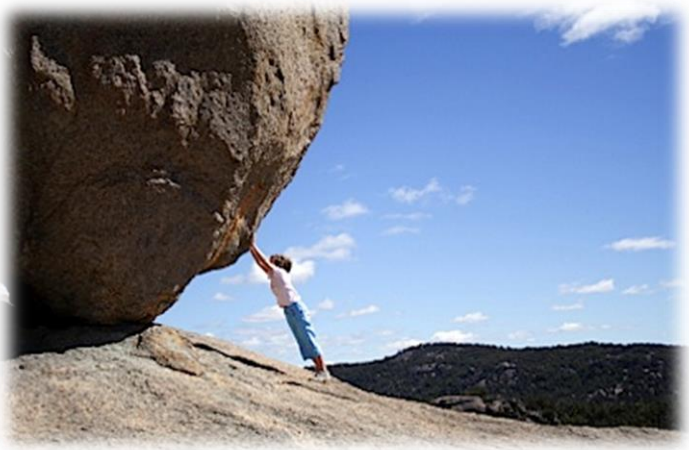
IT MASTER PLAN 2015-2020

The Obstacle Is the Way



DECEMBER 19, 2015

CITY OF RIVIERA BEACH IT DIVISION
600 West Blue Heron Blvd, Riviera Beach FL 33404

Contents

Foreward

This is the IT Strategic Master Plan for the whole City of Riviera Beach.

We have opted to name our new strategic IT Plan, "The Obstacle is the Way". We believe that this name would signify to the City and its' Citizens our commitment to affect change and to interrogate and focus every aspects of its IT operations. At the same time, we want to help facilitate the creation of business models and processes that help departments improve and grow to be able to provide high quality results and customer service to the great community of Riviera Beach.

"Our Actions may be impeded… but there can be no impeding our intentions or dispositions. Because we can accommodate and adapt. The mind adapts and converts to its own purposes the obstacle to our acting. The impediment to action advances action. What stands in the way becomes the way." – Marcus Aurelius

Here, at the City of Riviera Beach IT Division, we have come to accept that the processes and implementation strategies that this Division has used in the past are archaic and not conducive to providing outstanding customer service with strong innovative IT business services that fit the City's business needs.

The right team makes all the difference and we have that here at the City of Riviera Beach. We have a strong core of technicians who are willing to step in where needed and are happy to roll up their sleeves to help a staff member, elected official, public safety officer or citizen. This IT Team has worked extensively to pour their hearts into building a new vision and they have the right positive energy to produce the best vision for the City. At the same time, we plan to introduce new faces to provide us even more insight so we stay ahead of the times at all times.

We decided to tackle the obstacles head on and create sound IT Governance policies, introduced new IT business workflows and had a strong consultant with years of experience, ClientFirst assist and mentor our Division in building a strong IT Strategic Master Plan / Network Redesign Plan that would provide the City with the quality of service they truly deserve from this Division.

Additionally, the IT Steering Committee, Department Heads of all Departments and staff, and the IT Team have played a pivotal role in producing the focused plan. I would like to thank them all for their hard work and contribution to this plan.

Sincerely,

Elvis A. Mella

Information Technology Manager

Strategic Plan Objective (Created By ClientFirst)

The objective of the IT Master Plan included developing and articulating a vision for the effective use of technology to support the work of the City, identifying strategies for developing and implementing technology initiatives, and highlighting the cost benefits of doing so. This was accomplished by using a bottom-up, operational needs assessment with all City departments that determines the IT infrastructure necessary to support the required systems.

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

- Interviews and workshops that involved all levels of the City's staff, by department, including the management team, end-users, and other stakeholders
- Existing hardware and network infrastructure, staffing, funding, applications, business systems, projects, processes, telecommunications, training, and other investments and resources currently in use by the City
- Identification and prioritization of projects that IT staff and departments should undertake over the next five years
- Identification of needs to accommodate current and future technology requirements, such as data storage and management, legal requirements, security requirements, etc.

Expected Deliverables

The Master Plan includes, but is not limited to:

- Project purpose and background
- Methodology for implementation and maintenance of Master Plan
- Current state of information technology
- IT vision and principles
- Strategies, goals, and objectives
- IT Initiatives (Projects) by priority
- Key issues
- Timelines
- Budgets (for CIP budget process)

Methodology and Approach

We utilized a five-phase methodology on which we base our IT Master Planning projects. This served as the cornerstone of the project, allowing the collaborative process to shape and develop our

recommendations and approach, enabling us to tailor each step to fit the City's unique specifications. We worked in partnership with the City to improve the IT environments so it can better meet the needs of staff and constituents.

Current Information Technology Environment Summary

IT Staff (FT Equivalent)	8
City Employees	497
User Log-Ins	1,296
PC's	392
Laptops	200
Tablets and Mobile Phones	237
Physical Servers	23
Virtual Servers	38
Total Servers	61
Network Devices	60
Platforms	Windows, Linux
Databases	SQL Server, MySQL XBase
Citywide software applications/modules	190±
Avg. Reported Help Desk Tickets per Week	50
Closed Weekly (7 days)	41
Average Open Tickets after 7 Days	15%
Monthly Average of Tickets Closed within One (1) Hour	30
Average Hours to Resolve a Ticket by Weeks	26

The IT Division has completed a reimplementation of their Track-It software to better manage, track, and measure performance in resolving support tickets. They are still in search of a better ITIL based system. This should allow for more detailed measurement reporting for time periods, including:

- Tickets Closed in 24 Hours
- Tickets Closed in 72 Hours
- Other relevant measurement reports/outcomes

Key Statistics and Metrics

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

IT Budgeting/Expenditures	IT spending vs. Operating Fund budgets
IT Staffing Resources	Overall IT staffing vs. key equipment counts
IT Capital Replacement Schedules	Equipment replacement schedules for major IT items

