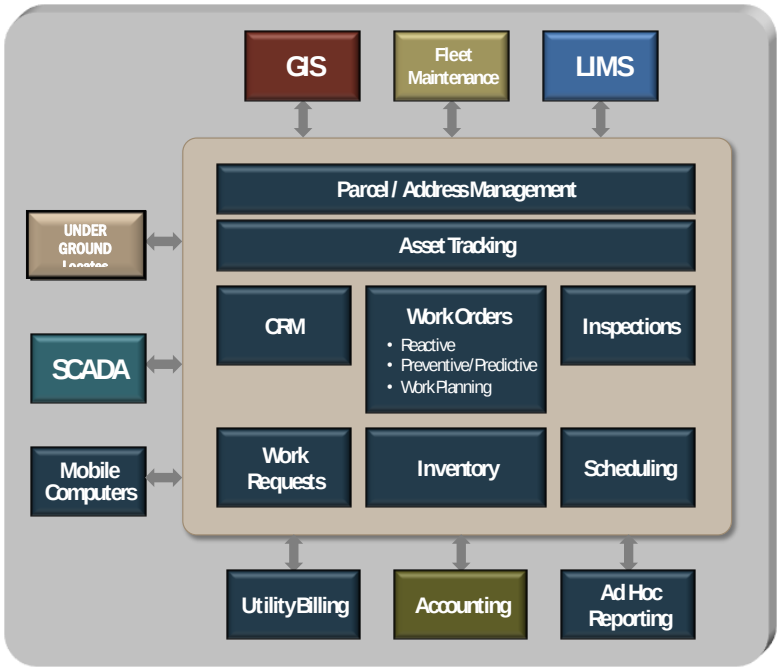
Findings and Observations

The City recently implemented a major maintenance management and community development software solution for work orders, planning, permits and inspections. Although it appears great effort was put into work process analysis and configuration of the new system, training and actual implementation of those processes was limited. The system appears to be significantly underutilized.

The following is a list of primary Maintenance and Asset Management functionalities. It is not intended to be all-inclusive/exclusive or organized by specific software modules.

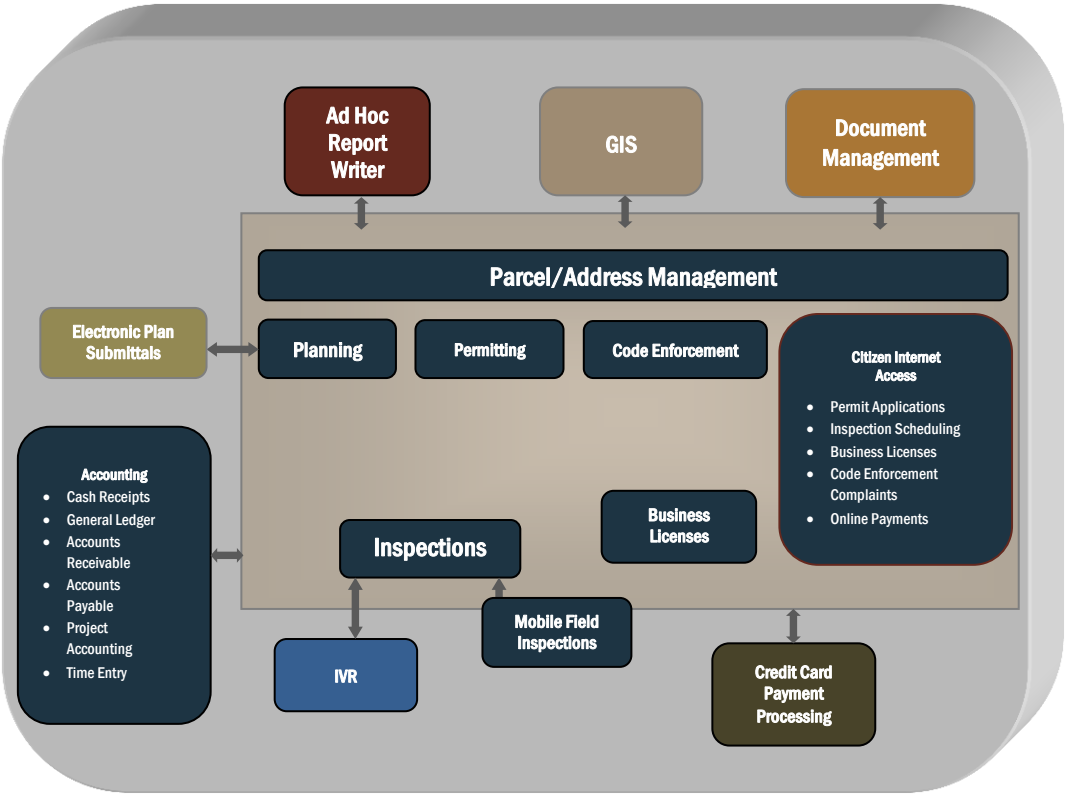
Maintenance and Asset Management Functionalities

- Citizen Request Management (CRM)
- Work Requests
- Inspections/Condition Assessment
- Work Orders
- Preventative/Predictive Maintenance
- Facilities Maintenance
- Asset Tracking
- Warehouse Inventory
- Parcel/Address Management
- Report Writing



Land Management System

A typical Land Management Suite of Applications includes: Project Planning/Zoning, Permits, Inspections, Code Enforcement, Business Licensing, and Land/Parcel/Address Management. The City should expect significant productivity gains with the implementation of a new, integrated land management enterprise application solution.



Best Practices

- Application Management Best Practices
- Software Selection Best Practices
- ITIL-CSI-Continual Service Improvement

Return on Investment (ROI) Consideration

- Planning Department
  - For mobile devices, the City can capture approximately 1,248 hours of salaried employees time away from the office (overtime); a savings of approximately $496,891.20. The tangible labor cost savings is new hire avoidance.
  - For CityWorks, Cost Savings will vary. Project review will not depend on the software; however, information retrieval and coordination will expedite the process. Approximately 104 hours per year at an average annual savings of approximately $22,000. The tangible labor cost savings will be new hire avoidance and reallocation of staff functions, such as concentration on long-range projects such as the downtown specific plan.

- Building and Safety Department
  - For mobile devices, the City can capture approximately 48 hours of the building inspectors time; approximately $5,850 in savings. Consolidating workload will be the tangible labor cost savings.
  - For CityWorks, approximately 118 hours can be saved as a result of online permit activity, self-issued permits, and improving the processing of permits. The City can save up to $12,270 in staff costs. The tangible labor cost savings will allow reallocation of staff function towards plan review (increase plan review).
- Conversion of data will result in quick information retrieval. This will save each staff member at least 5 to 15 minutes per day.
- Online permitting for certain types of projects is a labor saving tool for the Permit Tech. Staff will save approximately 10 minutes per application by allowing the applicant to complete such applications.
- Online payment and self-issued permits (e.g. water heater replacement) would capture 30 minutes of staff time on perhaps 3 or 4 applications a month, reduce permit fees (little staff time devoted to permit issuance), and increase permits for these small permits.
- Online permitting would allow the public to check the status of the plans and would save Staff at least a dozen (5 to 20 minute per phone call) phone calls per week.
- Online permitting would save Staff time spent routing plans, finding lost plans, calling because of an insufficient number of plans, etc. This would save Staff as much as 30 minutes per plan on as many as 200 plans a year.
- Online permitting would save the public money in printing costs.
- CityWorks will assist in reporting; Staff will be better able to identify the various types of projects, hours devoted to each project, identify development trends, refine budget revenues/expenses, and allocate staffing and resources. Staff will save at least 20 hours in its budget preparation annually. Additional Staff savings would also be garnered in improved resource allocation.
- CityWorks training will improve education and allow Staff the ability to track special event work orders and allow the City the ability to quantify resources devoted to the special events (actual labor costs and materials for such services). This information will used to determine the actual city cost to sponsor, host and or assist in the various special events

Staff Feedback, Findings, and Observations

- Fire - Fire department built an internal intranet work request and tracking system for facilities work order requests.
- MUED - Currently tracking miscellaneous follow-ups via email and tracking staff down. Need to automate process with status updates and routing
- MUED - Need better task tracking reports
- MUED - Need a work management system to automate manual processes and provide ability for departments to check status
- DSD - Need to expand and create the ability to collect fees and process permit applications including drawings and electronic plan submittal
- DSD - City Works user training was inadequate causing several departmental processes to not yet be fully implemented (e.g., entitlement approval process)
- DSD - Need to convert historical data from Permits Plus (the former system that City Works replaced)
- DSD – Still need to convert planning approval project logs and parcel map data
- Fire - Need interface from CityWorks Permitting and Fire RMS for Fire permits and Fire Prevention inspections. Fire - Still too much manual processing. Can't see status.

- Fire - Pre-fire planning - Related to premise information management, but focused on the minimum information firefighters require when addressing emergencies in commercial occupancies. If selected building department and finance department records were available for ready reference, line personnel could operate more efficiently and effectively.
- Fire - NIMS Compliant Inter-departmental incident management system - Need a system that would allow fire, police, utility units to coordinate in the field. (Feeds into Web EOC software)
- Fire - Need to be able to look up facilities repair status
- Fire - Need a report indicating what occupancies have/have not been Fire inspected
- Fire - DoIT has shown a tendency to leave our issues un-addressed when new systems are designed. The CityWorks system is a classic example. Little of our processes were built into the system. We were told we would be supported in phase II. (yet to be planned or implemented)
- QoL - Need parcel data updated. County has more current information and we sometimes send bills to old owners.
- QoL - Need a Code Enforcement application implemented
- QoL - Need building maintenance schedules
- QoL - Need project management software for scheduling
- QoL - Need better work order history reporting
- QoL - Need work order volume history reporting
- QoL - Need Code Enforcement case information
- QoL - Landfill regulatory compliance reporting
- QoL - Need Code Enforcement case information
- QoL - Contact management systems are needed for code enforcement, city manager tracking items and Hillside Memorial Park cemetery.
- QoL - A customer contact/response management system would be helpful. Online access to fill out a request for a work order and to check on the status of a work order would also be of great value if seamlessly integrated into the work order system. Code enforcement case management information should also be available in the same manner as work orders for infrastructure repairs in that customers should be able to log onto the website, search for an address and view all CE records associated with the property. They should also be able to register complaints on specific properties/conditions through that database.
- QoL-Field - Need job scheduling for field crews to provide better customer service, better response times, ability to prioritize, and ease of capturing and sharing data. Field crews process 1200-2000 work orders per year.
- QoL-Field - Productivity Analyses - Currently conducting research is very time intensive, no central repository for productivity data
- QoL-Field - Advanced Work order queries - Currently there is no way to pull up the work order history for a site in its entirety, this advanced query functionality would allow us to better respond to CM tracking items more effectively
- QoL-Field - Process of tracking quarterly intersection inspections - Up-to-date information, accuracy, and access to information
- QoL-Field - Estimation of field work supply quantities – Better, accurate estimates of supplies needed in the field and records of all quantities used for future reference in productivity and budgetary reviews meant to check status

- CityWorks Improvements
  - Training is needed to fully understand the potential provided by the software and to evaluate our current systems. At this time, there are many systems that are still done by paper and pencil that will likely be improved by CityWorks, which may include streamlining the entitlement/permitting process, tracking development applications and improving the reporting documents.
  - Conversion of paper files as well as files from the previous software applications will allow a single database

Recommendations

- Conduct a needs assessment of all unmet needs, additional functionality requirements, additional modules needed and additional user training requirements
- Review applicable manual processes and shadow systems, such as spreadsheets, to determine automation improvements that will result in labor efficiencies
- Work with the vendor to develop a customized project implementation and training plan
- Manage improvements similar to new system implementation following best practices for project planning and implementation

20. FLEET MAINTENANCE

Fleet management software can improve fleet operations and performance by allowing quick access to information of vehicle availability, maintenance needs, repairs management, and asset utilization. Appropriately managing the vehicles can extend useful lives, make better equipment and inventory purchases, lower fuel costs, limit manual processes, and view fleet reports.

Findings and Observations

The City appears to be using an older fleet maintenance software solution that does not meet the needs of staff or departments. Significant productivity is lost due to the manual nature of submitting fleet work orders, tracking, and status inquiry/reporting.

Best Practices

- Application Management Best Practices
- Software Selection Best Practices

Staff Feedback

- Fire - Fleet work orders require filling out a triplicate manual form and drive over to garage. Can take a week to get work done.
- Fire - Fire department built an internal intranet work request and tracking system for facilities work order requests. Would like something similar for Fleet Maintenance.
- Fire - Fleet repair reporting / progress documentations - Need efficient system for submitting "trouble tickets" on fleet issues. The system could/should also track the progress on address issues and/or delayed items
- Fire - Need to be able to look up vehicle repair status

- PD - Need a Fleet Management system to save time in departments and fleet maintenance staff
- QoL-Equp - Need to automate fleet maintenance schedules to improve budgetary planning and regulatory compliance
- QoL-Equp - Need to improve fleet maintenance costs and invoice tracking. May save $10k-20k in staff time per year.
- QoL-Equp - Need automation of inputting invoices into RTA. 40 per day. Could save 300+ hours per year.

Recommendations

- Review applicable manual processes and shadow systems, such as spreadsheets, to determine automation improvements that will result in labor efficiencies
- Select new software vendor according to the *Software Selection Best Practices* initiative

21. Public Safety Scheduling System Selection

Finding and Observations

Public Safety Scheduling Systems are complex implementations, due to the unique requirements of each agency throughout the country, with no two being alike. The scheduling itself is very complex and often changes throughout each day. For most agencies, this process is highly manual and time-consuming. Multiple, local agency bargaining units have traditionally made it difficult for any vendor to gain a dominant foothold in this software niche segment. In recent years, newer software development technologies have resulted in these types of software vendors to have more flexibility in meeting the widely varying needs of the thousands of Public Safety agencies nationwide.

However, the most important aspect in having a successful vendor selection and implementation is to clearly define the software feature/function specification requirements, especially as it relates to scheduling requirements, time entry, payment types, allocations, time/pay calculations, and accruals.

Adequate due diligence in selection can help prevent a less-than-optimal implementation that results in under-utilization and continued significant manual processes.

Best Practices

- Return-on-Investment Considerations
- Software Selection Best Practices
- COBIT-DS13.2 - Job Scheduling

Return on Investment (ROI) Consideration

- An automated public safety scheduling system would significantly reduce staff time to resolve scheduling issues, quickly mobilize specialty units, and to contact civilian volunteers for assignments. The staff time saved from the reduction of time spent on this activity could be utilized in more productive ways.
- Such a system would produce the following costs and productivity savings:
  - Patrol staffing: 100 annual labor hours saved X $83.23 (the gross salary for a patrol supervisor) = $8,323 in annual labor efficiency savings

  - Overtime assignments: 100 annual labor hours saved X $83.23 (the gross salary for a supervisor) = $8,323 in annual labor efficiency savings
  - Investigative call-outs: 52 annual labor hours saved X $83.23 (the gross salary for the investigative supervisor) = $4,328 in annual labor efficiency savings
  - SWAT call-outs: 3 annual labor hours saved X $83.23 (the gross salary for the tactical supervisor) = $250 in annual labor efficiency savings
- ITS - FD - required by Confire, PD - to streamline process of entry
  - $21,224/year (PD only)

Staff Feedback

- Police – Scheduling is a manual processes that changes throughout the day
- Police – Return on investment can be obtained through reductions in manual labor
- Fire - Want to implement TeleStaff software for scheduling and Time Entry
- Fire - Current staffing system is manual and subject to errors and delays as a result. Should be able to tie into payroll system to avoid redundant data entry requirements.

