STAFF REPORT

Report To: Board of Supervisors **Meeting Date:** April 6, 2017

Staff Contact: Eric Von Schimmelmann

Agenda Title: Presentation on IT Strategic Plan

Staff Summary: The Information Technology Department has work City staff and NexLevel to produce a comprehensive 5 year IT Strategic Plan. This plan will be used to assist the IT Department in budgeting, project management and prioritization.

Agenda Action: Other/Presentation **Time Requested:** 15 Minutes

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Proposed Motion
None. This item is for presentation and discussion only.

Board's Strategic Goal
Efficient Government

Previous Action
None

Background/Issues & Analysis
The Information Technolgy Department has not had a strategic plan with any set goals and timelines. Over the past nine months the IT department has been working with a consultant (NexLevel) and City staff to create a comprehensive IT Strategic Plan. This plan will be used to enhance the IT Department and provide definitive goals and objectives for today and into the future.

Applicable Statute, Code, Policy, Rule or Regulation

Financial Information
Is there a fiscal impact? ☐ Yes ☒ No

If yes, account name/number:

Is it currently budgeted? ☐ Yes ☒ No

Explanation of Fiscal Impact:

Alternatives

Board Action Taken:

Motion: _____ 1) _____ Aye/Nay

2) _____ _____

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(Vote Recorded By)

The City of Carson City
IT Strategic Plan

Prepared by:

NEXLEVEL
Information Technology, Inc.

December 19, 2016

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Table of Contents

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Section 1 – Introduction

1.1 – Scope and Objectives

This document, entitled IT Strategic Plan (ITSP), was prepared for the City of Carson City (City) by NexLevel Information Technology, Inc., (NexLevel) as the culmination of an extensive process of information gathering, analysis, collaboration and review that included several workshops with key members of the City's management team to review and prioritize proposed strategic information technology projects.

The goal of ITSP is to enable the City to better allocate its information technology resources and to obtain greater benefits for its investments in information technology. The ITSP does not attempt to predict the future; but rather, enable the City to more effectively respond to new and/or changing requirements by proactively adapting processes, organization, people, and infrastructure to meet ever-changing technology needs and priorities.

Terminology

To avoid confusion, concepts and observations in this document regarding the use of information technology in general are spelled out ("information technology") or abbreviated as "IT", while "ITD" is used for references to the City's Information Technology Department.

1.2 – Document Organization and Contents

This document consists of the following sections:

- **Section 1, Introduction** – provides information regarding the scope and objectives of the planning effort, the organization of the document, the methodology used to develop the ITSP
- **Section 2, Current IT Environment in the City** – provides a summary of the findings and recommendations contained within the IT Assessment Report including an overview of the City's conformance to IT best practices and the resulting recommendations for technology service delivery improvement
- **Section 3, Enterprise Information Technology Trends** – provides a discussion of the most significant changes in information technology which will likely impact the City over the duration of the ITSP
- **Section 4, Strategic Technology Plan** – provides information regarding the open and collaborative process that was used to develop the ITSP including the steps in its development and refinement and the resulting project roadmap
- **Section 5, Conclusion** – provides general thoughts and observations for the City's consideration based on NexLevel's experience in developing IT strategic plans for local governments and special districts

1.3 – IT Strategic Planning Methodology

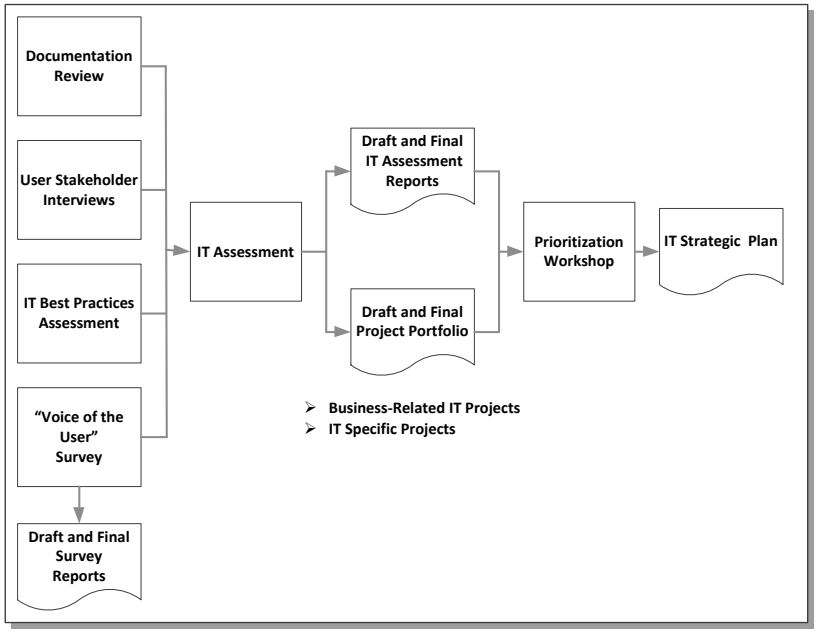

Figure 1 – Project Methodology

Figure 1, Project Methodology, depicts the process used to develop the City's ITSP. The IT Assessment Report (left, middle) was developed based on information gathered through:

- A review of the City's IT documentation and procedures
- A survey of the user's satisfaction with the IT services provided by the City along with open-ended responses as to what ITD does well and what ITD could improve. The survey results were presented in a separate report delivered to the City on July 7th.
- Interviews with key stakeholders in the City's departments
- An assessment of the City's conformance to a set of IT Best practices

Following the delivery of the final IT Assessment Report on October 6th, NexLevel developed a list of potential strategic information technology projects and incorporated that list into a project portfolio that provided information for each project including the project's sponsor, description, estimated low and high-end costs, the level or risk and the level of effort involved, and an assessment of the project's potential business impact. The project portfolio was reviewed by City stakeholders, updated by NexLevel, and provided as the starting point for the Prioritization Workshop.

The Prioritization Workshop was held on November 2nd with the objectives of:

- Reviewing the project portfolio with the City Manager and department heads
- Adding, changing, or deleting projects as needed
- Identifying the most critically-needed projects and assigning them to a timeline
- Achieving consensus on the preliminary project timeline

Following the review of the draft IT Strategic Plan by the City and updated by NexLevel, the City Manager and department heads will meet on a regularly scheduled basis using a revised project timeline as the basis for continuing technology planning within the City.

Section 2 – Current IT Environment

2.1 – Summary of "Voice of the User" Survey

The user survey is one of the data points that NexLevel evaluated to assess the effectiveness of the services provided by ITD and user satisfaction with those services. The user survey included both rated questions (where the respondents were asked to provide their satisfaction on a scale) as well as open-ended questions that enabled users to provide additional information.

Between June 10, 2016 and June 24, 2016, NexLevel conducted the survey to assess satisfaction with the support City department personnel receive from ITD. Of the approximately 575 City employees invited to take the survey, 193 employees participated (a 34% response rate, which is typical for similar surveys conducted by NexLevel.

In terms of the demographics of the respondents, three departments (Health and Human Services, Fire, and the Sheriff) accounted for nearly 44% of the responses (84) and just over 38% (74) of the respondents identified themselves as being an executive, manager, or supervisor.

Just over 64% of the respondents (124) contact ITD between 1 and 5 times per month (approximately half contact ITD 1 to 2 times, and half contact ITD 3 to 5 times). The top four reasons that users contact ITD for support include:

- Desktop computer (109 responses)
- Network connections / performance (84 responses)
- Printer issues (82 responses)
- Internet (70 responses)

Key IT service metrics from the user survey included:

- Of the 180 individuals who responded to the question regarding their satisfaction with the time it takes ITD to solve / correct their problem, 164 (91.1%) indicated that they were satisfied (including individuals who reported that they were somewhat satisfied, satisfied, or very satisfied)
- Of the 176 individuals who responded to the question regarding their satisfaction with the communications on issue resolution from ITD, 154 (87.5%) indicated that they were satisfied
- Of the 180 individuals who responded to the question regarding follow-up on the service provided, 159 (88.3%) indicated that they were satisfied

The survey also asked individuals who identified themselves as executives, managers, or supervisors, questions regarding ITD's understanding of the City's overall business objectives and departmental business processes:

- 39 of 45 respondents (86.7%) reported that were satisfied with ITD's understanding of the City's overall business objectives
- 38 of 44 respondents (86.4%) reported that they were satisfied with ITD's understanding of departmental business functions

NexLevel's observations relative to the survey findings include:

- The persons responding to the survey feel that ITD is generally doing a very good job of supporting the user community
- A lot of effort is going into the support of commodity items (desktop computers, network connections/performance, and printers) and it is possible that the City and ITD could take steps to reduce and better handle this workload, thus freeing up ITD staff for other activities that could be more important for the City

2.2 – Summary of IT Assessment

The IT Assessment was developed using information that resulted from a survey of users regarding their satisfaction with the City's IT environment, their future needs, interviews with key user stakeholders, interviews with the IT Manager and ITD staff, an IT best practices review, and a review of the security of the City's network and physical facilities (such as wiring closets) by an independent firm specializing in cybersecurity. This process provided a detailed picture of the City's current information technology environment, user expectations, current unmet needs, and future requirements.

This information was consolidated to provide a holistic view of where the City stands with regards to conformance to IT best practices as depicted in Figure 3, City Conformance to IT Best Practices. Each of the rings in Figure 3 represents a band of conformance to the IT best practices with the red band representing 0 to 20% conformance, the orange band representing 20 to 50% conformance, the tan band representing 50 to 80% conformance, and the two green bands at the center representing 80% to 100% conformance.

The rings have some significance. NexLevel views organizations that have less than 50% conformance to the IT best practices as being essentially reactive in their approach to the governance, management, and delivery of information technology services while organizations that are more than 50% conformant to IT best practices are regarded as being more proactive. Organizations that are more proactive are better able to obtain greater benefits for their investments in information technology than those that are not, and while reactive organizations often spend less on information technology (and thus have a lower total cost of ownership for information technology) they realize less in return and are generally unable to effectively respond to new requirements.

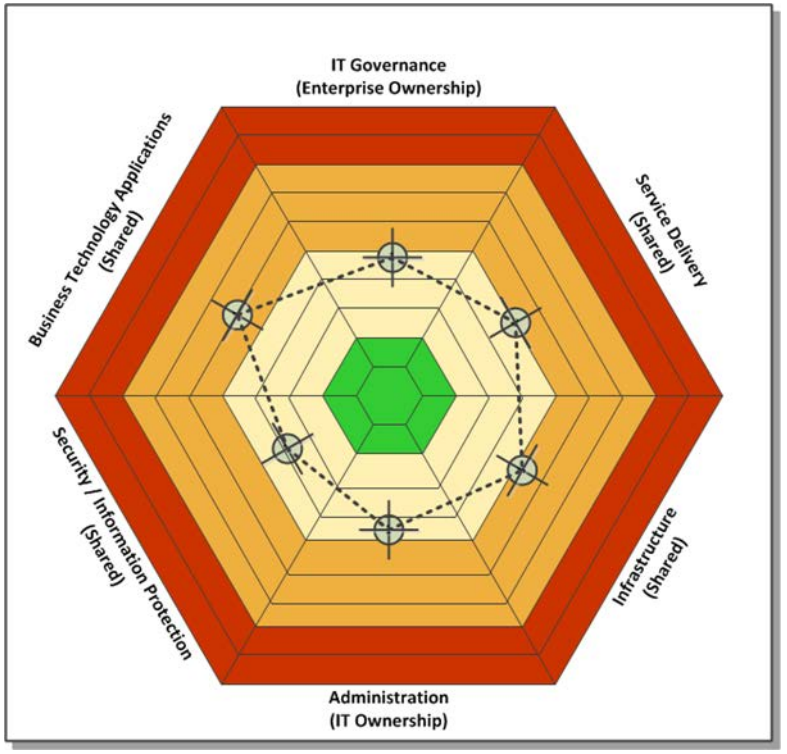

Figure 3 – City Conformance to IT Best Practices

NexLevel has also divided the chart into six segments, each segment representing one of the six dimensions of NexLevel's IT best practices model. The City's conformance with the best practices in each of the categories has been plotted and these points connected with a dotted line to provide a perspective of the City's overall conformance. As shown in Table 1, City Conformance to IT Best Practices, the City is 51% conformant to best practices conformance which is on the border of the reactive and proactive bands.

Between 2014 and this year, NexLevel performed eleven similar IT assessments. The City scored higher in IT Governance and exceeded the average score for Service Delivery, Business Technology Applications,

Security / Information Protection, and IT Administration, and fell short of the average only with regard to Infrastructure.

Table 1 – Comparison of IT Best Practice Conformance

Best Practice Dimension	Best Practice Conformance			Carson City
	Low	Average	High	
IT Governance	10%	34%	50%	51.2%
Service Delivery	30%	42%	63%	49.1%
Business Tech. Applications	20%	34%	43%	40.7%
Infrastructure	15%	52%	74%	48.5%
Security / Info Protection	35%	52%	81%	60.6%
IT Administration	20%	42%	61%	56.0%
Overall Conformance	**26%**	**43%**	**58%**	**50.9%**

Conformance to IT best practices; however, does not necessarily result in the effective delivery of information technology services. As depicted in Figure 4, Factors Enabling IT Service Delivery, the ability of an IT organization to execute is also dependent on not only on best practices conformance but also on enabling factors such as organizational mission and vision, organizational culture, as well as IT funding, and IT organization and staffing.

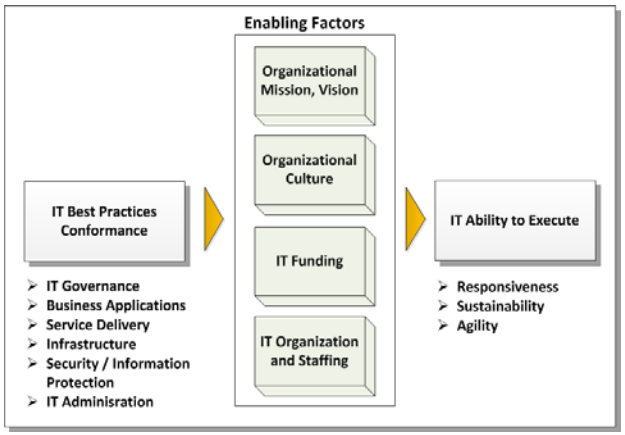

Figure 4 – Factors Enabling IT Service Delivery

The latter (IT funding and the staffing and organization of ITD) were found to be particularly relevant for the City where restricted budgets over the last few years did not enable ITD to fully maintain and refresh components of the City's information technology environment nor to maintain staffing levels.

Another perspective of the City's present information technology environment is provided by the results of the SWOT (Strengths, Weaknesses, Opportunities, and Threats) Analysis depicted in Figure 5, SWOT Analysis. This analysis is also based on the IT best practices assessment and provides a summary of ITD's strengths and weaknesses and the opportunities and threats facing the City as a whole in its use of information technology.

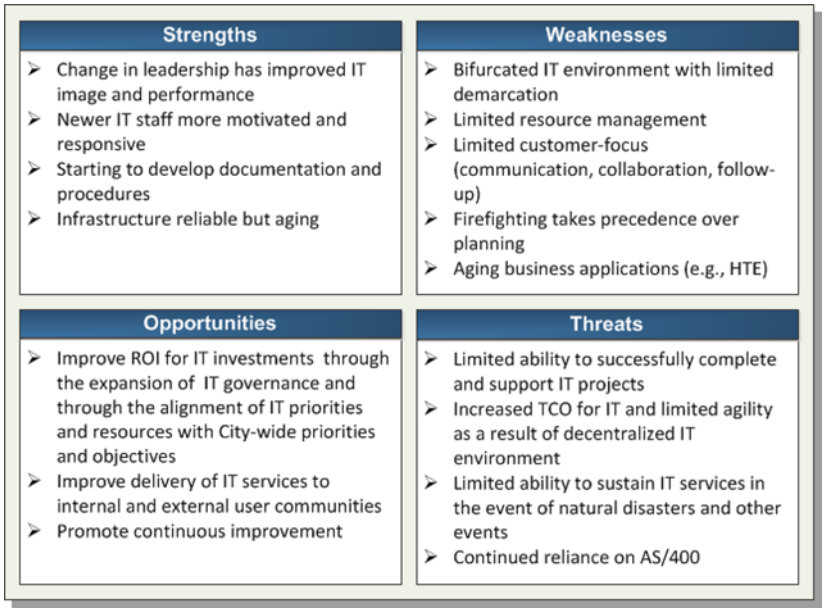

Figure 5 – SWOT Analysis

2.3 – Assessment Recommendations

The recommendations developed in the course of the IT Assessment are briefly described below. For a detailed analysis and discussion of each recommendation please refer to the IT Assessment Report.

Recommendation	Objectives
The City should establish a more formal process for IT governance	▪ Provide a balanced approach to the use of information technology that permits departments to respond to specific needs while ensuring that information technology spending and resources are aligned with City-wide directions and priorities ▪ Improve the ability of the City to leverage existing information technology investments, reduce total cost of ownership, and improve return on investment, and encourage re-use of existing information technology assets
The City should plan for the replacement of applications and infrastructure that are nearing obsolescence	▪ Ensure the sustainability of IT services and applications and ensure that City services can be continually supported ▪ Improve employee productivity through the elimination of manual workarounds and non-value added tasks and reduce the use of ad-hoc databases and spreadsheets for the storage and analysis of information ▪ Enable the deployment of additional public-facing functions ▪ Enable the use of information for decision-making and analytics
The City should formalize the division of responsibilities for IT support	▪ Formally define the respective responsibilities of ITD and user departments so that ITD can become more focused on proactive work that will improve user productivity. With better definition, ITD can develop service metrics and provide service level agreements
The City should reconsider the organization and staffing of ITD	▪ Restructure ITD to become more user-focused and to better support the City's user communities and the public
The City should develop a Business Application Portfolio	▪ Enable ITD to better track the business applications being used to ensure that the City obtains the highest possible return on its investments in information technology through application re-use and the sharing of business processes and information across departments
The City should adopt a consistent approach to information technology refreshment	▪ Improve ITD and staff productivity by replacing older, maintenance-intensive devices on a regular basis
ITD should adopt additional IT best practices	▪ Improve ability of ITD to sustainably and consistently deliver IT services to the City's user community and provide the basis for continuous improvement in the delivery of IT services
The City should take steps to ensure the security and sustainability of its IT environment (network security, business continuity, and disaster recovery)	▪ Improve the ability of the City to protect information from destruction / disclosure by hackers by adopting procedures for the detection and mitigation of cyber-security threats and for the recovery from them ▪ Improve the ability of the City to ensure that mission-critical business applications and available as needed and that they can be successfully recovered following a disaster

Section 3 – Enterprise Information Technology Trends

The ways in which organizations use information technology are changing as are the expectations of internal and external stakeholders for access to information and services. A 2010 survey of Chief Executive Officers (CEOs) by IBM found that:

- Today's complexity is only expected to rise, and more than half of CEOs doubt their ability to manage it
- Creativity is the most important leadership quality
- The most successful organizations co-create products and services with customers, and integrate customers into core processes
- Better performers manage complexity on behalf of their organizations, customers and partners[1]

While public sector organizations must also become more customer-centric and innovative, they also must find ways to control their total cost of ownership (TCO) for information technology and demonstrate that they are obtaining the greatest possible value for their investments (commonly measured as return on investment – ROI).

Similarly, the technologies, methodologies, and tool sets used to develop and support automation, as well as the ways in which organizations use information technology, have evolved considerably with the emergence of web-based ("cloud") services, the consumerization of information technology, and mobility. The continued introduction and rapid evolution of information technology products and services will impact public sector organizations in a number of ways including:

- The need to respond to increased public expectations for access to information and services is forcing a shift in the allocation of information technology resources from internal uses to public-facing uses including the creation of new products and services
- The growing adoption of mobile computing as the solution of choice for remote access to internal applications and repositories of information and the desire of users to have the same "desktop environment" on a remote device as they have in the office will drive the creation of new policies, support models, and security models
- In the face of a highly diverse and evolving market of new information technology products and services and the demand for their use, organizations will be increasingly challenged to allocate limited IT resources

While predicting the future of information technology can be problematic, NexLevel has identified eight information technology trends that are mature (i.e., within or beyond Gartner's "Slope of Enlightenment,") and that are transforming how public sector organizations strategically govern the use of information technology, use information technology to promote productivity and effectiveness, and deliver information technology services. These include:

- Alignment of Business and Digital Strategies, the alignment of business and digital strategies is becoming increasingly critical as information and services are delivered to the public using electronic mediums (including web-sites, social media, and mobile apps) and these mediums also become the public's preferred means of interacting with government
- Enterprise Data Architecture and Business Intelligence coupled by necessity, since without a coherent structure for the integration and aggregation of information, organizations will be challenged to make effective use of the growing amount of data being accumulated, particularly as the "Internet of Things," becomes a reality (the Internet of Things refers to an environment where

[1] Capitalizing on Complexity: Insights from the Global Chief Executive Officer Study, IBM Corporation, 2010

"smart" devices proactively communicate using Internet technology). The business intelligence environment is continuing to evolve as software developers seek to make these tools easier to use

- Enterprise Document and Content Management (EDCM), which is not a new trend; however organizations are reconsidering their approaches to EDCM particularly considering the well-established benefits related to the adoption of this technology
- Organizational Change Management (OCM), which is continuing to evolve and receiving greater attention as organizations seek to overcome resistance to change and to better realize the anticipated benefits for their information technology expenditures
- Strategic Sourcing / Cloud Services, while neither the concept of sourcing services or delivering services using the internet are new, the number, type, capabilities, and cost of web-based services is continuing to evolve as are the ways in which organizations utilize these services. The cloud is rapidly gaining acceptance and, for example, some traditional software providers do not license their software, but rather provide access to the software on a subscription basis
- Three closely-related areas including Digital Government Strategy, Mobility and the Consumerization of IT, and Cybersecurity, where both the services involved and the related organizational requirements are continuing to evolve. For example, the development of digital government strategies is becoming particularly critical as organizations find that they need to take a more holistic and open approach to interacting with the public especially given the rapid evolution of wireless devices (smart phones, tablets, etc.). Mobile computing is similarly impacting the expectations of internal users who need remote access to applications and information as well as the need to protect information assets from continually evolving cybersecurity threats

Assessing the successful application of emerging technologies to meet business needs and provide effective services to constituents can be of great value to the City while, at the same time, operate in a fiscally sound and cost-effective manner.

NexLevel recommends the City continuously review evolving technology trends and carefully consider their use throughout the technology planning process.

3.1 – Alignment of Business and Digital Strategies

Planning documents often speak to the need to align technology plans and directions with business or operational needs and priorities – generally this implies a two-step process in which operational plans are developed and then technology plans are crafted to support them. NexLevel believes that this process is not as effective as it could be since the transformative impact of technology should be considered in the course of developing business plans, not afterwards. Industry best practices and research confirm that organizations that integrate business and technology planning in a common framework achieve better results than those that do not.

IT Governance is used as the catalyst to ensure the alignment between an organization's business goals and priorities and how it allocates its information technology resources and assets. In the absence of effective alignment of business and information technology direction scarce resources can be allocated for IT projects that may be interesting but fail to deliver real benefits to the organization. In looking at any of the emerging trends below, Carson City should consider them in terms of what adoption would mean for City operations.

3.2 – Enterprise Data Architecture and Business Intelligence

"Big Data"

As depicted in Figure 7, Business Intelligence and Business Analytics, organizations are using software tools to consume a growing body of information for either tactical / reactive purposes (business intelligence) or for strategic / proactive purposes (business analytics). The collection, aggregation, and analysis of information from disparate business units and sources across an enterprise are often referred to as "Big Data," by the information technology industry. Big Data provides the foundation for business intelligence and business analytics.

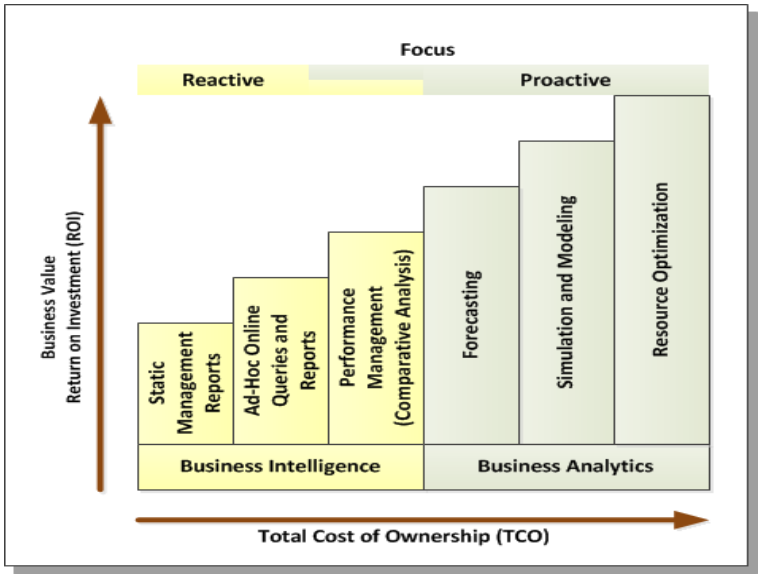

Figure 7 – Business Intelligence and Business Analytics

"Big Data" often includes:

- Data from traditional and enterprise business applications that includes current as well as historical information
- Data from "smart", i.e., web-enabled devices (what has been called the "Internet of Things" and which is discussed below)
- Data from external sources (typically for comparative purposes)

Despite the continual improvement of the tools available for business intelligence and business analytics; the collection of data from highly heterogeneous sources can be difficult to achieve and expensive to maintain unless the organization has an enterprise data architecture that defines how the pieces fit together.

Enterprise Data Architecture

An enterprise data architecture provides the foundation for the consumption of information for strategic purposes, otherwise known as business analytics. The National Association of State Chief Information Officers (NASCIO) notes that "Analytics is the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions… This includes the manipulation, visualization, statistical analysis, trending, and correlation analysis that are applied to data."[2]

The development and effective use of an enterprise information architecture to effectively manage organizations is dependent on:

- Processes and staff to support the architecture (including processes for its governance, support, and evolution) since both the data being collected and the organization's use of the data will change over time

[2] Improving State Government Operations Through Business Analytics, NASCIO Research Brief, February, 2010

- Standards and policies to ensure that business applications will be able to exchange information with other business applications and support the integration and compilation of information

Organizations without an enterprise data architecture, supporting standards, and staff to support it, often attempt to support decision-makers through a cumbersome combination of ad-hoc applications, databases, and spreadsheets. These tools often use data inconsistently, are seldom well documented or able to quickly meet new requirements, and eventually become a drain on organizational resources. This can quickly become a worst-case scenario as the total cost of ownership for these ad-hoc processes quickly mounts while the return on the organization's investment decreases.