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

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

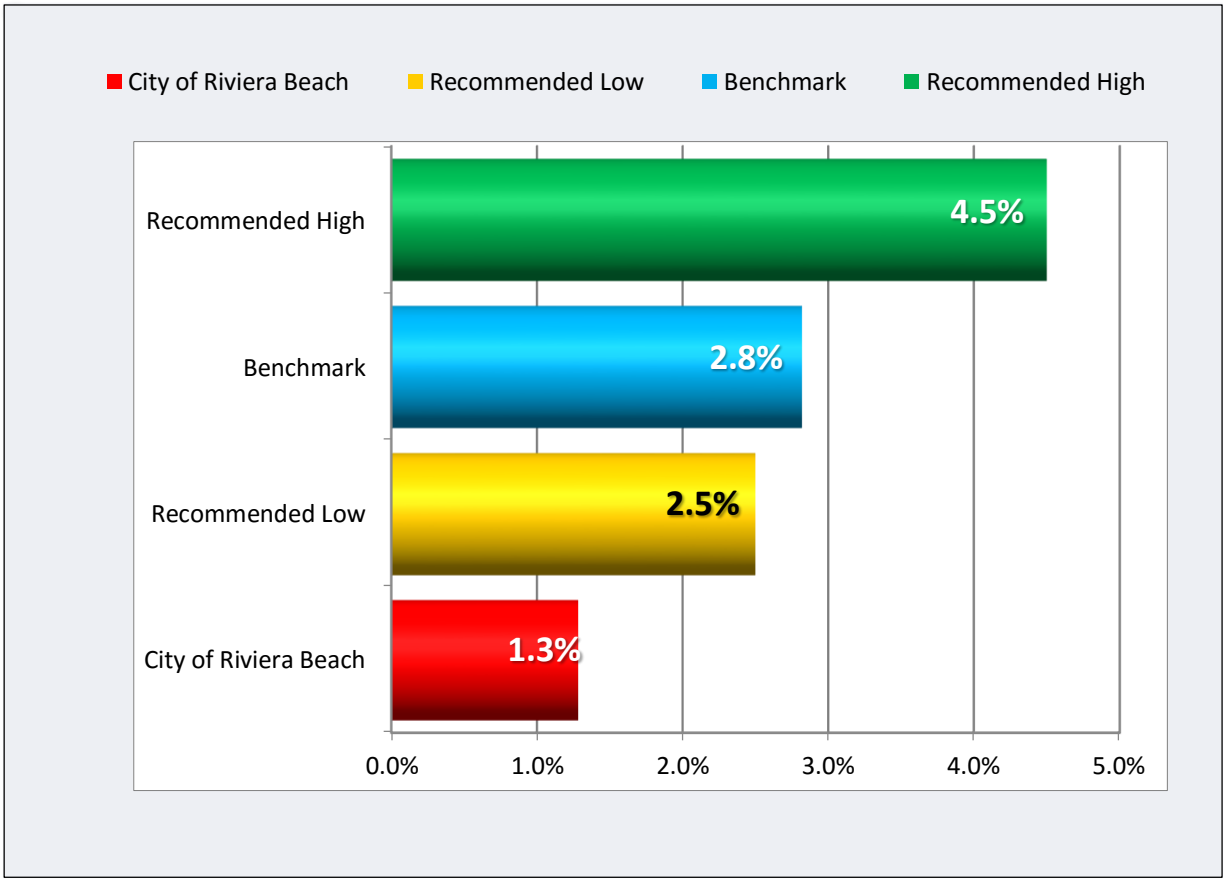
IT staffing levels versus servers, PCs, and the total number of logins are often a reflection of IT staff productivity. With the proper productivity tools, an individual IT staff member can support more users, reducing overall costs.

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

IT Spending vs Operating Fund Budgets

The following table depicts Riviera Beach's IT Spending versus Recommended Best Practices and a Municipal benchmark of 31 agencies.

Recommended Low	Municipal Benchmark	City of Riviera Beach	Recommended High
2.5%	**2.8%**	**1.3%**	**4.5%**



The 2014/2015 adopted budget for the general and enterprise funds is $79.8M, and the IT expenditure budgets total for the same period is $1,024,150. The municipal spending benchmark range from the survey was between 1% and 8%, with an average of 2.8%. The percentage of IT expenditures versus operating fund budgets at Riviera Beach is below the recommended low.

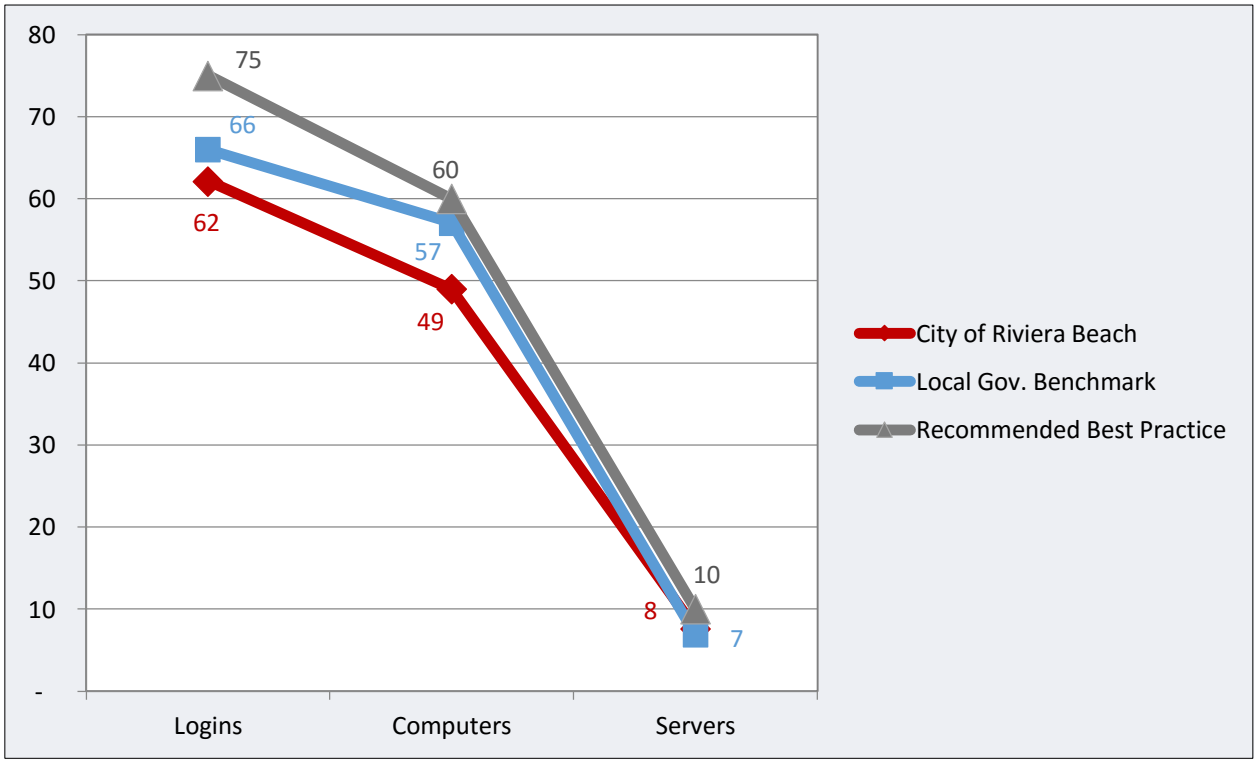
This represents a consistent under-spend compared to industry standards for IT infrastructure and overall information technology solutions and support. The result of this under-spend has been an IT infrastructure that needs upgrades, is aged, and has under-utilized departmental applications. Greater funding should result in increased productivity citywide and at the department level.

IT Staffing Ratios

The following table depicts Rivera Beach's IT Staffing Ratios versus a Municipality Benchmark of 44 similar agencies.