Recommendations

- Review applicable manual processes and shadow systems, such as spreadsheets, to determine automation improvements that will result in labor efficiencies
- Select new software vendor according to the *Software Selection Best Practices* initiative
- Consider third-party industry expertise assistance

22. ACTIVENET EXPANSION

Finding and Observations

Park and Recreation applications have expended significantly over the last decade to provide much more functionality in a single vendor solution than ever before. Depending on the vendor, a Parks and Recreation enterprise solution may include:

- Activity Registration
- Facility Reservation
- Membership Management
- League Management
-
-
- Pass Management
- Point of Sale
- Equipment/Site Rentals
- Court Reservations
- Trip Booking
- Incident Processing
- Maintenance Inspections and Results
- Job/Task Maintenance Scheduling
- Planning, Budgeting, and Depreciation
- General Ledger
- Accounts Payable
- Purchase Orders
- Time Management/Scheduling
- Payroll Accounting
- Annual Registrations
- Program Management
- Point-of-Sale Cash Register
- Volunteer Tracking
- Donations

Best Practices

- Application Inventory
- Software Selection Best Practices
- Gov 2.0

Staff Feedback

- DSD - Current Market Night booth reservations is manual process that should be setup in our Active system
- Fin - Need the Point of Sale application module
- DSD - Need online registration/payment for classes/activities
- Fire - Would like to take donation payments online again for the Explorer Program
- HR - Wanted to use Active module
- HR - Would like to sell movie tickets online for employees
- QoL - Need online parks reservation system
- QoL - Need to streamline Senior Services field and facilities rentals

Recommendations

- Conduct a needs assessment of all unmet needs, additional functionality requirements, additional modules needed and additional user training that is needed
- Review applicable manual processes and shadow systems, such as spreadsheets, to determine automation improvements that will result in labor efficiencies
- Work with the vendor to develop a customized project implementation and training plan
- Manage improvements similar to new system implementation following best practices for project planning and implementation
- Expand ActiveNet's use to other non-Parks & Recreation departments to prevent City from procuring more software vendors with separate hardware and support requirements (when appropriate)
- Consider assistance from an independent third-party industry expert

23. ELECTRONIC DOCUMENT MANAGEMENT SYSTEM (EDMS) IMPROVEMENTS

Findings and Observations

The City is currently using two different EDMS software solutions, Ademero (City Clerk) and LaserFiche (Police). The Police are reducing their reliance on LaserFiche due to paperless workflow implementations with the current CAD/RMS system.

EDMS, also referred to as Electronic Content Management Systems (ECMS), can be utilized for much more than document scanning and storage.

Additional uses include:

- Enterprise Records Management, including Retention Management
- Integrated Document/Process Workflow Management, including Internal Request Management, and Routing and Distribution (A/P, A/R, HR, Project Tracking, etc.)
- Forms Management
- Project/Process Collaboration
- Minutes Management
- Agenda Management
- Synchronized Meeting Video Streaming

Over time, an organization's documentation simply increases. Significant costs are incurred in document processing, printing, storing, retrieving, and other management. More recently, increased FOIA requests have saddled municipalities with sharply increased costs of compliance; tens of thousands – and sometimes hundreds of thousands – of dollars in labor costs are being incurred. An electronic document management system is one strategy and use of technology to help lessen the burden of finding, managing, securing, and maintaining compliance.

System benefits include:

Compliance – improved and more efficient ability to comply with increasing volume and complexity of regulations

Security – improve physical abilities and accessibility security

Workflow Capabilities – provide electronic capture, routing, and approvals of manual paper processes

Improve Efficiency – increase productivity through automation of manual processes and time reduction in retrieving and sharing information

Reduce Costs – reduce costs of printing, paper, storage space, and labor

Reduce Carbon Footprint – minimize paper waste (a green initiative)

Improve Transparency – increase accessibility to information via the Web, including fully automating some types of documents immediately upon creation without additional processing or labor

Disaster Recovery – protection of vital records through storage redundancy

Best Practices

- Software Selection Best Practices
- Return-on-Investment Considerations

Return on Investment (ROI) Consideration

- A study conducted by Cooper's and Lybrand found the following:
  - The average document gets copied 19 times in its life
  - 90% of documents that are handled in an office are merely passed along or shuffled through.
  - The costs to manage a single document are below:
    - $20 to file a document
    - $120 to find a misplaced document
    - $220 to replace a lost document
  - 7.5% of all documents get lost
    - An office that generates 200 documents a week will lose 15 of them, costing a total $3,300.
  - 3% get misfiled
    - An office generating 200 documents a week will misfile 6 of them, costing the company $720
- A feasibility study by the North Dakota Information Technology Department regarding EDMS technology found the following:
  - A organization that scans 600 documents per day can have the following benefits upon implementing an EDMS:
    - An 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
    - Would save 36,556 in annual costs when compared to manually storing and managing documents
- A study conduct by Prescient Digital Media found the an EDMS saves employees between 50-60% of time searching for documents

Staff Feedback

- CMO - Need improved City wide records management system (eliminate manual searching of records)
- CMO - Need submittal of commission applications through the City's website.
- Attorney - Need to scan documents with OCR capability to eliminate manual typing of entire documents
- Attorney - Copy machine is being utilized as a scanner, but does not have OCR capabilities. This would be a great enhancement and time saver for staff if it had this functionality. If not, having the ability to scan a hard copy document so that a software application can recognize text and convert to a document that can be edited would be helpful.
- Attorney - Improved City wide records management system

- Attorney - Need to receive requests for public records through the City's website, which would feed into an automated tracking system or software. Requests could be sent to the appropriate departments for response. Departments could respond through this same software application with documents attached. Ideally, sending the documents to the requestor through the same system would be great. Currently, the City's email system is being utilized; however, file size limitations create extra work due to having to size files accordingly in order to email.
- Clerk - Need new server to publish city documents on Internet for public access
- Clerk - Need to complete digitization of all required documents
- Clerk - City has been very fortunate to utilize volunteers digitizing thousands of documents
- Clerk - So far, all Council resolutions, ordinances, minutes back to 1974, and nearly half the city contracts have been digitized
- Clerk - Need to train City staff how to research and access electronic documents
- Clerk - Need OCR search engine capabilities
- Clerk - Need a Minutes Management software module to streamline process
- Clerk - Need to streamline annual Statement of Economic Interests tracking process
- Clerk - City purchased Ademero software for $12,000
- Clerk - Public access to records has got to be improved. Residents should be given the capability to explore files and research at their own pace and with their own direction.
- DSD - Need to auto publish certain documents to City website
- DSD - Need a central photo archive for storing, sharing and retrieving photos
- DSD - Need to convert microfilmed documents to digital records
- DSD - Having to go to multiple buildings to research property files, often even for single urgent inquiries
- Fin - Need scanning and document management integration with Bi-Tech
- HR - Need to automate Personnel Files. Minimum time savings would be 1.0 hours per day. We have 525 employees, plus retirees, interns, volunteers, separated employees, etc. Current archived data is on microfilm and can equate to numerous hours for research on one single file.
- HR - Need document management system like LaserFiche.
- MUED - 10-15 public records requests per month. Going to LaserFiche would make searching for document faster.
- MUED - Currently spending 9 hours per day searching for documents. Having a company scan historical records and staff scan ongoing documents would make searching for documents quick and easy and allow record tracking and inquiry capable citywide. Possibly save 7.0 hours per day in document searching.
- PD - Police is using LaserFiche less since going to Spillman's Paperless Reporting
- PD - Believe LaserFiche Web license searching has a bug issue related to data mapping
- QoL - Automating Fee Waiver Process ensures timely action on the part of staff in obtain city council approval

Recommendations

- Further investigation of current LaserFiche utilization.
- Further investigation the Ademero solutions overall capabilities
- Conduct a needs assessment to determine City's short and long-term needs to determine if one solution is more suited to the City's overall needs
- Review applicable manual processes and shadow systems, such as spreadsheets, to determine automation improvements that will result in labor efficiencies
- Depending on long-term costs, it may be cost-beneficial to eventually replace both systems with a single citywide solution
- Follow System Selection best practices

- Consider independent third-party industry expertise, as this is a complex, major enterprise system

24. BUSINESS LICENSE APPLICATION IMPROVEMENTS

Finding and Observations

- City currently uses HdL business license software, but does not have online license renewal or payment module

Best Practices

- IT Project and Services Portfolio
- Software Selection Best Practices

Return on Investment (ROI) Consideration

- Fin - HdL Business License Upgrade - Estimate online usage of 29% of all business license renewals would provide annual savings of $15,019

Staff Feedback

- Fin - Need better reporting
- Fin - Need online renewal capabilities
- Fin - Need Web inspections
- Fin - System running slow, but not sure if it is a server issue

Recommendations

- Utilize *Software Selection Best Practices* when evaluating new module capabilities and benefits
- Consider additional refresher and report-writing training on existing solution

25. ERP IMPROVEMENTS

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, storage, and operations. Improvements to ERP solutions bring about processes that multiple departments can benefit from. Common municipal-related ERP application modules include accounting, financial reporting, payroll, human resources, and utility billing.

Finding and Observations

- The City utilizes the Bi-Tech ERP solution from SunGard for most financial, accounting, payroll, and human resources functions
- Currently upgrading to the latest software version
- The system is significantly under-utilized, and some modules have never been implemented

Best Practices

- IT Governance
- IT Project and Services Portfolio
- COBIT-PO1.1 - IT Value Management
- COBIT-AI2.5 - Configure and Implement Acquired Software
- ITIL-CSI-Continual Service Improvement

Return on Investment (ROI) Consideration

- Fin - Contracts/Bids Management & E Procurement - Estimated annual hours savings of 250-500 hours per year result in $22,385 in labor savings
- Fin - Position Budgeting - 500-600 hours in annual labor budgeting and analysis would save $11,947 in labor costs
- Fin - Budgeting Implementation - Over 100 hours annually in departmental savings would result in $11,947 labor savings
- Fin - Project/Grant Accounting - Over 100 hours annually in departmental savings would result in $11,947 labor savings
- Primary tasks on most HR functions are that of documentation, tracking, and reporting. Specifically, these modules will reduce the need for the numerous Access tracking databases that we currently use and combine information so that billing reconciliation, retiree and active employee medical and vision reimbursements, training attendance and coordination, tuition reimbursement, benefit changes, MOU administration and other such functions can be accessed in one location and facilitate coordinated automated reporting as opposed to manual gathering of information. Extensive time is spent in:
  - Developing and maintaining Access databases;
  - Entering the same data in multiple locations for various documentation and reporting;
  - Manually entering 1000s of lines of data and formulas to produce numerous reports and informational documents for benefits administration, payroll, negotiations, MOU administration, ad hoc reports and analyses and multiple other assignments.
- ROI following implementation and appropriate training would be immediate due to hours saved by all staff members in lessening manual and redundant actions

Staff Feedback

- DSD - Need ability to take certain one-stop counter payments instead of making a three-step process.
- Fin - Planning to upgrade to Bi-Tech version 7.9
- Fin - Some modules have been purchased but not implemented
- Fin - Need more department user access for self-inquiry and reporting
- Fin - Need more department user access for purchasing, requisitions and time entry
- Fin - Hoping Bi-Tech upgrade will provide more capability
- Fin - Need ability to get data/information out of system the way we need it
- Fin - Need better report writing capability and training
- Fin - Need online requisitions
- Fin - Need a contracts management module
- Fin - Need online vendor management capability
- Fin - Need a bids management module
- Fin - Need position control budgeting
- Fin - Need to streamline budgeting process online

- Fin - Need to automate bank reconciliations
- Fin - Need to implement Project/Grant Accounting module
- Fin - Need scanning and document management integration with EDMS
- Fin - Need ability to track pooled cash
- Fire - Budgeting system is essentially manual from the end user standpoint and requires building of separate Excel spreadsheets to track expenditures and build future budgets. Current pdf documents provided by finance are not helpful.
- Fire - Need real-time inquiry access into budget module. Currently building Excel worksheets to track department budget.
- Fire - Pre-fire planning - Related to premise information management, but focused on the minimum information firefighters require when addressing emergencies in commercial occupancies. If selected building department and finance department records were available for ready reference, line personnel could operate more efficiently and effectively.
- HR - Cannot get the IT Staff to fix hardware to start Bi-Tech (ERP) upgrade.
- HR - DoIT has not been cooperative regarding system administration settings
- HR - Budgeting process is manual
- HR - Need to automate Personnel Files. Minimum time savings would be 1.0 hours per day. We have 525 employees, plus retirees, interns, volunteers, separated employees, etc. Current archived data is on microfilm and can equate to numerous hours for research on one single file.
- HR - Need to automate Benefits Enrollment for annual open enrollment, change options, new hires, etc. This process 150+ hours per year in HR, plus employee time
- HR - Currently we cannot pull ad-hoc reports to get data for negotiations etc. Information has to be pulled in bulk or manually pulled and then put into Excel to analyze almost any type of employee data. We could save 600+ hours per year with further training and support for Crystal Reports
- HR - NeoGov uploading info into Bi-tech upon employee selection. Could save 400 hours per/year or a 50%+ reduction in HR staff time spent for this activity
- HR - Performance Evaluation Management - Time utilized/saved is not currently known since several departments recently switched back to the paper/manual process because they did not like the Performance Pro software.
- HR - Training Tracking - The automating of this process will only be known after it is implemented. Not having it automated makes us limit any training to a minimum compliance philosophy
- HR - Injury Reporting & Tracking automation savings depends on number of injuries and that is somewhat cyclical. 600 hours average per/year, or a 60%+ reduction in HR staff time spent on this activity
- HR - Query reporting on Bi-tech for negotiations and other issues. Need to be able to have accurate numbers at my fingertips when I need them and not having to ask Finance to put together a manual report each time. Sometimes a need for a basic idea of the total number to see if something is even feasible but can't because we would have to interrupt Finance to find out.
- HR - Need an integrated HRIS systems for less duplication of efforts.
- HR - Need to be able to use EFT for AP Payments, e.g., retiree medical stipends.
- HR - Vendors and consultants have requested direct deposit for AP payments
- MUED - Need automation of budget preparation process.
- PD - Police double tracks employee accruals because they do not trust the accounting reports
- PD - Need an Employee Self Service module for employees to access their demographic data, pay stubs, request time off, etc.
- PD - Police uses manual receipts and only take cash or checks.

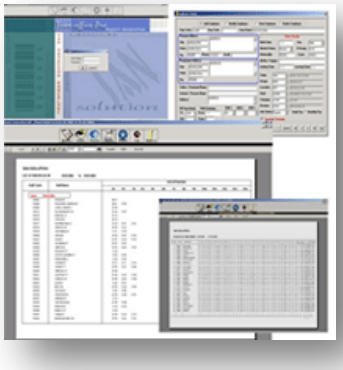
- PD - Need to streamline Tow billings
- QoL - Improve PO and budgeting tracking
- QoL - Need to streamline misc. invoicing directly into accounts receivable. 50-100 per month. Could save 300+ hours per year.
- QoL - Need to streamline airport lease and tie down billings

Recommendations

- Review applicable manual processes and shadow systems, such as spreadsheets, to determine automation improvements that will result in labor efficiencies
- Conduct a needs assessment of all unmet needs, additional functionality requirements, additional modules needed, and additional user training requirements
- Work with vendor to develop a customized project implementation and training plan
- Manage improvements similar to new system implementation, following best practices for project planning and implementation
- Consider assistance from independent third-party industry expert

26. TIME ENTRY SYSTEM

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 entry systems can provide:



- Single-occurrence data entry
- Standardized employment rules and implementation
- Centralized database for electronic review of records
- Consistent enforcement of vacation/sick policies, FLSA requirements, and union rules
- Web-based 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, thereby saving valuable time and resources
- Decrease inaccuracies and human error
- Improve management of vacations, sick leave, and other absences

Findings & Observations

- The City does not have a centrally utilized time entry system for employees resulting in significant loss of productivity and manual processing throughout the organization.