The "Internet of Things"

"The Internet of Things (IoT) is the network of physical objects that contain embedded technology to communicate and sense or interact with their internal states or the external environment." – Gartner Research

For some time devices have stored data so that it could be manually downloaded and accessed on demand. Combining this capability with the ability to access the internet (and thus the ability to both autonomously receive and transmit information) has brought us to the IoT. McKinsey has suggested six distinct types of applications to consume this information; tracking behavior, enhanced situational analysis, sensor-driven decisions analytics, process optimization, optimized resource consumption, and complex autonomous systems (collision avoidance).[3]

The challenge for organizations that desire (or need) to make use of this proliferation of data is to find a coherent and structured approach that considers how this information needs to be consumed and the cost to maintain it. For example, some data might be more useful when summarized while raw data might be needed to develop more detailed models. In this instance, an organization might elect to develop aggregates as well as store the raw data. Although IT organizations often consider that "disk is cheap," data can accumulate quickly and become a logistical problem as the number of data-capable devices increases. Therefore organizations must be able to determine what data to keep, in what format, and for how long.

Business Intelligence

As shown in Figure 7, an organization's approach to how it collects and uses information to support business intelligence and business analytics can impact both its total cost of ownership and return on investment for information technology. The development of analytic capabilities generally involves greater investment but provides the potential for organizations to reap significant benefits by anticipating, rather than reacting to, demands for new services and increased demand for existing services.

3.3 – Enterprise Document and Content Management

Document Management is not a new trend; however, organizations are adopting enhanced enterprise document and content management (EDCM) strategies and capabilities to improve their abilities to:

- Better organize and catalog documents and digital content so that they are more readily available across the organization and to ensure that users have access to the most current versions (organizations that have multiple repositories for the storage and management of documents and content find that these are often implemented and used inconsistently and that they increase the organizations total cost of ownership)

[3] http://www.mckinsey.com/industries/high-tech/our-insights/the-internet-of-things

- Improve the ability to collaborate with internal and external users (including the ability to annotate)
- Control access to documents (and to portions) of documents including permissions to add, read, copy, modify, and delete
- Conform to records management requirements
- Search documents and content in conformance with public records requests
- Support users working from remote locations

More recently, organizations have also realized that the absence of a document and content management framework limits the usefulness of field mobility since this depends on the ready availability of content. Consuming bandwidth and time to search for documents is frustrating for end-users and increases organizational costs for mobility.

Gartner Research has noted that:

> The term "enterprise content management" (ECM) describes both a strategic framework and a technical architecture that supports all types of content (and format) throughout the content life cycle.
>
> As a strategic framework, ECM can help enterprises take control of their content. It can contribute to initiatives around transactional processes, compliance and records management as well as sharing and collaborating around content and documents.
>
> As a technical architecture, ECM can be delivered either as a suite of products integrated at the content or interface level or as a number of separate products that share a common architecture.[4]

Industry statistics regarding the costs related to the manual management of content (including the unstructured storage of documents and content in directories on network drives) are very compelling and have been validated by successive independent studies. A guide published by Laserfiche (an ECM software provider) notes that "A recent PriceWaterhouseCoopers study reports that the average worker spends 40% of their time managing non-essential documents, while the International Data Corporation (IDC) estimates that employees spend 20% of their day looking for information in hardcopy documents and only finding what they need 50% of the time."[5]

Finally, an organization's ability to achieve a near-paperless environment is greatly dependent on the implementation of EDCM capabilities that are robust and user-friendly.

3.4 – Digital Government Strategy

The use of the web as a conduit for providing information to the public and to enable them to conduct business is not new, but the rapid multiplication of the number of channels for communicating with the public is new as is the continued evolution of mobile devices. As a result, organizations are being challenged to make information and services available to the public through:

- Web-based services including "traditional" organization-sponsored, web-sites
- Various social media platforms such as Facebook, Twitter, and YouTube
- A variety of devices including desktop, portable, and mobile devices (as discussed in the section on the consumerization of IT). Organizations must be prepared to deal with "any device (including any browser), anywhere, anytime"

While the use of multiple channels for the delivery of information and/or services make it possible to reach a broader segment of the public (ubiquity); it also introduces the problem of keeping the messages and/or

[4] Gartner Research, Magic Quadrant for Enterprise Content Management, 2015

[5] Document Management: The Buyer's Handbook, Laserfiche, http://www.laserfiche.com, 2015

information current and consistent, and appropriate to the channel employed and the devices used. For this reason, organizations seeking to make effective use of both private and shared channels for the delivery of information and services should have a digital strategy that identifies:

- The different communities that the organization wants to reach
- The information and services that these communities need
- The best means of delivering the information and services to them
- The role of the various units within the organization in supporting digital services
- Who in the organization will be responsible for providing oversight for the implementation of the digital strategy and for coordinating the delivery of information and services to the public

The Federal Government has adopted a digital government strategy that is built on four principles which could be adapted for the use of other government agencies. The principles include:

- An "Information-Centric" approach – Moves us from managing "documents" to managing discrete pieces of open data and content which can be tagged, shared, secured, mashed up and presented in the way that is most useful for the consumer of that information
- "Shared Platform" approach – Helps us work together, both within and across agencies, to reduce costs, streamline development, apply consistent standards, and ensure consistency in how we create and deliver information
- A "Customer-Centric" approach – Influences how we create, manage, and present data through websites, mobile applications, raw data sets, and other modes of delivery, and allows customers to shape, share and consume information, whenever and however they want it
- A platform of "Security and Privacy" – Ensures this innovation happens in a way that ensures the safe and secure delivery and use of digital services to protect information and privacy[6]

3.5 – Strategic Sourcing and Cloud Services

Strategic sourcing is based on the concept of obtaining and using the most effective service provider to respond to user needs and enabling permanent IT staff members to focus on high-priority, high-value tasks and technologies while allocating non-mission critical "utility" functions that require less organization-specific knowledge to lower-cost service providers.

For many organizations in both the public and private sector, "cloud" based services including Infrastructure as a Service (IaaS), Desktop as a Service (DaaS), and Software as a Service (SaaS) offer an alternative to initial capital expenditures, the recruitment of additional staff members, or the use of staff-supplementation services (contractors). Organizations tend to keep mission-critical applications or applications that contain highly confidential information in-house while sourcing utility functions to reduce costs and to achieve a higher degree of consistency in service delivery. Key benefits of sourcing include:

- The ability to obtain services under the terms of a service level agreement
- The ability to obtain service coverage for extended hours of operation including 24x7
- The ability to scale services to meet user demand

For organizations, such as Carson City, that rely on "mid-market" or "departmental" computers such as the AS/400 and IBM's i-Series computers, software-as-a-service provides an attractive alternative to the

[6] Digital Government: Building a 21st Century Platform to Better Serve the American People, US Office of Management and Budget, 2012

costs related to the maintenance and support of legacy hardware and software, reduces the burden on IT staff's to perform activities such as backup and recovery, and enables mobility since the applications can be accessed by authorized users via the web.

Nonetheless, organizations seeking to use external services (cloud-based or not) need to carefully consider:

- The cost of implementation
- The continuing costs for utilization
- The provisions for the availability and security of information that is stored off-site
- Preservation of ownership for the data (the sourcing service should not be more than the custodian of the data)
- The costs and effort related to potentially exiting the sourcing arrangement in the future

3.6 – Organizational Change Management

The introduction of new enterprise-wide business applications and/or modifications to existing business applications often involves changes to existing business processes and organizational structure; and these changes, as well as the effort required to implement the business application, have the potential to disrupt operations. Additionally, organizations have found that resistance to change can limit their ability to realize the intended benefits of business applications and prolong implementation projects, sometimes to the point that project success is placed in jeopardy.

Organizational change management (OCM) provides a methodological framework for managing the organizational impact of the implementation of new automation including changes in business processes, changes in organizational structure, and changes in culture (including changes in focus and changes in how performance is measured) by focusing on improving communication, setting expectations, and working to minimize the impact of misinformation.

In 1995, John Kotter introduced an eight-step process for fostering the successful implementation of changes in organizational structure, business processes, and culture.[7] Kotter's framework for change management includes:

- Creating a shared sense of urgency regarding the need to change
- Forming a guiding coalition across the organization to support change
- Creating a vision for change
- Communicating the vision
- Preparing to overcome obstacles
- Planning for, and delivering, short-term wins to sustain momentum
- Remaining committed to the long-term process required to transform organizations
- "Anchoring" the changes in the culture of the organization (the "new normal")

Organizational change management is also dependent on performance management since it provides an objective and factual assessment as to whether the organization is obtaining the desired outcomes from changes

[7] Leading Change, John Kotter, Harvard University Press, 1995, http://www.kotterinternational.com

to business processes, structure, and resourcing and the effectiveness of any subsequent steps that may be needed to overcome obstacles.

3.7 – Mobility and the "Consumerization" of IT

> *"**Customer-centric government means that agencies respond to customers' needs and make it easy to find and share information and accomplish important tasks... The mantra of "anytime, anywhere, any device," is increasingly setting the standard for how information and services are both delivered and received in a two-way exchange of information and ideas**." – Digital Government: Building a 21st Century Platform to Better Serve the American People, US Office of Management and Budget*

The consumerization of information technology refers to the use of personal devices, most often mobile, to obtain access to organizational services and information (also sometimes referred to as BYOD – bring your own device). As a result, consumerization and mobility are closely linked. Collectively, they represent a significant opportunity for government to become more custom-centric and to improve the effectiveness and timeliness of service to the public; however, they are also vexing for enterprise IT planners since:

- The proliferation of devices is a challenge for support organizations as users attempt to obtain connectivity to secured wireless networks and utilize applications. It is estimated that the introduction of mobility in an organization can increase Help Desk Workload by as much as 10%[8]
- User access to enterprise information and services from mobile / wireless devices potentially exposes them to cyber-attacks
- Public-facing solutions need to be both open and adaptive to optimize user experience from a universe of devices, (each with different screens, browsers, and operating systems) that is continually evolving
- "Follow me" mobility fundamentally changes the paradigm of the standard desktop computing model where the computer, the operating system, the applications, plus the user's data and preferences are integrated into a single platform (either a desktop PC that remains in the same location or a laptop or notepad that moves with the user and then connects to the host network). Whereas desktop computing is device and location centric, mobility is user centric

Despite these challenges, mobility is a "game changer" in the public sector, enabling users to move as needed and to enter or update information on a real time basis thus eliminating the need to capture information on paper or offline and then enter or upload the information in the office. In addition, mobility enables access to information where/when it is most needed (i.e., in responding to incidents and emergencies).

Support for mobile devices continues to be a vexing issue for many organizations. Some adopt a "bring your own device" policy as being preferential to attempting to limit the devices that users employ; often with the caveat that IT support for other than officially supported devices will be provided only as available and with no guarantees as to response time. The practicality of these policies tends to be limited since the priority of a service request tends to be driven more by the nature of the incident or request and the person reporting it than by the device involved.

3.8 – Cybersecurity

While the need to secure information systems is not new, the increased focus and importance of cybersecurity is a direct result of the increased utilization of the web for the delivery of information and services and the related rise of the use of mobile and personal devices. The Associated Press reported that the President's Homeland Security and Counterterrorism Advisor has warned that "we are in the middle of a

[8] The Impact of Mobility on the IT Service Desk, Gartner, 2013

revolution in the cyberthreat – one that is growing more persistent, more diverse, more frequent, and more dangerous every day."[9]

Cisco, a leading network component and firewall manufacturer and service provider, has noted that:

> The shift toward mobility and cloud services is placing a greater security burden on endpoints and mobile devices that in some cases may never even touch the corporate network. The fact is that mobile devices introduce security risk when they are used to access company resources; they easily connect with third-party cloud services and computers with security postures that are potentially unknown and outside of the enterprise's control. In addition, mobile malware is growing rapidly, which further increases risk. Given the lack of even basic visibility, most IT security teams don't have the capability to identify potential threats from these devices.[10]

In this environment, organizations can be crippled not just by attacks which result in the disclosure, modification, and destruction of information but also by attacks which takeover critical infrastructure components (and potentially disable them or hold them hostage through the installation of "ransom ware"), or impede the ability of legitimate users to access information and services ("denial of service" attacks).

The nature of cybersecurity threats is continually evolving due to the growing sophistication of hackers, the resources available to them, and the increase in the range of motivations from mischief and activism to profit. As a result, the community of hackers has expanded to include criminal enterprises that profit through extortion as well as through the theft of digital assets (such as social security numbers, account numbers, etc.). There has been considerable attention given to cybersecurity in the public sector including the development of a detailed cybersecurity framework by the National Institute of Standards and Technology (NIST) in conformance to US Executive Order 13636, Improving Critical Infrastructure Cybersecurity, which was issued in February, 2013.[11] NIST has developed a comprehensive framework for cybersecurity planning that includes functions for the identification of threats, protection from them, as well as processes for threat detection, response, and recovery.[12] Table 2, NIST Framework Functions, provides a summary of the functional areas and the categories within each functional area.

Table 2 – NIST Framework Functions

Function	Plan Categories Addressed
Identify	Asset Management Business Environment Governance Risk Assessment Risk Management Strategy
Protect	Access Control Awareness and Training Data Security Information Protection Processes and Procedures Maintenance Protective Technology
Detect	Anomalies and Events Security Continuous Monitoring Detection Processes
Respond	Response Planning Communications Analysis Mitigation Improvements
Recover	Recovery Planning Improvements Communications

[9] "Citing a 'revolution,' Obama issues response plan," The San Francisco Chronicle, July 27, 2016

[10] Cisco, 2014 Annual Security Report, http://www.cisco.com/web/offer/gist_ty2_asset/Cisco_2014_ASR.pdf

[11] http://www.nist.gov/cyberframework/index.cfm

[12] Ibid

Section 4 – IT Strategic Plan

4.1 – Plan Development

Strategic planning enables organizations to find a balance between immediate and long-term needs. It follows that the process for the development of a strategic plan needs to take the same considerations into account.

Change is a constant concern for public sector executives who must often respond to increased public expectations and new mandates with limited resources and information technology environments that are not agile. Without an Information Technology strategic plan to serve as a baseline to manage and respond to change, organizations tend to become reactive rather than proactive and, as a result, obtain reduced benefits for their investments in information technology.

Figure 8, IT Strategic Plan Development, depicts the process used to develop the ITSP document. Strategic projects were identified based on operational needs and priorities identified in the course of the interviews with the City's user departments, ITD needs and priorities, and the service delivery recommendations that NexLevel identified for the City. The resulting project list was then reviewed with the City's management team and refined considering both the user and ITD resources that would be required to implement the projects. The refined project list then served as the foundation for the planning and prioritization workshop.

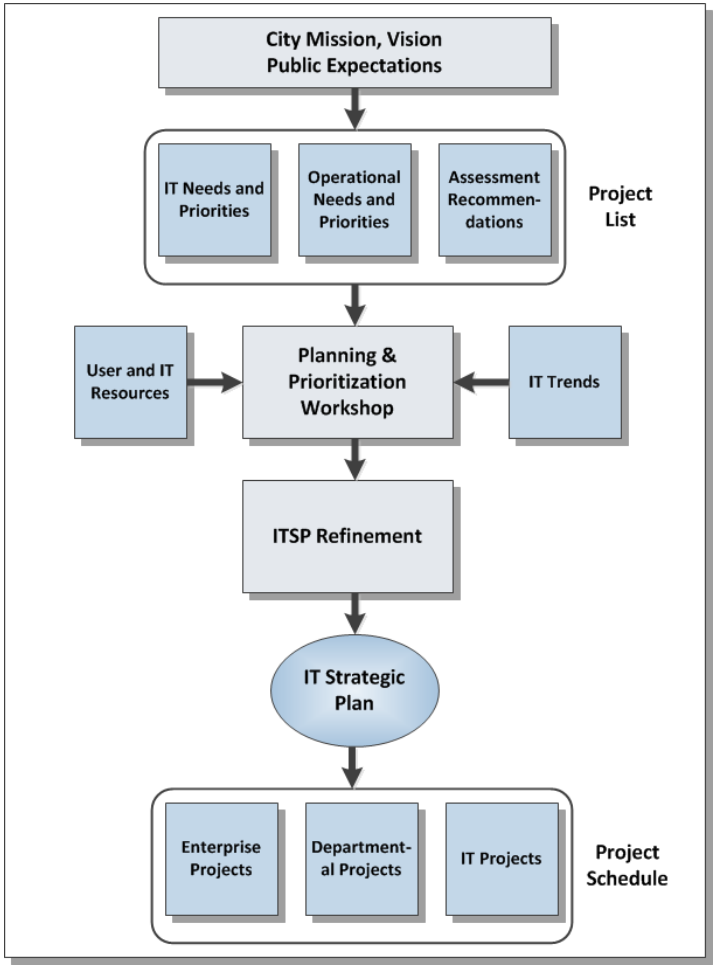

Figure 8 – IT Strategic Plan Development

4.2 – Project Portfolio

Appendix A, Project List, provides information for each of the projects including:

- The status of the project
- The project name
- The project's sponsor(s)
- An indication of whether the project is an enterprise project
- An indication of whether the project is related to the replacement of the City's current financial system (ERP)
- A description of the project

Appendix B, Project Prioritization Worksheet, provides additional information for each of the projects including:

- Project Name
- Project Owner/Sponsor
- Estimated level of effort (1=low, 3=medium, 5=high)
- Estimate of level of risk (1=low, 3=medium, 5=high)
- Estimated low and high costs (in $000's)
- Assessment of business value based on the degree to which the project contributes to community engagement, enhancement of business processes, cost reduction, or replacement of obsolescent information technology
- Assessment of priority based on level of effort, level of risk, and business value
- A weighted score (1 to 10) based on the level of effort, level of risk, and business value

4.3 – Resources

ITSP projects were initially prioritized based on criteria such as business value, health and safety impact, customer service impact, business operations impact, and technology obsolescence. As a result of the Prioritization Workshop, some projects were deleted while others were combined into single projects. All of the projects were prioritized with consideration given to the resources (both human and capital) available to the City to implement and manage the associated projects.

The project implementation plan strives to set reasonable expectations as to when the projects will be initiated and completed. However, a project's eventual start date will be driven based on factors that cannot be predicted at this time including funding, budget approval, and contingencies. While the intent of the ITSP is to support the City's budgeting process by providing direction and input necessary to justify expenditures; it is not meant to include detailed specifications, requirements, or recommended vendor solutions. The ITSP assumes City staff will follow appropriate planning and procurement processes for each project that include activities such as detailed requirements analysis, formal evaluation and selection, and implementation methods.

As projects are initiated, staff resources will need to be allocated as appropriate. The City may find it necessary to supplement existing resources with consultants, temporary personnel, and other vendor staff. This will be particularly important during the implementation of complex systems such as finance and permitting which may require both current operational personal and supplemental staff for testing and implementation.

4.4 – Plan Development and Refinement

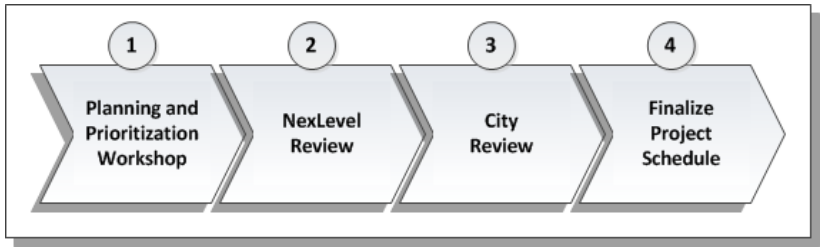

Figure 9 – Steps in Plan Development and Refinement

Step 1 - Planning and Prioritization Workshop

The planning and prioritization workshop was conducted on November 2, 2016, in an open and collaborative manner with members of the City's management team, department heads, and key stakeholders. The workshop was conducted using a sheet of adhesive blue fabric as a backdrop (the "Blue Wall"). Pages were printed out for each of the proposed strategic IT projects and pre-staged on the Blue Wall over the current fiscal year (FY2016/17) and succeeding fiscal years through FY 2020/21.

The participants reviewed each of the proposed strategic projects, added, removed, and consolidated projects as needed, and revised the preliminary timeline. Figure 10, Blue Wall" at Conclusion of Workshop, depicts the results of the Planning and Prioritization Workshop.

Step 2 – NexLevel Review

Figure 11, "Blue Wall" Projects Following Initial Review, depicts the results of the second step in the refinement process. NexLevel mapped the projects from the "Blue Wall" into an electronic format using Visio so that the City can modify the plan as needed, and further spread some of the projects over time to accommodate resource and funding constraints. Projects that are related (i.e., such as projects related to the review and potential renovation or replacement of the City's finance system) have been denoted by yellow highlighting.

Based on information provided by the City, NexLevel developed the Preliminary Project Schedule depicted in Figure 12, which includes estimated costs per fiscal year.

Step 3 – City Review

The City reviewed the updates provided by NexLevel and suggested changes to the ITSP and Project Schedule.

Step 4 – Finalize Project Schedule

The completed ITSP was delivered to the City to serve as the baseline for the City's on-going use in managing the identified projects.

Figure 8 – "Blue Wall" at Conclusion of Workshop

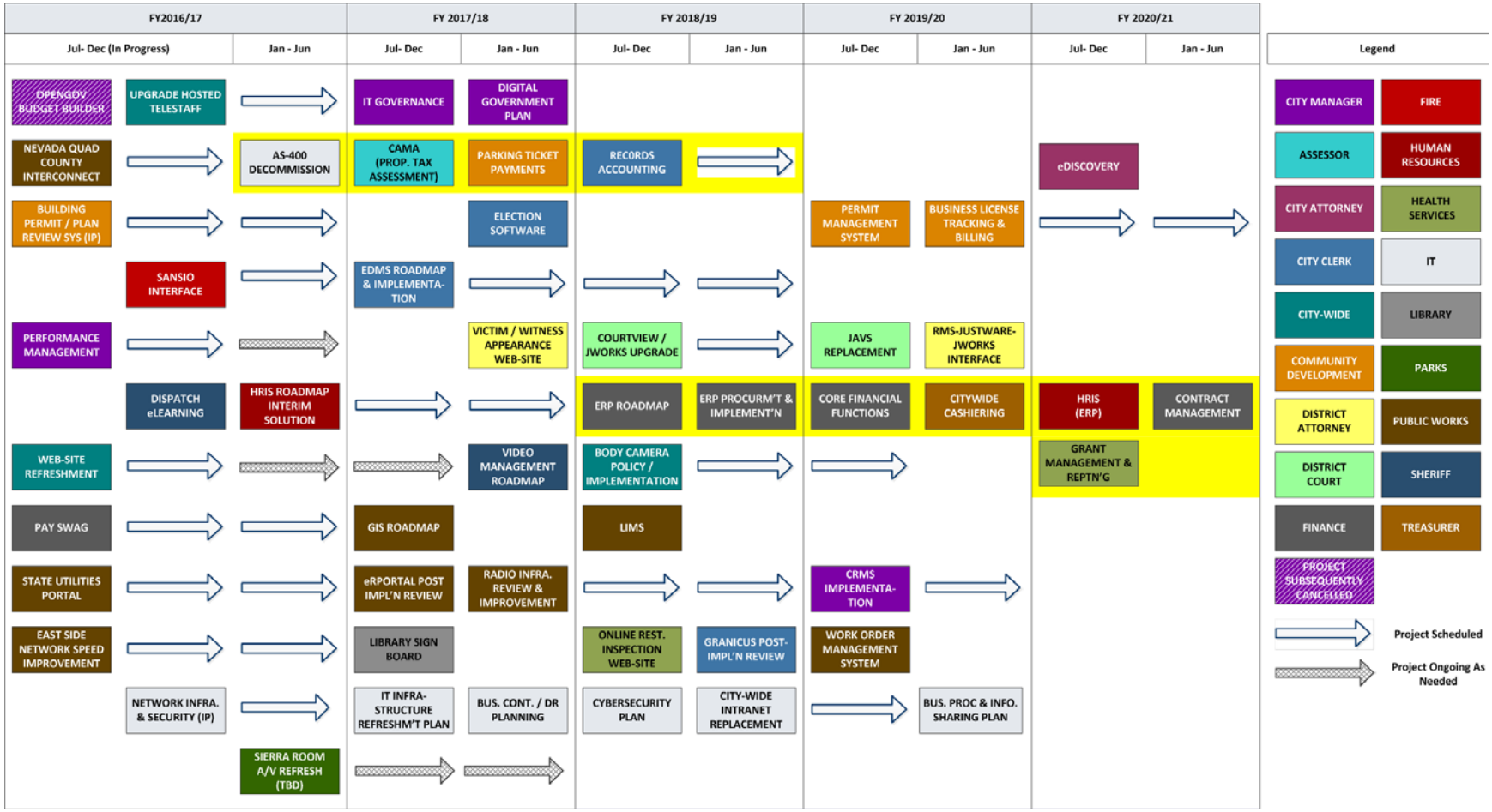

Figure 9 – "Blue Wall" Projects Following Initial Review

Table 3 – ITSP Project Schedule

Project Name	Sponsor(s)	Status	FY 2016/17		FY 2017/18		FY 2018/19		FY 2019/20		FY 2020/21	
			Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun
OpenGov - Budget Builder	City Manager	Cancelled										
Performance Management Measurement and Reporting	City Manager	In progress	■■■■	■■■■	■■■■							
Building Permit / Online Plan Review System	Community Development	In progress	■■■■	■■■■								
Web-Site Refreshment	City-wide	In progress	■■■■									
Pay Swag	Finance	In progress	■■■■	■■■■								
Sansio Interface	Fire	In progress	■■■■	■■■■	■■■■							
Upgrade to Hosted TeleStaff	Fire, Sheriff	In progress	■■■■									
Sierra Room A/V Technology Refresh	Parks	In progress		■■■■	■■■■	■■■■						
East Side Network Speed Improvement	Public Works	In progress	■■■■	■■■■								
Nevada Quad County Interconnect	Public Works	In progress	■■■■									
State Utilities Portal	Public Works	In progress	■■■■	■■■■								
Dispatch eLearning	Sheriff	In progress	■■■■									
AS/400 Decommission / Application Migration												
AS/400 Decommission	IT	Planned		■■■■	■■■■	■■■■						
Cama (Prop. Tax System Replacement)	Assessor	Planned		■■■■								
Parking Ticket Payments	Community Development	Planned			■■■■							
Records Accounting System Replacement	Clerk Recorder	Planned				■■■■						
ERP System												
HRMS Roadmap / Interim Solution	Human Resources	In progress		■■■■	■■■■	■■■■						
ERP Roadmap	City-wide	Planned					■■■■					
ERP Procurement and Installation	City-wide	Planned						■■■■				
Core Financial Functionality	Finance	Planned							■■■■			
City-wide Cashiering System	Treasurer	Planned								■■■■		
Human Resources	Human Resources	Planned									■■■■	
Grant Management	Finance	Planned									■■■■	
Contract Management	Finance	Planned										■■■■
eDiscovery	City Attorney	Planned									■■■■	

Please note that the lighter shaded bars represent ongoing activities following implementation.