	City of Riviera Beach	Municipality Benchmark	Recommended Best Practice
Logins	**62**	**67**	**75**
Computers	**49**	**57**	**60**
Servers	**8**	**7**	**10**

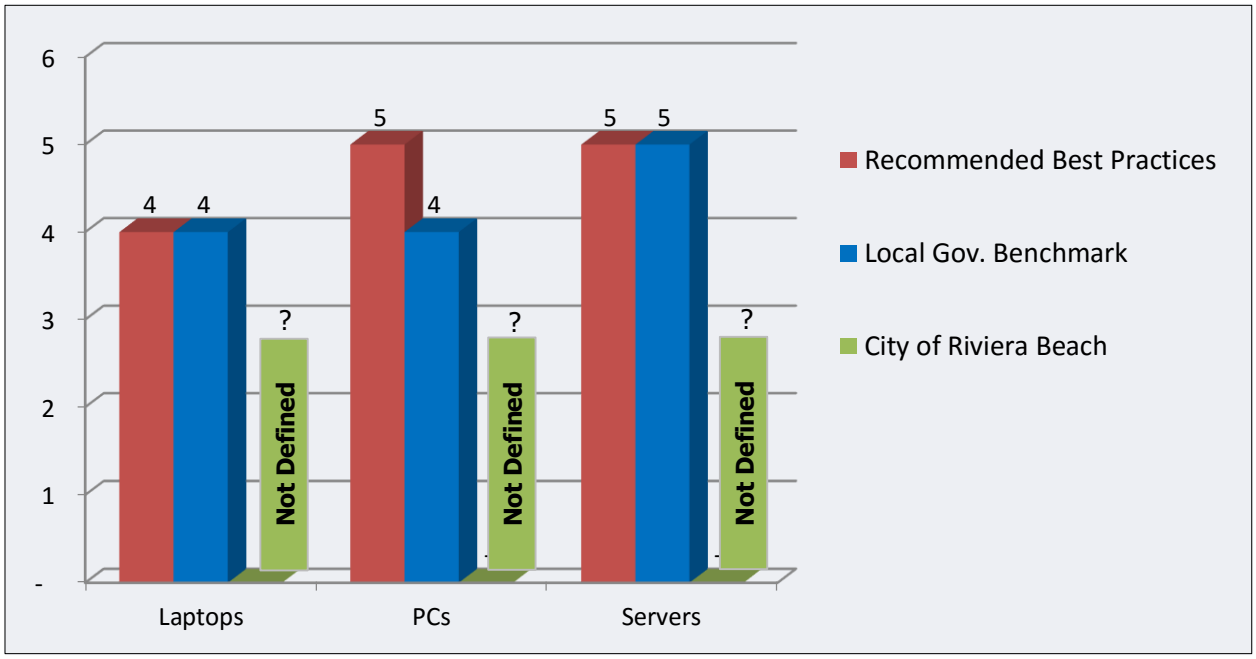
The ratios for this comparison is based on a fixed number of 8 IT Staff against 497 logins, 592 computers, and 61 servers. In this comparison, the City's IT staffing ratios for computers are lower than their peers or recommended best practices (i.e., supporting less users and devices per IT staff). This confirms the findings from the Ticket Tracking system (QAlert) for "Help Desk" support is overstaffed. In summary, all the IT staff roles and responsibilities could use more attention.



Equipment Replacement

The following table represents IT equipment replacement Recommended Best Practices and a Municipal benchmark of 37 agencies. The City has not defined, nor has the City historically operated with, a replacement policy. This leaves the City's results unrenderable at this time. However, the benchmark and best practices ratios shown below provide a good goal for the City to pursue in managing equipment life-cycles and replacement in the future.

	City of Riviera Beach	Municipal Benchmark	Recommended Best Practices
Laptops	Not Defined	4	4
PCs	Not Defined	4	5
Servers	Not Defined	5	5



IT Strategies, Goals, and Objectives

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

Improve Staff Productivity

Goals and Objectives

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

Select & Implement a New Enterprise Resource Planning (ERP) System

Goals and Objectives
• Follow a system selection best practices approach to select an ERP system to replace the ADG system and other City applications: ◆ Assess and define needs ◆ Develop an RFP based on the needs assessment and defined needs ◆ Analyze and determine short-list ◆ Conduct detailed tailored demonstrations ◆ Perform reference checks ◆ Conduct site visits ◆ Select finalist ◆ Conduct due diligence and contract review and negotiation • Implement per best practices with Project Management Office and following PMI (project Management Institute) standards

Maximize Utilization of Application Systems

Goals and Objectives
• Utilize software selection best practices for all new application procurements. • Follow implementation project management best practices. • Maintain a complete Application and User License Inventory. • Plan for and fund adequate user training and support. • Train key users so they can fulfill their roles without extensive work-arounds and unnecessary reconciliations. • Implement application management best practices, including: ◆ Funding an application support specialist (business analyst) to support the applications and the associated application users in the business departments. ◆ Create a culture of departmental enterprise application ownership for ERP system and any other core departmental applications. • Commit all levels, from management to line staff, to taking responsibility for adapting and improving processes, and integrate them with core application software applications.

Improve Application Management & Support

Goals and Objectives

• Improve departmental ownership of applications
• Identify key roles and responsibilities for core business applications
  ◆ Process Owners
  ◆ Application Champions
  ◆ Application/Business Process Analysis
  ◆ Ad Hoc Report Writers
• Add Business Analyst (Application Support Specialist) skill sets
• Improve application analysis and reporting capabilities within the business departments and/or the IT department
• Perform process reviews and document specific feature/function requirements for inclusion in RFPs when procuring new applications
• Create and maintain Application and User License Inventory
• Follow software selection best practices for new software acquisitions
• Follow implementation project management best practices
• Create standard operating procedures
• Utilize industry subject-matter experts (SMEs) for large, complex projects

Ensure IT Governance and IT Best Practices

Goals and Objectives

• Adopt a Best Practices approach to software selection and management
  ◆ Improve application analysis and reporting capabilities within the departments
• Create and maintain project inventory
• Utilize project management principles for larger projects
  ◆ Become date and project-schedule driven
• Finalize documentation
  ◆ Create standard operating procedures
• Implement technology productivity tools, automate:
  ◆ Security patch management
  ◆ Desktop configuration and maintenance
  ◆ Network management
  ◆ Alert and alarm threshold management
  ◆ Help Desk Support productivity and tracking software

Implement IT Governance Best Practices through IT Steering Committee

Goals and Objectives
• Formalize an IT Steering Committee and Governance mechanism ◆ Review Help Desk metrics and identify training needs ◆ Monitor and review IT Initiatives ◆ Develop and review standards and policies ◆ Collaborate on projects and initiatives ◆ Act as a sounding board for management and staff

Strengthen Infrastructure Resilience and Disaster Recovery Capabilities

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

Expand Citizen Communication and Online Customer Service

Goals and Objectives
• Increase online transaction capabilities • Implement Online Citizen Request Management (CRM) • Implement Online Permits • Implement Online Permit Inspection Requests • Implement Online Code Enforcement Complaints • Implement Online Business Certificate Renewals • Implement Online Park and Recreation Program Registration and Payment

Move towards A Citywide GIS/Geospatial Application Perspective

Goals and Objectives
• Move to a centralized GIS environment ◆ Consolidate existing distributed GIS systems and staff ◆ Provide to GIS/Mapping presentation to the public on the City's website ◆ Include geospatial requirements as specifications for all future software application acquisitions