Best Practices

- Software Selection Best Practices
- COBIT-PO1.1 - IT Value Management

Return on Investment (ROI) Consideration

- In a study conducted by Nucleus Research, an organization that transitioned to an automated time entry system saw a return on investment within 6 months, and an overall return of 225% of their initial investment[10].
- ITS - Industry study reveals that ROI was 225% of initial investment
  - $20,384/year in staff time

Staff Feedback

- Attorney - Need ability to track time spent for PRA responses
- Fire - Need a Time Entry system to replace the multi-step, duplicative process that is currently done with spreadsheets, which is prone to mistakes
- Fire - Want to implement TeleStaff for scheduling and Time Entry
- Fire - Current manual system is cumbersome and requires significant manual calculations of FLSA pay levels
- HR - Need to automate time entry
- MUED - Multi-step manual process - Staff enters on paper, 5 supervisors each review for 1.0 hour, then admin enters. Total time is approximately 8 hours, then managers review for approximately 5 hours, then final admin reviews before sending to payroll.
- MUED - Need to automate time entry, review and approval process with system that has configurable business rules. Should be a three-step process with staff entering time in computer or time entry device.
- PD - The department is spending at least 60 hours reviewing time recording per pay period.
- PD - Using paper for time-off requests
- PD - Time entry, review and approvals are entered three times, and also includes paper routing
- PD - Police double tracks employee accruals because they do not trust the accounting reports
- PD - Only one person knows our complete time entry process and has to schedule vacations around the City's payroll cycle
- QoL-Field - Need automation - Cumbersome process needs efficiency and accuracy improvement
- QoL-Field - Current accruals tracking is a nightmare

Recommendations

- Review applicable manual processes and shadow systems, such as spreadsheets, to determine automation improvements that will result in labor efficiencies
- Select new software vendor according to the *Software Selection Best Practices* initiative
- Consider third-party industry expert assistance
- Consider Bi-Tech and Public Safety specialized options

[10] Nucleus Research, 2003

27. AUTOMATED AGENDA MANAGEMENT

Automated Agenda Management Systems provide access to information for all departments involved in the agenda process. Staff members submit proposed agenda items online, where they can be automatically routed for approval through pre-configured workflows. Approvers receive e-mail notifications with links to items awaiting review. City Clerk or other responsible parties add items to meetings, then prepare agendas and publish them. Agenda content is available online throughout the process and is easily accessible to those with a role in the process.

Finding and Observations

- The City's processes are highly manual in nature
- Productivity, efficiency, and improved timeliness are possible with an automated agenda management solution

Best Practices

- Software Selection Best Practices
- COBIT-AI6.5 - Change Closure and Documentation

Return on Investments (ROI) Considerations

- In an article for the Daily Press by Dan Parsons, we are told of the recent decisions in Hampton and Williamsburg VA to phase out the use of paper schedules and meeting documents, in favor of using iPad tablet computers. In the interest of reducing paper use in general, and specifically the costs of printing, these local governments have purchased the iPads necessary for their Council members to be paper-free. As the article informs us:
- "Williamsburg spends about $2,000 a year on printing council packets for regular meetings and work sessions, according to City manager Jack Tuttle.
- Last year, the city printed 1,716 pages of agendas. Multiply that by 20 for copies used by council members and staff and the total grows to 34,320 sheets, or about 69 reams of paper. While cutting costs is a priority, printed agenda packets will remain available upon request at no charge, said city spokeswoman Kate Hoving.
- An iPad costs about $600. Buying them for five Williamsburg council members is a one-time cost of $3,000, so the computers should pay for themselves in 18 months."

Staff Feedback

- CMO - Need automated City Council Agenda Process (agenda development, staff report review, etc.) There are 24-35 agenda packets per year. Staff time will be saved due to the manual review process and agenda development Increased efficiency
- Clerk - Need to streamline process through software automation
- DSD - Need ability to compile and print multiple files for a single agenda item.
- DSD - Takes 2.5 hours to upload files to website

Recommendations

- Select new software vendor according to the *Software Selection Best Practices* initiative
- Consider the City's long-term EDMS vendor solution, if available

28. CITY INTRANET

An intranet has a similar function to the Internet, by using the organization's in-house computer network to share information in a private and secure fashion. Generally, it is not freely accessible by third parties. Intranets can be used to:

- Quickly communicate news, changes in policies or benefits, and emergency information
- Promote a common culture
- Allow easy access to policies and procedures, training manuals, or forms
- Provide contact information for departments, supervisors, and other staff

Benefits:

- Reduction in miscommunication
- Decrease in the need for physical documents, such as procedure manuals or paycheck inserts
- Increased employee productivity and collaboration

Other potential Citywide intranet uses could include:

- Reductions in miscommunication
- 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 that are most successful use the intranet as staff's computer/Internet home page.

Findings and Observations

- The HR Department expects to publish the first release of the intranet later this Spring.

Best Practices

- Project Planning Best Practices
- Application Management Best Practices

Staff Feedback

- CMO – Need an Intranet site for internal communications.
- Attorney – Need an Intranet site for internal communications.
- Fire - Contacts (Address book) management - Need a more up-to-date and complete address book to limit the need to develop individual Outlook contacts. A directory with all of the required information and a picture of the individual would allow new personnel to come up to speed more quickly.
- HR - HR department is designing and building own intranet
- HR - Would like to sell movie tickets online for employees
- HR - Currently more than we should be doing. Because we kept pushing to get the City intranet up and running since 2008, in July 2012, the then Interim DoIT Director gave us the tools he had to have us start developing it. We switched to different, more user-friendly programs and Ashley is getting very close to rolling it out.

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
- Make the intranet the default Internet browser home page for all City staff
- Reduce other mass employee communications such as email, flyers and bulletin board posters (as applicable)

29. GIS NEEDS ASSESSMENT

Geographical Information Systems (GIS) allow easy mapping of cities from satellite images and zones to land uses, drains, and structures. The benefits of a GIS system include reduced field observations, more informed decision-making, and improved parcel management.

Finding and Observations

- The City has a robust GIS system with a great deal of available data. However, there is limited Citywide consensus on future GIS needs and priorities.
- The GIS system appears to suffer from poor response time

Best Practices

- IT Procurement Practices
- Application Management Best Practices
- ITIL-CSI-Continual Service Improvement

Staff Feedback

- DSD - Need to identify all parcel attributes needed by all departments
- DSD - Need an end-user GIS viewer application for ease of use
- Fire - Premise information management / sharing. Each department, to some degree, collects information on our buildings, occupancies, and residents. This information is not shared efficiently. (The firefighter going to a home for an emergency, may not know there has been a history of violent behavior in the residence etc.)
- Fire - PulsePoint System integration - Need to work with CONFIRE and City records to document locations of Automatic Defib units.
- GIS - Need to conduct an internal survey to find out what GIS data and mapping is needed by the departments
- QoL - Need parcel data updated. County has more current information and we sometimes send bills to old owners.
- QoL-Cemetery - Would like to create virtual cemetery tours for one-stop counter

Recommendations

- Develop a five-Year Citywide GIS Plan including:
  - Prioritized layers and maps needed
  - Outlined processes for updates from the County to GIS and PD mapping applications
  - GIS applications and hardware needed
  - Other operational application integration needs
  - GIS staffing or outsourcing needs

  - Alternative approaches to GIS staffing needs
- Consider assistance from an independent third-party industry expert to develop the plan
- Make GIS integration a requirement for all new geo-based software application procurements

30. PERFORMANCE EVALUATION SOFTWARE REPLACEMENT

Performance evaluation software automates staff reviews based on individual and departmental performance. This allows the ability to measure the skill sets of the workforce and plan expenditures accordingly with the internal resources available, build succession plans for continuity purposes, reduce numerous manually intensive reviews, and identify areas for improvements.

Finding and Observations

The City unsuccessfully implemented an employee performance evaluation solution. Department Managers believe the process has become even more inefficient than the prior manual processes that were in place.

Best Practices

- Software Selection Best Practices
- IT Cost Recovery (IT Budget Allocations)
- COBIT-PO8.6 - Quality Measurement, Monitoring and Review
- COBIT-DS3.1 - Performance and Capacity Planning
- ITIL-CSI-Service Measurement

Return on Investment (ROI) Consideration

- Labor cost is difficult to calculate because this process entails the multiple hourly rates of all staff who handle each document ranging from Administrative staff to Managers and Directors.
  - Primary time is spent on:
    - 1125 hours at an estimated average hourly rate of $47.95 would make an approximate annual expense of $54,000 to create, review and approve all City evaluations. Effective automated software will reduce the expense by at least ½ equaling approximately $27,000 savings.
    - Passing individual paper evaluations that tend to be 5 to 10 pages each, between approximately 2 to 5 people;
    - Making paper copies and sending them via interoffice mail back to the employee and department once they are finally executed by HR;
    - Filing the paper copies in employee files;
  - Other than staff time, approximately 7000 sheets of paper are saved each year as well as the toner and service and parts expense. With 500+ employees and 5 to 10 pages per employee evaluation and all additional copies. Assuming that black and white copies are .03 cents each, estimated cost of materials alone is $210.
  - The primary attributes of this type of system are:
    - Providing a history of previous year performance;
    - Continually tracking goal progress;
    - Real time tracking of valued performance and noting commendations; and

    - Updating the next year's evaluation automatically to save review time; and
    - Input from both employee and supervisor throughout the year.
    - All of these factors assist in making the evaluation period a more positive interaction between employee and supervisor instead of one fraught with fear and apprehension.
  - ROI on this type of investment is generally within six months

Staff Feedback

- DSD – Performance Pro often loses records and we have to start evaluation input over again
- HR - Need a system that is evaluated through a committee process
- HR - Performance Evaluation Management - Time utilized/saved is not currently known since several departments recently switched back to the paper/manual process because they did not like the Performance Pro software.
- MUED - Ideal only if there is a good system/program. The current Performance Pro was not an affective program. To many hours wasted following up and checking with staff to see what has been done.

Recommendations

- Review applicable manual processes and shadow systems, such as spreadsheets, to determine automation improvements that will result in labor efficiencies
- Define feature/function and workflow requirements as detailed as possible including input from all departments
- Select new software vendor according to the *Software Selection Best Practices* initiative
- Determine if existing can meet the City's requirements with reimplementation and more extensive training
- Consider limited third-party industry expert assistance
- Manage implementation using best practice methodology

31. PROJECT TRACKING/COLLABORATION

Collaboration software can provide effective, flexible, and secure ways of sharing information, including storing, routing, and managing documents, use of blogs and wikis, maintaining task lists, managing forms, and creating and managing workflows. The following are benefits of project tracking and collaboration software:

- Sharing of information internally or externally relates to a common project
- Project documentation is stored centrally to the project (e.g., contracts, purchase orders, reports, interview, findings, procedures, data)
- Documents, final and interim reports, procedural documents, and project collected data are adequately tracked to projects
- Data is not duplicated multiple times due to distribution methods and management of data
- Project teams will have a central repository of information related to each project
- Advantage of using a central project collaboration solution is the ability to provide teams with an electronic distribution point for information regarding a project.
- Project collaboration tools provide the ability to share information through multiple types of communication and media such as:
  - Blogs, wikis, videos
  - Discussion Forums
  - Photo galleries
  - Task create, tracking, and assignment
  - Project sites

- Calendaring
- Gantt charts
- Contacts
- Alerts
- Document sharing libraries (versioning, check in-out)
- Workflow
- Search
- MS Office integration
- Website content management
- Metadata management

Best Practices

- Software Selection Best Practices
- IT Cost Recovery (IT Budget Allocations)
- COBIT-AI6.4 - Change Status Tracking and Reporting

Return on Investment (ROI) Consideration

- In a study conducted by Nucleus Research, an organization that replaced its legacy project management software saw a return on investment within 11 months and an overall return of 114%[11].
- Project information retrieval and coordination will be more efficient and approximately capture 104 hours per year, equaling an average annual savings of approximately $22,000 per DSD

Staff Feedback

- CMO - Need to automate City Manager Assignment Log tracking to increase efficiency and customer service
- CMO - Need flexibility to create reports from the CM's assignment log (i.e., average response time, # of open/closed assignments, department specific assignments, etc. to measure performance)
- Fire - Need inter-department collaboration and coordination software for project collaboration such as Air Show and Donut Hole Development. Currently only use email and Excel
- HR - Need to implement BaseCamp for Citywide project management for coordinated tracking and communication.
- QoL - Need project management software for scheduling

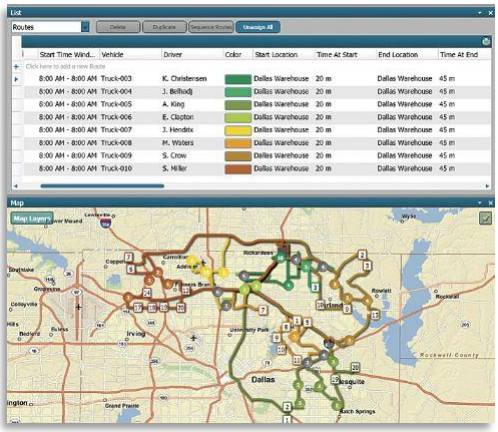
Recommendations

- Conduct a needs assessment with all departments needing related functionality
- Determine if BaseCamp or P6 can meet City requirements
  - If not, utilize *Software Selection Best Practices* to evaluate alternative solutions

[11] Nucleus Research, 2003

32. ROUTE MANAGEMENT SOFTWARE

Route Management Software serves the purpose of automating the planning and mapping of certain vehicular routes. Routing software would allow:



- Automated calculation of routes based on service locations, to include variables such as time of day, type of road, and one-way streets
- Efficient planning for servicing a list of addresses, including automatically generated travel time and turn-by-turn instructions
- Analysis of all stops and routes to determine best service days, routes that cross or duplicate paths, time windows, and vehicle scheduling loads
- Route changes "on the fly" due to emergencies, equipment breakdowns, or customer requests

Such capabilities could offer:

- Reduced manpower needs
- More efficient scheduling
- Decreased fuel costs and maintenance requirements
- Improved service availability

Best Practices

- Software Selection Best Practices
- Return-on-Investment Considerations
- ITIL-SD SO, CSI-Capacity Management

Return on Investment (ROI) Consideration

- A Case study conducted of Eastern Bag and Paper Group found that route planning and optimization resulted in no increase in trucks purchased, 15% reduction in driver overtime, 50% reduced routing time and an ROI in 10 months[12].
- ITS - Industry case studies show a 15% reduction in driver OT
  - $22,500/year in staff savings

Staff Feedback

- QoL - Solid Waste Route Management is impacted by legislative a regulatory changes, most notably AB 341, mandatory commercial recycling, requires that we add each commercial customer to a recycling route eventually. There is no software in place to design the routes, instead each route change takes several weeks to perfect.
- QoL - Need a new route management software solution for utilities and refuse collection
- QoL – GPS units alone are not sufficient and still do not auto-optimize driving

[12] Eastern Bag and Paper Group, 2012

- Continual route management needs include solid waste pick-ups, street sweeping, work orders, etc.
- QoL – Would also be used to analyze the optimum location for the new/replacement fuel station

Recommendations

- Define feature/function and workflow requirements as detailed as possible, including input from all departments
- Select new software vendor according to the *Software Selection Best Practices* initiative
- Manage implementation using best practice methodology

33. WEBEOC

WebEOC is an emergency operations center that processes various global and regional real-time information feeds to allow for quick planning and preparation, as opposed to local emergency response only. WebEOC can also integrate with CAD systems.

Best Practices

- Software Selection Best Practices
- COBIT-PO9.3 - Event Identification
- ITIL-ST-Transition Planning And Support

Return on Investment (ROI) Consideration

- A study conducted by OpsCenter shows an EOC system reducing part-time staffing needs by 25% or more[13].

Staff Feedback

- Fire - Need Web-based emergency operations center software to replace current manual tracking systems
- Fire - Current emergency operations center is a manually (paper form) based system. Automation of this function will allow better internal and external identification of incidents, tracking of progress, and allocation of resources. It will also allow for more efficient tracking of costs and disaster funding.

Recommendations

- Select new software vendor according to the *Software Selection Best Practices* initiative
- Manage implementation using best practice methodology

[13] OpsCenter, 2013

34. NEW BROADCAST SYSTEM

Finding and Observations

The City's Broadcast system is aging and out of date. PEG Funds can be utilized for replacement.