Continued on Next Page

Project Name	Sponsor(s)	Status	FY 2016/17		FY 2017/18		FY 2018/19		FY 2019/20		FY 2020/21	
			Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun
Digital Government Plan	City Manager	Planned		■■■■								
IT Governance Implementation	City Manager	Planned	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■
EDMS Roadmap and Implementation	Clerk Recorder	Planned			■■■■	■■■■	■■■■	■■■■				
Election Software Replacement	Clerk Recorder	Planned			■■■■	■■■■	■■■■	■■■■				
Granicus Post Implementation Review	Clerk Recorder	Planned						■■■■				
Business License Tracking and Billing	Community Development	Planned								■■■■		
Permit Management System Implementation	Community Development	Planned							■■■■			
RMS - JustWare - JWorks Interface / JustWare Upgrade	District Attorney	Planned								■■■■		
Victim/Witness Appearance Web-Site	District Attorney	Planned				■■■■						
CourtView / JWorks Upgrade	District Court	Planned					■■■■	■■■■				
JAVS Replacement	District Court	Planned							■■■■			
Online Restaurant Inspection Web-Site	Health	Planned					■■■■					
Library Sign-Board Repair / Replacement	Library	Planned			■■■■							
eRPortal Post Implementation Review	Public Works	Planned				■■■■						
GIS Roadmap	Public Works	Planned				■■■■						
LIMS - Laboratory Reporting System	Public Works	Planned					■■■■					
Work Order Management System	Public Works	Planned							■■■■			
Radio Infrastructure Review and Improvement Plan	Public Works, Parks, IT	Planned				■■■■	■■■■	■■■■				
Video Management Roadmap	Sheriff, DA	Planned				■■■■						
Body Camera Policy & Implementation	Sheriff	Planned					■■■■	■■■■	■■■■			
IT Projects												
Network Infrastructure and Security	IT	In progress	■■■■	■■■■								
IT Infrastructure Refreshment Plan	City Manager, IT	Planned			■■■■							
Business Continuity and Disaster Recovery Planning	IT	Planned				■■■■						
Cybersecurity Plan	IT	Planned					■■■■					
Citywide Intranet Replacement	IT	Planned						■■■■				
Business Process and Information Sharing Improvement	IT	Planned							■■■■			

Section 5 – Conclusion

In closing, NexLevel would like to emphasize three thoughts that have emerged in the course of developing the ITSP for the City including leadership for organizational change, IT governance, and the need to establish a strong infrastructure as the foundation to enable the City to more fully realize benefits for its investments in information technology.

Leadership

The City's ITSP is like a roadmap in that it charts the route for the City to get from where it is today ("the current state") to where it needs to be ("the target state"); however, there are other similarities as well. Just like any trip, the destination may change as may the stops along the way, and as anyone who has travelled with family knows, there are often those who ask questions:

"Do we really have to go?"

"Are we there yet?"

"Are you sure this is the right way?"

These questions are all too familiar to organizations that are working to transform their IT environments (including the ways in which they strategically govern information technology, manage the delivery of information technology services, and deliver them) to a target state, and underscore the critical role that IT governance, combined with an focused approach to organizational change management and well-defined and measurable objectives, plays in organizational transformation.

Effective leadership, as noted by John Kotter, is vital to coping with change such as the implementation of new processes for IT governance. The City's management team must be committed to maintaining and communicating the City's vision for information technology, adapting the vision as circumstances (such as mandates, resources, or other event) require changes in priorities, and considering alternative approaches to enable the City to attain its objectives. Communicating the vision is vital since information technology initiatives often fail to provide the intended benefits when they are limited by what has been referred to as "tunnel vision oriented towards [the] narrow goals of individual functions or departments, rather than the goals of the process as a whole."[13]

IT Governance

It was noted earlier in this document that organizational use of information technology has undergone a significant transformation in recent years due to the ubiquity of the Internet, mobility, and increased public expectations for access to information and services. Although this transformation necessitates changes in how organizations govern information technology and manage and deliver information technology services, not all organizations have made these changes. Those that have not often find that they are spending more on information technology, receiving fewer benefits for their investments, and are less able to use information technology to effectively respond to new and/or changed requirements.

Broadly, information technology governance is the link between the planning process and the ability of a city to realize tangible improvements in its ability to use information technology strategically and to effectively manage the delivery of information technology services to the City's internal user community, contract communities, and the public.

[13] James R. Martin, Ph.D., CMA, Professor Emeritus, University of South Florida

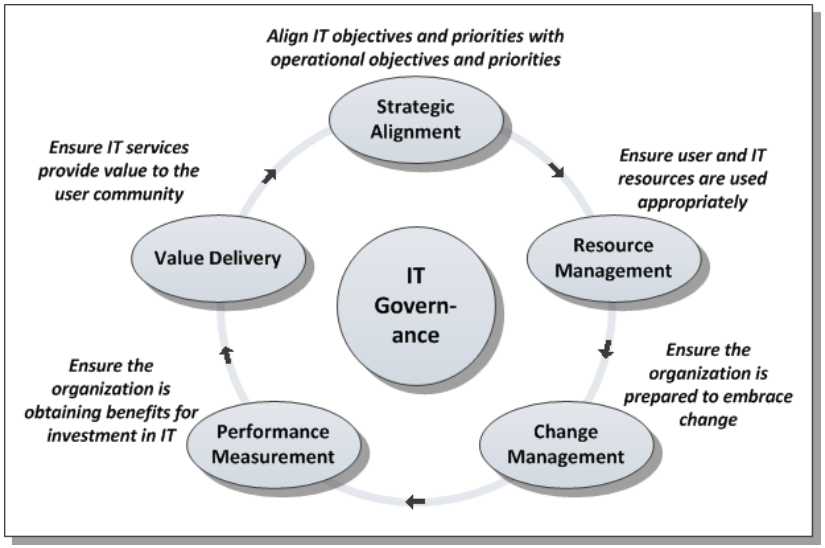

Figure 14 – Dynamics of IT Governance

As depicted in Figure 14, Dynamics of IT Governance, the key focuses of information technology governance include:

- **Strategic Alignment:** Aligning the City's information technology strategy, priorities, and resources with organizational needs and priorities to focus the City's information technology assets on the highest priority needs
- **Resource Management:** Ensuring that the City has sufficient IT and user resources to support its priorities, that the resources are used appropriately
- **Change Management:** Promoting the adoption of new business processes and the use of information technology through organizational change management, particularly, through sponsorship of change and communicating the organization's vision for the use of information technology. Change management is also related to risk management, since user resistance to change is a major factor in the failure of IT projects
- **Performance Management:** Ensuring that the City's investment in information technology results in tangible improvements in the City's ability to deliver services to the public (return on investment)
- **Value Delivery**: Ensuring that IT services provided by the City add value, i.e., are rendered in a timely manner, meet user expectations for quality, etc.

The net result of IT governance is organizational agility, i.e., the ability to quickly stand-up solutions to support new business requirements by:

- Re-using or re-allocating existing information technology assets (data, applications, infrastructure, and personnel)
- Taking advantage of information technology trends including the delivery of business applications or infrastructure as services
- Acquiring and implementing new IT assets
- Some combination of the above

One of the recommendations resulting from the IT Assessment was that "The City should establish a more formal process for IT Governance," and without revisiting the information accompanying the recommendation, NexLevel would like to stress the importance of the establishment of a continuing process for IT governance to the City. Without IT governance, IT strategic plans quickly become obsolete and organizations soon find that the benefits related to the IT planning process (including an increased consciousness of the importance of communication, collaboration, and

process and information sharing) diminish in the face of day-to-day challenges and turnover.

NexLevel has also discussed the differences between organizations that are essentially reactive in their approach to governing information technology and organizations that are more proactive. In short, organizations that are more proactive in their approach to governing IT are able to better realize benefits for their investments in information technology (measured as return on investment – ROI), and these benefits frequently translate into greater ability to deliver services to the City as well as increased agility to respond to changes.

Critics often complain that information technology governance stifles organizational agility; however, the reality is that the converse is true: it enables organizational agility by allowing organizations to allocate their technology resources to the most critical projects and to keep technology objectives aligned with business objectives and priorities. NexLevel has noted that IT governance does not have to be bureaucratic, onerous, and time-consuming; in fact, lean approaches often work best. Many of NexLevel's clients have found that adding IT governance as an additional agenda item to an existing executive staff meeting often works best. In the end though, the implementation and continued use of IT governance represents a change in organizational culture, behavior, and priorities. As has been seen in the past, changes of this type are highly dependent on executive sponsorship, communication of the vision to the City, a willingness to overcome obstacles, and achieving early wins.

IT Infrastructure Foundation

This thought relates to the nature of information technology and the establishment of the foundation for the effective use of business application systems. Figure 15, Technology Expenditures and Return on Investment, depicts the relationships between the components of an organization's information technology infrastructure, the organizations cumulative total cost of ownership (TCO) for information technology and the return on investment (ROI) for those expenditures.

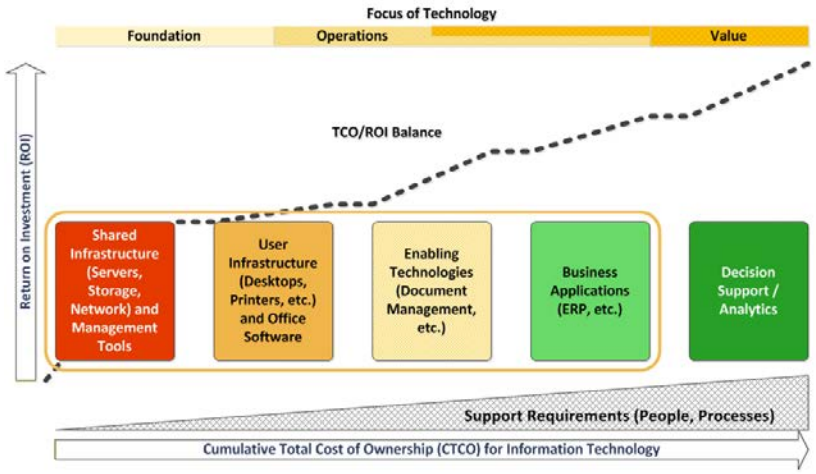

Figure 15 – Technology Expenditures and Return on Investment

The implementation of any end user business application (and the ability for an organization to realize its benefits) is dependent on the successful implementation and support of all of the supporting components of the information technology infrastructure including the shared infrastructure (including servers and storage devices), user infrastructure such as desktop PCs, and enabling technologies.

Weaknesses in any of these supporting components can significantly impede the effectiveness of a business application by reducing availability, performance, and reliability. Faced with an application that is slow or not available when needed due to infrastructure issues, users often resort to the use of ad-hoc databases and spreadsheets. These "shadow IT" applications defeat the basic reasons for implementing an integrated business suite in the first place and further reduce the organization's ROI while introducing significant security and data consistency issues.
It is thus important for the City to look at its overall technology environment at a high level and ensure that the foundation for all applications remains solid.

The ITSP is a result of a comprehensive, City-wide planning effort that provided the opportunity for management and staff to review, discuss, and integrate their technology needs into a common framework. Hopefully it provides a common understanding of the City's technology priorities and serves as a tool to provide an overall picture of what is to be accomplished and why.

The ITSP is a multi-year strategic plan that sets forth a roadmap for the City that identifies current technology projects and, to the extent possible, future technology needs. The ITSP lays out the strategy and steps to meet those needs and to make ITD resources move effective in delivering high quality services to internal and external users. The ITSP is based on the premise that ITD will continue to provide information technology tools that reflect a focus on excellence, repeatability, standardization, and innovation.

While the creation of the ITSP represents the culmination of only one step in the planning process, it also marks the beginning of another step – one through which City leaders must work together to create an environment that supports the ITSP. ITD must now work closely with City management, leaders, and staff as they begin a journey to create an organizational sense of purpose that goes much deeper than any vision statement, mission statement, or plan can communicate.

Support of the ITSP will need to come in terms of priorities, dollars, policies and practices. Successful implementation may mean making compromises, and it will mean exercising patience, taking an organization-wide perspective, and maintaining a continued focus on revising the plan as events take place. Finally, it will take cooperation, communication and flexibility to adapt to changing needs, technologies and resources.

Appendices

Appendix A: Project List

Table 4, ITSP Project List, was prepared by NexLevel based on the information gathered in the course of the interviews conducted with each department during the IT Assessment. The project list was then reviewed with ITD and distributed for review prior to the IT Project Prioritization Workshop on November 2nd. In the course of the workshop, the participants made some changes, i.e., projects were added, updated or modified, consolidated, and removed. These changes are annotated below. For each project, the list provides:

- The project name
- The status of the project at the time of the workshop, i.e., whether it was in progress or planned (projects that are in progress are listed first)
- The project's sponsor(s)
- An indication of whether the project is an enterprise project
- An indication of whether the project is related to the replacement of the City's ERP system
- Descriptive information including the project's scope, objectives / benefits, and drivers

Table 4 – ITSP Project List

Project	Blue Wall Status	Sponsor	Enterprise Project	ERP	Description
OpenGov – Budget builder	In Progress *	City Manager			As an interim step prior to the development of the City's Digital Government Strategy, the City would like to evaluate the use of OpenGov to increase the transparency of the budgeting process. *** Project subsequently cancelled by the City, to be revisited in 2017**
Performance Management Measurement and Reporting	In Progress *	City Manager	Yes		This project includes continuing the implementation of Socrata across the City, including the identification of software tools to improve the flow of data from departments to executive management and to provide information such as key performance indicators (KPIs) in a dashboard for easy reference. The project would Increase transparency throughout the organization and provide metrics for proactive management action. *** Project activities will continue as needed**

Project	Blue Wall Status	Sponsor	Enterprise Project	ERP	Description
Website Refresh	In progress *	City-wide	Yes		As an interim step to the development of the City's Digital Government Plan and the implementation of the recommendations resulting from the plan, departments should work with the City's Information Management Officer to review and update current web-content with the objectives of removing outdated information and adopting, where possible, a unified structure for the organization of web pages to make it easier for the public to obtain information and access to online services. *** Project activities to be conducted as needed**
Building Permit/Plan Review Online System	In Progress	Community Development			The City is currently working with Charles Abbot and Associates to create solution for Permitting and Plan Review. This project should be considered in conjunction with the potential procurement and implementation of an industry-standard Land Management solution.
Fire – Sansio Interface	In Progress	Fire			Fire would like an interface from their EMS system into Tiburon. They have currently contracted with Athena to write this interface.
Upgrade to Hosted TeleStaff	In Progress	Fire, Sheriff			Upgrade the City's version of TeleStaff to the latest version hosted with Kronos.
Network Infrastructure and Security	In Progress	IT	Yes		Includes current projects to upgrade our Cisco ASA with enhanced VPN capabilities and to implement Cisco ISE to improve network security.
East Side Network Speed Improvement	In Progress	Public Works, IT			City departments and offices east of City Hall (including Fire Stations, Juvenile Court, Juvenile Probation, District Court, etc.) are experiencing significant problems with network connectivity. This project would provide both interim and long-term solutions (fiber) for these users.
State Utilities Portal	In Progress	Public Works, State of Nevada			The State of Nevada has requested that the City develop a portal to enable them to access utility billing and statistical information for State-owned facilities.
Dispatch eLearning System	In Progress	Sheriff			This project would involve the use of Moodle for tracking eLearning.
Nevada Quad County Interconnect (NQCI)	In Progress	Public Works, other municipalities, IT			This is a grant project that we received to connect the quad counties (Carson City, Lyon, Storey and Douglas) together for IP traffic. This is to be used primarily for Public Safety and include radio, voice and data IP traffic. Currently, there is no governance over who is maintain this infrastructure.
PaySwag	In progress	Treasurer, District Court			This is a system to allow customers who only deal in cash (no bank or cc accounts) make payments to the Courts or possibly the City from remote location (7-11 and CVS currently). This project is starting to expand to replacing all our online payments but this has yet to be determined.

Project	Blue Wall Status	Sponsor	Enterprise Project	ERP	Description
eDiscovery	Planned	City Attorney			Evaluate, procure, and implement e-Discovery software which will help manage and produce public information including email, contracts and other forms of digital documentation. Application functionality may include search features that allow for word list usage, exact phrase matching, forbidden term searching and approximate spelling matching. The system would also help identify, collect and preserve critical information; produce, retrieve and review all discoverable data, reduce risk and costs related to electronic discovery, manage data from its creation to deletion across all repositories, and leverage searches across multiple data types.
CRMS Implementation	Planned	City Manager	Yes	Yes	The City presently has Carson City Connect to enable members of the community to report issues/problems to the City but does not have an integrated customer relationship management system (CRMS) to allocate these items to the appropriate City departments/offices or to track the status of the resulting work orders(including public records requests). This project would provide for the implementation of fully-functional CRMS for the City and may be included in the scope of the ERP replacement.
Digital Government Plan	Planned	City Manager	Yes		This project provides for the Implementation of a web-based citizen self-service portal to provide enhanced customer service and greater access to City services. The solution should tightly integrate with the City's web infrastructure. Typical self-service solutions can facilitate access to forms and documents, license renewals, information on rules and regulations, facilitate complaint processes with integration to work order management system(s), Frequently Asked Questions (FAQ), online payments, etc.
IT Governance Implementation	Planned	City Manager	Yes		Establish a formal structure and process for the acquisition of and management of City technology. IT Governance should include formal processes for requests for technology, decision/prioritization processes, ongoing oversight of technology implementations, and technology standards and policies. Provides the organization with established processes for the acquisition and implementation of technology. Improves communication about technology projects, provides for organization-wide input into technology decisions, and establishes the process for prioritization of technology needs. Includes development of formal policies relating to technology (e.g. social media, mobility, purchases, etc.).

Project	Blue Wall Status	Sponsor	Enterprise Project	ERP	Description
IT Infrastructure Refreshment	Planned	City Manager, IT	Yes		Establish an annual budget allocation for the systematic replacement of desktops, laptops, and network infrastructure devices. The purpose of this fund is to keep the maintenance on equipment to a minimum, provide equipment that will operate effectively with new software, eliminate the use of "trickle-down" equipment, and ensure upgrades to the communications network, access points, Wi-Fi coverage, and other necessary telecommunication devices are performed on a routine basis
CAMA (Property Tax Assessment)	Planned*	Assessor			The Assessor's Property Tax Application presently runs on the City's AS/400 and will need to be migrated to a new platform as part of the decommissioning of the AS/400. CAMA is a proprietary software package that is used by most of the Counties in the State of Nevada and may need to be replaced as a result of a pending change to the State Constitution which will change how properties are assessed as well as questions regarding the future support of the application. *** This project will be considered in conjunction with the migration of the Parking System from the City's AS/400.**
EDMS Roadmap and Implementation	Planned	Clerk Recorder	Yes	Yes	The City is presently running a document management system (Documentum) on the AS/400 and is not making the fullest possible use of the features and functionality provided by the solution. In conjunction with the migration of Documentum from the AS/400, this project would provide for the development and execution of a roadmap to implement document management functionality City-wide to improve document and information sharing and improve staff productivity. This project may be conducted in conjunction with the ERP replacement.
Election Software Replacement	Planned	Clerk Recorder			The Election Software (as well as most of the supporting hardware used to support electronic voting) is over-due for replacement. The Clerk (in conjunction with other Clerks across the State) is presently in discussions with the State of Nevada (Secretary of State) regarding funding for the replacement of the hardware and software.
Granicus Post-Implementation Review	Planned	Clerk Recorder	Yes		The City has implemented Granicus but some departments are struggling with using the system. This project would provide for the development of a post-implementation review to identify actions that the City should take to improve the utilization of Granicus and better realize benefits from its implementation as well as the implementation of the recommended actions.

Project	Blue Wall Status	Sponsor	Enterprise Project	ERP	Description
Records Accounting	Planned*	Clerk Recorder			The Clerk's presently Records Accounting application is run on the City's AS/400 which will be decommissioned – this application will also need to be migrated to a new platform as an interim step and replaced in the long-term to provide improved functionality for the Clerk's office and the public. *** This project will be considered in conjunction with the migration of the Parking System from the City's AS/400.**
Business License Tracking and Billing	Planned	Community Development		Yes	The City should acquire a software application for processing the City's business license applications and renewals. This project would begin with an analysis of the City business license process and would follow with recommendations to identify a COTS (commercial-off-the shelf) system that will better meet the needs of the City. Desired functionality includes a web interface to provide customers with the convenience of online applications, payment processing and electronic renewals, ability to generate letters, calculate late payment penalties, and calculate fees. The new system should also provide for the electronic submission of new business license applications and the ability to pay renewals on line.
Permit Management System	Planned	Community Development			Procure an automated system for the issuance of building permits, inspections, plan checking, code enforcement and other activities currently managed manually or through stand-alone custom software. The system should provide 24/7 service to the community through automation including the ability to view permit details, permit issuance status, request inspection and view inspection results. The application should also support mobile technology for field access to allow inspectors access to information about permits, previous inspection results and to record results while working in the field.
Parking Ticket Payment System	Planned	Community Development, IT			The City needs to have the functionality in the Parking System to enforce all parking regulations including the electronic payment of parking tickets. *** This project will be considered in conjunction with the migration of the Parking System from the City's AS/400.**

Project	Blue Wall Status	Sponsor	Enterprise Project	ERP	Description
RMS – JustWare – JWorks Interface / JustWorks Upgrade	Planned	District Attorney			The District Attorney presently uses the JustWare case management system and would like to implement interfaces with the District Court's new case management system (JWorks) and the Tiburon Records Management system (RMS) used by the Sheriff to facilitate the filing and processing of criminal complaints in conjunction with the potential upgrade of JustWare to the current version or replacement of JustWare with the vendor's new product, eCourt, which is browser-based and has built-in application program interfaces (APIs) to facilitate the implementation and maintenance of interfaces with other systems. This effort will require significant involvement of City IT staff including the potential upgrade and/or replacement of desktop computers and printers and working with the Sheriff and the District Court to develop the interfaces.
Victim / Witness Appearance Web-site	Planned	District Attorney			The District Attorney needs to have a public-facing (but nonetheless secure) web-site for providing information to victims and witnesses regarding scheduled court appearances as well as other events related to their cases that are scheduled. The functionality for this site might potentially include "pushing" information to victims and witnesses who have subscribed to receive alerts as text messages, e-mail messages, or other media.
CourtView / JWorks Upgrade	Planned	District Court			The District Court uses the CourtView case management system which is provided and supported by the Administrative Office of the Courts for the State of Nevada (AOC). The AOC is planning to upgrade CourtView to a newer case management product from the same vendor (JWorks) which is web-based. While the AOC will provide and support the software, the City supports the hardware used by the District Court and there may be some work required to configure (and potentially upgrade or replace) some desktop computers, printers, etc., in conjunction with the implementation of JWorks. The District Court will also need to review the configuration of the product and test and accept the upgrade and may require some support from the City in this process.
JAVS Replacement	Planned	District Court			The District Court uses a software product (JAVS) for the recording of court proceedings and this product is nearing the end of support and will need to be replaced in the near future. The implementation of a replacement for JAVS may include the need to upgrade or replace technology in the courtrooms including desktop computers, video devices, and microphones.
Contract Management	Planned *	Finance		Yes	The City needs a system to support the routing for approval and storage of all contracts. This system would provide the central repository of contracts and provide functionality to improve the tracking of contract terms and conditions (e.g. contract expirations, insurance certificates, etc.).

Project	Blue Wall Status	Sponsor	Enterprise Project	ERP	Description
ERP Procurement and Implementation	Planned *	Finance	Yes	Yes	Replace the existing AS/400-based HTE finance system with a commercial-off-the-shelf (COTS), proven, best practices solution. Major functionality of the new system will likely include General Ledger, Project Accounting, Budget, Contract Management, Fixed Assets, Accounts Payable, Accounts Receivable, Purchasing, Payroll and Human Resource management. Significant features of the new system should include a robust workflow and self-service modules (i.e. employee self-service, vendor self-service, etc.). The new system should include integration to GIS, document management, maintenance management, employee time reporting, and other department level systems. The project will include software, hardware, interfaces, training, conversion, project management, and business process improvements. *** This project should include the implementation of:** **- Core financial functionality (including City-wide cashiering)** **- Human Resources functionality (including employee self-service)** **- Grant management and reporting** **- Contract Management**
ERP Roadmap	Planned	Finance	Yes	Yes	The City is experiencing problems with its present Finance/HRMS solution (HTE) which is over-aged and does not provide needed user functionality. The project would provide for the development of the specifications and requirements for a replacement for HTE including the re-engineering of the City's business processes to enable it to take better advantage of the functionality provided by newer ERP systems.
Online Restaurant Inspection Web-Site	Planned	Health Services			Health Services is responsible for the inspection of restaurants and would like to make the information available to the public through a web-site.
HRIS (Human Resources Information System) Roadmap and Interim Solution	Planned	Human Resources	Yes	Yes	The City has performed a Kaizen event around the HR and Payroll processes and determined that the City needs an automated HRIS system. This need should be addressed as part of the City's procurement and implementation of an ERP system, including consideration of whether the City could implement an interim solution for HR.
AS/400 Decommissioning	Planned	IT	Yes		The City's AS/400 is at end of life and support for the system will soon be problematic – this impacts a wide range of the City's business applications including HTE, ADS, and the application used for Parking Tickets. This project would provide for the development and execution of a plan to migrate mission-critical business applications from the City's AS/400 to a hosted environment as an interim step, the replacement of other business applications or their migration to Win Server platforms, and the decommissioning of the AS/400.