Improve IT Operational Efficiencies

Goals and Objectives
• Develop metrics for the measure of IT service levels ◆ Report on these metrics regularly • Implement an IT Services Portfolio and Project Management capabilities ◆ As a part of the IT Services Portfolio, work with the IT Steering Committee to reach agreement on reasonable service levels for Help Desk support ◆ Review responsibilities for services provided by IT to validate their necessity • Utilize these and other Operational Tools to report on the success of IT to the IT Steering Committee

Improve IT Customer Service

Goals and Objectives
• Foster a customer service attitude for all aspects of IT service delivery • Create an IT Help Desk and implement Help Desk Support and Tracking software tools • Document service levels for incident response and enhancements • Develop customer service performance metrics and exceed those expectations, using Help Desk tracking and productivity tools • Develop Mobile Device Management capabilities • Implement "guest" and staff wireless throughout all City facilities • Consider "Bring Your Own Device" and "Network Access Control" for some users

Improve IT Accountability

Goals and Objectives
• Implement Help Desk software to effectively log calls and track/measure service levels • Develop IT performance metrics and track • Analyze and track infrastructure performance and application response time

Modernize IT Infrastructure

Goals and Objectives

• Create a computer room that meets current standards
• Move from obsolete hardware and software to current generation infrastructure
  ◆ Eliminate system processing inefficiencies created by incompatible software and disk space limits
  ◆ Reduce wasted staff productivity time spent maintaining and resolving issues on aging technology
• Improve resiliency and uptime of infrastructure
  ◆ Design infrastructure to include cost-effective redundancies to reduce downtime
  ◆ Create and track uptime metrics

Wide Area Network

Goals and Objectives

• Design and implement an industry standard Municipal Area Network to improve:
  ◆ Network performance
  ◆ Citywide application access and data sharing
  ◆ Data integrity
  ◆ Reduction in long-term telecommunications and equipment expenditures
  ◆ IT support efficiency and productivity

Implement Best Practices for Procurement and Project Management

Goals and Objectives

• Procure large or complex equipment and services through a competitive process
  ◆ Conduct an initial design phase for use during competitive bidding
• Utilize best practices project management techniques for the implementation of larger, complex projects
  ◆ Develop a project planning expertise and utilize project planning techniques to report on project progress to management and the IT Steering Committee
  ◆ Integrate project management with management of the IT Services Portfolio and Project Inventory

Enable Citywide Application Usage

Goals and Objectives
• Connect all City facilities through an improved wide area network • Expand remote access to improve staff productivity • Improve reliability of access and reduce downtime

Develop Sustainability Plan

Goals and Objectives
• Create an IT Capital Replacement Plan to forecast, fund hardware and software replacement costs • Develop an application portfolio and understand the life cycle cost of all departmental and operational applications • Plan for the sustainability of applications in addition to existing hardware capital replacement funding

Improve Software Selection Methodology

Goals and Objectives
• Assess the need for replacement versus upgrade before undertaking a selection • Investigate current vendor systems for potential module additions first • Research Top 3 Vendors based on Software Functionality in correlation to current business practices. • Introduce findings to the IT Steering Committee and Department requiring software with an In Depth Tutorial of Each of the Top 3 Vendor applications'

- Steering Committee and Department vote on software based on functionality and software requirements needed by the Department's Business Processes.
- Best practice equipment procurement

IT Infrastructure

ClientFirst conducted a detailed IT infrastructure assessment, including the network, servers, equipment, inside/outside cable plant, and other communication infrastructures.

The IT Initiatives addressed for this category, which are explained in greater depth in the Appendix, include:

IT Initiative	Description
Local Area Network (LAN) / Metropolitan Area Network (MAN)	Replacement of Network devices due to obsolescence
Internet Access/Bandwidth	Review of existing bandwidth needs and determine future rate of growth. Also utilize network management tools to baseline and monitor Internet bandwidth. Budget for additional Internet bandwidth, using a commercial-grade, dedicated broadband Ethernet service which will include an upgrade to a higher bandwidth of 100Mb or higher. Investigate adding in a second Internet connection to enable HA (High Availability).
Network Redesign	Performing inventory and audit of network equipment and determining end-of-life dates and developing a capital replacement plan. Review of switch, router, and firewall configurations equipment. Upgrade WAN equipment to support increased bandwidth needs and security. Develop new network design to fit into overall operating and to meet the needs of the Disaster Recovery Plan, which will include the development of an RFP for replacement of the Wide Area Network (WAN).
Create Best Practice Internet Connectivity	Develop security policy, including a section outlining external to internal connection security and create a DMZ using a small file server running virtualization to provide for growth
Core Switch Replacement	Upgrade core network switch to resilient Cisco 4500 Series model or higher and eliminate all non-managed switches; implement redundant core switching capabilities and institute maintenance policy and standards for switch, router, firewall, and various network devices

IT Initiative	Description
Wireless	Develop an integrated wireless design that incorporates guest and City staff needs and perform wireless survey to determine locations for wireless access points. Integrate mobility and wireless-usage section into existing IT policy and develop a wireless design model to implement citywide. Implement management platform and expand as the wireless network grows. Require "second wave" 802.11ac access points for deployment.
Wireless Mesh – Mot Mesh	Investigate upgrading existing wireless mesh equipment. Upgrade to higher bandwidth access points and add dedicated Internet connection for mesh network – do not share gateway. Budget for new technology implementation, which includes necessary consulting or contractor design and implementation services. Implement redundant wireless core routers for mesh network – multiple bottlenecks and single points of failure exists and train internal staff on wireless mesh technology.
Data Center Improvements	Enhance computer room to meet industry standard best practices
Data Center Relocation	Move of data center to proposed City Hall space. Alternatively, investigate data center space availability with other government agencies in the County. Design with proper power and HVAC requirement for newly proposed room. Implement closet and cabling standards.
Power Distribution Units	Add power distribution units (PDUs) for the ability to control and monitor power to particular network devices, such as servers and switches
Server Upgrades and Consolidation	Consolidation of the majority of physical servers to the current release of virtualization software improve application resources and user needs
Virtual Server Upgrade	Upgrade to the current version of VMware products, such as VMware vSphere Hypervisor (ESXi) 5.5 or higher
Storage Area Network (SAN) Upgrade	For procurement of an additional iSCSI-based SAN for failover and redundancy (replication); this will include instituting Storage Tier to improve the performance of core data and applications and includes the necessary backup capacity as a part of the design process
Remote Access Upgrade	A needs assessment and requirements definition for remote access for the City that takes into account the diverse user needs of staff and long-term goals for the use of remote access to conduct City business
Computer Upgrades	Upgrade computers from Windows XP to Windows 7 or replace with new computer where necessary
Dual Monitors	Improve staff productivity by allowing an additional workstation monitor for certain users

IT Initiative	Description
Conference Room Audiovisual Capabilities	Improve audiovisual capabilities of conference rooms
Technology Support for the EOC	Upgrade outdated equipment and technology to support use of EOC in a large-scale emergency

IT Operations

IT operations are the daily support and maintenance of all IT infrastructure and user support. IT operations include the processes and procedures used by IT staff to maintain the network, applications, and workstations. Initiatives related to IT operations are often focused on productivity improvements and implementing IT best practices.