Best Practices

- Software Selection Best Practices

Staff Feedback

- PIO - Hardware for video recording, playback and dissemination is 7-8 years old, has not been serviced properly and needs to be replaced. Cost estimated at $90-100K, but PEG Funds balance is estimated at $90-100K
- Video editing equipment relies on older Mac equipment

Recommendations

- Select new system according to the *Software Selection Best Practices* initiative
- Manage implementation using best practice methodology

OTHER APPLICATION AND DEPARTMENTAL SYSTEMS INITIATIVES

Initiative	Dept(s)	Best Practices	Return on Investment (ROI) Consideration	Description
35. Granicus Improvements	PIO	• Project Planning Best Practices • Application Management Best Practices • Gov 2.0 • ITIL-CSI-Continual Service Improvement		• Council meetings are not broadcast on the Internet in real-time
36. Access Gate Cards	MUED	• Software Selection Best Practices • ITIL-CSI-Service Reporting	• MUED – Estimated 82 hours of labor efficiency per year, for a total of $2,273.04	• MUED - Need ability to test cards at counter before issuing. There are too many unreliable cards. This is a customer service issue. • MUED - Need Brivo report training • MUED - Thousands of these cards have been issued at $25 and renewed at $15 each. • MUED - We do not audit what gate access cards are active or should be revoked. Need more training on Brivo to accomplish this
37. Alarm Billing Software	PD	• Software Selection Best Practices • Gov 2.0	• 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%[14].	• PD - Alarm billing software could save 20 hours per week in the Police department and prevent Finance from having to create a new invoice that is mailed.
38. Auto CAD 3D	MUED	• Application Management Best Practices		• MUED - Need an additional department license $8,200

[14] Fidesic Corporation study, 2002

Initiative	Dept(s)	Best Practices	Return on Investment (ROI) Consideration	Description
39. CAD/RMS Improvements	PD	• Application Management Best Practices • ITIL-CSI-Continual Service Improvement	• A study done by Archive Systems, Inc. shows that the ROI for record management improvements have resulted in between 25-40% savings in efficiencies[15]. • Quartermaster duties: 208 annual labor hours saved X $69.81 (the gross salary for a corporal) = $14,520 in annual labor efficiency savings • Records duties: 2,500 annual labor hours saved X $28.04 (the gross salary for a CSR II) = $70,100 in annual labor efficiency savings	• PD - Need some new system changes, budgeted $30,000 • PD - Need the Spillman Forms module to help automatically populate data • PD - Working on paperless processing • PD - Need an equipment inventory application module for $30,000
40. Fire RMS	Fire	• IT Procurement Practices • Application Management Best Practices		• Fire - Need integration between Fire and City systems • Fire - Need interface from CityWorks Permitting and Fire RMS for Fire permits and Fire Prevention inspections • Fire – Going to Image Trend for Medical Patient Care Records (Regulatory Mandate by July 2013) • Fire - Fire Training Compliance Report - Need to find a better solution. Going to Image Trend • Fire - Need a report indicating what occupancies have and have not been Fire inspected
41. Fuels Management	QoL	• Return-on-Investment Considerations • Software Selection Best Practices • ITIL-CSI-Continual Service Improvement	• A study conducted by Fuelman indicates that 300 fleet administrators nationwide trimmed their fuel costs by up to 15%[16].	• QoL - Our GasBoy system is DOS-based. Needs to upgraded • QoL-Equp - Need to improve accuracy. 100+ transactions per week. • QoL-Equp - Current system is not digital. Lots of menial labor involved with operating the fuel station.

[15] Archive Systems, 2010
[16] Fuelman study of 300 national fleet administrators

Initiative	Dept(s)	Best Practices	Return on Investment (ROI) Consideration	Description
42. ID Badge Printer	PD	• Application Management Best Practices		• PD - Need to replace the unreliable printer for $2,500
43. Investment Management Applications	Fin	• Application Management Best Practices • ITIL-CSI-Continual Service Improvement		• Fin - Would like to implement SymPro to improve efficiency, tracking and reporting
44. Landfill and Streets Toughbooks	QoL	• COBIT-DS12.2 - Physical Security Measures		• QoL-Refuse - Need a two Toughbooks for Landfill • QoL – Need to fix Streets Toughbook
45. Outsource Utility Bill Print	Fin	• IT Procurement Practices • Return-on-Investment Considerations • ITIL-SO-Technical Management Function		• Fin - Consider if cost-beneficial to use an outsource bill print service

Initiative	Dept(s)	Best Practices	Return on Investment (ROI) Consideration	Description
46. P6 Improvements	MUED	• Application Inventory • ITIL-CSI-Continual Service Improvement	• ITS - 10-20% increase in project management efficiency ◆ $56,000/year	• MUED - Automated link to City website could save 3.0 hours per day of manual website updating if completed, so staff can focus on other pressing issues. • MUED - Need to setup automate reports in existing software. Potentially save 4.0 hours per day. • MUED - MUED has entered into an agreement with Microdesk to provide software support services to make recommendations and changes to develop and set-up P6 after an assessment of the current project structure, produce project schedules, project summary, detailed reports for management, and hands-on training. They will balance business, end-user, and workflow perspectives to make sure solutions developed are aligned with MUED's vision moving forward and that success of improving project management efficiencies. Coordinate with DoIT will be required for the re-installation of the software, requisite hardware is available, and configuration that will be installed.

Initiative	Dept(s)	Best Practices	Return on Investment (ROI) Consideration	Description
47. Paperless Citations	PD	• Software Selection Best Practices	• The migration to an electronic citation system will reduce the amount of time spent by officers in the field as well as by records personnel. • This system will streamline the citation process and result in an efficient process internally and for the community. • If implemented, this system will likely result in the following labor efficiency savings: ◆ Records duties: 467 annual labor hours saved X $28.04 (the gross salary for a CSR II) = $13,095 in annual labor efficiency savings ◆ Officer duties: 112 annual labor hours saved X $64.19 (the average gross salary for a patrol officers and corporals) = $7,189 in annual labor efficiency savings ◆ Labor cost savings through the elimination of a part-time records clerk (CSR) in the amount of $16,151	• PD - Need to move to County system, but requires 20 wireless hardware units at $3,000 per unit.
48. Plotter Printer	DSD	• Software Selection Best Practices		• DSD - Need a large plotter, printer, scanner for architectural drawings
49. Police Paperless Reporting	PD	• IT Project and Services Portfolio • COBIT		• PD - Need scanners for the paperless reporting system
50. Productivity/PIO Software (Adobe, Publisher, etc.)	All	• Maintaining Software Updates • COBIT-A2.10 - Application Software Maintenance • ITIL-SO-Technical Management Function		• PIO - Need two new licenses • CMO - Consider for replacement of Adobe Professional upgrade of three licenses • PIO - Consider for content editing. Perhaps use PEG Funds

Initiative	Dept(s)	Best Practices	Return on Investment (ROI) Consideration	Description
51. Reverse 911	PD	• Software Selection Best Practices • COBIT-AI2.5 - Configure and Implement Acquired Software	• ITS - When natural or manmade hazards occur, Reverse 911 can quickly notify residents in the appropriate geographical areas by phone, fax, pager, or email. ◆ ROI if/when major earthquake/flood event occurs	• PD - Purchased system, but it has been sitting in a box, and uninstalled, at the EOC for two years
52. Smart Boards	QoL	• Software Selection Best Practices		• QoL - Quality of Life needs a smart board or similar projector screen
53. Solid Waste Ticketing	QoL	• Software Selection Best Practices • COBIT-DS13.2 - Job Scheduling • ITIL-CSI-Continual Service Improvement		• QoL - Need something like Scale House. Current system is unreliable and we have lost state mandated data in the past. • QoL-Refuse - Landfill Scalehouse - 60,000 to 80,000 tons per year. Could reduce staff time and lost revenue. Can allow for recoup lost revenue, tighter site security, regulatory compliance, and more accurate records
54. Speed Count Automation	MUED	• Software Selection Best Practices • COBIT-PO8.6 - Quality Measurement, Monitoring and Review • ITIL-CSI-Service Reporting		• MUED - Need ability to automate transfer of data so staff does not have to make repeated trips to collect data.

Gov 2.0

With the advent of computer technologies, the world is experiencing an unprecedented explosion in communications options. Gov 2.0 is the concept of using those new technologies in combination with creativity, information sharing, and the collaborative process to better serve and interact with the public.

The principles of Gov 2.0 include:

Principle 1 - Serve as the primary source of reliable, accurate, and timely City information, delivered to the customer on their platform of choice.

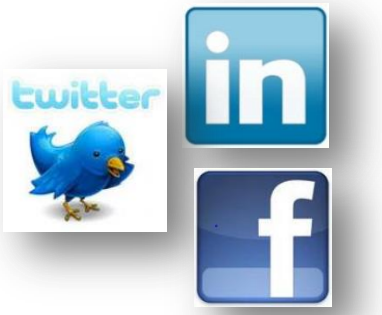
Principle 2 - Maintain a real-time, interactive, and user-centered website that offers easy access to public information and online services.

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 FOIA requests increase, making common types of documents readily available through query or menu on the website creates efficiencies for City staff and constituents.
- **311**– Available in some communities around the country as a non-emergency general information number to a citizen service center. These centers typically centralize the inquiry and response of general/routine questions from citizens and customers.
- **CRM (Citizen Request Management) –** Online citizen request tracking including automated internal routing, status reporting, etc.
- **Blogging** - or Web logging. This is a Web-based process 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.
- **Instant Messaging** - based on a computer or other device, this process allows users to send text-based communications between two or more people as if in a real-time conversation. More advanced systems allow media links and video calling.
- **Podcasting** - digital media files utilizing audio, Web protocols, and some sort of media player released on a regular schedule and often downloaded through a Web-based subscription.
- **RSS** - "Really Simple Syndication." 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, Twitter, Facebook) and social/professional networking (MySpace, Facebook, LinkedIn) 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." *(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.)*



- **Wiki** - a website that allows collaborative creation and editing of Web pages to produce a simplified exchange of information.

The possible benefits of developing such communication methods go beyond just 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 City and the public
- Faster and more convenient access promotes public approval

After reviewing the City's website and electronic presence, we believe the City is already following some of the Government 2.0 principles that are central to the purpose of this report. Of course, opportunities for improvement exist in all areas. More can be done to advance the City's Gov 2.0 vision through improved eGovernment services and online communications between the City and its constituents.

55. Citizen Request Management (CRM)

Finding 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. Ideal CRM functionality includes:

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

Best Practices

- Gov 2.0
- COBIT-PO8.4 - Customer Focus
- COBIT-DS8.2 - Registration of Customer Queries
- COBIT-DS8.5 - Report and Trend Analysis
- ITIL-SD, SO-Business Relationship Management, Call Center

Return on Investment (ROI) Consideration

- ITS - For customers: Increased responsiveness, faster answers and resolution, improvements in customer service
  - Less than 12 mos. in staff time alone

Staff Feedback

- CMO - Need flexibility to create reports from the CM's assignment log (i.e. average response time, number of open/closed assignments, department specific assignments, etc, to measure performance)
- CMO - Integrated software application to process and track resident requests and City Manager assignments.
- CMO - Need submittal of general information requests online
- CMO - Public requests for alert notifications on specific interests
- Attorney - Need to track subpoena/PRA requests; 200-250 request per year

- DSD - Customer service complaints/accolades are currently handled with paper
- Fire - City's 311 phone application does not have any fire prevention information
- Fire - Citizen complaints are handled via email and result in multiple persons tracking and addressing issues that could be managed more efficiently.
- Fire - We are working on an online Complaint/Recognition form that could be accessed online.
- Fire - We would like to see Fire Prevention Complaint issues added to Redlands 311 (Something we were told would be coming some time ago)
- MUED - Currently tracking miscellaneous follow-ups via email and tracking staff down. Need to automate process with status updates and routing
- MUED - Need better task tracking reports
- QoL - Need citizen request management capabilities integrated with CityWorks work management system

Recommendations

- Select new software vendor according to the *Software Selection Best Practices* initiative
- Consider CityWorks before other vendors for integration with other City operational systems

56. MASS COMMUNICATION

Findings and Observations

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 City events, etc.

Best Practices

- Gov 2.0
- Software Selection Best Practices
- Project Planning Best Practices

Return on Investment (ROI) Consideration

- A Study Conducted by Osterman Research shows that employees are 25% less productive during downtimes and that down time incidents can be reduced by 15 minutes. The cost savings can reach $36,000 annually, if not more[17].

Staff Feedback

- Fire - Citywide water shut down / road closures or other utility information sharing notifications are currently emailed out to all personnel and need to be entered on a shared calendar within Fire. This seems like it could be done centrally and shared so individuals with smart phones could easily access needed information.

[17] Study conducted by Express Matrix

Recommendations

- Select new software vendor according to the *Software Selection Best Practices* initiative
- Consider including emails, texts, RSS feeds, for more than just mass emergency notifications (e.g., street closures, street cleaning, special events, etc.) or other similar vendors, like Dialogic Communications Corporation.
- Utilize various applications and utility bills 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)
- Consider integration with Severe Weather Warning System, automating certain emergency notifications

57. COUNCIL CHAMBER AUDIO/VISUAL

Audio/Visual as it relates to the council chambers creates more interactive and transparent meetings. It can enhance the distribution and quality of sound while also providing visually appealing content.

Best Practices

- Gov 2.0
- Maintaining Software Updates
- Software Selection Best Practices

Staff Feedback

- PIO - Upgrade of presentation equipment and software (projector, screen, laptop computer) in City Council Chambers including a direct feed of audio into the Council Chamber sound system. Currently, when a video with sound is shown in the Council Chambers, staff has to hold a microphone to the computer speakers in order for the audience in the chambers to hear the sound.
- PIO - Direct audio/visual feed from presentation equipment into Redlands TV broadcast equipment. (Current feed exists, but could be improved.)

Recommendations

- Replace current projector
- Add a large LCD panel to the front right side (as facing the podium) to enhancement ability for everyone in chamber to see presentations

58. WEBSITE REDESIGN

Finding and Observations

The City's recent website improvements still contain links to the old website and other links that are not functional. Additionally, several departments would like more information included on the website for both informational and transparency purposes. Municipal websites have become informational portals, so that citizens can quickly access information and conduct transactions without having to call City staff or go to City Hall. Additionally, interactive functionality is available 24/7.

Best Practices

- Gov 2.0
- IT Cost Recovery (IT Budget Allocations)
- Project Planning Best Practices
- Social Media Policy
- COBIT-PO8.5 - Continuous Improvement

Return on Investment (ROI) Consideration

A study conducted by Aaron Marcus and Associates, Inc. discovered the following[18]:

- More than 83% of Internet users are likely to leave a Web site if they feel they have to make too many clicks to find what they're looking for.
- Once a system is in development, correcting a problem costs 10 times as much as fixing the same problem in design.
- The average user interface has some 40 flaws. Correcting the easiest 20 of these yields an average improvement in usability of 50%.

Staff Feedback

- CMO - Believe our website redesign still has us behind our peers
- CMO - Need to consider website design by Civicplus, Civica, or Delaware.net (easier navigation, logical format)
- CMO - Need submittal of commission applications through the City's website.
- DSD - Access to property data and site search application for properties within Redlands (to assist site selector, real estate executives and business owners with identifying potential business sites
- DSD - Need to expand and create the ability to collect fees and process permit applications including drawings and electronic plan submittal
- DSD - Ability for merchants to reserve booths and pay fees
- DSD - Need online registration/payment for classes/activities
- Fin - Believe more online forms would be helpful.
- Fire - Who to call (directory) update - Current system is not user friendly.
- MUED - Need interface from Primavera P6 for project schedules online
- PD - Content updates are difficult for staff to do.
- PD - There is still old information on the website
- PD - Web page content updating training was only a six minute video

[18] Aaron Marcus and Associates, 2004

- PD - Police does not have the resources to do tech design changes, only minor updates of information
- PIO - Need to update Web content and social media concurrent with other public communications
- PIO - Need program manager ability to create and update a TV guide online
- PIO - Need to interface between mobile devices for press releases
- PIO - Our website has limited opportunities for residents to subscribe to information, specifically from the police department
- PIO - Should be more opportunities for residents to be notified about any department, area or project they are interested in, as well as receiving notification when agendas are posted
- QoL - Online brochures, online registration capabilities, e-zines (electronic magazines), would be helpful

Recommendations

- Conduct a Citywide needs assessment to determine all useful features and information that could be implemented to improve the website
- Conduct cost/benefit and prioritization analysis
- Manage improvements according to the *Project Planning and Implementation Best Practices* initiative

59. Online Payments & Transactions

A variety of online payments can be accepted through numerous alternatives, one being the City website. The result will be increased efficiencies due to reduced labor and easy digital retrieval of information for both customers and City staff. Online payments also provide citizens with 24/7 transaction capabilities and convenience of not have to call City staff or go to City Hall.