Project	Blue Wall Status	Sponsor	Enterprise Project	ERP	Description
Business Continuity and Disaster Recovery Planning	Planned	IT	Yes		Create and implement a City-wide Business Continuity Plan and an IT Disaster Recovery Plan that would help to ensure timely recovery of core applications in event of an unplanned event or outage based on business and operational imperatives. Implementation of the plans should include any hardware, software, off-site services, and training required to meet business and operational recovery requirements. This project would create a plan for the on-going operation and recovery of the technology infrastructure to support City operations during a time of local or regional emergencies.
Business Process and Information Sharing Improvement Plan	Planned	IT	Yes		At the present time, the City's business processes and applications are highly siloed, and this project would provide for the review and re-engineering of business processes not impacted by the ERP roadmap/replacement including plans to improve information sharing.
City-wide Intranet Replacement	Planned	IT	Yes		Implement a software solution to promote department communication and coordination for projects and day-to-day activities. The solution should provide a foundation for facilitating and sharing information for projects and initiatives. More specifically, the solution would support document sharing, document version tracking, central form repository, workflow, alerts/notifications, calendars, frequently asked questions, links, project sites, and task tracking.
Cybersecurity Plan	Planned	IT	Yes		Although the City has measures in place for handling a cyber event, it does not have a comprehensive approach to the protection of the City's information assets, including periodic reviews of cybersecurity preparedness, the detection and mitigation of cyber-threats, or the recovery of information following an attack. This project would provide for the development and implementation of a NIST-conformant cybersecurity plan for the City.
Library Sign-Board	Planned	Library			Although this is not a strategic project, per-se, the Library's electronic sign board has been out of service for some time following network and cabling changes by the City and will either need to be re-installed or replaced.
Sierra Room A/V Technology Refresh	Planned	Parks, IT			The A/V technology in the Sierra Room is outdated and overdue for replacement. The equipment, including microphones, audio, video broadcasting systems, needs to be replaced.
eRPortal Post-Implementation Review	Planned	Public Works	No		Public Works is has implemented eRPortal as a replacement for Cartegraph but some departments have noted problems with functionality (ease of use, etc.) for items such as fleet management. This project would provide for a post-implementation review to identify and correct user problems.

Project	Blue Wall Status	Sponsor	Enterprise Project	ERP	Description
GIS Roadmap	Planned	Public Works	Yes		The City has discontinued the sourcing of GIS support to Douglas County and Public Works has taken over support of GIS for the City. This project would provide for the development and execution of a plan to improve the accuracy of the information in GIS, promote further adoption and use of GIS across the City, and identify opportunities to integrate GIS with business applications across the City.
LIMS – Lab reporting	Planned	Public Works			This project would provide for the procurement and implementation of Laboratory Information Management System (LIMS) for capturing key metrics for reporting to regulatory agencies.
Work-Order Management System	Planned	Public Works	Yes		As a result of the CRMS Implementation Strategy and eRPortal Post implementation review projects, the City should consider acquiring a COTS software application for tracking and managing activities to support work orders, preventive maintenance and asset management. The solution should be integrated with CRMS, GIS, eRPortal and support mobile technology solutions.
Radio infrastructure review and improvement plan	Planned	Public Works, Parks, IT			This project would entail an assessment of the aging, citywide radio system(s) to identify needed enhancements of the shared frequency channel, address current dead spots, and identify equipment replacement requirements. This project would also create centralized radio support, with consideration of obtaining a maintenance agreement and determining a road map for future upgrades.
Video Management Roadmap	Planned	Sheriff, DA, District Court			The ability to store, index, and retrieve large amounts of video content (including video from Body Cameras, please see below), will be critical for the City and a roadmap should be completed to outline the steps that the City should take to store and manage video content and whether the City's present document management system (Documentum) can be adapted for this purpose.
Body Camera Policy and Implementation	Planned	Sheriff, DA	Yes		The Sheriff anticipates that the implementation of a Body Camera program will eventually be mandated by the State of Nevada, and this project provides for the development of a policy for the Sheriff regarding the use of body cameras by Deputies and the procurement and implementation of the required hardware and software.
City-wide Cashiering System	Planned	Treasurer	Yes	Yes	The City does not have a centralized cashiering system and revenue is collected across the City using a variety of systems and manual procedures and recognized in the City's financial system using manual journal vouchers. The City has also received a recommendation from its Auditor regarding the implementation of a City-wide approach to cash management. This project would provide for the development and execution of a plan for the procurement and implementation of a centralized cashiering solution for the City.

Appendix B – Project Prioritization Worksheet

Table 5, Projects In Progress and Planned, provide information for each of the projects identified as part of the IT Strategic Plan. Please note that cost estimates are not provided for projects that are in-progress since these are assumed to be part of the current budget.

Table 5 – ITSP Projects In Progress and Planned

Project Title	Owner/Sponsor	Level of Effort (1=Low, 3=Med, 5=High)	Risk (1=Low, 3=Medium, 5=High)	Est. Cost - Low Range (in thousands)	Est. Cost - High Range (in thousands)	Assessment of Business Value 1=Low, 3 = Medium, 5=High				Assessment of Priority Weighted Scoring				Notes
						Community Engagement	Business Enhancement	Cost Reduction	Technology Replacement	25% Level of Effort	25% Risk	50% Business Value	Weighted Score (1 to 10)	
In-Progress Projects														
OpenGov - Budget Builder	City Manager	3	3	$ -	$ -	5	1	1	1	0.8	0.8	1.0	5.0	Cancelled
Performance Management Measurement and Reporting	City Manager	3	1	$ -	$ -	5	5	1	1	0.8	1.3	1.5	7.0	
Building Permit / Online Plan Review System	Community Development	3	3	$ -	$ -	5	5	1	1	0.8	0.8	1.5	6.0	
Pay Swag	District Court, Treasurer	3	3	$ -	$ -	5	5	3	1	0.8	0.8	1.8	6.5	
Sansio Interface	Fire	1	3	$ -	$ -	1	5	3	1	1.3	0.8	1.3	6.5	
Upgrade to Hosted TeleStaff	Fire, Sheriff	3	3	$ -	$ -	1	5	3	5	0.8	0.8	1.8	6.5	
Network Infrastructure and Security	IT	3	3	$ -	$ -	1	1	1	5	0.8	0.8	1.0	5.0	
East Side Network Speed Improvement	Public Works	3	3	$ -	$ -	3	5	3	5	0.8	0.8	2.0	7.0	
Nevada Quad County Interconnect	Public Works	3	3	$ -	$ -	1	5	1	1	0.8	0.8	1.0	5.0	
State Utilities Portal	Public Works	3	1	$ -	$ -	1	5	3	3	0.8	1.3	1.5	7.0	
Dispatch eLearning	Sheriff	1	1	$ -	$ -	1	5	1	1	1.3	1.3	1.0	7.0	
Planned and Pending Projects														
CAMA (Property Tax System) Upgrade / Replacement	Assessor	5	5	TBD	TBD	5	5	1	5	0.3	0.3	-	1.0	
eDiscovery	City Attorney	3	3	$ 20	$ 30	3	5	3	1	0.8	0.8	1.5	6.0	
CRMS Impementation	City Manager	3	3	$ 10	$ 15	5	5	3	1	0.8	0.8	1.8	6.5	Could be part of ERP
Digital Government Plan	City Manager	3	1	$ -	$ 5	5	3	1	1	0.8	1.3	1.3	6.5	
IT Governance Implementation	City Manager	1	1	$ 20	$ 30	1	5	3	1	1.3	1.3	1.3	7.5	
IT Infrastructure Refreshment Plan	City Manager, IT	5	3	$ -	$ 5	1	5	1	5	0.3	0.8	1.5	5.0	
EDMS Roadmap and Implementation	Clerk	5	3	$ 50	$ 65	1	3	1	1	0.3	0.8	0.8	3.5	
Election Software Replacement	Clerk Recorder	5	5	TBD	TBD	5	5	3	5	0.3	0.3	2.3	5.5	
Granicus Post Implementation Review	Clerk Recorder	3	1	$ 20	$ 50	1	3	1	1	0.8	1.3	0.8	5.5	
Records Accounting System Replacement	Clerk Recorder	5	3	TBD	TBD	5	5	3	5	0.3	0.8	2.3	6.5	
Business License Tracking and Billing	Community Development	3	3	$ 25	$ 30	5	3	1	1	0.8	0.8	1.3	5.5	
Permit Management System Implementation	Community Development	5	5	$ 15	$ 20	5	5	1	1	0.3	0.3	1.5	4.0	

Continued on next page

Project Title	Owner/Sponsor	Level of Effort (1=Low, 3=Med, 5=High)	Risk (1=Low, 3=Medium, 5=High)	Est. Cost - Low Range (in thousands)	Est. Cost - High Range (in thousands)	Assessment of Business Value 1=Low, 3 = Medium, 5=High				Assessment of Priority Weighted Scoring				Notes
						Community Engagement	Business Enhancement	Cost Reduction	Technology Replacement	25% Level of Effort	25% Risk	50% Business Value	Weighted Score (1 to 10)	
Parking Ticket Payment System	Community Development	3	3	TBD	TBD	5	3	1	1	0.8	0.8	1.3	5.5	
RMS - JustWare - JWorks Interface / JustWare Upgrade	District Attorney	3	3	TBD	TBD	3	5	5	3	0.8	0.8	2.0	7.0	
Victim/Witness Appearance Web-Site	District Attorney	3	3	TBD	TBD	5	5	1	1	0.8	0.8	1.5	6.0	
CourtView / JWorks Upgrade	District Court	3	3	TBD	TBD	5	5	1	5	0.8	0.8	2.0	7.0	
JAVS Replacement	District Court	3	3	TBD	TBD	5	5	1	5	0.8	0.8	2.0	7.0	
Contract Management	Finance	3	3	$ -	$ -	1	5	1	1	0.8	0.8	1.0	5.0	
ERP Procurement and Implementation	Finance	5	5	$ 350	$ 500	3	5	1	5	0.3	0.3	1.8	4.5	
ERP Roadmap	Finance	3	1	$ 5	$ 10	1	5	1	1	0.8	1.3	1.0	6.0	
Online Restaurant Inspection Web-Site	Health	3	1	$ 15	$ 20	5	3	1	1	0.8	1.3	1.3	6.5	
HRMS Roadmap / Interim Solution	Human Resources	1	1	TBD	TBD	1	5	5	5	1.3	1.3	2.0	9.0	
AS/400 Decommissioning	IT	5	3	$ 75	$ 100	3	3	3	5	0.3	0.8	1.8	5.5	
Business Continuity and Disaster Recovery Planning	IT	3	1	$ 10	$ 15	1	5	1	1	0.8	1.3	1.0	6.0	
Business Process and Information Sharing Improvement	IT	3	1	$ 15	$ 20	3	5	3	1	0.8	1.3	1.5	7.0	
Citywide Intranet Replacement	IT	3	3	$ 10	$ 20	1	3	1	1	0.8	0.8	0.8	4.5	
Cybersecurity Plan	IT	3	1	$ 5	$ 10	1	1	1	1	0.8	1.3	0.5	5.0	
Web-Site Refreshment	City-wide	3	1	$ -	$ 10	5	1	1	1	0.8	1.3	1.0	6.0	
Library Sign-Board Repair / Replacement	Library	3	3	TBD	TBD	5	3	1	5	0.8	0.8	1.8	6.5	
Sierra Room A/V Technology Refresh	Parks	3	1	$ -	$ -	5	3	3	5	0.8	1.3	2.0	8.0	
eRPortal Post Implementation Review	Public Works	3	1	$ 5	$ 10	1	3	1	1	0.8	1.3	0.8	5.5	
GIS Roadmap	Public Works	3	1	$ -	$ 5	3	3	1	1	0.8	1.3	1.0	6.0	
LIMS - Laboratory Reporting System	Public Works	3	3	TBD	TBD	1	3	3	1	0.8	0.8	1.0	5.0	
Work Order Management System	Public Works	3	3	$ 75	$ 100	3	3	1	1	0.8	0.8	1.0	5.0	
Radio Infrastructure Review and Improvement Plan	Public Works, Parks, IT	3	1	$ 5	$ 10	1	5	1	1	0.8	1.3	1.0	6.0	
Video Management Roadmap	Sheriff, DA	1	1	$ 5	$ 15	3	5	3	3	1.3	1.3	1.8	8.5	
Body Camera Policy & Implementation	Sheriff	5	3	$ 125	$ 200	3	5	1	1	0.3	0.8	1.3	4.5	
Citywide Cashiering System	Treasurer	3	3	$ -	$ -	3	5	1	1	0.8	0.8	1.3	5.5	

The City of Carson City

Information Technology Assessment Report

Prepared by:

NEXLEVEL
Information Technology, Inc.

October 12, 2016

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Table of Contents

This Information Technology Assessment Report was developed for the City of Carson City, Nevada, by NexLevel Information Technology, Inc.

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Section 1 – Introduction

1.1 – Scope and Objectives

This Information Technology (IT) Assessment Report was developed for the City of Carson City, Nevada (City) by NexLevel Information Technology, Inc. (NexLevel) to document how effectively the City governs, manages, and delivers information technology services. The information provided in this report was derived from:

- An online IT User Satisfaction Survey
- Interviews conducted with key user department stakeholders, subject matter experts (SMEs), and policy advisers
- Interviews conducted with the City's IT Manager and staff
- An Information Technology Best Practices Assessment that provides an analysis of the City's conformance to a set of information technology best practices

City Background

The City of Carson City has a metropolitan government that combines the functions of the City and the County and is the capital of the State of Nevada (Ormsby County and Carson City were consolidated by an act of the Nevada Legislature in 1969). The City retains much of the organizational structure of the County including a Board of Supervisors, separate elected officials including the Sheriff, District Attorney, Clerk, Assessor, and District Court Judges in addition to a City Manager and departments typically associated with a municipal government.

From its founding in 1858, the City has grown to a population of more than 54,000 in 146 square miles.[1] The City estimates that when fully developed, the population could reach 80,000. The most recent version of the Carson City Five-Year Strategic Plan[2], published in May, 2015, identified leveraging technology as one of the objectives and strategies for efficient government with the objectives of:

- Reducing reliance on paper by increasing electronic capabilities
- Providing the necessary tools, within budget, to support job efficiency and productivity
- Providing reliable technology infrastructure for the organization
- Improving and expanding the use of technology by employees
- Improving access to City information for residents and visitors

The City has a hybrid information technology environment in which the City's Information Technology Department (ITD) has specific responsibilities such as the support of City-wide information technology infrastructure and applications, while some City departments, such as Public Works, are responsible for supporting their own information technology infrastructure and applications, at times in cooperation with ITD, but without a clear demarcation of responsibilities between ITD and the user departments. The focus of this report is on the services provided by ITD and touches on departmental information technology services only where they interact with services provided by ITD.

Terminology

To avoid confusion, concepts and observations in this report regarding the use of information technology in general are spelled out ("information technology") or abbreviated as "IT", while "IT organization or ITD" are used for references to the City's Information Technology Department.

1.2 – Document Organization and Contents

This report contains the following sections:

1. **Introduction** (this section), which provides information regarding the scope and objectives of this project and the relationship of

[1] United States Census, estimated population as of July 1, 2015, http://www.census.gov/quickfacts/table/PST045215/32510,00

[2] http://carson.org/transparency/strategic-plan

this report to the overall project scope, background information regarding the City of Carson City, role of the IT Assessment Report in the overall process of developing an IT Strategic Plan, and an Executive Summary

2. **IT Assessment**, which provides a summary of the findings resulting from each component of the assessment including the interviews with key user stakeholders, interviews with the City's IT Manager and staff, and an assessment of the degree to which the City's practices and procedures conform to information technology best practices; and
3. **Recommendations**, which provides specific recommendations for actions that should be taken by the City based on the findings of the assessment, along with suggested steps that the City should take to implement the recommendations.

1.3 – Role of IT Assessment Report

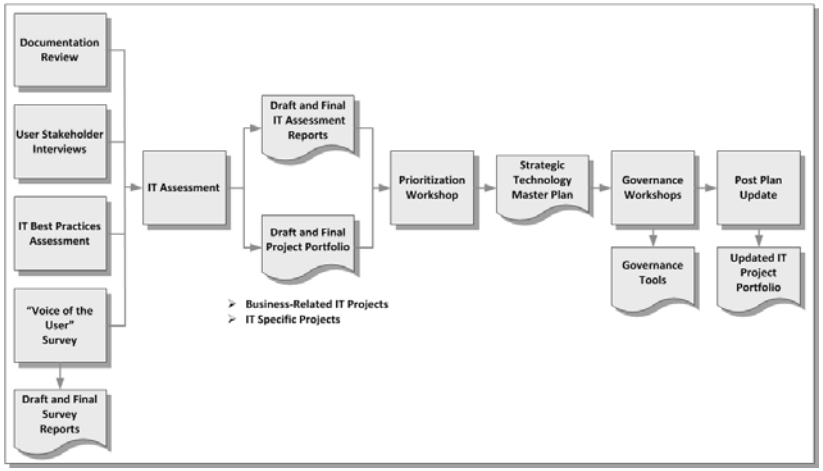

Figure 1 – Information Technology Assessment and Strategic Plan (ITSP) Process

Figure 1, Information Technology Assessment and Strategic Plan (ITSP) Process, depicts the major tasks and deliverables involved in the development of the City's IT Strategic Plan and the roles of the IT Assessment and IT Assessment Report in the overall process. As shown, the IT Assessment Report provides the foundation for the development of the IT Strategic Plan by enabling the development of a shared, City-wide vision of:

- Where the City is today with regard to the information technology services provided by ITD including a detailed review of the City's information technology strengths, weaknesses, opportunities, and threats
- City-wide and departmental information technology projects that are either in progress or planned
- Emerging needs for information technology
- Steps that the City should take to better govern, manage, and deliver information technology services

An additional product of the work related to the development of the IT Assessment is the development of a preliminary portfolio of proposed IT projects which will provide the foundation for the Prioritization Workshop that will help shape the City's IT Strategic Plan.

1.4 – Executive Summary

"Conventional process structures are fragmented and piecemeal, and they lack the integration necessary to maintain quality and service. They are breeding grounds for tunnel vision, as people tend to substitute the narrow goals of their particular department for the larger goals of the process as a whole." – Michael Hammer, "Reengineering Work: Don't Automate, Obliterate," Harvard Business Review, July-August, 1990

1.4.1 – Changes in Information Technology

One of the most profound changes in the public sector in recent years has been the shift from using information technology as a back-office, basic function (where the focus was often on reducing costs) to using information technology as an integral, and often mission-critical, component of how the City delivers services to the community. Continuing innovations in products and services have brought IT out of the computer room and into the hands of internal users and the public and out of the work-place and the home and into the mobile environment. This has resulted in significant changes in user and public expectations for the availability and usability of information technology products and services.

Seemingly overnight, business applications that worked well enough for individual departments have become obsolete as have the processes that local governments have developed to govern the use of these applications. New requirements such as the ability to effectively share processes and information across the enterprise, the importance of ensuring the currency and accuracy of information, and the ability to deliver useable information to decision makers are changing how business applications are used.

In this environment, local governments often find that they are challenged to manage their total cost of ownership (TCO) for information technology while obtaining a reasonable level of business value (in this context, business value is defined as the degree to which information technology services are aligned with, and support, citywide objectives and priorities) for their investments in information technology.

Figure 2, IT Governance and Business Value (below), is based on NexLevel's experience that IT governance is an effective means of ensuring that cities maximize the business value that they obtain for their investments in information technology. In this model, IT governance is an enterprise-wide, collaborative process that is driven by senior management and that enables the effective delivery of IT services by aligning technology goals with business goals, allocating resources, and ensuring that the organization is committed to the effective use of IT. It is very difficult to effectively manage and deliver IT services without some form of IT governance.

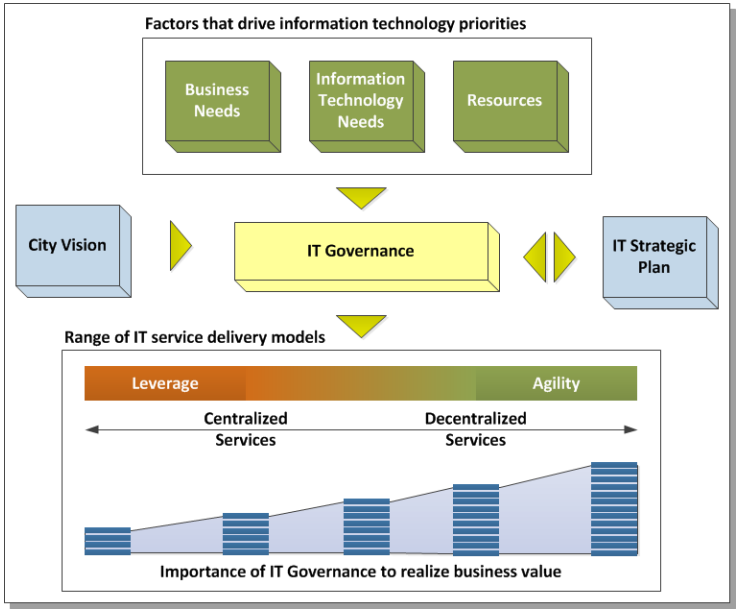

Figure 2 – IT Governance and Business Value

As depicted in Figure 2, IT governance (in the middle of the diagram) is driven by a number of factors including:

- The City's business vision and priorities, as set by the City's leadership, which provide the framework for making decisions

regarding the City's information technology objectives and priorities

- Other factors that drive the City's information technology priorities including City-wide and departmental business needs, information technology needs (such as the need to refresh, renovate, and/or replace components of the City's information technology environment), and resources (including funding, IT staff, infrastructure, and applications)
- The City's IT Strategic Plan, which provides the roadmap that guides the IT governance process by providing a long-term plan for how the City is going to procure, deploy, and support information technology

IT governance provides the framework for the delivery of IT services to the City's internal user community, the public, and other government entities. In general, IT service delivery models range from being highly centralized (where the focus is on standardization) to being highly decentralized (where the focus is on agility and responsiveness), but nearly every local government has some form of hybrid information technology service delivery model, similar to Carson City. These hybrid service delivery models include business applications that are either centrally supported or supported by departments (often with the assistance of external IT service providers).

Hybrid IT service delivery models are the product of a number of factors, but frequently, they are found where a City has made a conscious choice to empower departments to handle their information technology needs as they see best (but often without sufficient guidelines) or where departments have stood up services on their own since the central IT organization was unable to effectively respond to their needs.

While a hybrid information technology service delivery model promotes both agility and responsiveness to community needs (both important considerations), it can also result in a higher total cost of ownership (TCO) for IT and contribute to the City realizing less value for its investments in IT (ROI). This combination of increased cost and reduced value can result from investments in separate business applications that provide highly similar functionality, or investments in applications and/or technologies that appear to be promising but that fail to live up to expectations. For these reasons, effective IT governance is critical for organizations with a hybrid IT environment.

1.4.2 – Summary of IT Assessment

The information technology assessment was developed based on information obtained through a survey of City users, interviews with key stakeholders, interviews with the management and staff of ITD, and the completion and review of a IT best practices checklist which NexLevel then reviewed with the City's Chief Information Officer (CIO), who also serves as ITD's department head.

Overall, the IT assessment found that:

- Although many of the City's stakeholders are appreciate of the recent improvements in the performance and responsiveness of ITD; some are still in a "wait and see" mode, and some are not convinced that this improvement in performance has benefitted their organizations or that it is sustainable. ITD is seen as still not being fully committed to communication, transparency, and collaboration
- From a process standpoint, the user stakeholders are primarily thinking in terms of their specific information technology needs and priorities and less concerned about City-wide process and information sharing
- The City is generally highly conformant to the IT best practices for IT governance, IT service delivery, support for business applications (although some of the applications themselves are problematic due to factors such as age and obsolescence), infrastructure, security / information protection, and IT administration although there is room for improved conformance in all of these categories

- A number of factors are inhibiting the City's ability to fully realize the benefits of IT conformance including over-aged IT infrastructure, inconsistent year-over-year funding for information technology priorities and infrastructure refreshment, the absence of a linkage between information technology priorities and the City's overall objectives and priorities, and the organization and staffing of ITD

1.4.3 – Summary of Recommendations

The recommendations provided in Section 3 of this report include:

Recommendations	Objectives
3.2.1 - The City should establish a more formal process for IT governance:	▪ Improve the ability of the City to leverage existing information technology investments, reduce total cost of ownership, improve return on investment, and encourage re-use of existing information technology assets
3.2.2 – The City should plan for the replacement of applications and infrastructure that are nearing obsolescence:	▪ Ensure the sustainability of IT services and applications and ensure that City services can be continually supported
3.2.3 - The City should reconsider the division of responsibilities for IT support:	▪ Better define the respective responsibilities of ITD and user departments so that ITD can become more focused on proactive work to improvement staff productivity. With better definition, ITD can develop service metrics and provide service level agreements
3.2.4 - The City should reconsider the organization and staffing of ITD:	▪ Restructure ITD to become more user-focused and to better support the City's user communities and the public
3.2.5 - The City should develop a Business Application Portfolio:	▪ Enable ITD to better track the business applications being used to ensure that the City obtains the highest possible return on its investments in information technology through application re-use and the sharing of business processes and information across departments

Recommendations	Objectives
3.2.6 - The City should adopt a consistent approach to information technology refreshment:	▪ Improve ITD and staff productivity by replacing older, maintenance-intensive devices on a regular basis
3.2.7 - ITD should adopt additional IT best practices:	▪ Improve ability of ITD to sustainably and consistently deliver IT services to the City's user community and provide the basis for continuous improvement in the delivery of IT services
3.2.8 - The City should take steps to ensure the security and sustainability of its IT environment (network security, business continuity, and disaster recovery):	▪ Improve the ability of the City to protect information from destruction / disclosure by hackers by adopting procedures for the detection and mitigation of cyber-security threats and for the recovery from them ▪ Improve the ability of the City to ensure that mission-critical business applications and available as needed and that they can be successfully recovered following a disaster

Section 2 – IT Assessment

2.1 – IT Assessment Overview

The IT Assessment provides a detailed picture of how the City governs information technology objectives and priorities, manages information technology, and delivers information technology services to the user community. This provides a baseline that defines where the City is today, where it needs to be, and the gap between the two.