The IT Initiatives addressed for this category, which are explained in greater depth in the *Appendix*, include:

IT Initiative	Description
Help Desk Ticketing System	Utilize ticketing system to develop and report on Service Level Metrics
Desktop Management	Implement WSUS while evaluating and then implementing enterprise desktop management products
Print Management	Centralized management of printers to improve flexibility and reduce troubleshooting, move day-to-day copier management to the departments

IT Security

IT Security refers to all security systems and practices, including Disaster Recovery to project City systems and data.

IT Initiative	Description
IT Security – General	Develop security policies and procedures, protect City systems and data
IT Security Review	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
Backups	Replacement of the Symantec with more robust enterprise backup software solution (e.g., CommVault, ArcServe, etc.). Plan for disk-to-disk replication to either a second site at the City or another organization in the County; move to cloud-based storage instead of tape for tertiary backup and encrypt backup data and move to a disk-disk-cloud topology
Disaster Recovery Planning	Develop capabilities to survive a major failure or catastrophic event involving IT resources and facilities
Windows Active Directory	Upgrade Active Directory (AD), and review AD services for resiliency
Two-Factor Authentication	Budget for and implement two-factor authentication for remote access and inclusion of two-factor authentication in the requirements for the purchase of a new remote access system
Firewall Filtering and Consolidation	Expand web content filtering to fire stations, replace firewalls before obsolescence in 2018
PCI Compliance	Standards and laws that govern credit card payment processing
Records and Data Retention	The completion of an inventory, including all forms of electronic records storage at the City and then work with the Clerk's office to develop procedures for electronic records retention for the various record types; implementation of procedures for records retention and subsequent destruction of electronic records

Telecommunications

IT Initiative	Description
VoIP Telecommunications Situation	Perform a line utilization review to determine if three PRIs are really necessary, conduct a telecommunications operational assessment to determine if the current system is meeting the City's needs, and perform an alternative telecommunications system cost comparison to determine if the current system is providing the City with value versus other alternatives
Announcement System (Intercom)	Replacement of intercom capability that was lost with the move to the AT&T hosted solution now in operation

Key Issues

Return-On-Investment Considerations

IT Infrastructure, Operations, and Support

Following is a list of IT functional areas impacted when determining the number of applications required to support the City'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

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. Although these individual improvements do not always equate to immediate, "hard" savings, they may result in intangible benefits to the organization or the residents or cumulative savings from reduced long-term personnel needs.

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 ten 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. Ten years should be the "minimum" expected life cycle for major/large application systems such as finance, community development, work orders/maintenance management, EDMS, etc. Some agencies use these systems for 15-20 years, if their vendors are keeping their solutions current with the latest software programming technologies.

User Training & Support

Most application software systems are 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 carry out functionality improvements, reporting, and training requirements in order to utilize the organization's important technology 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 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 and positions, etc.**

Disaster Recovery Planning and Backups

The City does not have a fully complete IT Disaster Recovery plan that includes Service-Level Agreements (SLAs) for application recovery in the event of a disaster. A disaster recovery plan should be developed that includes:

- Developing a Disaster Recovery Plan and strategy.
- The consideration of three disaster recovery scenarios when developing strategies:

Loss of data center at Police Department

Major disaster eliminating all area communications and IT infrastructure

Loss of City Hall data center

- Understanding that vendor-by-vendor or outsourced arrangements will be required for true recover of applications.
- Evaluating an application portfolio and determining SLA for restoration.
- Developing strategies for restoration of high-priority applications.
  - Begin to implement based on strategy and application priority.
  - Test portions of plan each year.
- Ensure local replication of data is in place between main data center and an alternative City location.
- Emergency Preparedness, which refers to steps taken to provide for the ongoing storage and recovery of valuable electronic information in the event of a disaster or system failure at the City. The potential need for the recovery of electronic data from off-site storage ranges from retrieval of files accidently deleted a month ago to recovery of information following a fire or flood in the main data center.

Emergency preparedness best practices include off-site backups, agreement on the priority and speed with which systems are to be restored, and a detailed, tested specific plan to restore those systems within the allotted timeframe. For systems requiring restoration in less than 72 hours, automated backup systems are usually required.

Capital Replacement Planning

Replacement Planning is the best practice benchmark for the replacement of hardware. This is an important and ongoing process since it brings about continuous change and performance improvements. Replacement Planning allows the anticipation of expenditures, identification of hardware attributes, transition management planning, preventative system failures/ obsolescence, and foreseeable hardware maintenance.

Although there are cost benefits to retaining equipment, the extended use of such items will increase likelihood of failure.

- Set aside capital replacement funds each year to replace IT equipment.
- Develop a replacement plan for all IT equipment.

IT Equipment	Recommended Replacement Cycle (Years)
Switch Replacement	7
Phone System Upgrade	5
Audiovisual Equipment	5
Servers	5
PCs	5
Laptops	4
Mobile Devices	2
Wireless Devices:	
Point-to-Point	5
Wireless LAN	4

Help Desk Service Levels

QAlert is currently being used as the Help Desk ticketing system.

- Users are encouraged to report problems through the Help Desk.

Most problems are reported through the Help Desk.

Tickets are then allocated to the appropriate individual.

- QAlert does not provide data with enough granularities to produce any meaningful graphical representations. QAlert can only provide high-level weekly information. A review of one week's QAlert data (April 6 – 10, 2015) was only able to report that 36 new Help Desk tickets were entered and that 29 outstanding tickets were resolved/closed.
- IT has a Track-It Help Desk license and moved about a year ago to QAlert. The new IT Manager believes Track-It would serve them better and the reasons for their problems with Track-It were the result of poor setup and implementation.
- Help Desk ticket service-level agreements or goals have not been established and no metrics exist related to service levels.
- The City should consider instituting a Help Desk telephone answering function to provide troubleshooting as part of the initial Help Desk ticket resolution process, with an introductory target for a 40% initial call resolution rate.
- The City should also look closely at reimplementing and migrating back to Track-It as the City's help desk system. The IT Division should consider assistance from outside specialists to ensure the proper setup, configuration, and re-implementation of Track-It.
- The City has not established service-level agreements for the response and resolution of Help Desk tickets. The City should consider those defined in the table below:

Priority	Response Time	Resolution Time
Urgent (multiple staff members unable to function)	2 hours	90% resolved in less than 4 hours
High Priority (single system down or critical function unavailable)	4 business hours	90% resolved in less than 8 hours
Medium Priority (a single program or function does not work)	8 business hours	75% resolved in less than 16 business hours
Low Priority (Issue reduces productivity, but work around exists)	16 business hours	75% resolved in less than 1 week

Procurement & Project Management Best Practices

For large or complex systems, the City should consider utilizing a Best Practices Procurement methodology that includes an initial definition of scope and design phases. The resulting design can then be utilized in a competitive selection process. The City should consider including these components in any RFP: final design, installation, construction, testing, conversion, post-implementation support, and knowledge transfer.

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 manufacturer, but provides vendors with specifications that must be met. This methodology:

- Encourages increased vendor participation
- Increased vendor participation often results in lower pricing and better products

For oversight, before approval of purchase of a complex system or a system requiring three bids, Administration 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

Steering Committee Procurement Process

The Steering Committee process for procurement on complex department systems involves the use of a 3-step process: Research and Planning, In-Depth Demonstration and Analysis, and Selection.