Example Online Payments may include:

- Utilities
- Parking Tickets
- Accounts Receivable
- Permits
- Business Licenses
- Police Reports
- Recreation Programs
- Facilities Reservations
- Bike and Animal Licenses
- Vehicle Releases
- Inspection and Scheduling Fees
- Event Registrations
- Miscellaneous Permits
- Bids Management
- Vendor Registrations
- Much more . . .

Best Practices

- IT Cost Recovery (IT Budget Allocations)
- Gov 2.0

Staff Feedback

- HR - Would like to accept payments online for customers who need to buy liability insurance for special events
- PD - Online/electronic payment options for PD charges (vehicle releases, bike licenses, etc.). Perhaps use a vendor such as GovNetPay
- PIO - The video office processes half a dozen film permits each month and payments must be made up front on a short time schedule. It would be helpful to accept electronic payments.
- QoL - QoL does not accept payments online, however it would be very beneficial and convenient to accept payment for all QoL fees, hangar and tie down rents, other land rent, fleet rentals, cemetery sales, recreation/senior services activities and other QoL fees online.

Recommendations

- Conduct a Citywide needs assessment to determine all useful payment types that could be implemented to improve the constituent service
- Conduct cost/benefit and prioritization analysis
- Manage improvements according to the *Project Planning and Implementation Best Practices* initiative
- Consider existing Bi-Tech, HdL, ActiveNet and CityWorks options before new third-party solutions, eliminate requirement to integrate new solutions.

IT INFRASTRUCTURE

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

60. COMPUTER REFRESH

The recommended life expectancy for laptops and computers are four and five years, respectively.

Finding and Observations

- The City has not replaced staff computers (other than Public Safety grants) for five years
- ESRI is donating six year old computers to the City, which are being used to replace eight year old computers
- Desktop computer components usually begin to fail after four years
- Although no hard data is available, we estimate that the age of City desktop computers doubles the number of support calls
- The City does not utilize dual monitors
  - Dual monitors can increase productivity by over 20% in certain jobs
- Support ends for the current desktop operating system (XP) in April 2014

Best Practices

- Maintaining Software Updates
- COBIT-PO3.2 - Technological Infrastructure Planning
- ITIL-ST-Transition Planning And Support

Return on Investment (ROI) Consideration

- Equipment is obsolete
- ITS - $11,000 to $13,000 in cost savings in annual maintenance
  - $12,000/year

Recommendations

- Purchase replacement computers over the next three years
- Could lease computers to save capital

61. Mobile Device Refresh

Finding and Observations

- The City has approximately 50 laptops
- New laptops have not been purchased (other than Public Safety Grants) for five years
- With the emergence of tablets and smart phones, the need for laptops has decreased
  - The demand for tablets has increased dramatically

Best Practices

- Maintaining Software Updates
- COBIT-PO3.2 - Technological Infrastructure Planning

Return on Investment (ROI) Consideration

- Equipment is obsolete

Recommendations

- Determine laptop and tablet needs
  - Acquire portable devices that meet the users specific needs
- Could lease to save capital

62. Data Center Relocation

Finding and Observations

- Servers are located in several "computer rooms"
  - Community Development
  - Finance
  - Old PD
  - Next to EOC in the Corporate Yard
- The old Police Department building is condemned
  - The majority of PD servers and the City phone system are located in this building

Best Practices

- COBIT-PO3.2 - Technological Infrastructure Planning
- COBIT-DS12.1 - Site Selection and Layout
- COBIT-DS12.5 - Physical Facilities Management
- ITIL-ST, SO-Transition Planning And Support, It Operations Management Function

Return on Investment (ROI) Consideration

- Minimization of risk of complete data/network loss (grant funded)
  - ITS - Reduce downtime/staff effort by 66% = $45,000/yr
- ITS - Current servers and equipment are stored in unconventional, unprotected areas
  - Reduce downtime/staff effort by 66% = $45,000/yr

Recommendations

- Centralize all servers and telecommunication equipment into one facility to reduce facilities costs
  - Centralized systems will also improve security and productivity
  - For disaster recovery purposes, a location more than 50 miles away is required

63. SERVER UPGRADE

Finding and Observations

- All City Hall production servers are out-of-date
  - The newest Microsoft server operating system was deployed at City Hall in 2003, which is no longer supported
  - The current Microsoft server operating system is 2012
- At the Police Department, approximately 50% of servers are on supported hardware and software platforms
- The current version of Exchange (electronic mail) has been purchased for City Hall, but is not installed
  - Because Exchange is so old, it must be upgraded before anything else at City Hall is installed
- Exchange 2007 is installed at PD
- None of the servers at City Hall are virtualized
- Approximately 50% of the servers at PD are virtualized

Best Practices

- Maintaining Software Updates
- COBIT-A2.10 - Application Software Maintenance
- ITIL-ST-Service Asset And Configuration Management

Return on Investment (ROI) Consideration

- ITS - Today's email/computer security requirements become achievable
  - 16 mos. Per industry standard

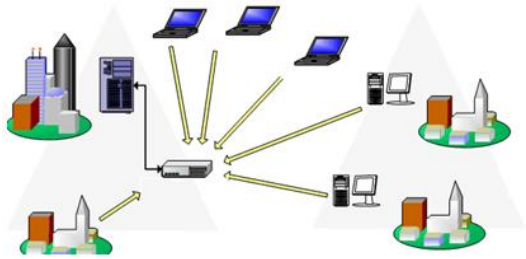
Recommendations

- Consider upgrading operating systems
- Consider virtualizing to optimize resources
  - Virtualization will simplify resiliency and disaster recovery planning
  - Virtualization reduces physical hardware costs, space requirements and electricity usage

64. METROPOLITAN AREA NETWORK (MAN)

A Metropolitan Area Network (MAN) is a network that typically spans several city blocks and buildings. Normal MANs interconnect multiple Local Area Networks (LANs) to allow for better communication among organizations where a physical presence cannot be accommodated.

Finding and Observations



- The City Hall campus is connected using private fiber
- The City Hall campus and Waste Water are connected using an Internet VPN, which has no guaranteed service level
- The City Hall campus and Corporate Yard/PD are connected using an Internet VPN, which has no guaranteed service level
- Citywide applications, such as Voice-over-IP (VoIP), financial software, HR software and others cannot be reliably shared over the current network
- The current network limits IT productivity by reducing the ability to upload or download files between sites
- MAN prices recently decreased by 50% based on a new AT&T service offering

Best Practices

- Cloud Computing
- IT Cost Recovery (IT Budget Allocations)
- Project Planning Best Practices
- COBIT-PO3.2 - Technological Infrastructure Planning
- COBIT-AI3.1 - Technological Infrastructure Acquisition Plan
- ITIL-SD, CSI-Availability Management

Return on Investment (ROI) Consideration

- Specify/Procure Municipal Area Network to connect all City locations
  - ITS - Payback to occur within 12 mos.
- ITS - Untethered access helps improve productivity by allowing field personnel to work more effectively and efficiently
  - Estimated at $7,550 for each FTE at remote location, or $75,550
- Equipment is obsolete

Recommendations

- Develop RFP for the procurement of a fiber-based Wide Area Network (WAN)

65. ELECTRONIC MAIL UPGRADE

Finding and Observations

- Current email engine is outdated and requires an upgrade to Exchange 2010
  - Current email is Exchange 2000, which is no longer supported by Microsoft or newer versions of Microsoft server
  - Exchange 2010 and a server to run it on have already been purchased
    - The purchased server will not support virtualization
    - The purchased server can be repurposed

Best Practices

- Maintaining Software Updates
- COBIT-A2.10 - Application Software Maintenance
- COBIT-AI5.4 - IT Resource Acquisition
- ITIL-SO-Application Management Function

Return on Investment (ROI) Consideration

- System is obsolete
- ITS - 300% expected payback - $35,000/yr

Staff Feedback

- CMO - It would also be helpful to have an email interface for iPhone and iPad users rather than using Web email access.
- CMO - Email access is fine, but accessing department files on the network is a "hit and miss." It worked well when access was provided through your office desktop computer—basically operating your office computer remotely.
- CMO - The performance of the City's email server has been an issue this past year. When the email server is down it impacts productivity, and of course communication.
- Attorney - The performance of the City's email server has been an issue this past year.
- Attorney - When the email server is down it impacts productivity, and of course communication. The City Attorney's office relies heavily on email communication.
- Fin - Outlook is unreliable, most likely due to network connection problems
- Fin - Many emails were lost on January 21st. Believed to be because someone archived in reverse.
- Fin - Need email to sync to personal devices to allow access from home
- Fire – Department's need a report showing last time an employee accessed their email
- HR - Blackberry email not synchronizing
- HR - Email storage capacity is very limited
- HR - All our email has been lost three times in the last two years with no explanation from DoIT
- HR - Our email boxes fill up too fast due to synchronization problems
- HR - Need to update Outlook server and/or software to facilitate coordination on iPhones and iPads with iCalendar and email.
- MUED - Email capacities are too small for users. Having to keep archive email on PC's which are not backed up.
- MUED - 65 MB for all email folders is too limited

- MUED - Dealing with duplicates and synchronization problems.
- QoL - The Senior Services and Recreation Divisions are on a server for the Police Department. In fiscal year 2011-2012 they were relocated from PD to QoL's organizational structure. They do not have access to any of the servers that QoL uses nor do they use the same email server (so their email extensions are still @redlandspolice.org instead of @cityofredlands.org). We would like to switch over their server use to one that is compatible with QoL.

Recommendations

- Procure a new server capable of virtualization
- Upgrade Exchange as soon as possible

66. OFFICE 2010 UPGRADE

Finding and Observations

- Current workstations are utilizing outdated Microsoft Office suite
- Current workstations do not have sufficient resources to run Microsoft Office 2010

Best Practices

- Maintaining Software Updates
- COBIT-A2.10 - Application Software Maintenance
- COBIT-AI5.4 - IT Resource Acquisition
- ITIL-SO-Application Management Function

Return on Investment (ROI) Consideration

- System is obsolete
- ITS - ROI to be 301 percent with a payback period of 7.4 months after deployment.

Recommendations

- Need to upgrade all computers to Microsoft 2010 during the desktop refresh process

67. 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 means of communication. A LAN allows only permitted users access to the network and use resources and applications assigned to them. LAN's are very common due to their small size, low maintenance, fast speeds, and basic complexity.

Finding and Observations

- One of the networks at City Hall is very slow
- We believe some type of routing issue exists on this network
- Core switches at PD and EOC are end of life and no longer supported
- A switch refresh was completed at the City Hall campus within the last couple of years

Best Practices

- Cloud Computing
- Project Planning Best Practices
- COBIT-PO3.2 - Technological Infrastructure Planning
- COBIT-AI3.1 - Technological Infrastructure Acquisition Plan
- ITIL-SD, CSI, SO-Availability Management, Access Management Process

Return on Investment (ROI) Consideration

- Necessary to implement citywide upgrades to phone system and network servers
  - ITS - Payback to occur within 6-12 mos.

Staff Feedback

- CMO - Wireless access throughout City offices to support mobile devices.
- CMO - Offsite connectivity to network files from a City laptop does not always work.
- Clerk - We are limited in our ability to attain public access to records by our scanning process and by the server limitations of our network
- DSD - Poor connection and speed to servers and Internet
- DSD - Network consistently breaks down
- DSD - CityWorks system performance is slow
- Fin - Offsite connectivity is slow or nonexistent
- Fire - City network is only available to 2-3 Fire Department computers
- Fire - Fire Dispatch needs access to Police AVL system to see location of Fire and Police unites during emergency incidents
- Fire - Digital Evidence Management System (DEMS) - Police department has access, however, Fire Arson investigators do not have access.
- Fire - Consider cloud based shared files because the Fire Department is partially (mostly) on the CONFIRE backbone, access to Citywide data is sometimes limited unless we happen to be on our redundant systems at our desks.
- HR - Network seems more stable the last few months, only going down twice in the last month. Estimate is that it has been down 5-10 times in the last year.
- HR - Cannot support video training

- HR - Network is slow, freezes and is out of date
- MUED - Smart Board in MUED conference room does not run reliably
- MUED - Field offices need to be networked so the can have access to I, J, K drives remotely
- MUED - Sewer Line Maintenance/Collection needs to be networked with waste water so all information can be viewed
- PD - Could use less cellular tablets if City implemented Wi-Fi system
- PIO - Video editing computer does not have networking capabilities
- Fire - Need better Internet access for Fire staff because ConFire doesn't allow it. This would be very beneficial for Video training programs.

Recommendations

- Routing issue should be fixed
- Core switches require upgrades
  - Recent product announcements will allow City to limit the cost of these upgrades
- Edge switch upgrades are planned as a part of the capital replacement cycle

68. STORAGE AREA NETWORK (SAN)

Storage Area Network (SAN) is a storage device that contains data normally used by end users due to the important security and system recovery implications. SANs compliment servers by being assigned functions, such as storing backups and managing important continuity files, while also reducing the stress on the server by keeping the number of security functions it must perform to a minimal.

Finding and Observations

- Data storage at City Hall has traditionally been handled on a server by server basis
- An old HP SAN did exist at City Hall, but it failed after the warranty period
- Redlands has a very limited amount of data storage
  - User email storage limitations are just one example of the impact of the lack of disk space

Best Practices

- Cloud Computing
- COBIT-PO3.2 - Technological Infrastructure Planning
- ITIL-SD, CSI-Availability Management

Return on Investment (ROI) Consideration

- Equipment is obsolete
- ITS - ROI of less than 2-year based on industry studies - instant data recovery, more affordable storage
  - $65,364/year (staff costs plus downtime)

Recommendations

- Assess data storage requirements and determine SAN sizing for City Hall
- Procure SAN for City Hall
- For PD, assess data storage requirements including Tier 3 (picture and video) storage needs
- Upgrade PD SAN
- Procure additional Tier 3 Storage separately for PD

69. SECURITY CAMERA INTERCONNECT

Finding and Observations

- Current video surveillance system is not integrated with the City's network
- Fire would like to view real-time video as a part of their incident management procedures
- Access to the video surveillance system from the City network would assist in integrating IT administration and troubleshooting

Best Practices

- Cloud Computing
- COBIT-DS5.5 - Security Testing, Surveillance and Monitoring

Return on Investment (ROI) Consideration

- ITS - 0-12 months depending on vandalism that can be prevented

Staff Feedback

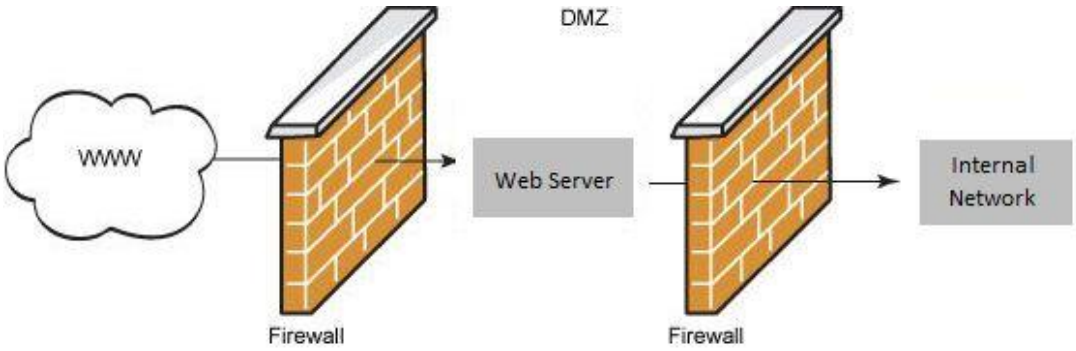
- QoL-Refuse - Landfill site security - Could benefit PD staff, QoL staff/Loss prevention, and revenue increases
- Fire - Fire needs access to security camera footage during fire incidents for Fire Command and in vehicle MDC's
- QoL - Cameras in the Community Center have not been functional and several thefts have occurred at this site. QoL staff have tried request repairs, but the system remains down.