As depicted in Figure 3, Components of Information Technology Assessment, NexLevel's evaluation of how the City governs, manages, and delivers IT services was developed based on information from:

- The "Voice of the User" Survey
- A series of interviews with City decision-makers, stakeholders, and subject matter experts
- A series of group and individual interviews with IT managers and staff members
- A high-level assessment of the City's IT staffing
- An assessment of the City's business applications
- An assessment of the degree to which the City's information technology operations and practices conform to a set of best practices

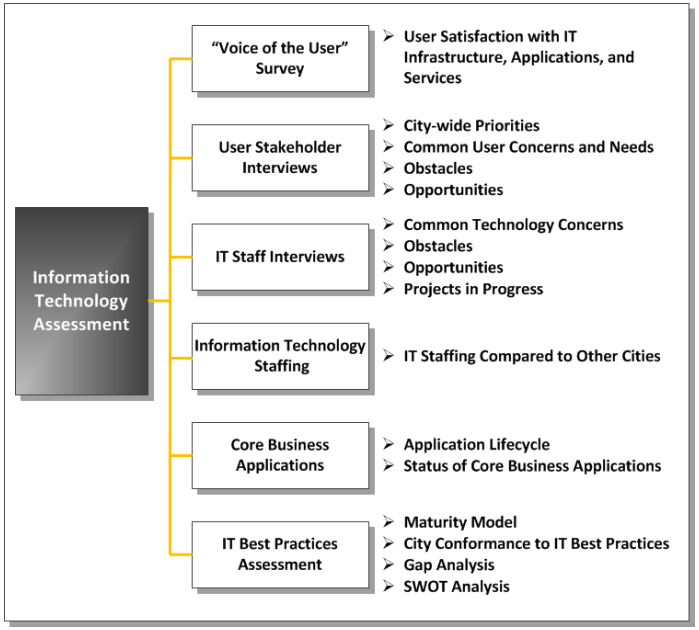

Figure 3 – Components of Information Technology Assessment

The IT Assessment and the resulting recommendations are comprehensive and are thus not driven by any single factor; but represent the consensus of NexLevel's consulting team based on the totality of the information collected, along with the consultants' cumulative experience in managing IT organizations and conducting similar engagements. The experience of the consulting team is particularly important in considering, reconciling, and weighing the results obtained from each component of the IT Assessment, which can sometimes vary as a result of the different methodologies used to capture the information.

For example, when there is a variance between the results of the "Voice of the User" Survey and the interviews conducted with key user stakeholders, the interviews are given greater weight since, unlike the survey, the interviews are conducted face-to-face. The in-person approach of the interviews enables the consultants to ask follow-up questions to better assess whether the information being provided is consistent with

information obtained in prior interviews and represents an objective assessment, from the users' perspective, of how the organization governs, manages, and delivers information technology services.

Regardless of the source of information, NexLevel's approach is to validate the concerns expressed by the user community, and to provide the City with actionable recommendations designed to improve IT service delivery, increase organizational efficiency, and enhance information security.

2.2 – Summary of "Voice of the User" Survey

Between June 10, 2016 and June 24, 2016, NexLevel conducted an on-line survey of City employees to assess their satisfaction with the support they receive from ITD. Of the approximately 575 City employees invited to take the survey, 193 employees participated (a 34% response rate, which is typical for similar surveys conducted by NexLevel). The detailed results of the user survey were provided to Carson City in a separate document.

In terms of the demographics of the respondents, three departments (Health and Human Services, Fire, and the Sheriff) accounted for nearly 44% of the responses (84) and just over 38% (74) of the respondents identified themselves as being an executive, manager, or supervisor.

Just over 64% of the respondents (124) contact ITD between 1 and 5 times per month (approximately half contact ITD 1 to 2 times, and half contact ITD 3 to 5 times). The top four reasons that users contact ITD for support include:

- Desktop computer (109 responses)
- Network connections / performance (84 responses)
- Printer issues (82 responses)
- Internet (70 responses)

Key IT service metrics from the user survey included:

- Of the 180 individuals who responded to the question regarding their satisfaction with the time it takes ITD to solve / correct their problem, 164 (91.1%) indicated that they were satisfied (including individuals who reported that they were somewhat satisfied, satisfied, or very satisfied)
- Of the 176 individuals who responded to the question regarding their satisfaction with the communications on issue resolution from ITD, 154 (87.5%) indicated that they were satisfied
- Of the 180 individuals who responded to the question regarding follow-up on the service provided, 159 (88.3%) indicated that they were satisfied

The survey also asked individuals who identified themselves as executives, managers, or supervisors, questions regarding ITD's understanding of the City's overall business objectives and departmental business processes:

- 39 of 45 respondents (86.7%) reported that were satisfied with ITD's understanding of the City's overall business objectives
- 38 of 44 respondents (86.4%) reported that they were satisfied with ITD's understanding of departmental business functions

NexLevel's observations include:

- The survey participants feel that ITD is generally doing a very good job of supporting the user community
- A lot of effort is going into the support of items (desktop computers, network connections / performance, and printers) and it is possible that the City and ITD could take steps to reduce and better handle this workload, thus freeing up ITD staff for other activities that could be more important for the City

2.3 – User Stakeholder Interviews

In the course of the IT Assessment, NexLevel conducted interviews with:

- City Manager
- Assessor
- Carson City's Visitors Bureau[3]
- City Clerk
- Community Development
- District Attorney
- District Court / Justice Court
- Finance
- Fire
- Human Resources
- Juvenile Court
- Library
- Parks and Recreation
- Public Works
- Senior Center
- Sheriff's Office
- Treasurer

[3] The Visitors Bureau is not part of the City but receives IT services from the City and their web-site is hosted on a City-owned server

2.3.1 – Responsibility for IT Services

IT services and support are provided to the City's user community by a variety of service providers including ITD, Public Works, the State of Nevada (including the State's Administrative Office of the Courts [AOC]), and external service providers. The interviews conducted by NexLevel did not limit users to just those services provided by ITD, but rather allowed the users to address all concerns and requirements irrespective of the particular service provider(s) involved. This was done to obtain a better perspective of:

- The range of user information technology concerns and requirements
- The City's need for information technology governance and its scope
- Opportunities to reduce the City's total cost of ownership for IT
- The need, if any, to rationalize the demarcation of IT service delivery responsibilities

2.3.2 – Summary of User Concerns and Requirements

A number of common themes emerged in the course of the user interviews including:

- Some of the users expressed the concern that while ITD does a good job of responding to basic infrastructure issues that its support of business applications is not as good. Common issues regarding business applications included:
  - A lack of depth in staffing and experience so that if a key ITD staff member is out of the office there is no backup for that person
  - Problems with the application of software patches, releases, and new versions, with some of the City's business applications being seriously out of date

  - A feeling that there is no vision or plan for the management of business applications including the next steps for HTE

- Long-standing problems with network connectivity to City facilities east of Stewart including Fire Station 52, Juvenile Court, Juvenile Probation, District Court, and the Clerk / Recorder's office
- The users appreciate recent improvements in service delivery but remain wary of ITD's long-term commitment to customer support. Public Works and the Sheriff's Office expressed concern that while they have seen additional attention from ITD, that this attention has not resulted in tangible service improvements
- Concern over what is seen as a lack of communication with the user community regarding network and other infrastructure upgrades and slow responses to hardware and other issues that arise in the wake of these changes
- Some issues seem to linger a long-time without any communication to the users regarding the status of the issue and the plan for resolution

NexLevel's Observations on User Concerns and Requirements

NexLevel developed several observations in the course of the user interviews including:

- The City's operations are generally siloed with departments more focused on their particular business processes than they are on the integration of processes and information with other departments
- The City's applications are similarly siloed. With the exception of the Finance system, there are few enterprise applications nor do the users know what applications are available to them, what other departments are doing, nor are they knowledgeable of the City's overall application strategy
- While the users have varied expectations of ITD, they are unclear as to what services (and levels of service) ITD should be providing and how the quality of those services should be measured. Similarly, users tend to have more confidence in specific ITD employees than they do to in reporting issues to the Help Desk – the ability to talk to a person that they know is important to many of the users
- Users also tended to be unclear as to the specific entity responsible for specific IT services, for example, security cameras are supported by Public Works, not ITD
- Although users acknowledge that ITD has changed for the better, they are still concerned the quality of the IT services they receive is still dependent on which ITD staff member takes their call

2.3.3 – Interview Summaries

City Manager

The City Manager has a number of priorities for information technology including:

- Create more efficiency in the delivery and use of information technology services, particularly through the progressive reduction in the City's reliance on manual processes
- Continue to improve the City's abilities to enable the public to access city information and services (i.e., Carson City Connect), with emphasis on "Smart City" capabilities while maintaining traditional services for members of the community who have not adopted computer technology
- Better leverage existing information technology assets, such as GIS, for access to real-time information regarding events in the City as well as to better deploy City assets to emergencies and other situations
- Use information technology to enable a culture of continuous improvement (the City is making use of Kaizen Events to promote process improvements)

- Develop a fiscally-sustainable plan for the refreshment / replacement of aging applications including SunGard / HTE (used for HR and Finance) that would enable the City to become more nimble and agile in responding to community expectations
- Implement a sustainable staffing model for IT support including cross-training

Assessor

The Assessor is "getting by" with a makeshift arrangement of information systems including HTE, GIS, the Apex drawing software[4], EMC's Documentum product (primarily for document imaging with very little document management), and AS/400 applications developed and supported by Advanced Data Systems (ADS) which is used by 15 of 17 counties in the State.[5] ADS is located in Carson City and the City has been using their software for nearly four decades. The Assessor has a major web-presence and makes all of their information and services available online. The Assessor noted a pending amendment to the State Constitution, SJR 13[6], if approved by the voters, will change the basis for property valuation from replacement cost to market value, and cap property taxes at 1.25% of this year's market value. This will require the Assessor to re-appraise some 20,000 parcels.

Although Carson City Public Works is assuming operational responsibility for GIS from Douglas County, the City does not yet have a formal plan for the governance and maintenance of the ESRI GIS application and the information in it. As a result, the Assessor is concerned about parcel fabrication (i.e., the maintenance of existing parcels and the creation of new parcels through sub-division).[7] GIS is a key business application for the Assessor's office and it is important that the Assessor be recognized as a key stakeholder for GIS.

Issues and concerns that the Assessor has with information technology and ITD support include:

- The Apex drawing software is not backwards compatible so that drawings created in older versions of Apex cannot be edited in newer versions
- The lack of cross-training in ITD limits their ability to support the Assessor
- Would like to have an application that provides a single point of access (for both internal users and the public) for property information that is presently divided up between ADS, HTE, and GIS
- The Assessor would like to have remote access capabilities

Carson City's Visitors Bureau

The Visitors Bureau is not part of City government but purchases services from ITD including hosting of its web site (http://visitcarsoncity.com/) and for use of the financial system. The Bureau reported that the City's network can be slow at times, especially after lunch, prompting them to contract with Charter Communications for wireless service. HTE has been problematic for the Bureau; QuickBooks (although limited in functionality) was faster and more flexible for them.

The Bureau feels that they have received responsive support from ITD. If they have an urgent problem they call a contact in ITD directly, and use the general Help Desk number for non-urgent matters.

The Bureau has a major focus on social media (using 8 to 9 platforms) but have to go off the City's network to access and update them. They have developed a mobile app and will also deploy two to three kiosks for visitors in strategic locations plus take mobile kiosks to events. The app provides geo-location capabilities and plots restaurants, shops, and events.

[4] Apex Software, https://www.apexwin.com
[5] http://www.adsnv.com
[6] http://openstates.org/nv/bills/78/SJR13/
[7] A parcel fabric is a dataset for the storage, maintenance and editing of parcels. A parcel fabric is created under a feature dataset and inherits its spatial reference from the feature dataset. A parcel fabric stores a continuous surface of connected parcels or parcel network. - http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#//008500000002000000.htm

City Clerk / Recorder

The Clerk performs a wide-range of responsibilities including agenda management and the recording of minutes for the City's Board of Supervisors (BOS), City-wide records management, recording bills of sale for real property and liens, voter registration, issuance of marriage licenses and birth certificates and relies on a variety of information systems including HTE, Documentum, and Granicus. Although the Clerk is officially the custodian of records for the District Court, the Court is handling both filing and records management under the aegis of the Clerk's office.

The Clerk does not have any issues with ITD support; however, they are experiencing a number of issues including:

- The voting system used for elections is due for replacement, but this is dependent on funding from the State (the system is operated by an external service provider using a dedicated server)
- Granicus has proven very cumbersome to use and there is a need to revisit its implementation and configuration
- Although the City has Documentum for document imaging and management, the functionality provided by the product is not sufficient (including the lack of functionality for selective redaction of information in documents) to permit the City to move away from hard copy documents. The Clerk's office has looked at other applications including Helios (used in Douglas County) and Tyler (used in Washoe County)

Community Development

Community Development handles a number of matters including development permits, licenses for special events, and business licenses. Key applications for Community Development include HTE (fees from business license issuance and renewals are manually receipted and sent over to Finance), ADS (Assessor), Active.NET, GIS, Pictometry, and Documentum. Community Development plans to implement electronic submittal and plan checking for construction plans beginning in December of 2016. Community Development has been researching the possibility of implementing a technology fund through permit fees and that the developers have been generally supportive of the concept.

Community Development makes extensive use of GIS (some users are on GIS throughout the day) as well as historical information on microfilm. They also get a number of public records requests for items such as occupancy permits, etc.

Future plans include:

- Greater use of mobility
- More information in GIS for both developers and residents
- More efficiency in permit processing, push less paper, make more information and services available on-line

Community Development felt that ITD support is good, but they experienced some network connection problems and they are concerned that only one person in ITD is highly familiar with the AS-400. They also noted that HTE has been burdensome to use, in particular they have experience difficulties in generating reports.

District Attorney

The office of the District Attorney serves as both the City Attorney (with a focus on Civil matters, boards and commissions, etc.) as well as the prosecution of criminal matters. Applications being used by the District Attorney include JustWare (from New Dawn, now Journal Technologies), the Sheriff's Tiburon (now TriTech) RMS, and the District Court's CourtView case management system (from CourtView Justice Solutions), State applications (such as IJIS), information from the Assessor, as well as historical information contained in a legacy AS/400-based application.

The District Attorney uses Microsoft Outlook for calendaring and scheduling and have procured MS Surface Pro tablets to take into Court (primarily for Criminal and Juvenile at this point; some tablets have been procured for Civil but they do not have sufficient budget for full

deployment in Civil). They found Documentum to be complicated and are using the document management capabilities in JustWare instead. Overall, they characterized that they are "moving slowly, but getting there," in terms of increasing their adoption of information technology.

The District Attorney's office is largely financing information technology out of its own budget with the exception of City-wide applications such as HTE for budgeting and payroll (a side note to the use of HTE is that a representative of the DA's office has to pick-up "payroll" every other Friday – and with the adoption of direct deposit this largely consists of remittance advices, which could be e-mailed to recipients or made available on-line).

The State is buying a victim notification system and the DA's office expects to make use of it (they presently get paper notifications regarding the scheduling of parole hearings and the resulting dispositions).

The DA's information technology needs and concerns included:

- The ability to get more information electronically, especially from Corrections, and automated alerts when new information is uploaded such as when the Sheriff uploads new images to VeriPic
- The phone system has been problematic; the hand-sets have proven to be unreliable and are being replaced by the City
- Support for the City's web-page has been very limited and the DA would like to source support for their pages and upgrade the functionality and information provided on their pages
- They have experienced a long wait for security cameras and would like to see the improved audio/visual facilities in conference rooms
- Limited follow-up from ITD on services provided or the status of items that were being worked on and that ITD is not proactive

District Court

The District Court is a general jurisdiction court. The Juvenile Court and Juvenile Probation operate separately from the District Court. The District Court has a Citrix-based desktop environment (supported by the State's Administrative Office of the Courts) that provides access to the CourtView case management system (JWorks) which is hosted by the State through its SilverNet network. Other applications in use include video arraignment, HTE (financial functions), Tiburon, Documentum, Courthouse Technology JMS (juror selection), and JAVS (courtroom A/V and logging).

Traffic Citations are electronically transmitted to the District Court by the State (Brazos) while criminal complaints from the District Attorney are filed manually.

The District Court maintains an inventory of PCs and generally replaces four to five PCs each year

In general, the Citrix environment and applications are working well for the District Court although there are sometimes problems whenever the City and/or the State implement network upgrades. The Citrix virtual environment has also been somewhat problematic since it is user-based (the desktop follows the user) rather than device-based.

Future IT needs include:

- Improving public access including the deployment of kiosks (such as at DMV so the public can pay outstanding fines and fees that are blocking vehicle registration, etc.)
- Upgrading or replacing JAVS in 2018 (grant funding may be needed)
- Providing an interface between Tiburon and CourtView

Finance

Finance is the primary user of the HTE application and uses it for a range of business functions including payroll, budget, project accounting, fixed

assets, AP, etc. There are few automated interfaces to HTE so all financial transactions handled by other departments (such as fees from the payment of business licenses) are recognized in HTE through the use of journal entries. Similarly, property tax assessment and collection are handled by the Assessor and Treasurer using ADS software that is not integrated with HTE and this requires the use of journal vouchers and manual data entry into HTE to recognize the revenue.

Finance relies on ITD for HTE support, but ITD has few staff members who know the system well and has to bring back a retired programmer as a part-time employee to handle some requests. Although most employees are paid through direct deposit, the City is still printing some payroll checks and printing payment stubs for all employees. Finance would like to generate the payment stubs as PDFs and e-mail them to employees [which would also be helpful to the departments which have a person stop at City Hall every other week to pick up the stubs).

Finance also has desktop computers that are "outdated" and "really slow" that should be upgraded or replaced.

Fire

Fire relies on a variety of business applications including the FireHouse Records Management System, Tiburon's (now TriTech) CAD system, TeleStaff for shift bidding, call outs, and time reporting, Target Solutions for training, and Sansio EMS Reporting (a cloud-based EMS solution). Fire also uses iPads, GIS, NeoGov for onboarding new Firefighters. Fire noted that while the support from ITD has improved, they are still facing some significant IT issues including:

- They are running a very old version of TeleStaff (approximately eight years since the last upgrade)
- There have been delays in upgrading Firehouse (there is "no real support" from ITD) (software version control and license upgrades in general have been a problem)
- Network connectivity issues, especially at Fire Station 52 at the airport
- The lack of a central point of contact for support in ITD – issues tend to be moved around in ITD and ITD's ability to effectively collaborate with vendors is limited (support issues "ping pong" between the vendors and ITD)
- Fire is also experiencing some problems with the new Fleet Management system that has been implemented by Public Works including the inability to schedule service appointments or to see unit status online, and to estimate total cost of ownership vs. replacement cost and be able to carry this information into the budget planning process

Future needs include:

- A collaboration tool such as SharePoint
- They need a 911 call to pop-up on the MDT screen with a map (CAD – GIS integration), but mapping has been slow due to GIS

Health and Human Services

Health and Human Services (HHS) is responsible for a variety of public programs including environment and epidemiology programs, health and sanitation inspections for public eating establishments, and operating a clinic. HHS uses the State's SilverNet for internet access and uses a variety of applications including Sweeps (an older application with a Pervasive [Btrieve] database that supports inspections), eClinical, several web-based applications for billing, and the City's HTE application for payroll / human resources. The City hosts HHS's web-page and the department has two grant-funded staff members who maintain the content on the web-site and various social media sites. They use Carson Connect "a little bit," but health-related complaints are kept in Sweeps rather Carson Connect. Field inspectors have been equipped with Microsoft Surface Pros and download copies of the Sweeps database in the morning and upload their inspection results in the evening.

HHS feels that their information technology infrastructure is adequate for the present and that they have been able to make some great strides recently. HHS does not get automated data feeds from EMS and this

impacts the ability of HHS to detect trends (especially for epidemiology and environmental impacts and has experienced some network problems accessing the eClinical application).

HHS was appreciative of the services provided by ITD, citing their recent help with HIPAA compliance.

Human Resources

Human Resources is dependent on siloed business applications including HTE and NeoGov as well as manual processes. HR inputs all new hires and changes to personnel into HTE and has a full-time data entry person to support payroll. HR sees the need for a Human Resources Management System (HRMS) that might be part of a new ERP system to replace HTE that would provide additional functions including:

- An interface between the HRMS and NeoGov
- An employee performance evaluation system
- Automated Personal Action Forms (PAFs) – should be part of new HRMS
- An Employee Portal and benefit enrollment

HR would like to make greater use of NeoGov, they have just "scratched the surface" of what the application has to offer. HR also sees the need for a Training/Computer Lab – for continuing training of existing employees and orientation / training of new employees.

Juvenile Court

Juvenile Court is presently upgrading to the new version of CourtView (JWorks), uses JAVS for court reporting, is using Excel templates for Arbitration / Mediation, and uses Microsoft Outlook to calendar hearing dates and to send reminders to external users including Juvenile Probation, the State's Department of Children and Family Services (DCFS), and private attorneys. Juvenile Probation has been experiencing network problems – e-mail and downloads are very slow – and the situation has gotten worse since ITD switched them to an external service provider (Charter) in an attempt to resolve the network performance issues. Their telephones are on the same network and also experiencing problems.

They have a number of IT-related concerns including:

- Getting a link between CourtView and the City's web-site to automatically transfer filing and payment information to the case management system
- They have experienced multiple hardware issues, including a hardware issue in the Courtroom

Juvenile Court would like to have an e-filing capability in the future.

Juvenile Probation

Juvenile Probation is similarly located east of Stewart and is experiencing the same network problems as Juvenile Court. Downloading of attachments and even the deletion of spam is slow. Juvenile Probation uses CaseloadPRO to manage probation officers' caseloads but is now being faced with additional fees to migrate the City's enhancements and modifications to the new release. Their budget is extremely tight and they are deferring the replacement of vehicles or computers.

Referrals come to Juvenile Probation from the Sheriff's Office, there is no interface between Tiburon and CourtView but the referrals are sent as PDF documents which eliminates some of the data entry. They emphasized that they are a "field agency" and they need to "empower officers in the field," by giving them tools to manage their caseload, providing them with access to information (i.e., have all information about a subject person and their family before they knock on a door) and enabling them to capture interview results immediately afterwards.

They are presently cleaning up reports and working to develop analytics to assess program effectiveness and to identify the factors that make programs effective. They are also looking at ways to streamline the process including finding ways to use automation to supervise subjects on

probation and replacing manual processes, such as sign-in, with automated processes.

Library

The Carson City Library has adopted "A Strategic Plan for Learning" entitled "Level UP(!)" which includes technology initiatives designed to expand its service offerings to the public. One objective stated that "By providing learning opportunities in computers, health, finances and adult and early literacy, the Carson City Library joins the City in building economic stability and opportunity."

The Library places significant emphasis on the future use of technology and access to information. This is driven, in part, by a desire to provide new and enriching offerings to the public. Specific Library technology objectives include:

- Expanding website and technology for a digital branch reemphasizing the importance of libraries embracing the world of conversation, community, and collaboration using technology tools
- Purchasing furniture- designed to use technology, increase collaboration and creativity
- Sustaining investments in technology with updated hardware, software and digital equipment. Ensure Wi-Fi works with adequate speed and capacity. Maintain partnership with Charter Communications.
- Providing portable technology tools and expertise that can be accessed outside of the Library and in any location

While much of the current technology infrastructure is provided by outside entities (State Library and regional vendors such as Charter Communications), the Library does utilize as small level of support from ITD. Library information technology needs included:

- Access to the City's shared data from the two staff PCs currently attached to the City communications network
- Availability of expanded phone features that are not currently available to Library staff
- Installation of Wi-Fi access points within the Library
- Installation of security cameras outside the building and at door locations (volunteer and staff access control)
- Remediation of problems with the Library Sign Board (it was operational until fiber cable was installed)
- Increased bandwidth for fiber into Library for improved access
- Use of mobile access for traveling staff (when outside the main facility)
- Additional training for better use of the HTE finance application
- Accessing the City's downtown Wi-Fi
- Expanded web-site and new functionality (similar to new City site)

Parks, Recreation and Open Space

The Parks, Recreation and Open Space Department (Parks) provides a wide-range of services for the Community including the Aquatic Facility, the Community Center and Bob Boldrick Theater, the Carson City Fairgrounds, and the Multi-Purpose Athletic Facility (MAC). The Community Center has meeting rooms which are used for a wide variety of events including City meetings. Parks makes use of a variety of information systems and other technologies (i.e., for audio/visual systems, lighting systems, consoles, etc.).

The business applications being used by Parks include:

- Active.NET for public program and facility reservations and cashiering
- Carson City Connect, Social Media, and the City's web-site
- Central irrigation control system (RainMaster) (needs to be upgraded)

- City applications including Granicus and HTE
- Bar code system (Watson)
- GPS tracking and GIS
- SmartBoards and Smart Scoreboards
- Macromedia (Adobe) FreeHand for floor layouts
- MS Outlook for event calendars

IT-related issues for Parks include:

- Active.NET is working for them but feel that they haven't been able to make full use of the functionality provided. They have also experienced some Java and browser compatibility issues between Active.NET and HTE
- They would like to get Parks facilities into Accela so that they can generate condition of facilities (condition index) reports and CIP reports, track inventory, and track items such as playground safety inspections
- The department is paying for information technology upgrades out of their own budget, but ITD generally does not provide training so feel that they are generally on their own. Although Parks expressed the belief that the Help Desk has been very responsive, they general feel that "Parks is at the bottom of the Totem Pole" for ITD
- Time reporting is handled manually. Employees enter their time using manual timesheets which are then picked up from all of the locations and brought to administration where they are then entered into HTE
- Information published to the City's web-page does not automatically update Carson Connect so have to manually updated both sites
- The video surveillance systems at the facilities are out of date and do not provide full coverage and, as a result, vandalism, illegal dumping, and fires have been serious issues for them
- Parks does not use the City's work order system – Public Works prints off the work orders for them and Parks updates the printed work orders and sends them back to Public Works. Public Works is also responsible for tree management and uses an application but Parks does not have access to it
- They are still "working out the bugs" with Granicus for putting in staff reports and synchronizing the information between carson.org and Socrata (strategic plan performance measures)
- While the City's "Chat Now" feature for the public is getting a lot of use, Parks is concerned that many of the questions are related to content that is already available on their web-page – they are also concerned that the web-page needs to be updated
- Many of the full-time staff members are carrying two cell phones (one for City use and one for personal) despite the City providing a stipend
- Reliable wireless access at the Community Center is important since events sponsors have their own ticketing applications

Parks also discussed a number of facility issues that are significant but not within the scope of this report, including expanding the use of keyless entry systems to reduce the number of keys in use and to provide temporary access to venues for exhibitors and/or event sponsors, lighting system controls (some facilities have Musco controls, some do not), lighting systems that are obsolete or no longer functioning, and electronic scoreboards that are deteriorating.