This methodology concentrates on the business practices and processes of the Departments requesting a replacement of their current systems.

During the Research and Planning phase, the IT Division does the following:

- ❖ Discusses the current business needs of the Department
- ❖ Creates a requirements list that suits the Departments needs
- ❖ Using Market Research: finds the top vendors based on functionality and business processes.
- ❖ Attends User Group Conferences and finds references from various municipalities.
- ❖ Discusses the possible procurement steps with the Procurement Division and provides the Procurement Division with detailed vendor information (piggyback contracts, vendor history, contact information, etc.)

During the In-Depth Demonstration Phase, the following occurs:

- ❖ The IT Division with each vendors plans a demonstration of the product to the IT Steering Committee and the Department in question of new software.

- The Demonstration is an Hour In-Depth Demonstration explaining each major component in the requirements that the Department needs to review.
- The IT Steering Committee and Department are advised to question the vendor with as many possible questions regarding how the software reacts to their business model.
- The vendor is then released from the meeting and the IT Steering Committee and Department have a discussion about the pros and cons of the specific vendors' systems functionality.

The Final phase is the Selection Process:

- The IT Steering Committee and the Department Head are the only members allowed to vote in this process.
- The Steering Committee is comprised of 3 Different Department Entities which will be the:
  - The Steering Committee
  - The IT Division
  - The Requesting Department
- The Voting process based on the following:
  - Business Functionality
  - Customer Support
  - Expandability
  - Customer References
  - Integration
- Each Voting process can be maxed out at 25 Points. The maximum a vendor can receive is 75 Totaling Points.

Application Utilization

The City utilizes different software applications or modules throughout all departments. These software applications have cost the City millions of dollars, and are a significant City asset. Major systems include:

Module	Vendor
Financial Management	American Data Group (ADG)
Personnel Management	American Data Group (ADG)
Land Management	Permits Plus
Maintenance Management	QAlert
ECMS	Alchemy, Docuware, and MS SharePoint
Geographic Information System (GIS)	Esri

Many City software applications, modules, and systems are underutilized, resulting in loss of productivity due to manual processes, inefficient workarounds, and inefficient or unnecessary reconciliations. Additional user training is needed for many software applications. The City does not have sufficient resources to document practices and procedures regarding developing needs for application systems, prioritizing, evaluating solutions, and identifying sufficient implementation, and ongoing management and support resources for these solutions. Additionally, the City has insufficient, effective IT resources to ensure quality applications utilization, increase department process improvements, and gain significant efficiencies in labor throughout the organization.

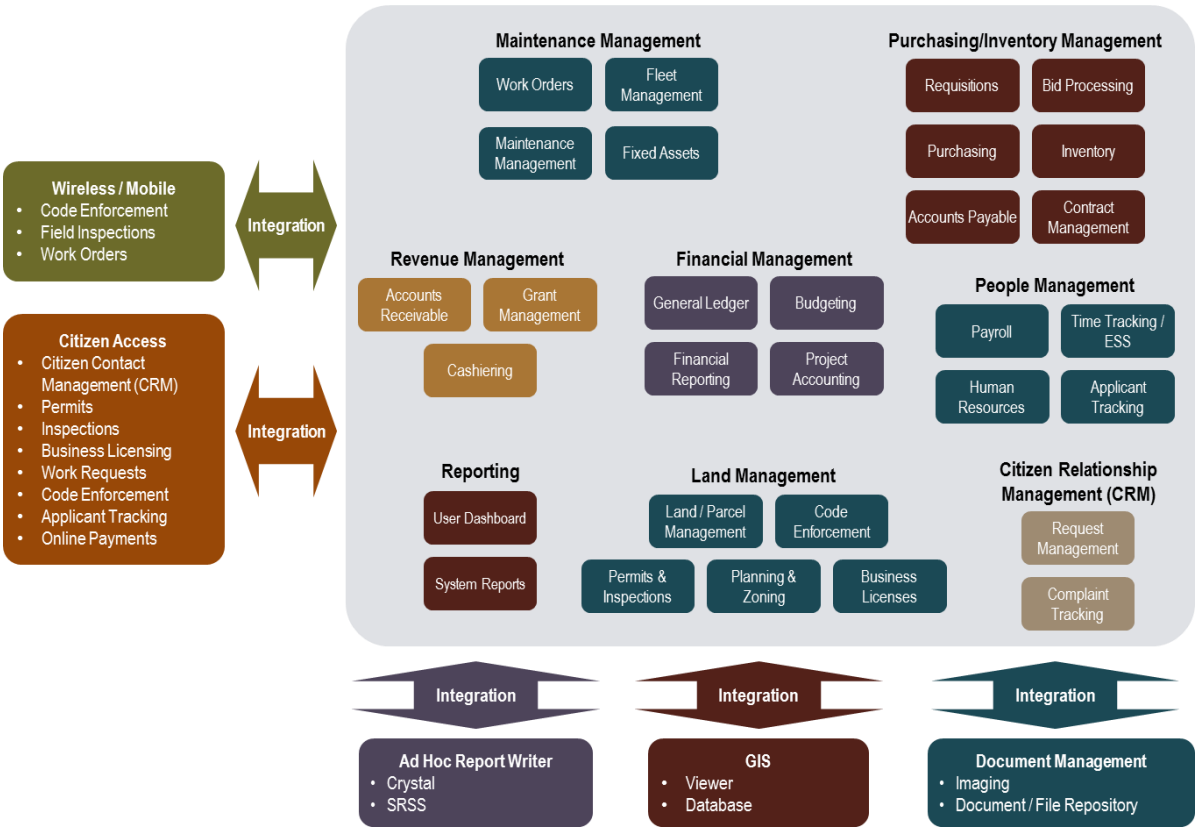
Gaining greater utilization of the existing application modules is vital to significant increase in productivity by staff throughout the City. The ability to accomplish this is difficult because of limited resources and the diversity of application providers in use.

In order for the City see achieve significant improvement in staff productivity and efficiency and constituent services and transparency, the City will need to gain improved utilization of its software/application assets.

Enterprise Resource Planning (ERP) Replacement

Enterprise Resource Planning (ERP) is an organization-wide software solution that allows integration among various departments and their respective functions. The result is a centralized system of communication, data storage, and operations management. Improvements to ERP solutions bring about processes that multiple departments can benefit from. Common municipal-related ERP application modules include accounting, financial reporting, payroll, human resources, planning and permitting, and work orders. The following graphic shows a typical municipal ERP environment.

Example Enterprise Applications Overview



Currently, the City utilizes multiple software vendors including ADG to support its enterprise application requirements. Some of the current systems are outdated, lack adequate integration, reasonable reporting capabilities, commonly utilized functionality found in other municipalities, and require excessive manual workaround and reconciliations. All departments noted unmet reporting needs, feature/functional requirements deficiencies, and an overall need for systems improvements and additional software modules.

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

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

The City currently uses four different vendors to provide its ERP needs. The primary solution, ADG is aged and lacks key functionality available in more current technology. Additionally, QAlert is not a full Work Order and maintenance management system and alternatives should be considered.