Recommendations

- Procure Firewall to interconnect security camera system with City Network

70. CREATE BEST PRACTICE INTERNET CONNECTIVITY (DMZ)

A Demilitarized Zone (DMZ) is an area of a network that is accessible to the public, which is separate from an internal network what is used only by staff. DMZ's can hold services such as allowing the public to view websites or an email service for public inquiries.



Finding and Observations

- 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

Best Practices

- Project Planning Best Practices
- COBIT-PO3.2 - Technological Infrastructure Planning
- COBIT-AI3.1 - Technological Infrastructure Acquisition Plan
- ITIL-SD,SO,CSI-Information Security Management, Availability Management

Recommendations

- Create a DMZ using a small file server running virtualization to provide for growth

71. Wi-Fi

Public demand for Wi-Fi access continues to grow now more rapidly than ever before. Whether a citizen, engineer, or public employee is in a conference room or at soccer practice, people desire Internet access on smart phones, tablets, and laptops for presentations, checking email, or working wherever they can.

Finding and Observations

- Proliferation of wireless devices will, over time, require improved integration of wireless user authentication, application access, and device management
- Wireless devices are now used for inventory control, video uploads and many other City applications
- Public demand
  - Smart phones, iPads, and tablets
  - Public meeting places, parks, and event facilities
  - Vendors and public in City facilities
- Wireless device management systems reduce administrative time by
  - Providing for advanced frequency troubleshooting
  - Allowing updated information to be pushed from a central console to all access points
  - Maintaining inventory information and signal strength graphs

Best Practices

- Cloud Computing
- Project Planning Best Practices
- COBIT-PO3.2 - Technological Infrastructure Planning
- ITIL-SD, CSI-Availability Management

Recommendations

- Develop a long-range internal wireless LAN plan
  - Select a wireless vendor to supply management platform
  - Implement management platform with initial purchase and continue to expand as the wireless network grows

72. Redundant Internet

Having a redundant Internet source allows for additional resources to become available during peak Internet usage and provide for resiliency when disasters occur that may affect primary Internet connections that are no longer accessible.

Finding and Observations

- Currently there exists a single primary Internet connection at City Hall and a single Internet connection at PD

Best Practices

- COBIT-PO9.5 - Risk Response
- ITIL-SD, CSI-Availability Management

Recommendations

- Following implementation of the MAN, configure both Internet connections to share bandwidth and failover to the other
- Evaluate the need for a second Internet source as a safeguard

73. SERVER VIRTUALIZATION

Server Virtualization is the ability to utilize physical servers more efficiently by enabling many "virtual" servers to run from a single physical server. Virtualizing servers reduces maintenance cost, labor, data room accommodation expenses, and allows the ability to run more applications at once without conflicting needs or increased server peak usages.

Findings and Observations

- Virtual servers reduce physical servers, save power and money, and provide additional resiliency
  - Virtual servers also make disaster recovery planning much easier
- No City Hall servers are virtualized
- Approximately 50% of PD servers are virtualized

Best Practices

- Project Planning Best Practices
- COBIT-PO3.1 - Technological Direction Planning
- ITIL-SD SO, CSI-Capacity Management

Return on Investment (ROI) Consideration

- Equipment is obsolete
- ITS - Replace obsolete, unreliable, outdated equipment.
  - $17,375/year

Recommendations

- Virtualize servers as a part of the server upgrades
  - Consolidate existing servers
  - Upgrade Police Department server(s)
  - Separate initiatives for City Hall and PD, but they should leverage the knowledge gained through the initial implementation

74. Audio Visual

Findings & Observations

- Currently, conference rooms lack audiovisual capabilities
  - As portable devices proliferate, demand for printing should decrease and the demand audio/visual capabilities should increase
- Council Chambers Audiovisual systems are seven or eight years old

Best Practices

- Gov 2.0

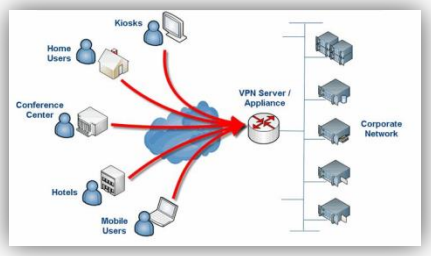
Recommendations

- Develop standard conference room AV design
  - Expand audiovisual capabilities in conference rooms over time
- Develop design and RFP for replacement equipment in Council Chambers
- Replace video editing equipment at the end of its useful life
- Incorporate online broadcast of Council Meetings, if desired
- Utilize PEG fund balance and PEG fees over time to keep improvements budget neutral

75. Expand Remote VPN Access

Finding and Observations

- 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
  - The City currently supports approximately 200 users with remote access



Best Practices

- Cloud Computing
- COBIT-PO3.1 - Technological Direction Planning
- ITIL-SD, CSI-Availability Management

Return on Investment (ROI) Consideration

- ITS - Enhance distribution and quality of sound while also providing visually appealing content.
  - Current system is unreliable - $1,500/year in staff time saved

Staff Feedback

- DSD - Having an easily accessible method for accessing work computers from home and other off-site locations would be beneficial
- Fin - Need ability for some users to work from home

- HR - Need Citrix or VPN type program to access computer from home to work when necessary.

Recommendations

- Plan for continued growth of Citrix remote access capabilities
- Implement mobile versions of applications as software vendors make them available

OTHER IT INFRASTRUCTURE INITIATIVES

Initiative	Dept(s)	Best Practice	Return on Investment (ROI) Consideration	Description
76. Bring Your Own Device (BYOD)	Fin, CM, Clerk	• Cloud Computing • ITIL-SO-Technical Management Function		• Fin - Need email to sync to personal devices to allow access from home • CM - Need to consider cloud computing options • Clerk - Need new server to publish City documents on Internet for public access
77. LIMS/WIMS Server		• ITIL-ST-Service Asset And Configuration Management		• MUED - Need server installed
78. MDC Replacements	PD	• ITIL-ST-Service Asset And Configuration Management	• The aging and outdated MDC's currently in use create undue demands on the limited IT staff to resolve problems and reduce the loss of officer productivity. The loss of use of an MDC results in the loss of the use of the vehicle until it is fixed and causes officer down time to switch vehicles. ◆ 260 annual labor hours saved X $49.98 (the gross salary for IT staff tasked with this assignment) = $12,995 in annual labor efficiency savings ◆ 60 annual labor hours saved by reducing the number of instances in which officers have to change vehicles due to MDC failure X $66.98 (the average gross salary for sworn staff) = $4,019 in annual labor efficiency savings	• PD - The inability to keep needed components readily available results in Police units that are unusable because of problems with the MDC. • PD - Police MDC equipment is aging and Police is having difficulty connecting via cellular network • PD - Old MDC's are not compatible with the latest version of the Spillman CAD/RMS Mobile software
79. MUED File Server	MUED	• ITIL-ST-Service Asset And Configuration Management •		• MUED - MUED needs a new server

Initiative	Dept(s)	Best Practice	Return on Investment (ROI) Consideration	Description
80. P6 Primevera Server	MUED	• ITIL-ST-Service Asset And Configuration Management		• MUED - Coordination with DoIT will be required for the re-installation of the software, requisite hardware is available, and configuration that will be installed. • MUED - Primavera Contract Management is sharing a server with GIS
81. Secure FTP Site	CMO, DSD, PIO	• IT Cost Recovery (IT Budget Allocations) • COBIT-AI2.4 - Application Security and Availability • COBIT-DS5.8 - Cryptographic Key Management • ITIL-SD,SO-Information Security Management		• CMO - Need large file and document sharing • DSD - Need a secure FTP site for sharing large files with offsite organizations • PIO - Need ability to share large video production files
82. Senior/Recreation Division Server	QoL	• Gov 2.0 • ITIL-ST-Service Asset And Configuration Management		• QoL - The Senior Services and Recreation Divisions are on a server for the Police Department. In fiscal year 2011-2012they were relocated from PD to QoL's organizational structure. They do not have access to any of the servers that QoL uses nor do they use the same email server (so their email extensions are still @redlandspolice.org instead of @cityofredlands.org). We would like to switch over their server use to one that is compatible with QoL.
83. Video Conferencing	MUED	• ITIL - Return-on-Investment		• MUED - Need for meetings, but IT said network cannot support it.

IT OPERATIONS

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

84. ASSET MANAGEMENT AUTOMATION

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

Staff Feedback, Finding and Observations

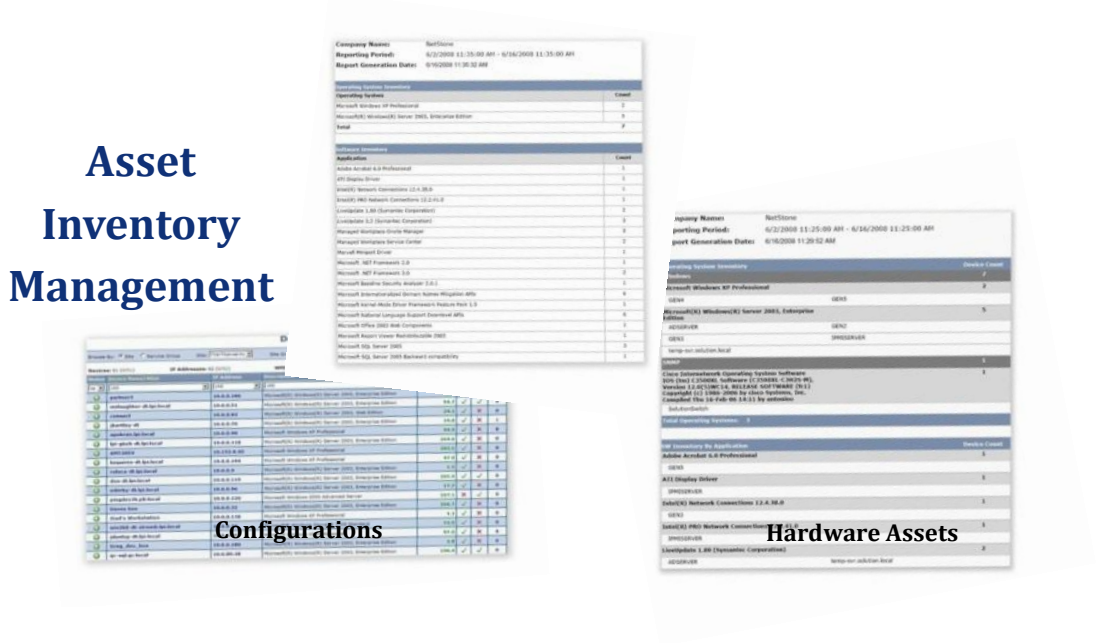
- No asset management or inventory management software in use

Best Practices

- Maintaining Software Updates
- Sustainability Planning
- COBIT-PO8.6 - Quality Measurement, Monitoring and Review
- ITIL-SO-Technical Management Function

Recommendations

- Utilize Spiceworks (shareware) asset management system initially
  - Add Help Desk asset management module when budget allows



85. MOBILE DEVICE MANAGEMENT

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

Finding and Observations

- Currently have 150 devices in PD
- Initial mobile device management platform of little use to staff
- Mobile device management tools reaching an initial level of maturity in the next few years
- Staff will want to bring their own devices to work and use them for applications
  - If the staff-owned devices can be properly secured, this is often beneficial

Best Practices

- IT Cost Recovery (IT Budget Allocations)
- Cloud Computing
- ITIL-SO-Technical Management Function

Staff Feedback

- MUED - Suggest getting rid of phones and pay a predetermined price for employees to use their personal phones. Hopefully, this would make employees more accountable for maintaining the phone in good condition preventing the need to replace phones frequently. This could be a big savings to city.
- PD - Mobile Iron management software is not compatible with departments new iPhones
- PD - Police needs IT support to manage over 150 mobile devices

Recommendations

- Implement First Generation mobile devices using older underlying technologies (applications are not ready)
  - If tangible ROI can be demonstrated, implement using virtual desktop technology
- Research, pilot, and select Mobile Device Management software in two to three years
  - Look to, Help Desk software, and anti-virus vendors first
- Over time, get ready for implementation of "Bring Your Own Device" capabilities
  - Dependent on staff demographics
  - Will include Network Access Control

86. IT Customer Service Training

IT should receive customer service training as a part of moving towards becoming a customer – focused function.

Finding and Observations

- Some IT staff appeared to be disinterested in customer service
- Excessive focus on IT security appears to reduce staff productivity and be counter productive

Best Practices

- COBIT-PO7.4 - Personnel Training
- COBIT-AI7.1 - Training
- COBIT-DS7.1 - Identification of Education and Training Needs
- ITIL-ST, CSI-Knowledge Management

Return on Investment (ROI) Consideration

- ITS - Less than 12 mos.

Staff Feedback

- CMO - IT is very responsive to requests made from the City Manager's office for both hardware and software support
- Attorney - Routine issues in the City Attorney's office usually relate to offsite connectivity to the office from the City Attorney's laptop.
- Attorney - IT staff is responsive during the normal workweek, but is not as accessible during the weekends when access may be needed.
- DSD - IT support in emergency situations (after hours) does not exist
- DSD - Software is old and needs to be updated
- Fin - Need to resolve printer interface problems
- Fin - Many emails were lost on January 21st. Believed to be because someone archived in reverse.
- Fin - DoIT has limited in-depth knowledge of specific software systems
- Fin - Some DoIT staff are attentive to our requirements and emergencies that occur. They provide great service to the best of their ability.
- Fire - Reverse 911 system/server was purchased two years ago and is still sitting in a box uninstalled
- Fire - Unfortunately, they have been unresponsive in fixing telephone issues at FS262 and 263.
- Fire - DoIT has shown a tendency to leave our issues un-addressed when new systems are designed. The CityWorks system is a classic example. Little of our processes were built into the system.
- HR - DoIT bought the wrong hardware for the Bi-Tech server twice so there is not enough disk space or Oracle licenses
- HR - DoIT would not participate with Bi-Tech upgrade project and reporting until recently
- HR - Departments are having to support applications by themselves
- HR - All our email has been lost three times in the last two years with no explanation from DoIT
- HR - DoIT has not been cooperative regarding system administration settings

- HR - Network seems more stable the last few months, only going down twice in the last month. Estimate is that it has been down 5-10 times in the last year.
- HR - Some computers have reliability problems and crash too often
- HR - Some updates are done during business hours bringing system down for 30-45 minutes at a time.
- HR - Dependent upon the actual request, sometimes awesome, sometimes they are ignored altogether, up to 5+ years to get something done, HR even paid for the new server out of the HR budget to facilitate an upgrade in the email system (over 2 years ago) and it has never been put into service
- HR - Use a personal laptop, so we know it will work
- HR - There is always push back from IT staff and the word "no" is primarily the first answer out of some staff members' mouths. No effort is made to think outside the box or get things done.
- MUED - IT support was much better when MUED had its own IT staff reporting directly to the department 3-4 years ago
- MUED - Been waiting more than a month to get a CAD 3D requisition approved. Money already available in MUED budget.
- MUED - Been waiting more than four months for a server request. The Primevera project has been held up because of this
- MUED - We do our best to trouble shoot any issues before contacting DoIT. Sometimes we are successful and other times we are not
- MUED - DoIT is a bottleneck affecting citizen customer service and revenues
- MUED - MUED is supposed to have 1.0 FTE dedicated for IT support
- PD - DoIT is not responsive to our requisitions, sometimes even for months
- PD - Some invoice don't get paid resulting in lost warranties and discount opportunities
- PD - We have received frequent complaints from vendors, some of which now refuse to do business with the city
- PD - Need regular upgrades for software, hardware, and other IT infrastructure to include PC's, phones, mobile devices, servers, MDC's, etc. The current state of the department's IT infrastructure illustrates the lack of planning and system management that leads to loss of efficiency and mobility to take advantage of modern technology to improve the services offered by the department. Most of the hardware and software is out of date and difficult for the limited IT staff to maintain. For example, we are currently running at least three versions of Microsoft Office products which creates a great deal of inefficiency due to incompatible versions. Additionally, the inability to keep needed components readily available results in police units that are unusable because of problems with the MDC.
- PD - We have problems with timely ordering of parts, execution of maintenance agreements, and the timely payment of vendors that are the responsibility of the IT management personnel. Additionally, much of the support for our CAD/RMS system and the mobile devices is performed by our operations supervisor instead of IT staff. This situation causes the department to invest scarce resources to maintain IT related systems with personnel who are not dedicated to the IT function.
- PD - The backup server for our CAD/RMS system took DoIT six years to install. It sat in a box and the warranty had expired before being installed. We then discovered the system was not being backed up off site.
- PIO - Video editing equipment is Mac based and computers are aging and showing wear. The City has no support set up for Mac computers.
- PIO - Video office equipment has no regular maintenance schedule
- PIO - IT is generally very responsive to PIO/Video Office needs, with the exception noted of Mac equipment.