Public Works

Public Works is one of the largest users of information technology in the City and stated that IT permeates everything that they do. Public Works is also highly involved in radio communications including the "Quad County Interconnect" for Public Works and Public Safety with plans to migrate to

RoIP (Radio over IP) for Public Safety. They are working to implement eRPortal (a web-based product from http://www.erportalsoftware.com) in place of Cartegraph as their computerized maintenance management system (CMMS) and were just bringing the City's GIS system back in-house from Douglas County at the time of the interview. At present they are the most active City department using Carson Connect and would like to integrate it with GIS in the future.

In addition to accessing the City's standard business applications, office applications, and e-mail, Public Works supports separate networks, including the Industrial Network for specialized applications such as SCADA and an administrative network. They also use a number of software tools such as AutoCAD, Planit 2000 (for capital projects) and a variety of MS Access databases and Crystal Reports for backend reporting.

Future projects include:

- Construction Management software
- Expansion of GIS including making ESRI the center for asset management information, and updating the information in the system (i.e., Eagleview Pictometry)
- Water modeling software
- Improved mobile information and file sharing capabilities including Office 365
- Learning management software (including Grammarly)
- Developing a remote access strategy so that field users can have the same basic desktop in the office or when working remotely

Public Work's view is that its progressive, "can do" approach to information technology created a rift with ITD and some overlap / redundancy between the information technology infrastructures deployed and supported by Public Works and by ITD. Although the department has seen an improvement in ITD capabilities and responsiveness since then, Public Works remains concerned about the ability of ITD to meet their requirements.

Senior Center

The Mission of the Carson City Senior Center is: "To enhance the quality of life and autonomy of individuals 60+ through the facilitation and provision of a broad continuum of services and support including: nutrition, activities, information and referral, education, opportunity for peer interaction with concern for mental, emotional and physical well- being, and to foster and develop low cost senior housing."

The use of technology within the Senior Center in support of their mission is currently limited; however, the Center would like to offer better technology services and enhanced capabilities to its members. The Center is supported through a combination of City budget, gifts and fund raising activities.

Current technology includes a computer lab (12-15 devices) which was purchased through gifts and fund raising, supported by a private service provider, and not connected to the City's network. The PCs provide basic functionality to members (Internet, Microsoft Suite, etc.). The Senior Center also has PCs for staff members that are connected to the City's network.

The Senior Center would like to expand its use of technology by:

- Expanding the availability and inventory of computer classes for seniors
- Providing loaner PCs for members of the community who are generally confined to their residences
- Replacing the old public address (PA) system
- Improving the building access system (key card)
- Adding security cameras around the Senior Center parameter
- Utilizing tablet PCs for staff assessments to replace paper and re-entering data
- Expanding the web-site to allow for on-line donations and applications for volunteer service

- Implementing a client data software package to track clients more effectively
- Tracking software for facility/service utilization
- Increasing the level of support from City IT to help with access to data (shared drive), audio/visual equipment, and consulting on how to better utilize technology

Sheriff's Office

The Sheriff's Office (SO) uses a wide range of information technology to support operations, patrol, and investigation, including:

- Tiburon 7.10 (now TriTech) for Computer Assisted Dispatch (CAD) and Records Management (RMS) – the SO uses a third-party service provide to monitor the Tiburon servers
- TeleStaff (shift management and time recording) – the time is then manually entered into HTE for payroll
- Panasonic Tough Books in patrol vehicles with USB air cards and NetMotion (mobile security and optimization)
- JLink for sharing information with other law enforcement agencies
- Taser Body cameras (on-going implementation) and Evidence.com (watching for NHP report to the State Legislature)
- Mobile license plate readers
- Civil process software (ADS) on AS-400
- Documentum (AS-400)
- Brazos (State of Nevada, for transmission of traffic citations to Court)
- Propertyroom.com (for disposal of items)
- GIS (including importation of GIS data into the CAD system using the Maverick utility program)[8]
- Crime mapping on the City's web-site

Radio systems (including towers and consoles) are supported by Public Works. The SO has concerns about the state of the City's radio infrastructure including failing radios and some dead zones) and hopes that revenues will be available by the end of FY 18 to remediate some of these items.

The SO provided the following input about ITD's services including:

- They liked that someone was available at the Help Desk starting at 7:00 AM [note – ITD has since changed the Help Desk schedule to 08:00 – 17:00 due to the low call volume in the morning]
- The SO reported that ITD's willingness to collaborate with departments to find solutions is problematic, there was significant "push back" from ITD when the SO tried to fix wireless telephone problems in the building and when the SO requested a dedicated Intranet to facilitate the exchange of information between units and shifts
- ITD's organization is not clear to them, they just call the Help Desk, there is no manager in ITD that is responsible for helping the SO resolve information technology issues
- While the new Help Desk staff members have been very effective, the SO is of the opinion that ITD does not effectively follow-up on the status of service requests and projects and that it can take a long-time for ITD to complete tasks such as hooking up a large monitor, obtaining a Smart Board, installing Crystal Reports on a single PC (at the time of the interview, this request had been pending for six weeks), and connecting cameras in the jail that were installed four years ago but that are still not in operation
- There is a perception in the City that ITD sometimes pushes updates and patches out too quickly and this impacts the ability of the Sheriff's Office to get their work done in a timely manner. The SO believes that ITD should verify that updates and patches will work in user environments before pushing them out

[8] http://911mapping.com/maverick.htm

- The Sherriff's office felt that they would benefit from having an IT resource on site to better respond to critical issues
- ITD has problems with tracking projects and reporting on project status and there is some doubt as to the effectiveness of ITD's Help Desk system. The Sherriff's Office feels that ITD needs to provide a work order system that works for the users
- ITD has challenges in priority setting and reporting status back to the departments, if ITD has an escalation process it does not seem to be working
- After-hours support is problematic; it can three to four hours for ITD to respond. This has become critical since personnel in Dispatch no longer have administrate rights to handle common issues
- The present network security settings are overly restrictive – they can't even access You Tube [note – this only apply to a limited number of PCs]

Information technology needs include:

- A dedicated Intranet for the SO - this has been done in Washoe County with good results
- Reliable printers and telephones
- More accurate information in GIS for Dispatch
- Stationary license plate readers at key locations in the City
- An integrated utility program for forensic investigation of cell phones / smart phone (they presently have five separate applications to cover all device types)
- Radio network improvements

Treasurer

The Treasurer is responsible for the processing of payments for property taxes, utilities, and parking, etc. They are using the ADS system along with the Assessor (and which is used by nearly all of the counties in the State) and they are handling processing for some 18,000 taxable parcels largely manually including the quarterly posting of payments into ADS and preparing deposits by hand. The Treasurer is interested in implementing a process for property taxes similar to utility billing where the bills are scanned and the data upload to the application.

Information technology needs include:

- Automated payments by telephone
- ADS replacement
- City-wide cashiering solution (the City's internal auditor has recommended that a citywide cash management policy should be implemented)

2.4 – IT Interviews

ITD provides a range of services for the City including support for information technology infrastructure (servers, wired and wireless networks), business applications, and desktops. Key issues being faced by ITD include:

- The City's continued reliance on a series of AS/400 based applications including HTE (finance / HR) and Documentum) – the AS/400 and HTE are both approaching the effective end of their service lives with the HTE application not offering the same levels of functionality and ease-of-use as current ERP offerings)
- A highly siloed IT environment across the City with little provision for application and/or information sharing between departments and varying degrees of information technology adoption across the City
- The division of responsibilities between ITD and departments such as Public Works that support some components of the City's information technology environment creates difficulties in supporting the user community
- Limited funding for information technology as a result of constraints on the City's overall budget which reduced the funds available for information technology refreshment
- Overcoming past leadership issues which left ITD a legacy of not being generally innovative, proactive, or responsive to user needs

Interviews conducted with ITD staff included:

- The City's Chief Information Officer (CIO)
- The IT Manager and the Help Desk Staff
- The Information Management Officer (Web Support)
- Applications (Project Leader and Business Systems Analysts)
- Systems Administration
- Network Administration
- Audio/Visual Support

The results of these interviews are noted below.

Chief Information Officer (CIO)

The CIO is working to make ITD more innovative and responsive to user needs but is struggling with limited budgets for information technology refreshment. The CIO's priorities include:

- Improving the delivery of IT services to the City's user community by bringing in new staff members, bringing in new methodologies and tools, changing the culture within ITD, and working collaboratively with the City management and the user community. For some time, ITD has operated in an ad-hoc manner without formal project management and change management methodologies and the CIO would like to change this
- Improving the City's information technology environment including eliminating single points of failure, replacing equipment that is nearing end-of-life (including network switches), and planning for the replacement of the AS/400 and the applications running on it
- Clarifying the demarcation of responsibilities for information technology between ITD and departments, such as Public Works, that have their own IT staffs and environments and improving collaboration with them
- Reorganizing ITD and ensuring that they have the right skills to respond to user needs. At the moment, seven of the ten persons in ITD report directly to the CIO

IT Manager and the Help Desk Staff

The IT Manager and the three staff members assigned to the Help Desk are the newest employees of ITD (all having been with the City for less than

two years). The Help Desk staff members have been very effective in responding to, and resolving, user issues and their effectiveness has made a major difference in city-wide perceptions of ITD. Their workload includes projects as well as support tasks (they estimate that the balance is about 50/50.

User requests come to the Help Desk either by an e-mail that automatically creates a ticket in Track-It or by telephone. Service requests that are received by telephone or in person are not always entered into Track-It (it was estimated that approximately 50% to 60% of the calls are entered into Track-It). The general process is that "whoever picks up the call owns it" and then refers the ticket to another ITD resource or escalates it as needed.

They hold two "run down" meetings daily (one in the morning and one in the afternoon) to assign tickets and to review status. They estimate that they receive approximately 30 calls / tickets per day and that the number of open tickets varies but is generally around 200 (at one point they had the number of open calls down to approximately 60, but projects and taking on additional work for A/V support has caused the number of open calls to increase). The oldest ticket in Track-It is almost two years old (for a project), although most are closed the same day.

Printing problems (device problems, print drivers, spooling problems, etc.), PC problems (including reboots and password issues) account for a large number of user issues. They are also rebuilding approximately three PCs per week.

They are building an internal knowledge base using SharePoint and estimate that they have around 1,000 articles in it at this time. They don't feel that they have sufficient licenses for SharePoint to make the knowledge base more widely available and has considered using Wiki (an open source tool that is widely used in the industry) but that there was resistance from some ITD staff members regarding learning how to use Wiki.

The division of responsibilities in the Help Desk is very loose - in general they try to have one person in the field (when needed – to handle items that can't be resolved remotely), one person in the office covering the telephone and Track-It, and one person working on projects. Some of the projects can be very substantial such as handling the installation of an upgrade for the Tiburon CAD/RMS, which took about one-month of full-time effort and four to five months of part-time effort.

They are using Dameware from SolarWinds (http://www.dameware.com) for the remote management of desktops and this generally works well for them, but it doesn't work for Macs so they are getting a tool from Apple. It was also reported that the IT asset management and billing systems were cumbersome to use. Items that the Help Desk felt would improve the delivery of services to the user community include:

- Equipping desktops with solid-state drives to improve performance and reduce disk failures
- Implementing SharePoint to share information within ITD and with the user community
- Providing additional training for users
- Re-designing business processes
- A consistent approach to device maintenance and refreshment

Information Management Officer (Web Support)

ITD has a staff member who is coordinating the City's social media usage and policy and is the administrator for the City's innovative "Chat Window" – which has been helpful in finding out what information visitors to the City's web-site are most interested in and whether they can easily find it. The City has a social media policy that is old and needs to be updated so ITD is manually managing postings on Facebook and other social media sites – and sometimes this leads to disagreements with departments as to what should be posted.

The Information Management Officer is working with the departments to improve the City's web-site including updating content and giving the site a

more consistent structure from page to page to make it easier for members of the public to access information and online services.

Applications (Project Leader and Business Systems Analysts)

The Project Leader supports a wide-range of programs and services including the migration of information from GIS to CAD, support for Documentum, elections software for the Clerk, the jury management system for the District Court, the case management system for the District Attorney, FireHouse and TeleStaff for the Fire Department, Tiburon CAD/RMS for the Sheriff, and printers and plotters.

The Project Leader also supports Track-It for ITD as well as the backup process. [ITD was migrating from CommVault for their backups to "Dell Data Protection | Rapid Recovery" (AppAssure) at the time of the interview since the existing disk array was nearly full and the tape system was eight years old and nearing end of life. The migration has since been completed with a few exceptions]. The new backup process is based on a "disk to disk to cloud" methodology that is more efficient.

The Business Systems Analysts similarly perform a wide range to tasks including:

- Working with the Help Desk to resolve application issues, particularly with the AS/400-based applications including HTE and the various ADS software products in use, but they have also been involved in the implementation of Granicus
- The creation of training materials
- Asset tagging IT equipment and maintaining the automated inventory (on the AS/400) and monitoring the inventory for items that are coming up to the end of warranty coverage
- Assisting the Network Administrator with running lines and terminations
- Providing backup support to the Help Desk including taking after-hours calls, equipment installs
- Handling back-up tapes

It was noted that the City's online payment application is an in-house, custom developed application and is not integrated with HTE so that journal vouchers are created to recognize online payments in the financial system. The City is planning to migrate to a third-party payment service.

Some of the AS/400 support issues require the services of a retired staff member who is an experienced RPG programmer [meaning that the AS/400 is being used to emulate older IBM systems including System 36 and System 38].

Systems Administrator

Systems administration is responsible for all of ITD's servers from the hardware level (including the application of patches), active directory, virtualization of servers, and some applications. They are still migrating to Windows Server 2008 R2 (which should be supported through 2020) and would like to upgrade to Windows Server 2012 before then. Approximately 90% of the servers are virtualized with only specialized applications running on native physical servers.

The server room at City Hall has an uninterruptable power supply (UPS) that can provide power for forty-five minutes and the stand-by generators are configured to come online after 5 minutes (Facilities is responsible for testing the generators).

The City is using GWAVA Retain (https://www.gwava.com) for archiving e-mail messages. At this point the City is retaining all e-mail messages indefinitely pending resolution of an apparent ambiguity in Nevada Revised Statutes regarding retention requirements.

The City does not have a network security specialist; they do not have a formal cybersecurity plan; and have never had an independent entity perform a network penetration test to identify potential vulnerabilities.

The City has a disaster recovery (DR) facility at the Sheriff's Office (approximately six blocks from City Hall) and ITD has a warm, stand-by site prepared to go live, but the software was not approved so the site is not active.

Network Analyst

The City has one staff member that has formal responsibility for the City telecommunications / network resources, assisted by the Systems Administrator and staff members from the Help Desk. The City has gone from fourteen separate phone systems (approximately ten years ago) to a single, unified, VoIP system with considerable savings (from approximately $10,000 per month to less than $1,500 per month). The City's network includes 15 to 20 separate locations linked by fiber, T-1 lines, and radio with point-to-point and point-to-multi-point connections.

Network concerns include connectivity problems to some remote facilities, switches and routers that are nearing end-of-life and that must be replaced, and a single firewall and connection to the Internet that has no backup. They try to keep as up to date as possible and use SolarWinds for networking monitoring and management. Wiring closets are inspected every six months and most are secured, but some are used for other purposes and some are shared with Public Works (PW maintains a separate networks for internal admin and SCADA).

The server room was characterized as a mess, since too many people have access to it, and when responding to problems do not always follow standard procedures or document what they have done. They have a D/R site at the Courthouse in the event of a problem at City Hall and have mobile network kits that can be deployed in the field as needed.

It is estimated that most network traffic consists of e-Mail, access to the Internet, and file transfers and that they average about 10% utilization at any given time.

Audio/Visual Support

Support for audio/visual had been contracted out by the City to the Brewery Arts Center and has recently been brought in-house including a part-time employee. For the present, ITD is providing the support. The scope of the City's A/V activities are considerable and include broadcasting government meetings (including meetings of the Board of Supervisors) and maintaining programming provided on City channels. A good deal of the A/V equipment (such as cameras, switching systems, editing software, etc.) will need to be replaced in the near-term and the facilities in the Community Center's Sierra Room may need to be upgraded as well.

2.5 – Assessment of IT Staffing

Table 1, Representative City IT Spending and Staffing, reflects data that was compiled from eleven full-service cities by NexLevel in 2013/14. The two key metrics in this table are FTEs per IT FTE, and IT Staffing as a Percentage of Entity-wide FTEs (excluding part-time / seasonal staff).

Table 1 – Representative City IT Spending and Staffing

Description	Average	Carson City
Entity-wide FTEs	795	575
IT FTEs	21	11
Entity-wide FTEs Per IT FTE	38	52
IT Staffing as % of Entity-Wide FTE	2.7%	1.9%

There are several caveats to this analysis:

- Some entities have hybrid information technology environments with some applications and infrastructure supported by user departments rather than by the central IT organization, often with individuals in non-IT classified positions performing information technology functions. These positions are seldom counted when entities report the number of staff members in their IT organizations
- The scope of duties for the IT organization can vary between entities. GIS support, for example, is not always located in IT, and some entities use external service providers for items such as printer repair and maintenance and the deployment of desktop PCs
- Entities generally do not count contractors as part of their IT headcount, so their actual IT staffing may be higher than what was reported
- Some entities provide information technology services to others on a contract basis, and these users are not always reported (thus making the number of end-users per IT staff member seem lower than actual)
- Organizations using Tier-1 ERP applications typically have higher IT staffing requirements
- New development causes a temporary spike in headcount. Known as "stand-still costs", these are incurred when organizations need to support existing business applications and their supporting infrastructures while implementing applications to replace them. Typically stand-still costs can amount to 50% of the prior year's support budget for the application

While this analysis can be useful in validating IT staffing projections, for all of these reasons cited above, organizations should develop their IT staffing requirements from the "ground up" based on specific organizational requirements including the scope of services to be provided, expected service levels, etc.

Nonetheless, the metrics indicate that for 575 FTEs, IT staffing could be as many as 15 FTEs, and suggests that ITD might be understaffed for the number of users supported.

2.6 – Core Business Applications

In the course of the IT assessment, NexLevel performed a review of the City's core business applications (software products that support City operations excluding general office software such as word processing, e-mail, and spreadsheets and 3rd party applications used for reference only).

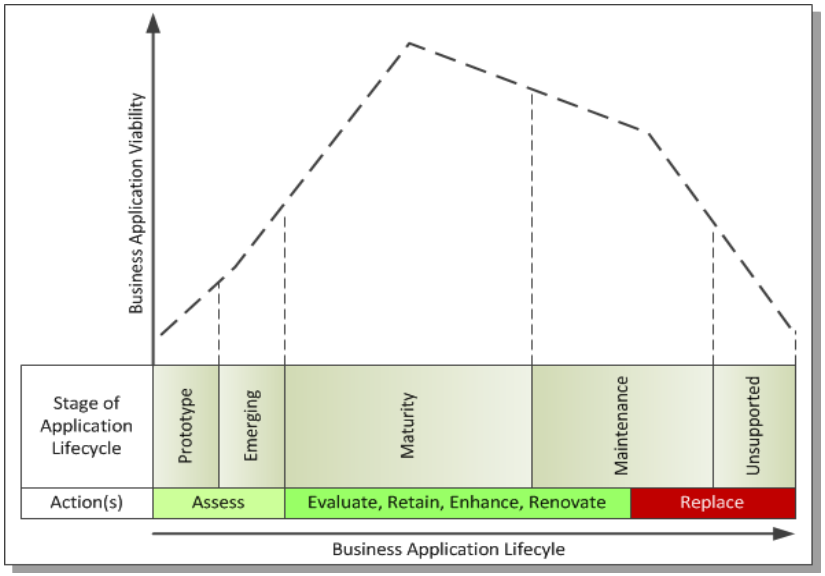

Figure 4 – Business Application Lifecycle and Viability

Figure 4, Business Application Lifecycle and Viability, provides a perspective of the lifecycle of an application from it being a prototype, to its emergence as a product, through its maturity, and finally, to a phase where the product is maintained but not enhanced. As an application matures, it gains both functionality and viability as the vendor becomes more adept in supporting the application and assisting organizations in its implementation.

Eventually, many products reach a stage ("Maintenance") where the vendor continues to support it (such as correcting reported defects and keeping the product compatible with current web-browsers) but seldom adds new functionality or features. The maintenance stage may continue for some time; however, eventually a product reaches the point where reductions in the user base reduce maintenance revenue so that it is longer economically feasible to support it. When this happens, the vendor may announce the end of support for the product, contract support to a third-party, or sell it. Since replacing a business application can be a complicated, multi-year process, organizations with effective application portfolio management processes usually begin planning for the replacement of business applications early in the maintenance stage.

Using this model, NexLevel has prepared a recommended disposition of each of the core business applications including:

- **Assess** – The City should assess emerging business applications to identify and begin tracking promising solutions
- **Retain** – The City should continue to use the business application
- **Evaluate** – The City should perform an evaluation to determine whether continued use of the business application is consistent with the City's business needs and priorities
- **Enhance** – The City should retain the business application, but plan to enhance it by augmenting the business functionality provided
- **Expand** – The City should expand the use of the application
- **Renovate** – The City should retain the business application, but plan to update the application's supporting technology
- **Replace** – The City should plan for the replacement of the business application and begin setting aside funds for this purpose with the objective of replacing it as soon as practicable

Table 2, Core Business Applications, provides a summary of NexLevel's findings. Information for each application includes:

- The business functions provided by the application
- The name of the application, product or service
- The organization or entity responsible for the support of the business application (ITD, a department, or a commercial software provider)
- The department(s) that sponsor the application (i.e., who are the primary users of the application and who control the budget)
- Other users of the application
- The application's status based on NexLevel's assessment of its continued viability and the viability of its supporting technology

Table 2 – Business Application Matrix

Business Function	Product or Service	Vendor	User Sponsor(s)	Other Users	Disposition
Agenda Management	Granicus	Granicus	City Manager	All City Departments	Retain
Applicant Tracking	NeoGov	NeoGov	HR		Retain, Expand
Asset Management	eRPortal		Public Works		Retain
Body Camera Video Management	Evidence.com	Taser	Sheriff		Evaluate
CAD/RMS	Tiburon		Sheriff	Fire (CAD)	Retain
Case Management	JustWare	New Dawn (1)	District Attorney		Retain
Case Management	CourtView / JWorks	CourtView Justice Solutions (2)	District Court		Retain
Case Management	Caseload PRO	Caseload PRO	Juvenile Probation		Retain
Citizen Contact (CRM)	Carson City Connect	Accela	City Manager	Parks, Public Works	Retain, Expand (3)
Civil Process	ADS	ADS	Sheriff		Replace
Clinic Management (EMS / PM)	eClinical	GroupONE	HHS		Retain
Court Recording	JAVS	JAVS	District Court	Juvenile Court	Retain, Evaluate (4)
Document Management	Documentum	EMC	None	Clerk, Assessor, District Court	Renovate, Expand (5)
EOC Incident Management	WebECO	Intermedix	Fire	EOC participants	Retain (6)
EMS/ePCR	Sansio	Sansio	Fire		Retain
Finance / HR / Treasury	HTE	SunGard	Finance, HR, Treasury		Renovate, Evaluate (7)
GIS	ARC/GIS	ESRI	Public Works	Assessor, Sheriff, Fire	Retain (8)
Health Inspection Tracking	Sweeps	Custom	HHS		Retain
Online Payment	Custom	ITD	Treasurer		Replace
Property Tax Assessment / Collection	ADS	ADS	Assessor, Clerk, Treasurer		Evaluate, Replace
Recreation Registration / Cashiering	Active.Net	Active.Net	Parks	Community Development	Retain
RMS	FireHouse	Firehouse Software (Xerox)	Fire		Retain
Scheduling and Time Reporting	TeleStaff	Kronos	Sheriff, Fire		Retain

Notes:

(1) Application hosted by the State of Nevada and accessed through SilverNet
(2) Now JournalTechnologies
(3) Expand use and integrate with work-order systems
(4) The District Court may consider other solutions
(5) The City should port Documentum from the AS/400 and expand the use of document management
(6) WebEOC is not currently under vendor support
(7) HTE is presently running on the AS/400, the City should host it as an interim step then decide whether to remain with the application or replace it
(8) The City has recently brought support for GIS back in-house and support for GIS will be provided by Public Works

2.7 – IT Best Practices Assessment

As part of the development of the IT Assessment Report, ITD and NexLevel performed an assessment of the degree to which the City and ITD conform to a set of information technology best practices. This section of the report provides a detailed review of this assessment and an analysis of the gap between the City's and ITD's current level of conformance and a target level recommended by NexLevel. As noted earlier, the scope of this IT Assessment is limited to the City-wide responsibilities for the governance of information technology and ITD's responsibilities for the management and delivery of information technology services. Components of the City's IT environment that are entirely supported by individual departments are not considered in this best practices assessment.

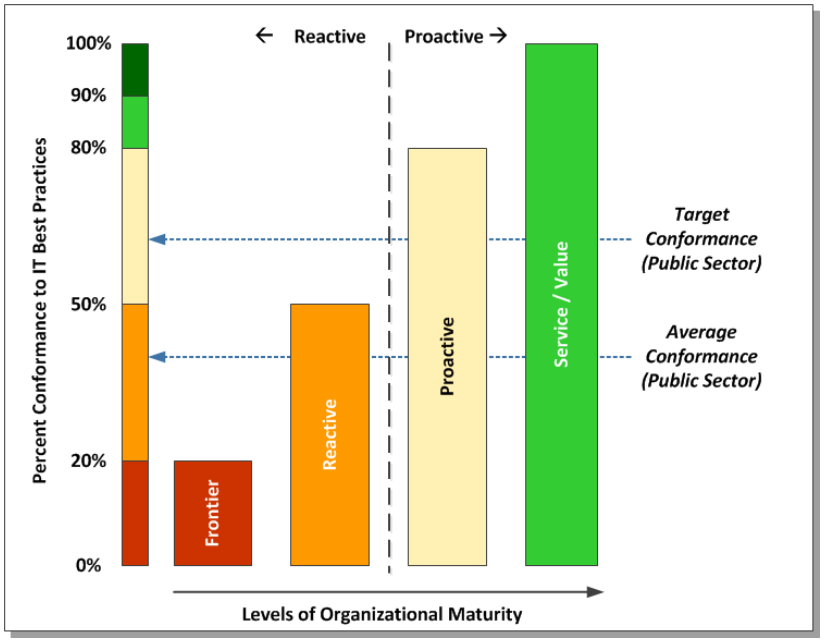

Figure 5 – Levels of Best Practice Conformance

2.7.1 – Best Practices Maturity Model and Conformance

Figure 5, Levels of Best Practice Conformance, provides a conceptual framework that NexLevel uses to depict IT best practices conformance based on a maturity model. The model is based on five levels of maturity ranging from "Frontier" (where the IT organization is largely unstructured) to levels of progressively higher conformance to best practices as organizations adopt well-defined and repeatable processes.