The entire effort to select and implement a new ERP solution will require two to three years of effort.

Software Selection Best Practices

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 be in a better position to meet growing constituent demands. Additionally, many agencies must provide better service to their constituents while coping with less employees and greater budget constraints.

The City has several major application additions and/or replacement projects in the short and long-term that require utilization of best practices for needs assessment, procurement, implementation planning and readiness, and implementation project management.

Many of the City's past application utilization issues started with less than Best Practice approaches to software selection. Unfortunately, this is a common industry occurrence due to resource constraints. Consider these statistics:

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. Additionally, for major software systems, such as financials, community development, maintenance management, utility billing, CAD/RMS, and other specialized application systems, it is highly recommended the City consider utilizing independent third-party experts to provide consulting and project management.

STARTLING STATISTICS:

- *Only 32% of projects are on-time, on-budget, deliver all required features and functions, and achieve measurable business and stakeholder benefits[1]*
- *Approximately 44% of projects are "challenged" (late, over budget, and/or with less than the required features and functions)[2]*
- *69% of project failures are due to a lack of and/or improper implementation of project management methodologies*
- *Nearly 40% of those surveyed said that a "lack of employee buy-in and executive support" was the biggest challenge facing a successful implementation[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)[4]*
- *In a past study of local government enterprise implementation, published in Government Finance Review, it was found that the average project was 176% over budget and 243% over the planned implementation timeline*

[1] Standish Group, CHAOS Summary, 2009.
[2] Standish Group, CHAOS Summary, 2009.
[3] KPMG survey of 252 organizations.

[4] 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.

GIS Assessment & Master Plan

The City does not have a centralized GIS function.

- Each department maintains their own GIS servers and GIS software, and these systems are not integrated and do not talk to one another. These departments include, but are not limited to:
- Community Development
- Public Works
- Utility District
- Police
- Fire
- GIS data layers and GIS databases are not centrally located and maintained. GIS layers and databases are supported separately across the departments noted above.
- Palm Beach County is the source for base maps, but each department repeatedly downloads this data to their GIS systems independently and maintains this data separately.
- Those responsible for GIS within their respective departments attempt to meet on a monthly basis, but it is not as consistent as it should be. However, they are working to be more effective at communicating and sharing data.
- Not all needed layers are in place. For instance, Public Works described their GIS accomplishments as follows:
- Street signs – None
- Street lights – None
- Storm sewer – Approximately 50%
- The City should consider organizing a centralized GIS function. This would provide consistency across the City and make more effective use of resources. Even though the function would be centralized, the individual GIS personnel could be assigned to specific departments to provide continuity. The focus would be to:
- Consolidate GIS Resources
    - Staff
    - Software
    - Databases
    - Hardware
- Establish common centralized GIS layers
- Determine the best points of integration with key departmental systems

- Integrate GIS with City's website
- The City should consider a long-term goal of combining the new centralized GIS function with the IT division. In the short-term, during the GIS consolidation effort, it is assumed best to keep the GIS and IT organizations separate to ensure each organization can focus on their short-term goals of their respective IT Master Plan initiatives and recommendations.
- The City should consider developing a GIS Strategic Plan. Although the City has extensive GIS data, it will benefit from a plan that will help leverage its investment in GIS. Details of this recommendation are included in the IT Master Plan document under the GIS initiative.
- Consider assistance from an independent, third-party, industry expert to develop the GIS Strategic Plan.

Governance

The City requires cooperative technology to meet its goals. The IT Master Plan implementation provides a great opportunity for City departments to collaborate on future technology use and applications. In the past, the City had a Technology Advisory Committee, but it has been inactive since 2011.

Traditionally, key IT decisions are made by IT professionals and a select few organization managers. This does not always ensure the most effective benefit to all stakeholders (all departments and constituents). IT governance can provide a collaborative 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.

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 IT 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 include:

- Identification and development of technology initiatives
- Prioritization of initiatives
- Monitoring and reviewing initiatives
- Project managing implementation of this IT Master Plan
- Providing a forum for lessons learned during implementation of technology projects
- Provide an initial review process of technology-related projects by one department
- Review and providing feedback on long-term unresolved Help Desk issues
- Developing and reviewing standards and policies
- Updating standards and policies as changes occur in the organization and technology
- Helping to achieve support across the organization

- Review Help Desk statistics, issues, and long-term, unresolved needs
- Acting as a sounding board for management and staff

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

IT Master Plan: Top 5 Initiatives

The following is a list of the Top 5 initiatives the City should note and keep in the forefront as part of the future implementation of this IT Master Plan.

IT Initiative	Why in the Top 5?
ERP System Replacement	This is the core system for the entire City. The ADG system is aged and no longer meets the needs of the City. Other ancillary system and shadow systems have been acquired or developed that do not interface/integrate and would not be necessary with the implementation of a new ERP system.
Network Redesign	The City's network is the highway for communication and the infrastructure that all applications and tools ride upon. Without a solid network design for MAN/WAN/LANs the investment in application software tools will not be realized.
Sustainability Planning	A citywide technology environment is a continual support, improvement, and upgrade process. Maintaining this environment is critical and large spikes in capital expenditures can be avoided by proper planning for upgrades and replacements based on the lifecycles of various technologies. The City has let their environment lag and now is catching up, which is costly. A repeat of such a cycle can be prevented.
Application Management Best Practices	The City has not had any policies, processes, or best practices in place for the selection and implementation of application software. As a result, there is a significant amount of software duplication. There also is a gap in IT for the support of software applications. Best practices can manage your software acquisitions and Application Management talent (Business Analyst) can help ensure you have effective implementations and software is adequately managed to realize a return on investment.

GIS Consolidation and Master Plan	GIS and spatial maps are the future and will drive many of the City's operations moving forward. GIS and maps also provide a visual interface for your citizens to access services and information. Having a citywide approach to GIS will setup the City to meet these geospatial and mapping needs in the future.

Benefits of a Modern ERP System

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

- Built-in integrations between Land, Work, Financial, and People Management application suites
- Newer technology platform (processing, capacity advantages)
- Real-time notifications/queues
- Task tracking
- Real-time access to information
- Elimination of duplicate data entry
- Improved data integrity
- Centralized location and customer account maintenance

- Reliable information
- Workflow capabilities
- Centralized cash receipt capabilities
- Efficient revenue collection
- Reduced operating costs
- Improved internal communication
- Foundation for future improvement
- Potential reduction in annual maintenance and support fees
- Improved online information for citizens to access