- PIO - IT emergency situation response is exceptional.
- PIO - Website content updating training was not adequate and difficult to understand.
- QoL - Cameras in the Community Center have not been functional and several thefts have occurred at this site. QoL staff have tried request repairs, but the system remains down.
- QoL - IT responsiveness to service requests is reasonable given staff shortages and competing priorities)
- QoL - There have been several refusals to perform service, (i.e., refusal by IT to install desktop printers for new employees.
- QoL - For the most part desktop, laptop, and portable device support has been adequate.
- QoL - IT responsiveness to emergency situations has been adequate in most cases.
- QoL - Support and maintenance of department application software has been adequate for the most part.

Recommendations

- Develop customer service metrics associated with the implementation of a Help Desk system
- Train staff in customer service techniques
- Move to a common sense, business-focused security model
- Help Desk Ticketing System

87. HELP DESK TICKETING SYSTEM

Staff Feedback, Findings, and Observations

- IT does not currently utilize Help Desk Ticketing software
  - Staff call or email IT Support
- Problems are detected by IT or users and reported
- One staff member had 170 unresolved requests in the queue
- Another staff member did not know how many unresolved requests they were responsible for
- PD - Need to automate our 70 tickets per week

Best Practices

- IT Cost Recovery (IT Budget Allocations)
- User Training and Support
- COBIT-PO8.5 - Continuous Improvement
- COBIT-DS8.1 - Service Desk

ITIL-SO-Service Desk Function

Return on Investment (ROI) Consideration

- ITS - Cost savings to departments, allows for asset management
  - Less than 12 mos.

A study conducted by Express Matrix discovered the following[19]:

[19] Nucleus Research, 2012

- 41.9% of licenses are not used
- 50% of time spent on help desk calls are associated with PC configuration problems
- Four annual troubleshooting support calls are made per PC. This can result in between 8-10 thousand in savings.
- ITS - Improved metrics and service levels to internal customers
  - Less than 12 mos.

Recommendations

- Purchase IT Help Desk Ticketing software and implement
  - Will be able to track volume of requests and service levels
  - Implement a single system Citywide
- Select and implement monitoring system
  - Consider managed services for remote monitoring and off-hours response to problems
- Implement a single system Citywide

88. IT AUTOMATION TOOLS

Staff Feedback, Findings, and Observations

- Patches and security updates performed manually
- Desktops are configured individually
- Many complaints related to multiple software versions within departments causing confusion and delays

Best Practices

- Return-on-Investment Considerations
- COBIT-PO8.6 - Quality Measurement, Monitoring and Review
- ITIL-SO-Technical Management Function

Return on Investment (ROI) Consideration

- ITS - Industry standard, shown to save 5-10% staff time
  - $34,800/year in staff time

Recommendations

- To maximize benefit, PC replacement and software standardization should occur on a department by department basis
- Purchase patch management software for desktop patch updates and software push

89. Network Management Tools

Findings and Observations

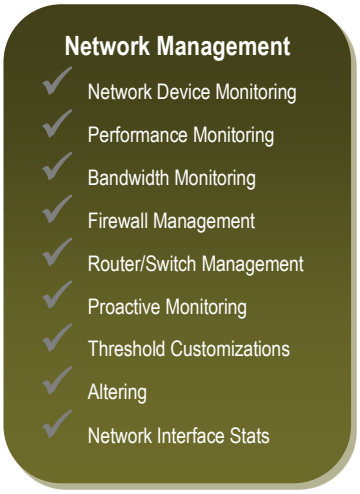
Network management is the general term for the activities, procedures, and tools that relate to the operation, administration, provisioning, and maintenance of computer network systems, effectively keeping the network up and running smoothly while also monitoring the system to quickly spot possible problems.

- 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 time reports
- IT does not have the ability to monitor network and receive alerts and alarms
- Some alerts and alarms are precursors to failure
- Others provide IT with early notification of failures
- 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

Best Practices

- Return-on-Investment Considerations
- COBIT-PO8.6 - Quality Measurement, Monitoring and Review
- COBIT-DS13.3 - IT Infrastructure Monitoring
- ITIL-SO-Incident Management Process

Recommendations



- Procure and implement a network management system
- Provide for the development of baseline bandwidth and usage measurements
- Creates alerts and alarms to notify staff before a failure
- Provide justification for bandwidth and/or performance upgrades
- In many cases will notify IT of problems before user community notices
    - Moves IT from reactive to a more proactive posture
- Develop a matrix of triggers for various devices (server disk space, bandwidth utilization percentage)
- Implement matrix values and adjust
- Develop bandwidth utilization baseline over time
- Develop availability metrics for applications and systems
- Procure and configure Spiceworks and PRTG initially; these products are free and can provide basic information

90. PRINTER / COPIER MANAGEMENT

Findings & Observations

Reducing time spent managing printers and print queues can yield significant productivity improvements.

Centralized management of printers and print queues (through Windows) can reduce maintenance by providing simple and straightforward inquiry for print jobs. Centralized management can also make it much easier for IT staff to add or remove City print queue access.

Best Practices

- Return-on-Investment Considerations
- COBIT-DS3.5 - Monitoring and Reporting
- ITIL-SD, CSI-Availability Management

Staff Feedback

- QoL - Need a printer use policy established
- Fin - Need to resolve Xerox vendor repair issues
- MUED - Need more reliable printers. Recently MUED went without a Xerox copier for 30 days
- QoL - Xerox is unreliable - Was down 10 working days of last 3 months.

Recommendations

- Move print server to virtual environment
  - Move Administration printers to print server

IT SECURITY

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

91. DISASTER RECOVERY PLANNING

Finding and Observations

- City does not have a Disaster Recovery plan
  - City does not have SLAs for application recovery in the event of a disaster

Best Practices

- IT Cost Recovery (IT Budget Allocations)
- COBIT-PO9.3 - Event Identification
- COBIT-PO9.4 - Risk Assessment
- COBIT-DS4.2 - IT Continuity Plan
- ITIL-SD,CSI-It Service Continuity Management

Recommendations

- Develop a Disaster Recovery strategy
  - Consider two scenarios
    - Loss of computer room (or City Hall building)
    - Major disaster eliminates all area communications and IT infrastructure
    - Consider both scenarios when developing strategies
- Local (within Redlands) replication and some backup servers will provide restoration of server in the event of the loss of computer room or City Hall
- True disaster recovery of applications would require either vendor-by-vendor outsourced arrangements
- Evaluate application portfolio and determine SLA 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
- Investigate redundant Internet connectivity - diverse path and diverse carrier

92. IT SECURITY - GENERAL

Finding and Observations

- IT security best practices for password management have not been followed
- Age of existing environment precludes implementation of best practices for staff password management
- The current group policy implementation, the ability to centrally manage groups of logons with similar characteristics together, is not trusted by staff
- Due to email size restrictions and security regulations, staff requires a secure file transfer site
- DSD - There is no way to identify and/or fix potential viruses
- HR - Desktop and File Share Security is inadequate

Best Practices

- COBIT-PO1.1 - IT Value Management
- COBIT-DS5.1 - Management of IT Security
- COBIT-DS5.10 - Network Security
- ITIL-SD,SO-Information Security Management

Return on Investment (ROI) Consideration

- ITS - Implementation of Virtual LANS has an ROI less than 6 months in staff time

Recommendations

DEVELOP AND IMPLEMENT AN IT PASSWORD SECURITY PROCEDURE BASED ON CLIENTFIRST *RECOMMENDATIONS*

- Redesign and implement IT security as a part of an Exchange and Active Directory implementation
- Create a security FTP site for the transfer of large files
- Implement virtual VLANs

93. IT SECURITY REVIEW

Finding and Observations

An IT Security Review includes 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 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.

Best Practices

- COBIT-PO1.1 - IT Value Management

- COBIT-AI7.9 - Post Implementation Review
- ITIL-SD,SO-Information Security Management

Staff Feedback

- Antiquated existing systems, and lack of policies and procedures, an IT security review should be postponed
- HR - Needed a security audit done to improve levels of security two-plus years ago

Recommendations

- Implement additional antivirus product as a part of Exchange
- Recommend implementation of new infrastructure over next year followed by a third-party IT Security Review

94. BACKUPS

Findings and Observations

- Backups currently stored at City Hall
  - Off-site backup required
- Plan for backup software and inventory
- Virtual servers reduce physical servers, save power and money, and can provide additional resiliency

Best Practices

- IT Cost Recovery (IT Budget Allocations)
- COBIT-PO6.2 - Enterprise IT Risk and Control Framework
- COBIT-PO9.5 - Risk Response
- COBIT-DS4.9 - Offsite Backup Storage
- ITIL-SD,CSI-IT Service Continuity Management

Return on Investment (ROI) Consideration

- Minimization of risk of complete data loss
  - ITS - $7,300/year. Payback in 2 years

Recommendations

- Implement backup to disk, then eventually to the Cloud
  - Backup to disk for rapid restore operations
  - Backup to disk to use "deduplication" technology to reduce storage requirements
  - Backup to cloud for more secure and reliable disaster recovery
  - Backup critical systems to the EOC

95. PCI ASSESSMENT

Payment Card Industry (PCI) compliance can reduce credit card transaction fees by complying with the Payment Card Industry Data Security Standard "PCI-DSS" for credit and debit card transactions. The major card brands (Visa, MasterCard, American Express, Discover, and JCB) issued the PCI-DSS in an effort to enhance the protections in place against the theft of cardholder data and require all merchants and service providers who store, process, or transmit payment card information to comply with its provisions.

Finding and Observations

- Credit cards are accepted as a form of payment in several areas
- A PCI assessment has not been completed
- MUED - Using RedConnect for municipal services account
- MUED - Taking payments over the phone (IVR)

Best Practices

- COBIT-PO3.4 - Technology Standards

Return on Investment (ROI) Consideration

- ITS - The 6 primary categories of PCI address security concerns from network protection to security governance policies.
  - Avoidance of penalties, reduced risk of data breaches, quicker response to new requirements

Recommendations

- Conduct a PCI Assessment and remediate accordingly
- In the interim:
  - Ensure all credit card machines are PCI compliant and only print the last four digits of a credit card number
  - Move to Active Networks POS module and implement encrypted card swipes
  - As a point of policy, prohibit emailing of credit card or personal identifying information (PII)
  - As a port of policy prohibit storing credit card numbers either on paper or electronically
    - Inventory all forms that contain credit card numbers

IT STAFFING

96. IT STAFFING

Findings & Observations

- Approved staff positions (based on the organization chart we saw) are probably sufficient to maintain a reasonably up-to-date IT department
- Although no data is available, age of existing equipment probably adds between 1 and 2 FTE to IT needs
- All initiatives included in this report contain third-party consulting for implementation
- Over the long run, the City does not require a CIO-level IT leader
- The majority of IT staff are not customer service focused
- Some departments are served reasonably well by IT, others are not served at all
- Overall staff and third-party expenditures will be higher over the next three years because many antiquated systems must be replaced
- The only business analyst staff are located at PD and support Spillman

Best Practices

- User Training and Support
- Sustainability Planning
- COBIT-PO4.6 - Establishment of Roles and Responsibilities
- COBIT-PO7.3 - Staffing of Roles
- ITIL-ST-Sourcing Strategy

Return on Investment (ROI) Consideration

- Maintain current vacancies in the department ($153,102/this year – FY 2013)
  - Salary savings of $44,112/year
  - Maintain current vacancies in the department ($211,448/7 mos. - FY 2014)

Staff Feedback

- HR - Departments are having to support applications by themselves
- MUED - MUED is supposed to have 1.0 FTE dedicated for IT support
- PIO - Routine maintenance of video equipment is non-existent and there is no provision for equipment maintenance or replacement
- PIO - Video editing equipment is Mac based and computers are aging and showing wear. The City has no support set up for Mac computers.
- PIO - Video office equipment has no regular maintenance schedule
- PIO - There is a significant knowledge gap with most of the video production equipment and software. An outside contractor is usually required to deal with video production software and equipment.

Recommendations

- Utilizing an interim CIO position and a contracted IT Director position during implementation of critical components of plan will reduce costs and risk
- Utilize interim contract IT support assistance until long-term IT department and optimal IT organizational structure are determined
- The IT organization should be flattened
  - Retain the GIS Supervisor and a small GIS staff
  - All remaining IT staff should report to the IT Director
    - Create a Help Desk lead to organize all Help Desk work across the organization
    - Require current certifications for staff as outlined in organization chart
- Consider outsourcing IT Director
  - Recommend the IT Director position as part-time with project management oversight for all new project work
- Consider outsourcing all or part of IT staffing
  - Most new project work should be outsourced, as existing staff lack sufficient experience and implementation best practices
  - Outsourcing of IT support can be considered for PD separately, or together with the remainder of the City

97. MANAGED SERVICES

Findings and Observations

- Managed IT Services refers to automation of many routine basic IT maintenance tasks, such as monitoring and alerts, patching and log tracking for servers, network devices, computers, mobile devices, etc.
- Managed services can reduce some IT support costs through automation, affording on-site IT staff to focus on more value-added services, such as direct user support and IT-related projects

Best Practices

- Return on Investment Considerations
- Sustainability Planning
- COBIT-PO8.6 - Quality Measurement, Monitoring and Review
- ITIL-SS-Managed Service

Recommendations

- Consider the cost of implementation of current managed services provider versus comparable offerings; Managed services is most effective when used to perform desktop patching operations, server alerts and alarms
- At a minimum, implement network monitoring for early notification of potential outages and trend analysis
- In addition, implement network monitoring for early notification of potential outages and trend analysis

98. IT STAFF TRAINING

Staff Feedback, Finding and Observations

- Technology training that is needed includes:
  - Customer service training
  - A+ training
  - Microsoft operating system administration
  - Microsoft operating system design and installation
  - Project management training

Best Practices

- User Training and Support
- Sustainability Planning
- COBIT-PO7.4 - Personnel Training
- COBIT-AI7.1 - Training
- COBIT-DS7.1 - Identification of Education and Training Needs
- ITIL-ST, CSI-Knowledge Management

Recommendations

- Develop individual staff training and (where appropriate) certification needs
  - Also include needs for certification updates
- Consider elongated probation periods to obtain certifications
- Increase utilization of project management best practices
  - Document project scope, budget, and funding for all projects
  - Manage individual project plans to project portfolio due dates
- Re-evaluate all staffing levels
- Consider Smart Sourcing (augmentation)
- Evaluate alternatives to either reduce staffing needs, staffing expense, or service levels
- Consider impacts of long-term application utilization

99. POLICE IT STAFFING

Finding and Observations

- Primarily current Police IT Support, PC Break-fix, video surveillance system maintenance and Spillman administration
- Current IT Infrastructure and Help Desk is 1.5-1.75 FTE (spread over two persons)
- Current video surveillance support is .75 FTE
- Spillman support is between 1 and 2 FTE

Best Practices

- CLETS IT Support Requirements
- User Training and Support
- COBIT-PO4.6 - Establishment of Roles and Responsibilities
- COBIT-PO7.2 - Personnel Competencies
- ITIL-ST, CSI-Knowledge Management

Recommendations

- The City should consider future major Public Safety IT projects and initiatives, as well as day-to-day IT support needs, when determining the Public Safety IT staffing needs
- Consider utilizing external Public Safety IT consulting experts for significant key projects, such as CAD/RMS and Personnel Scheduling, as a way to avoid hiring long-term personnel for short-term specialized expertise
- Consider rotating IT staff through Police Department to further knowledge of the critical nature of the Departments needs
- Consider treating the Video Surveillance system as a third-party maintenance issue when the current arrangement expires
- Staffing needs are high because, while not as far behind as the City systems, many systems and technology devices are out-of-date
- Consider outsourcing PD IT Support
- Forecasted Police Staffing Needs:

Helpdesk / Application Support	1.5 FTE
Video Surveillance Support	0.5 to 0.75 FTE for next few years
CAD/RMS Application Support	1.0 FTE
Network/Server Support	0.25 FTE

TELECOMMUNICATIONS

100. TELECOMMUNICATIONS NETWORK ASSESSMENT AND INVENTORY

Findings & Observations

An audit of the City's telecommunications system and services can determine if the City is experiencing the most cost-effective and efficient usage. It is recommended that such audits be performed by independent consulting firms with no connections to any particular equipment or service providers. Additionally, a multi-faceted approach should be used for evaluation, and often consists of:

- Telecommunications service inventory and billing review
- Tariff rate application review
- Contracted rate application review
- Competitive alternative service or bundle comparison

By auditing the existing services, the City may be able to consolidate equipment or services, identify inaccurate records, and negotiate new contracts, thereby reducing costs.