The characteristics of each of the levels in the maturity model are as follows:

- **Frontier Level:** Organizations at the Frontier Level have fewer than 20% of their processes in compliance with best practices. This level of maturity is characteristic of new and/or re-organized IT organizations
- **Reactive Level:** Organizations at the Reactive Level generally have well developed procedures including formalized procures for incident reporting and tracking and are committed to customer service but spend a disproportionate amount of their time and resources "fighting fires." Organizations at this level of maturity tend to be primarily focused on managing the cost of information technology rather than finding a balance between cost and value
- **Proactive Level:** Organizations at the Proactive Level have many of the same attributes as organizations at the Reactive Level, but with the key difference that they continually seek to improve service delivery by finding long-term solutions to common problems such as improving user competency, self-reliance, and training so that they do not need to call IT for support as often. This is the "turning point" for many organizations since they are better able to use their IT resources for strategic purposes rather than reactively responding to the same problems. These organizations are often focused on the value that they obtain for their investments in information technology

- **Service and Value Level:** Organizations at the Service and Value Level have more than 80% conformance to IT best practices. They continue the trend towards value and generally derive much higher returns for their investments in information technology, although at greater expense. The Service and Value Level is not seen as frequently in the public sector except where organizations provide services (for a fee) to neighboring jurisdictions although some organizations find that some components of the Service and Value Level (particularly at the higher end, i.e., greater than 90% conformance) are useful particularly with regard to community engagement

The vertical dotted line between the Reactive and Proactive levels of the model illustrates a key metric regarding IT best practice conformance. Organizations with less than 50% conformance are generally reactive in responding to user needs, while those with better than 50% conformance are generally proactive and are better able to anticipate user needs. NexLevel has observed that many organizations achieve between 40% to 60% conformance to the IT best practices and, as a result, often have some of the characteristics of both the Reactive and Proactive levels of the model.

NexLevel recommends that organizations work to achieve at least 50% compliance with best practices (i.e., on the border between the Reactive and Proactive levels), with 65% being a reasonable target considering both the costs related to achieving this level of conformance and the value of the benefits that are obtained.

Caveats Regarding Best Practices

Several cautions about IT best practice conformance are appropriate. Although NexLevel attaches considerable importance to best practice conformance as an essential building block for the effective delivery of IT services, an IT organization need not meet or exceed every best practice in order to provide effective customer service. A higher degree of conformity to best practices, however, generally enables an IT organization to better sustain service delivery levels over time and to more successfully cope with external and internal factors that have the potential to disrupt the ability to effectively deliver IT services.

NexLevel has noted that a high degree of conformance to the IT best practices does not necessarily result in user satisfaction. NexLevel believes that this is due to the difference between IT best practice conformance and the ability of the IT organization to deliver services that are consistent with user expectations.

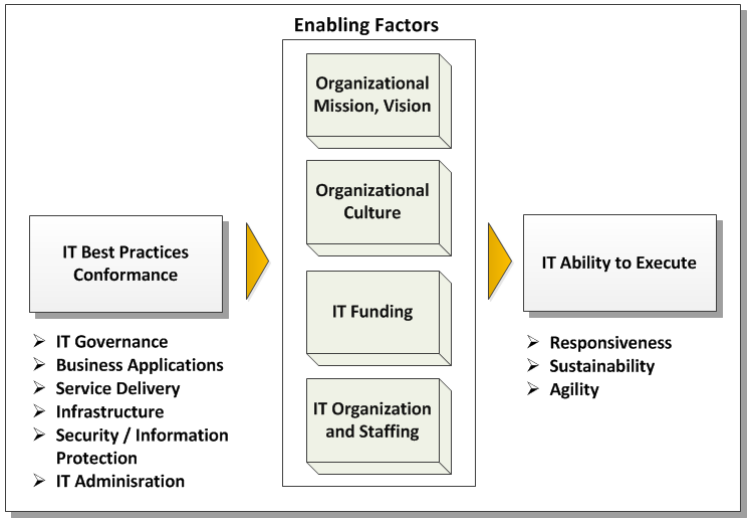

Figure 6 – Factors Enabling IT Service Delivery

As depicted in Figure 6, Factors Enabling IT Service Delivery, the ability of an IT organization to execute (i.e., to provide IT services that are responsive, sustainable, and agile) is dependent not only on best practices conformance but also on enabling factors such as organizational mission and vision, organizational culture, as well as IT funding and IT organization and staffing. Each is briefly discussed below:

- **Organizational mission and vision:** Organizations with well-defined business plans including detailed statements of their mission and vision are generally better prepared to align their

investments in information technology with their business objectives and priorities

- **Organizational culture:** Culture, especially with regard to an organization's continuing commitment to the strategic governance of IT and to user ownership for information technology, also plays a key role in the delivery of effective IT services
- **IT funding:** This is one of the most common limiting factors. Funding plays a key role in ensuring that the IT organization has the resources needed to keep business applications and the infrastructure supporting them on current versions / releases and that patches are applied in a timely manner
- **IT organization and staffing:** IT staffing (which is often related to funding) has a significant impact on service delivery. The best practices are heavily weighted toward the development and use of formalized procedures and supporting documentation since these provide the basis for sustaining and improving services and service levels
  - Procedures and documentation enable IT staff to be more productive but are not a substitute for sufficient IT staff (considering the number, experience, and qualifications of the staff members). Similarly, if the procedures and documentation are out of date because there are insufficient resources to keep them current, best practice conformance does not necessarily translate into improved service delivery
  - Organizational structure also plays a key role in determining the effectiveness of IT services, since IT organizations that are structured and staffed to support infrastructure are not necessarily well equipped to support end-users

If we were to compare two organizations, each needing similar IT services and service levels and each having the same degree of conformance to the IT best practices, the organization with the most enabling factors (especially with regard to IT funding, organization, and staffing) will obtain greater benefits.

2.7.2 – Dimensions of IT Best Practices

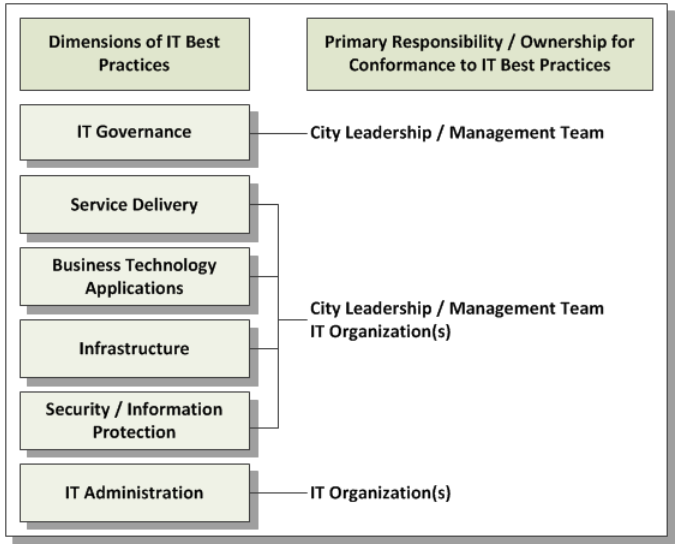

Figure 7 – IT Best Practices Model

As depicted in Figure 7, IT Best Practices Model, NexLevel uses a comprehensive list of best practices that are categorized into six separate dimensions to evaluate the organization's compliance with best practices. The dimensions are separated into three categories and include:

- **City Leadership / Management Team:** The organization's leadership / management team is responsible for conformance to the IT best practices for IT Governance, particularly the alignment of the information technology spending and priorities with the organization's overall objectives and priorities
- **City Leadership / Management Team and IT Organization(s)**: Those dimensions where the City's leadership / management team (and sometimes the user community as well) share ownership for IT best practices conformance with the IT organization(s) involved. These dimensions include:

- *Service Delivery* – Practices related to coordinating the processes involved in providing customer support including training, help desk, service delivery management, and the establishment of service level agreements (SLAs) and tracking conformance to them
- *Business Technology Applications* – Practices related to the management and support of the application information systems supporting business operations
- *Infrastructure* – Practices related to the acquisition, utilization, and maintenance of equipment (such as servers and storage devices), operating systems, support software, and network services
- *Security / Information Protection* – Practices related to the effective use of policies and standards, user conduct, software tools (filtering, monitoring, etc.), and audits to validate that material and software resources are used only for their intended purposes

- **IT Organization(s)**: The IT organizations supporting the user community are primarily responsible for best practices conformance in the dimension of IT Administration which includes practices related to the management of technology budgets, maintenance agreements, software licenses, and the development and maintenance of current and accurate documentation on all technology activities

2.7.3 – Assessment of the City's Conformance to the IT Best Practices

NexLevel assessed the degree to which the City conforms to the IT best practices in each of these dimensions based on the interviews with the City's user stakeholders, interviews with IT staff, and the results of the IT Best Practices self-assessment completed by ITD. The results of this analysis are provided below, and the detailed self-assessment completed by the City is provided in Appendix A.

The calculation of best practice conformance is based on a multi-step process that included:

- NexLevel asked the City to provide an assessment as to whether the IT best practice factor was applicable or not (inapplicable factors are not considered in the assessment), and then whether the City was of the opinion that it was fully in conformance with the best practice ("Y"), partially in conformance ("O"), or not in conformance ("N")
- A score was developed based on the City's assessment of its conformance to the IT best practices. Items reported as being in full conformance ("Y") were given a score of 3, items reported as being partially conformant where scored 1 or 2 indicating whether the City is substantially or minimally conformant with the IT best practice, and non - conformant items ("N") were given a score of 0
- NexLevel reviewed the City's self-assessment and made any adjustments based on information obtained through the user interviews and the interviews with ITD staff
- The percentage of conformance was then calculated based on the total score for the assessment factors in each of the best practice dimensions divided by the maximum score in the dimension

Table 3, City's Conformance to IT Best Practices by Dimension, provides an itemization of the findings of the assessment for each dimension of IT best practices. These results were then plotted by dimension and level of organizational maturity in Figure 8, IT Best Practices Conformance.

Table 3 – City's Conformance to IT Best Practices by Dimension

Dimension	Factors in Dimension	City Responses	Max Score	City Score	City Pct.
IT Governance	31	28	84	43	51.2%
Service Delivery	36	36	108	53	49.1%
Business Tech. Applications	27	27	81	33	40.7%
Infrastructure	44	44	132	64	48.5%
Security / Info Protection	33	33	99	60	60.6%
IT Administration	25	25	75	42	56.0%
***** TOTAL:**	**196**		**579**	**295**	**50.9%**

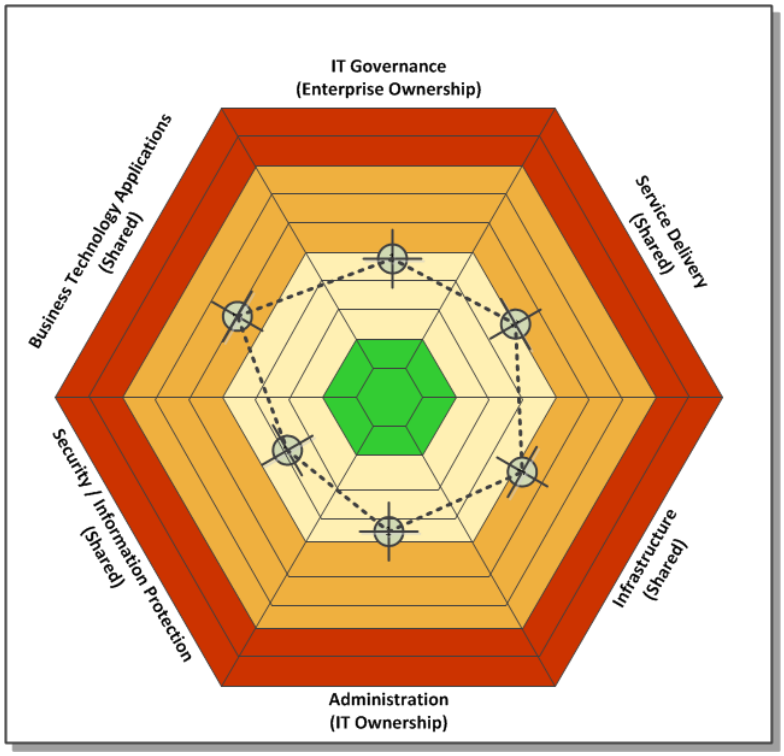

Figure 8 – IT Best Practices Conformance

Each of the rings in Figure 8 represents a level in the IT best practice maturity model, with the outer most (red) ring representing the Frontier Level of organizational maturity (the lowest level of conformity to best practices) and the core of the diagram representing the Service and Value Levels (the highest degree of conformity to best practices). In between, the orange band represents the Reactive Level of the maturity model and the light yellow band represents the Proactive Level of the maturity model.

The width of the bands is proportional, with the bands representing the Reactive and Proactive levels being the widest since they represent a range of 60% compliance with best practices. NexLevel has plotted the results of the assessment for each of the best practice dimensions within the rings (the target points) and then connected them together to depict where the City is from an overall perspective in relationship to the maturity model.

As depicted, the City's conformance to the IT best practices ranges from the upper tier of the Reactive Level (Business Technology Applications) to just above the lower tier of the Proactive Level (Security / Information Protection). Overall, the City is approximately 51% conformant to the IT best practices which would put it just on the border between the Reactive and Proactive levels of the maturity model.

Table 4, Comparative Conformance to IT Best Practices, places these results in perspective. Between 2014 and this year, NexLevel performed eleven similar IT assessments. Carson City scored higher in IT Governance and exceeded the average score for Service Delivery, Business Technology Applications, Security / Information Protection, and IT Administration, and fell short of the average only with regard to Infrastructure.

Table 4 – Comparative Conformance to IT Best Practices

Best Practice Dimension	Best Practice Conformance			Carson City
	Low	Average	High	
IT Governance	10%	34%	50%	51.2%
Service Delivery	30%	42%	63%	49.1%
Business Tech. Applications	20%	34%	43%	40.7%
Infrastructure	15%	52%	74%	48.5%
Security / Info Protection	35%	52%	81%	60.6%
IT Administration	20%	42%	61%	56.0%
Overall Conformance	**26%**	**43%**	**58%**	**50.9%**

The factors contributing to the assessment within each of the dimensions are discussed in detail below, including:

- An indication of where the City's conformance to the IT best practices falls
- A summary of the assessment findings
- A discussion of IT best practice strengths and weaknesses

Information Technology Governance

Status: **Much Better than Average**

Summary of IT Best Practice Conformance:

The City is 51.2% conformant to the IT best practices for IT Governance and this corresponds to the border between the Reactive and Proactive levels of the Maturity Model. The average conformance in the dimension is 34% and the previous highest rating was 50%, so this is an area of strength for the City.

Best Practice Strengths:

- The development and maintenance of a Business Strategic Plan for the City that includes specific objectives and measurements and that is periodically updated
- The delivery of information and services to the public through its web-site and its continuing development of these functions including Carson City Connect and "Chat"
- The involvement of user stakeholders in information technology projects including the development of project charters (new)
- Procedures for keeping the user community informed as to the status of IT projects and software updates, etc.
- Internal processes within ITD to facilitate communication and collaboration

Best Practice Weaknesses:

- A limited approach to IT governance
- The lack of formal IT project and resource management
- A siloed IT environment with little provision for process and information sharing
- The absence of a formal IT Strategic Plan (including a plan for replacement of infrastructure and applications that are reaching obsolescence) as well as a formal plan for Digital Government / Community Engagement
- Limited IT funding
- The City does not have a project management oversight function

Service Delivery

Status: **Better than Average**

Summary of IT Best Practice Conformance:

The City is 49.1% conformant to the IT best practices for service delivery and this corresponds to the border between the Reactive and Proactive levels of the Maturity Model. The average conformance in the dimension is 42% and the previous highest rating was 63%, so while the City is better than average, there is room to improve IT service delivery.

Best Practice Strengths:

- ITD operates a Help Desk that provides a single point of contact (via telephone or e-mail) for users
- The Help Desk uses BMC's Track-It service desk management system which is an industry leading product, although estimates as to the number of Help Desk tickets that are actually entered into Track-It vary
- The services being provided by the Help Desk are appreciated by the user community and have played a role in changing user satisfaction with ITD's services
- ITD has remote access tools and to the extent possible, schedules maintenance activities so as to not impact the user community
- ITD has formal processes for the monitoring of system and network performance

Best Practice Weaknesses:

- ITD has not developed a service catalog, service metrics, or service level agreements with the user community
- ITD does not make Track-It available to the users to check the status of their requests (although Track-It has this functionality)
- ITD does not have a formal approach to managing and measuring the effectiveness of the Help Desk nor does ITD use the data in Track-It to identify trends and common problems being experienced by users
- ITD has not deployed self-help features for the user community
- ITD does not have formal change management and escalation procedures

Business Technology Applications

Status: **Better than Average**

Summary of IT Best Practice Conformance:

The City is 40.7% conformant to the IT best practices in this dimension and this corresponds to the upper third of the Reactive Level of the Maturity Model. The average for conformance in this dimension is 34% and the high is 43%. So the City is toward the high-end in this dimension.

Best Practice Strengths:

- The City's enterprise applications are generally centralized and supported by ITD (i.e., HTE, Documentum, etc.) along with mission-critical applications (Police and Fire CAD/RMS)
- ITD does not have a formal resource management plan to allocate resources to these applications, but staff member assignments ensure minimum coverage
- ITD provides oversight for departmental applications or services that are supported by vendors
- ITD reviews most IT purchases and generally ensures that applications that are acquired and/or supported by departments conform to City standards

Best Practice Weaknesses:

- The City does not have a formal enterprise architecture including standards for City-wide process and information sharing
- The City has not fully defined departmental requirements for the availability / recovery of business applications
- The City does not have procedures in place to ensure the ownership, security, and integrity of information that is stored in external applications or services (such as Dropbox)
- ITD does not maintain an Applications Portfolio for the City including tracking the status of vendors and products
- The City does not have procedures in place to ensure the appropriate use of ad-hoc applications based on products such as MS Access
- The City does not have a formal process for evaluating and approving the use of cloud-based services

Infrastructure

Status: Slightly worse than Average

Summary of IT Best Practice Conformance:

The City is 48.5% conformant to the IT best practices in this dimension and this corresponds to the border between the Reactive and Proactive levels of the Maturity Model. The average conformance in this dimension is 52% and the high is 74%.

Best Practice Strengths:

- The City's wired and wireless networks are generally well supported. ITD maintains documentation for the networks, they are protected by firewalls, and the wireless network has separate SSIDs to separate City employees with City-issued devices, City employees with personal devices, and guests on the network
- With regard to Internet access, the City has an acceptable use policy that is signed by all employees and has installed tools to begin reporting on intrusion attempts, to filer content, and to report policy violations by City users
- ITD provides secure remote access with VPN (GoToMyPC is also used on occasion although this is not a secure as a VPN connection). Vendors that need remote access must also sign the CJIS security document
- ITD has ad-hoc standards for hardware and software that are generally known to ITD staff but not formally documented
- The City's main server room at City Hall is located within a secure office space, is relatively free of clutter, and protected from fire and flooding

Best Practice Weaknesses:

- Although the City's main server room is in a secure office space, access to the server room is not controlled, there is no log to record entrance to the server room nor is there video surveillance of the facility
- In general, ITD does not have documentation for key components of the City's IT infrastructure (an effort to develop documentation is in progress)
- The cleanliness and organization of wiring closets varies across the City – ITD does not inspect these frequently nor does ITD have complete documentation for them

Security / Information Protection

Status: Better than Average

Summary of IT Best Practice Conformance:

The City is 60.6% conformant to the IT best practices in this dimension and this corresponds to the border between the Reactive and Proactive levels of the Maturity Model. The average conformance in this dimension is 52% and the high is 81%.

Best Practice Strengths:

- ITD has password management procedures in place and formal processes for requesting network access
- The City has a formal user security policy and ITD is working to include the security policy in new employee orientation
- The City has a formal policy for the security of City-owned mobile devices
- ITD performs system backups on a routine basis using CommVault Disk to Disk to Tape and is migrating to Dell Data Protection – the backups include critical application information, configuration settings, and system software
- Servers are configured for high-availability and disks are mirrored
- The City has plans for business continuity and disaster recovery (however there is some question as to the currency and completeness of these plans) – the DR plan may not have been updated for 5 years
- The City has an EOC and conducts regular drills to ensure that the EOC can function as needed and has made provisions for an alternate EOC (mobile command center)

Best Practice Weaknesses:

- ITD does not have a formal plan for the identification and remediation of single points of failure in the City's IT environment
- ITD does not have an independent entity perform perimeter or other testing of the City's network to ensure that is secure and to identify and remediate possible security threats
- The City has an emergency operations center but has not continued software support for the WebEOC software

IT Administration

Status: **Better than Average**

Summary of IT Best Practice Conformance:

The City is 56% conformant to the best practices in this dimension and this corresponds to the lower tier of the Proactive Level in the maturity model. The average conformance in this dimension is 42% and the high is 61%.

Best Practice Strengths:

- ITD has an organization chart, job descriptions, and the functional responsibilities for each position have been defined (but not always documented)
- ITD generally (but not always) reviews the procurement of IT equipment and services (Public Works being an exception)
- ITD meets with external vendors as needed to ensure conformance with City policies and procedures and has positive vendor relationships
- ITD handles IT license renewals in a timely manner
- ITD maintains a hardware and software inventory for those items supported by ITD including a current inventory of desktops, mobile devices, printers, etc.
- The City has a formal process for submitting requests for IT products and services

Best Practice Weaknesses:

- ITD does not have a resource management plan nor does it track the amount of time staff members work on specific projects. ITD does not have a tactical work plan to ensure that staff members know what their priorities are and what progress is being made in completing these assignments
- ITD has limited succession planning in place to ensure that critical skills and competencies can be maintained
- Documentation is not always complete or current. Information is contained in a variety of repositories including staff member files, SharePoint, etc.
- ITD does not have an IT contract tracking and management process in place

2.8 – Gap Analysis

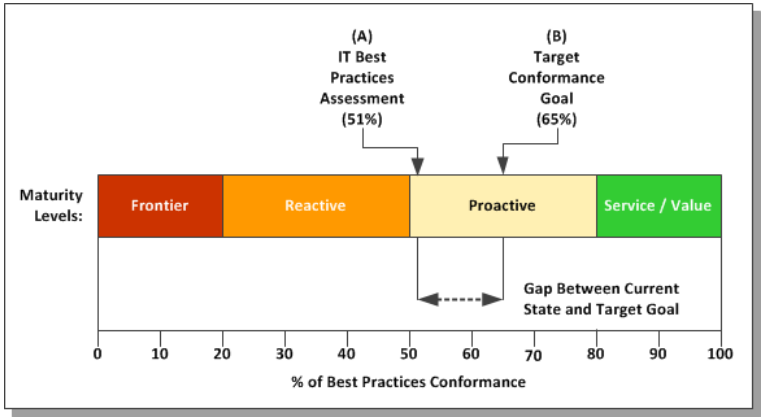

Figure 9 – Gap Analysis

Figure 9, Gap Analysis, depicts the gap between the City's current level of conformance (approximately 51%) and a recommended goal of 65% conformance that NexLevel believes will enable the City to better meet internal and community expectations. The size of the gap, in percentage points, is less important than the significant opportunities to improve IT service delivery, total cost of ownership, and return on investment that accrue to organizations which are more proactive in using information technology.

The other item to consider is while the City is nominally on the border between the Reactive and Proactive levels of the maturity level, that a number of factors, including the City's unstructured IT environment, IT funding, and IT staffing are limiting the ability of the City and ITD to translate best practice conformance into effective IT service delivery. The recommendations provided in Section 3, will enable the City to better realize benefits for its investments in information technology.

2.9 – SWOT Analysis

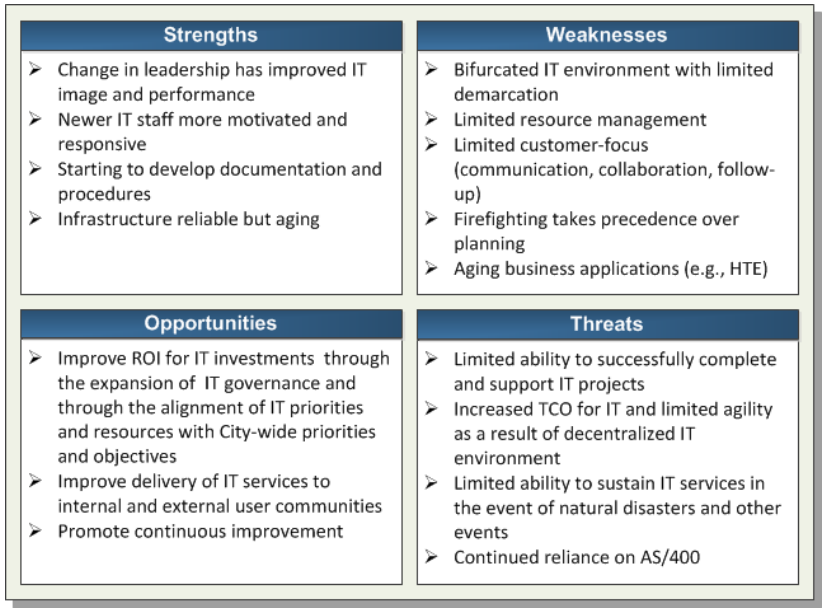

Figure 10 – SWOT Analysis

Figure 10, SWOT Analysis, provides a summary of the strengths, weaknesses, opportunities, and threats identified in the course of the IT Assessment. There is a close relationship between these items since the City's ability to realize the potential opportunities and mitigate the potential threats is dependent on its ability to leverage its strengths (particularly the recent improvements in the ability of ITD to manage and deliver IT services) while addressing the weaknesses.

With regard to information technology:

- The City's strengths include the improved ability of ITD to support user requirements and meet user expectations through a change in management and additional staffing (particularly the Help Desk), ITD is working to improve documentation, and although it is aging, the City's IT infrastructure is still reliable
- Weaknesses include The City's bifurcated IT environment, residual distrust of ITD's ability to meet user needs, a limited customer-focus within ITD, a lack of planning within ITD which leads to "firefighting" and short-term issues taking precedence over long-term needs
- If the City can leverage its strengths and mitigate its weaknesses, then it may be able to realize significant opportunities to improve the delivery of services to the user community and the public and to increase the return on its investments in information technology
- If the City does not act, then it is likely that the City may encounter threats to its ability to sustain the delivery of IT services to the user community and public

As noted in the Gap Analysis, the City's conformance to the IT best practices tells only part of the story, since without changes in the factors that limit the ability of ITD to execute (including the City's mission and vision, culture, the funding for information technology, and the organization and staffing of ITD), the City will not be able to better realize the return on its investments in information technology.