Financial & People Management

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

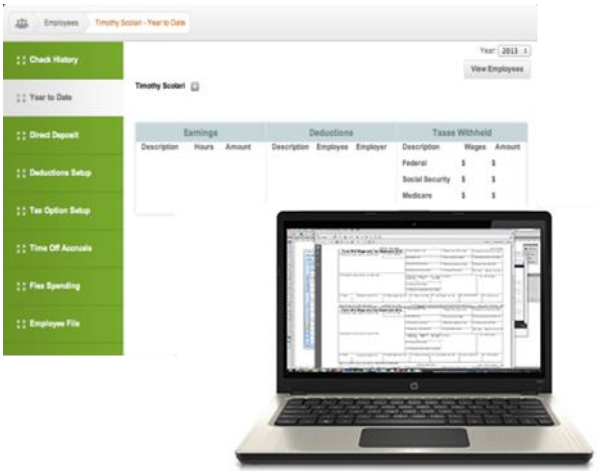
- Quick generation of financial reports
- More efficient budgeting processes
- Real-time access to available budget and funding
- Better spending controls for departments and projects
- Management of grants and funding sources
- Real-time inquiries into capital improvement project progress

The People Management suite manages the organization's workforce and provides automation to the human resources, payroll, time keeping, and applicant tracking functions. Employee self-service is also available to allow employees the flexibility in retrieving their information at their convenience. Benefits of a People Management suite include:

- Paperless personnel forms
- One-time data entry
- Tracking or misplacement of employee paper files
- Incorporation of Employee Self-Service (ESS)
- Integration between time keeping, payroll, HR, and financial management
- Quick and reliable reporting to federal and state agencies
- Improved employee satisfaction
- Automated Time Entry Approvals and Payroll Calculations
- Minimal steps between processing payroll and issuing direct deposits and checks

Employee Self-Service

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



- Address changes
- Tax allowances changes
- Open enrollment benefits
- Dependent changes
- Leave/vacation accrual balances
- Electronic paystub copies
- Year-end W2's
- Populating and retrieving time sheets
- Time requests
- Tax forms
- Many other forms and applications

Reporting

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

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

Mobile Computing

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

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

Online Citizen Access

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

- Online permit applications
- Submit and access plan review comments
- License renewals (business, animal, etc.)
- Utility, permitting, planning, licensing, and tax payments
- Submit code enforcement complaints
- Submit citizen requests
- Submit inspection requests
- Access to inspections results
- GIS maps (zoning, voting districts, etc.)

Citizen Request Management

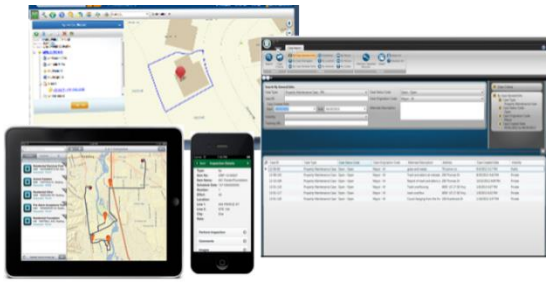
A Citizen Request Management system is used to track, manage, and resolve citizen concerns and requests in a timely manner by automatically routing citizen requests to the appropriate department. It also provides the citizen with the flexibility to submit and track their complaints through the Web or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

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

Land Management (Development Services)

The Land Management system is one of the suites that are offered by enterprise application systems and manages the creation, issuance, and tracking of community development activities related to planning and zoning, permitting, building inspections, licensing, and code enforcement. Benefits associated with the utilization of the application include:

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



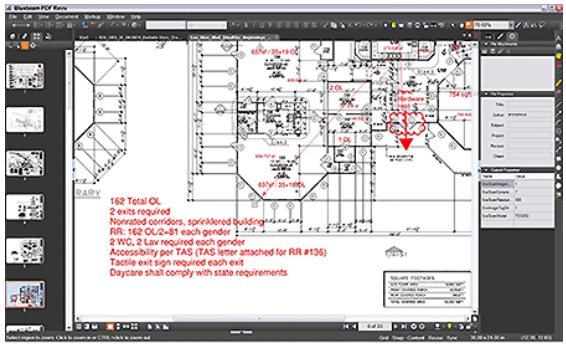
GIS Integration

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

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

Electronic Plan Submittals and Reviews

Electronic plan submittals are architectural/developmental plans that are in an electronic format. These plans can be submitted by the public through the City's permitting and planning processes. In addition to the electronic receipt of plans, electronic plan reviews allow City staff to review plans and electronically mark up and track plan comments. The following are benefits associated with electronic plan submittals and reviews:

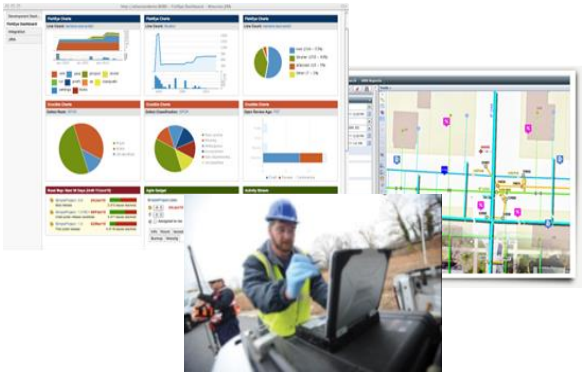


- Increased productivity through quicker processing
- Elimination of physical plan routing
- Submittal, review, and tracking of electronic plans
- Centralized storage and retrieval of electronic plans
- Performance of activities in parallel
- Concurrent review of plans by multiple staff
- Electronic collection of plan review comments
- Reduced number of and shorter resubmission cycle(s)

Maintenance / Work Order Management

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

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



Conclusion

Moving forward, the focus of Information Technology should be on continual infrastructure and service-delivery improvements, sustainability planning, and major software system utilization improvements and replacements. IT must work to position itself in the following ways:

Infrastructure – Follow best practices infrastructure equipment replacement recommendations to reduce risk. Expand City and Library wireless after new wireless standards based products are introduced later this year.

Customer Service – Implement Help Desk metrics to measure and track service levels. Change the Help Desk service delivery model to better match the urgency of the Help Desk request with the response. Create an IT Service and Project Portfolio to provide Departments with accurate information related to project inventories and timelines.

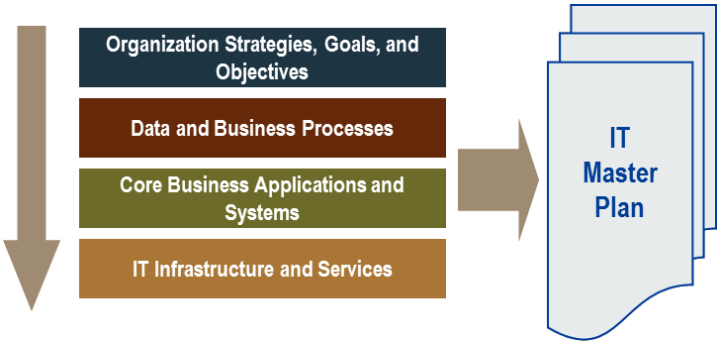
Application Utilization – Historically, IT has limited capacity to manage business department core business applications. Some City departments want to improve their business processes and fully utilize their application software while other departments have depended on IT for assistance. The City should work to encourage a sense of application and business process ownership and continuous improvement by the departments. Improved application utilization is one of the most effective ways to increase staff productivity and customer service.

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

Governance – The formation of the Technology Advisory Committee (TAC) will foster cooperation and collaboration in setting priorities and executing multi-department initiatives. Over the long run, the TAC will oversee and maintain the execution and occasional modification of this plan.

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

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



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

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

IT Master Plan Capital Budget

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