The City has never conducted an audit of the telecommunications infrastructure, and, in many cases is paying rates that could have been reduced by tens of thousands of dollars per year several years ago. Conducting a physical audit will result in immediate savings, once the network infrastructure and new telephone system is updated. The telecom physical audit is a prerequisite to both update projects.

Best Practices

- Sustainability Planning
- Return-on-Investment Considerations

Return on Investment (ROI) Consideration

PER CLIENTFIRST, PRELIMINARY TELECOMMUNICATIONS SERVICE COST SAVINGS AFTER IMPLEMENTATION OF THE NEW MUNICIPAL AREA NETWORK AND VOIP PHONE SYSTEM ARE ESTIMATED BETWEEN $1,000,000 AND 1,250,000 OVER 10 YEARS.

Staff Feedback

- PD - Need a vendor analysis for wireless and cellular systems.
- PD - Need regular and ongoing analysis of the department's providers for wireless and cellular systems needs to be conducted to ensure the department is getting the most "bang for the buck."
- PD - Many of the department's most commonly used communication devices were purchased on grants and are now in need of replacement with no funding mechanisms in place.

Recommendations

- Initiate telecommunications bill and services audit
- Ensure audit is only done by a qualified, independent telecom consultant with no vendor relationships and no reselling of telecom services

Example Project Scope

Phase 1: Billing and Service and Equipment (S&E) Documentation Review

- Obtain Bills and S&E Records
- Review current/past bills
- Identify billing errors
- Review carrier S&E records
- Review equipment maintenance contract
- Develop detailed audit database tool
- Review findings

Phase 2: Physical Verification

- Physical Audit to verify existing and required equipment and lines
- Consider use of line and service test equipment to identify actual lines installed for each location
- Perform walk-through of all facilities to inventory equipment and lines

Phase 3: Telecommunications Services Application & Network Topology Review

- Review of appropriateness of installed services
- Identify comparable lower-cost service types and offerings
- Review network design and application of lines and services
- Determine operational enhancements or alternatives to improve services and lower costs

Phase 4: Findings and Recommendations Workshops

- Review projected savings and credits
- Make recommendations for improved service quality and lower costs
- Review competitive vendor alternatives
- Consolidate vendors and/or bills
- Negotiate rate restructuring
- Consider voice and data telecom services network alternatives and projected lower costs

Phase 5: Credit/Refund Pursuit

- Verify that credit and billing changes are completed
- Verify that credits are applied correctly
- Monitor additional months of billing to ensure continued compliance

101. SMART PHONES AUDIT AND USAGE

Some cities provide smart phones to certain staff where mobile access to email and other applications provides greater efficiency and productivity. Additionally, applications are being developed in the marketplace to provide automation functions, such as resulting inspections, work requests, remote payments, etc.

Findings and Observations

- Smart Phones/Tablets and Policing
  - Policing is an inherently mobile function and the need for contemporary, reliable, and fast mobile technology significantly enhances the ability of field personnel to provide needed services in a timely manner.
  - Mobility allows officers to conduct work in the field, as opposed to the police station, thereby improving response times and visibility of police officers.
  - Smart phones and field tablets are regularly utilized by the Department to access resources such as:
    - Maps of areas in which officers are working critical incidents
    - Photographs of suspects, stolen property, and missing persons
    - Document templates used for field reporting
    - Checklists to improve officer safety and the delivery of services to the community
    - Crime maps to direct officers to areas experiencing criminal activity
    - Web-based information used in investigations
    - Web-based resources for victims of crime
    - Remote access to the departments CAD/RMS for personnel who do not have a mobile data computer
    - The GPS tracking website used to track stolen property and apprehend criminals
    - Contemporary tools for officers to improve their communication with the community

Best Practices

- IT Cost Recovery (IT Budget Allocations)
- ITIL-SD, CSI-Availability Management

Return on Investment (ROI) Consideration

- The Police Department believes the addition of smart phones and tablets save one hour of staff time per day per person. The value of the time savings is approximately:
  - 5,460 annual labor hours saved X $61.16 (the average gross salary for employees with assigned mobile devices) = $333,937 in annual labor efficiency savings

Staff Feedback

- QoL - Management has agreed to the need for smart phones with larger screens in order to receive attachments in useable format.
- DSD - It would be beneficial and more productive if email could be accessed via miscellaneous devices as opposed to just Blackberry devices, which are not very user friendly, especially for attachments. For example, iPhones, tablets, etc. are easier to operate and are frequently used by staff. Having access to all email on one single device that is user friendly would be a great improvement.
- HR - Blackberry email not synchronizing
- MUED - Suggest getting rid of phones and pay a predetermined price for employees to use their personal phones. Hopefully, this would make employees more accountable for maintaining the phone in good condition preventing the need to replace phones frequently. This could be a big savings to city.
- MUED - Need Outlook contacts to sync with blackberry phones
- PD - DoIT does not help with mobile device management. Police managing over 80 smart phones and over 70 tablets.
- QoL - Blackberry smart phones do not fully support the ability to view attachments in detail – this is a heavy requirement of field supervisors and managers and impedes their ability to perform work efficiently (i.e., it requires a 15-30 minute trip back to their office every time in order to obtain/view/understand information sent).
- QoL - iPhones or other similar smart phones with larger screens and the ability to enlarge content by touch would maximize the value of funding smart phones.

Recommendations

- Conduct more specific needs assessment work with staff for practical use of smart phones
- Inventory specific needs by user
- Consider cost/benefit
- Conduct a cellular phone bill audit
- Put all cellular services out to bid in a single RFP process

102. NEW PHONE SYSTEM 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 or increase features and support. VoIP hardware upgrades can occur automatically and seamlessly.

Findings and Observations

The City's phone system is more than 20 years old, no longer manufactured and no longer supported by the manufacturer. The system is highly susceptible to unreliability and failure. Additionally, the support required for the archaic architecture of the existing telecommunications system is costing the City approximately $100,000 dollars per year. Replacement of this system offers the City significant return on investment. However, the City's outdated network infrastructure is incapable of supporting a modern telephone system and must be overhauled first.

Best Practices

- Software Selection Best Practices
- IT Cost Recovery (IT Budget Allocations)
- Project Planning Best Practices
- COBIT-AI2.6 - Major Upgrades to Existing Systems
- ITIL-ST-Transition Planning And Support

Return on Investment (ROI) Consideration

- System is Obsolete

PER CLIENTFIRST, PRELIMINARY TELECOMMUNICATIONS SERVICE COST SAVINGS AFTER IMPLEMENTATION OF THE NEW MUNICIPAL AREA NETWORK AND VOIP PHONE SYSTEM ARE ESTIMATED BETWEEN $1,000,000 AND 1,250,000 OVER 10 YEARS

Staff Feedback

- Existing telecommunications system is tremendously out of date
  - Staff wish to use personal cell phones to conduct business because the City network does not meet their needs
- Full benefits of a new system cannot be realized until all major City sites are tied together through a Municipal Network
- The existing telecommunications system is housed in a condemned building
- CMO - Office telephones are using antiquated system, not user friendly, and have issues with conferencing/transferring calls.
- CMO - Conference call meetings (Manually connecting parties rather than using a dial-in number)
- CMO - Voice mail / Automated Attendant – System needs to be improved to respond more effectively to the public. Phone tree appears dysfunctional and not easy to navigate.
- Attorney - Office Telephones are using antiquated system, not user friendly, and have issues with conferencing/transferring calls.
- Attorney - Voice mail / Automated Attendant – System needs to be improved to respond more effectively to the public. Phone tree appears dysfunctional and not easy to navigate.
- DSD - Too much telephone interference/feedback when making/receiving calls
- DSD - Old phone system is cumbersome for accessing voicemail
- Fin - Need new telephone system to increase functionality
- Fire - Landline telephone system is terrible in 2 out of 4 fire stations. Multiple years with many issues all unable to be resolved.
- Fire - Voicemail system / phone tree does not seem to exist.
- Fire - The phone system is outdated, not supported well and significantly limited.
- HR - Need phones that have better caller id / that show the number on incoming calls from outside.
- HR - Need phones that have individual call timing.
- HR - Need phones that we can get detailed usage reports on calls by extension.
- HR - Need phones that have better speaker phone functions to use on conference calls.
- MUED - Need to replace the conference room speaker phone.
- PD - Old phone system is antiquated
- PD - Dispatch and records fax machines lines go down frequently
- PD - Need to eliminate desk phones for many staff that move around and rarely use a desk phone anyway

- PIO - Static on office phone in video office
- PIO - Call-forwarding from desk phones to cell phones
- PIO - Use of personal cell phone for business purposes
- QoL - Desktop phone system does not meet current needs (a majority of speaker phones are not functional).
- QoL - Lack of outside phone lines that are needed to support current staff (i.e., staff that require outside lines do not have them).
- Fire - Need follow-me technology functionality versus just voicemail
- Fire - Need outgoing Caller ID to prevent location blocking when making emergency call

Recommendations

- Select a new VoIP system according to the *Software Selection Best Practices* initiative with an independent telecommunications consultant
- It is prudent to compare multiple vendors to get best price and value
- It may be potentially less expensive to select a new vendor than to expand the current pilot project
- As a part of MAN, evaluate potential savings of a VoIP implementation
- Prioritize and implement VoIP based on potential savings

103. Squad Car MDC Cellular Coverage

Cellular coverage is important for providing reliable and consistent Internet access to aid officers in the field from retrieving suspect background searches, images, and even potentially streaming recordings in real-time.

Finding and Observations

The City's current MDC cellular provider has numerous no-signal areas throughout the City that prevent officers from computerized communications, as well as the ability to conduct reporting in the field.

Staff Feedback

- PD - Sprint Wireless coverage has too many no signal areas throughout City.
- PD - Many officers cannot do field reporting due to no signal areas
- PD - Verizon Wireless coverage is better, but in 2006 contract negotiations were higher

Recommendations

- Put all cellular services out to bid in a single RFP process

CONSIDERATIONS FOR EMERGING TECHNOLOGY

Findings and Observations

The following are a list of emerging or early-mid adopted technologies that municipalities continue to explore or implement. Although some of these technologies have been available for many years, adoption has been slow due to limited initial functionality. Most of these technologies are still not in use by the majority of municipalities.

Technology	Initiatives	Comments
• Citizen Online Payments and Inquiry • Utility Billing • Permits • Licenses • Receivables • Tickets and Fines • Payments	• Gov 2.0 • Online Payments and Transactions	
• CRM Solutions	• Gov 2.0 • Citizen Contact Management	
• RSS Feeds	• Gov 2.0 • Website Improvements • Mass Communications	• Web feed formats used to publish frequently updated works—such as blog entries, news headlines, audio, and video
• Mass Notifications • Rapid Outbound Calls • Email • Text • RSS Feeds • Integration with emergency alert systems • Interest groups • News alerts • GIS • Online Property Inquiry	• Gov 2.0 • Mass Communications	• Emergency outbound call messages already in use
• Social Collaboration • Facebook • Twitter	• Gov 2.0 • Social Media Policy	
• Smart Phone Apps • Email • Web Access • Service Request processing • Community Calendar downloads • Remote application access	• Mobile Computing • Limited Implementation	

Technology	Initiatives	Comments
• Green Technologies • Power saving tools and hardware • Reduction in consumables or natural resources • Reduction in emissions	• IT Best Practices • Municipal Area Network • New Computer Room • Cloud Computing	
• Business Process Reviews • Streamlining process to reduce manual effort, paper, fuel usage, power usage, reduce costs	• Application Management Best Practices • Software Selection Best Practices • User Training • Applications Inventory	
• Mobile Computing (Encrypted VPN) • Inspections • Work Orders • Remote Location Activities • Notebooks • Tablets • iPads	• Mobile Computing	
• High Quality Public Meeting Video Streaming to the Internet • Integrated with agendas	• Gov 2.0 • Council Chambers Audio/ Visual	• Many communities utilizing AT&T PEG funds for continuous improvement
• Collaboration tools (City and citizen) • Project management and online document sharing	• Project Tracking/Collaboration Software	• Used by other clients for public and private task forces and committees
• Mobility Telecommunications Tools • Twinning • Mobile Communicator Software • Unified Communications Assistant Software	• Telecommunications • New Phone System • Telecommunications Audit	• These software tools are used to improve communications, collaboration and gain efficiencies throughout the organization. They provide a high degree of enhancement for remote workers, mobile staff and collaboration between departments.
• Automatic Call Distribution (ACD) • Operational Reporting Tools	• Telecommunications • New Phone System • Telecommunications Audit	• This software tool is typically used in Permit and Inspections, as well as Utility Billing departments to automatically hold callers in queue awaiting available staff. Statistics of traffic and calling volumes are then available to assist in staff planning
• Interactive Voice Response (IVR) • API integration with Financial and ERP System for Self Service Operations		• This technology can greatly enhance the availability of information, as well as empower citizens to pay bills and obtain information without employee intervention.
• Blue-Tooth Integration and Local Wireless Telecom • Headsets • Printers	• Smart Phones	• New Telecommunications systems phone sets provide blue tooth integration to allow the easy use of wireless headsets. This tool provides much needed mobility within a department or counter area.

Technology	Initiatives	Comments
• Hot Desk Operations (Users Log In and Out from any phone)	• Telecommunications • New Phone System • Telecommunications Audit	• This tool allows you to reduce costs on equipment and office space.
• E911 Responder Systems		• These systems provide an automated tool to update user database and location information for the local PSAP.
• Automated Attendant Operations	• Telecommunications • New Phone System • Telecommunications Audit	• This tool is typically used in the evening when the organization is closed. Callers would hear a recording and be offered choices of departments or to dial by name of the person they are calling. • Some clients have this feature answering all calls
• Fax Server Operations • Reduce fax machines • Reduce fax printing • Reduce numbers of phone lines		• May not be cost/beneficial • Benefits of email integration may determine whether project is funded
• Automated Vehicle Locator Systems	• Already Implemented	• Public Safety real-time tracking of squad car locations
• Collaborative Conference Rooms • Smartboards, LCD displays	• Audio Visual	• Need to provide for laptop leveraging technology in conference rooms
• Document Imaging and Management	• Limited Implementation • EDMS	• Productivity benefit for FOIA requests
• Computing Independence • Using personal computers versus work issued	• BYOD (Bring Your Own Device)	• Typically for knowledge workers that work in and out of office
• Cloud Computing	• Cloud Computing	• Examples of cloud computing for a number of different application/system types are common. However, cloud computing for most applications/systems in the foreseeable future is not practical • Some cloud computing reliability is questionable • When procuring applications, develop ROI for cloud-based options • Understand reduced control over service levels • Federal law and outsourcing of any systems that touch Police has not been settled