Section 3 – Recommendations

"The secret of success is not predicting the future; it is creating an organization that will thrive in a future that cannot be predicted." –Michael Hammer, author and noted authority on Business Process Re-Engineering

3.1 – Introduction

NexLevel's approach is to help our clients maximize the use of resources to feasibly reduce the most common and probable obstacles faced by agencies in the effective use of information technology. The recommendations provided in this report were developed by NexLevel based on our experience in working with local government agencies and with an emphasis on identification of activities that have high value. Some of these can be accomplished with existing resources, while others will require augmentation of City resources. NexLevel understands that it is much easier to prescribe change than to implement it, and that no public or private sector organization has sufficient resources to take on all possible information technology governance and delivery best practices. Consequently, these recommendations are pragmatic and conditioned by real-world considerations.

As depicted in Figure 11, Process for Implementation of Recommendations, NexLevel believes that communication with all internal and external stakeholders is central to the effective delivery of technology services. All other factors being equal, organizations that foster communication and collaboration (including change management) perform better than those that do not. The process for the implementation of changes in how organizations govern information technology, manage the delivery of IT services, and deliver IT services consists of multiple steps including: (1) planning; (2) the development and/or procurement of new procedures, applications, or information technologies; (3) their implementation and support; and (4) measurement and evaluation to ensure that the objectives have been realized and to document the lessons learned. The cyclical nature of the process provides the basis for continuous improvement and enables organizations to progress to higher levels of maturity and performance.

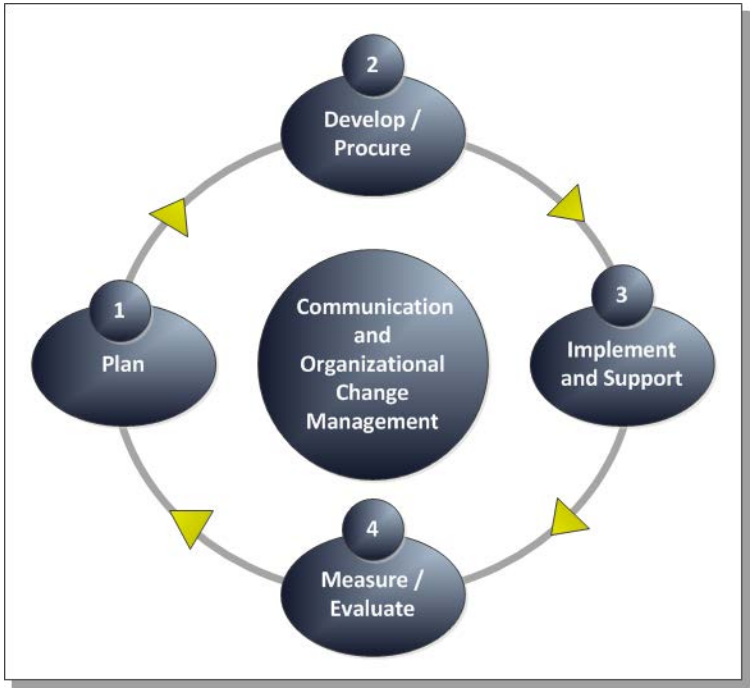

Figure 11 – Process for Implementation of Recommendations

The successful implementation of organizational and procedural changes must take into account behavioral and organizational culture factors as well. Change, even change that is ultimately beneficial, is subject to resistance, and skepticism. Research has shown that the changes that prevail are those that:

- Have engaged executive sponsors who develop and communicate their vision for the future to the organization
- Have immediate and tangible benefits
- Become anchored in the culture of the organization

3.2 – Recommendations

The recommendations provided below have been developed by NexLevel to enable the City to realize improvements in how it governs, manages, and delivers information technology services, with emphasis on recommendations that are actionable, achievable, and have measurable outcomes.

Figure 12, Recommendation Framework, illustrates the model used by NexLevel in the development and evaluation of the recommendations, looking for items that have high impact and, ideally, that can be implemented with a reasonable degree of difficulty (i.e., cost and risk). Nonetheless, organizations need to be strategic in their implementation of initiatives. For example, there may be times when projects that have low impact and low risk may be useful to evaluate new information technologies and/or implementation approaches with little risk to the organization.

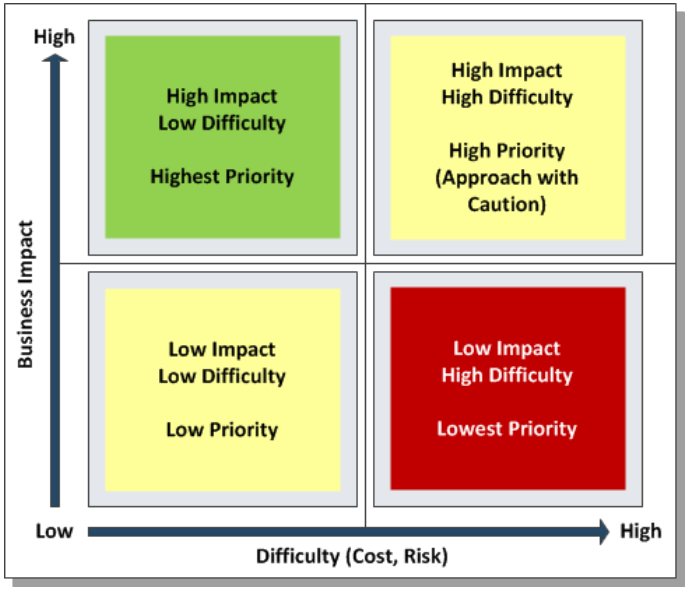

Figure 12 – Recommendation Framework

The recommendations are placed into this frame of reference by Table 5, Summary of Recommendations, which provides information for each of the recommendations including the objective(s), the potential difficulty (cost / risk) to implement, the potential business impact, and the resulting priority. Each of the recommendations is then discussed in further detail, including:

- A discussion of the rationale(s) for the recommendation and the intended objectives
- The potential cost implications with regard to aspects of IT spending including staffing, hardware and software, and the use of external services
- The potential benefits (particularly with regard to reducing total costs of ownership and improving return on investment)
- The estimated impact and difficulty
- The high-level activities required to implement the recommendation

Table 5 – Summary of Recommendations

Recommendations	Objective(s)	Difficulty (Cost / Risk)	Business Impact	Priority
3.2.1 - The City should establish a more formal process for IT governance	▪ Provide a balanced approach to the use of information technology that permits departments to respond to specific needs while ensuring that information technology spending and resources are aligned with City-wide directions and priorities ▪ Improve the ability of the City to leverage existing information technology investments, reduce total cost of ownership, and improve return on investment, and encourage re-use of existing information technology assets	Low	High	High
3.2.2 – The City should plan for the replacement of applications and infrastructure that are nearing obsolescence	▪ Ensure the sustainability of IT services and applications and ensure that City services can be continually supported ▪ Improve employee productivity through the elimination of manual workarounds and non-value added tasks and reduce the use of ad-hoc databases and spreadsheets for the storage and analysis of information ▪ Enable the deployment of additional public-facing functions ▪ Enable the use of information for decision-making and analytics	High	High	High
3.2.3 - The City should formalize the division of responsibilities for IT support	▪ Formally define the respective responsibilities of ITD and user departments so that ITD can become more focused on proactive work that will improve user productivity. With better definition, ITD can develop service metrics and provide service level agreements	Low	High	High
3.2.4 - The City should reconsider the organization and staffing of ITD	▪ Restructure ITD to become more user-focused and to better support the City's user communities and the public	Medium	High	High

Recommendations	Objective(s)	Difficulty (Cost / Risk)	Business Impact	Priority
3.2.5 - The City should develop a Business Application Portfolio	▪ Enable ITD to better track the business applications being used to ensure that the City obtains the highest possible return on its investments in information technology through application re-use and the sharing of business processes and information across departments	Medium	High	Medium to High
3.2.6 - The City should adopt a consistent approach to information technology refreshment	▪ Improve ITD and staff productivity by replacing older, maintenance-intensive devices on a regular basis	Medium to High	High	High
3.2.7 - ITD should adopt additional IT best practices	▪ Improve ability of ITD to sustainably and consistently deliver IT services to the City's user community and provide the basis for continuous improvement in the delivery of IT services	Low to Medium	Medium	Medium
3.2.8 - The City should take steps to ensure the security and sustainability of its IT environment (network security, business continuity, and disaster recovery)	▪ Improve the ability of the City to protect information from destruction / disclosure by hackers by adopting procedures for the detection and mitigation of cyber-security threats and for the recovery from them ▪ Improve the ability of the City to ensure that mission-critical business applications and available as needed and that they can be successfully recovered following a disaster	Medium to High	High	High

3.2.1 - The City Should Establish a More Formal Process for IT Governance

Whereas technology organizations were previously responsible for implementing and maintaining the infrastructure and centralized applications, these same organizations must now be service managers and service brokers in addition to service providers. In the past, network, systems, and database administrators were the core of IT organizations. Today, business analysts and project managers are needed to support departments with hybrid technology environments that include centralized, departmental, and cloud-based applications. This necessitates changes in how IT organizations are managed, staffed, and funded.

In order to provide an enterprise perspective it is important for organizations to make informed decisions regarding technology expenditures, where to spend the money, when, and on what. Organizations that do not have processes for technology management may survive, even thrive, but research has confirmed that:

- Organizations that align their IT strategies with their overall strategic business objectives obtain greater value (measured in terms of the return on investment [ROI]) for their investments in information technology than those that do not
- Organizations that integrate IT planning and business planning under a common framework are able to further reduce their total cost of ownership (TCO) for information technology and improve their ROI

More specifically, information technology governance helps ensure that:

- IT priorities and funding are aligned with the business goals and objectives (strategic alignment)
- IT is a business enabler and maximizes benefits (performance measurement)
- IT resources are used responsibly (resource management)
- IT risks are managed appropriately (risk management)
- IT delivers value to the organization (value delivery)

Critics often complain that information technology governance stifles organizational agility; however, the reality is that the converse is true: it enables agility by allowing organizations to allocate their technology resources to the most critical projects and to keep technology objectives aligned with business objectives and priorities.

Yet, despite the vital nature of information technology governance, organizations often struggle to establish and maintain it. Part of the problem is that technology is still relatively new compared to the traditional functions of organizations and the need for technology governance is not engrained in organizational culture in the same way as budgeting, for example. Just as it is not possible to run an organization without having well-defined procedures for budgeting, technology governance is vital for organizations that need to obtain the highest possible return for their investment in information technology.

In the absence of a formal IT governance process, decisions regarding technology directions and priorities can be inconsistent leading to the diversion of resources from long-term infrastructure projects, additional costs, delays, false starts, the adoption of applications and technologies that seem promising at first but that are dead-ends, and disagreement among departments as to the allocation of scarce resources. An ad-hoc process also makes it difficult to ensure the alignment of technology plans and priorities with its long-term goals. The key difference in a collaborative IT governance process is that the stakeholders, and not the IT organization, are responsible for the success of technology projects. As a result, more often than not, obstacles are overcome and projects succeed.

The need for an effective approach to IT governance is driven by a number of additional factors, including:

- Organizations need to change to remain effective. The research is compelling that organizations which integrate business and IT planning under a common framework utilize technology more effectively and are more agile and responsive

- The public is increasingly aware of the cost of technology initiatives and public officials are exposed to criticism when these projects take longer than expected, involve additional costs, or do not meet their intended goals
- Business effectiveness is increasingly dependent on the sharing of business processes and information. When organizations consider replacing legacy applications, they need to find and maintain a balance between: (i) applications that are a better fit for departmental requirements and processes; and (ii) enterprise applications that provide economies of scale and facilitate the sharing of information, but that provide less flexibility in meeting departmental requirements
- Policy makers increasingly need real-time access to information and performance metrics
- Increased public demands for information have led to a greater need for transparency
- The increased deployment of public-facing applications including web pages, mobile apps, kiosks, and IVR systems not only makes the public aware of information system and service outages, but also of data accuracy and timeliness issues
- Finally, effective IT governance enables the IT organization to act as a change agent, rather than as a regulator telling users what they can and can't do

The lack of a formal information technology governance structure eliminates an effective forum to plan, communicate, manage, and coordinate technology projects or initiatives. The strategic direction, services provided, prioritization and approval for the expenditure of technology funds should not be left solely to the IT department; rather, these decisions should, at a minimum, be ratified by the business leaders within the organization.

Local governments often implement an information technology governance structure as depicted in Figure 13, IT Governance Structure.

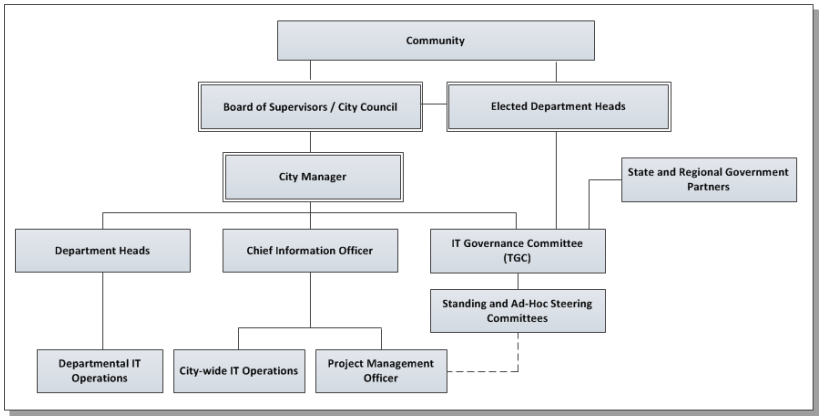

Figure 13 – IT Governance Structure

NexLevel recommends that the existing Technology Governance Committee (TGC) (which is presently an extension of the Internal Finance Committee) be restructured as a broader, enterprise-level committee whose membership would consist of department heads and selected stakeholders with attendance and participation not delegated to others with less authority.

The TGC can also be supported by the use of user sub-committees that are created as needed to operate at a more detailed level for communities of interest within the City (such as financial systems users, public safety, GIS, etc.). These sub-committees provide a forum for collaboration between stakeholders, particularly where applications are used by multiple departments or where there is significant sharing of information.

The scope and responsibilities of the TGC should include:

- **Oversight of the Information Technology Strategic Plan:** Provide input to, and review of, technology project priorities and timelines
- **Strategic Direction/Alignment:** Provide input and feedback relative to each planned activity. This dialog will ensure appropriate priority and efficient and effective use of technology systems and services
- **Technology Project Review:** Review of technology projects for consistency and compliance with plans to ensure business systems are supported by the existing platforms and that they can be easily integrated, as needed, with other applications. An effective technology governance structure must also play a pivotal role as the implementation of technology projects progresses. Priorities may change and obstacles may be encountered; technology governance is needed to make informed decisions as to how best to allocate resources, re-align projects, and ensure the implementation continues to focus on the overriding technology objectives and business goals
- **Policy Guidance and Enforcement:** Review of technology policies and guidelines, approval of policies, and communication to staff to ensure compliance
- **Foster Communication:** Provide a forum for the interchange of ideas, review of technical implementations, and facilitation of intra-departmental communications

Summary of Benefits

Benefits	Impact
Improved information technology resilience / security	Direct
Increased staff productivity	Direct
Improved service delivery / operations	Indirect
Reduced cost of information technology ownership	Direct
Improved return on investment for information technology	Direct

Implementation

- The City Manager, CIO, and other key stakeholders should prepare and publish a charter for the TGC that defines its responsibilities, membership, and operation. It may be useful for the TGC to consider expanding the initial charter into a more formal Concept of Operations (ConOps) document
- The City Manager should convene the initial meeting of the TGC with the objective of ensuring that the participants are clear as to their roles and responsibilities
- The TGC should then meet as prescribed in the charter

3.2.2 – The City Should Plan for the Replacement of Applications and Infrastructure that are Nearing Obsolescence

The City has key components of its business application portfolio including the HTE application for finance and HR that is used by nearly every department in the City, its document management system (Documentum), and applications for property tax assessment and collection on an AS/400 platform that will be soon be unsupported. While IBM will continue to support mid-range computing through its i-series platforms; the ability of the City to continue to emulate older System 36 and System 38 environments or to support the applications running in these environments is very limited.

There are several pieces to this puzzle:

- Some of the applications, such as Documentum, can be migrated to Windows or Linux based platforms, although this may involve some additional licensing costs
- Some of the applications, particularly the applications provided by Advanced Data Systems (ADS) may not be able to be migrated to other platforms and the City may need to be prepared to run them on an AS/400 until such time as they can be replaced
- SunGard (now part of Fidelity National Information Services – FIS) will continue to provide maintenance support for HTE for the foreseeable future and provides a hosted solution for HTE (either in client/server mode using a VPN connection or using their Edge browser-based user interface) and this might provide an interim solution for the City pending the City's decision as to whether to retain or replace HTE

NexLevel recommends that the City develop a plan to:

- Migrate as many of the applications as possible from the AS/400 to Windows-based versions as expeditiously as resources allow (i.e., Documentum). Where possible, the City should consider using cloud-based versions of these applications
- Migrate the on-premises installation of HTE to a hosted version (using the Edge browser-based interface if possible)
- Migrate applications (potentially including ADS) that cannot be ported to a Windows server environment to a hosted AS/400 environment until a decision can be made regarding their continued use / replacement (anticipating that a hosting service should have the resources to support older technologies for the time being)
- Decommission applications, such as the IT Asset Inventory, where the data can be moved to existing Windows-based applications or where the data can be migrated to a simple SQL or MS Access database [the Track-It application used by the City has asset management and change management functions]
- Identify those applications that might be left on the AS/400 on a "run to failure" basis although this is not optimal

Summary of Benefits

Benefits	Impact
Improved information technology resilience / security	Direct
Increased staff productivity	Indirect
Improved service delivery / operations	Direct
Reduced cost of information technology ownership	Direct
Improved return on investment for information technology	Direct

Implementation

- ITD should develop an inventory of all the applications presently running on the AS/400 and recommend a disposition for each of the applications as outlined above, with emphasis on those options that can be accomplished with existing staff and budgetary resources

- ITD should develop cost estimates for each application and the cost impact in each fiscal year until all applications have been removed from the AS/400 and the platform can be decommissioned
- ITD should review the migration plan with the City's management team and the TGC and prepare a work plan for migration of the applications
- ITD should provide updates to the TGC on progress to plan

3.2.3 - The City Should Formalize the Division of Responsibilities for IT support

At present the City and ITD do not have a clear definition of the services to be provided by ITD, the services to be provided by individual departments who assume responsibility for the maintenance and support of enterprise information, external service providers, the users' responsibilities, or the metrics used to track service delivery. The City also does not have a clear definition of the responsibilities of user departments systems (such as Public Works assuming responsibility for the maintenance and support of the City's GIS).

The keys to ensuring the effective delivery of services to the user community include:

- The development of a formal demarcation of IT support responsibilities which provides a baseline (but not a hard line) for the development of project charters and support agreements
- The development of project charters to clearly delineate the respective responsibilities of the IT service provider (whether ITD, a department, or an external service provider) and the users for specific applications. As discussed below, project charters address critical issues including application ownership and governance
- The development of a service catalog and supporting service level agreements (which define continuing services provided to the user community such as network and desktop support) which provide a "contract" between the IT service provider(s) and the users

Each is discussed below.

IT Service Demarcation

The City's has a bifurcated information technology environment in which both ITD and at least one user department provide information technology services. Other departments obtain applications from other IT service providers such as the State of Nevada. While this environment has promoted agility and the deployment of solutions and services that might not have been otherwise been possible in recent years; the City needs to carefully govern this environment to minimize the potential long-term risks including:

- Increases in the City's total cost of ownership (TCO) for information technology, and a decrease in its return for its investment for information technology
- Less ability to automate the sharing of information as well as to integrate information to support business intelligence and business analytics as a consequence of the number of business applications deployed, and the differences in information architecture between them
- Complications as a result of multiple vendor relationships and their varying market strategies

A general demarcation of responsibilities would provide a baseline for the management and support of this environment. The demarcation should consider both the respective abilities of ITD and departments to provide the services and the need for agility. As a general "rule of thumb":

- ITD should be responsible for common City-wide elements of the IT infrastructure including wired and wireless networks, servers and storage devices supporting enterprise and shared applications, and user devices connected to the City's networks including desktop and mobile PCs, printers, etc., as well as provisions for cybersecurity, business continuity, and disaster recovery
- Departments can assume responsibility for highly specialized applications (such as SCADA and GIS), and dedicated servers and networks that are not normally connected to the Internet

Project Charters

A project charter is essentially a project planning document that identifies:

- The project's sponsors and stakeholders
- The scope and objectives of the effort
- The costs and benefits (usually a high-level summary of the business case)
- A summary of the concept of operations (ConOps) for the application
- The resource requirements (including both user and ITD resources)
- The high-level schedule (major milestones and deliverables)
- The participants in the project and their respective roles and responsibilities over the expected lifespan of the project - since these can change over time. This is particularly important when support for an application is spread over multiple entities such as ITD, a department providing IT services, or an external service provider

Please note that the contents (as well as the level of detail) may vary based on organizational priorities and the scope of the project, but that enterprise projects tend to require more comprehensive project charters.

Clarifying these at the outset of a project helps ensure project success by setting expectations for the resources and level of effort required for activities (that external software providers often leave to the client) including data conversion (including cleaning up information in the legacy system and reviewing the results of data conversion runs), preparation of test cases and acceptance testing, training, and revising internal processes and procedures to ensure that the features and functionality of the new application can be used as effectively as possible.

Although project charters are often collaboratively developed by the IT support organization, the users, and the external service providers involved, ultimately the organization's executives will need to have the information they need to make informed decisions about priorities and resource allocation.

Service Catalogs

The service catalog defines the services that an IT organization provides, the respective responsibilities of the users and the IT organization, and the metrics used to measure the effectiveness of service delivery. Services are often described in terms of levels, i.e.:

- Level 1 – These are usually actions that the user, or a "super user," can take to resolve common problems, with password resets being a common item often handled as Level 1 services. More complex services can also be performed (at least initially) by users who have access to a knowledge base or other self-help facilities
- Level 2 – These services are typically performed by the Help Desk, often with the use of software that enables them to remotely access a user's desktop
- Level 3 – These services are typically performed by a specialist within the IT organization (such as database administrators or server administrators), or by an external service provider

Level 2 and Level 3 activities are usually covered by an escalation procedure (which is also defined in the service catalog) where the priority of a request can increase as it ages, and it can be escalated to IT management.

Service Level Agreements (SLAs)

SLAs provide the foundation for the management of the delivery of IT services and user expectations. The old adage that "you can't manage (or for that matter, improve) what you don't measure" directly applies to tracking service metrics for IT organizations. Service metrics are used to drive improvements and help focus staff and resources on what's

important, but also support organizational priorities and provide a window on performance, culture and productivity.

Service metrics can be used to effectively:

- Drive the mission of the IT organization by focusing it on the delivery of services to the users
- Provide a foundation for the discussion of the scope of services provided by the IT organization, along with user expectations
- Make informed decisions regarding the allocation of resources
- Monitor and reward performance
- Continually improve both IT services and their delivery

Service levels should be negotiated with the users and then reviewed and approved by executive management (particularly where increased service level expectations may require the allocation of additional resources).

NexLevel recommends that SLAs should also be developed and included in contracts with external service providers including items such as: specified level of service, support options, enforcement or penalty provisions for services not provided, a guaranteed level of system performance as relates to downtime or uptime, a specified level of customer support and what software or hardware will be provided and for what fee.

Summary of Benefits

Benefits	Impact
Improved information technology resilience / security	Direct
Increased staff productivity	Indirect
Improved service delivery / operations	Indirect
Reduced cost of information technology ownership	Direct
Improved return on investment for information technology	Direct

Implementation

- ITD, Public Works, and other departments that provide IT service should work to develop a draft demarcation of responsibilities. Issues that are identified in the process of developing the demarcation of services would be reviewed by the City Manager and referred to the City's Technology Governance committee as needed. The completed demarcation of responsibilities should then be adopted by the TGC
- Project Charters should be developed for enterprise and major departmental projects and these should identify any proposed variances from the demarcation of responsibilities and provided to the TGC for review and approval
- ITD, and other departments providing IT services, should prepare a service catalog that reflects the demarcation of responsibilities and implement service level agreements as needed

3.2.4 - The City Should Reconsider the Organization and Staffing of ITD

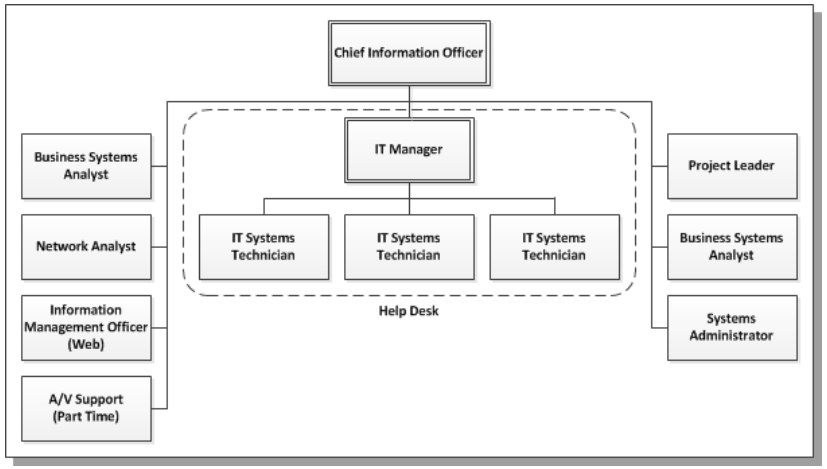

Figure 14 – Present Organization of ITD

ITD's present organization is depicted in Figure 14. This organization is largely an outgrowth of ITD needing to support the City as best as it could through an era of restricted budgets and limited resources and is not optimized to manage and deliver IT services to the City's user community. Among the issues with the present organization is that it is too flat; seven of ten full-time positions report directly to the Chief Information Officer (CIO) and the role of the IT Manager is relatively new and not well-defined. As a result, the CIO spends more time on operational issues than on planning, innovation, and professional development.

ITD has taken on the responsibility for the support of Audio/Visual services (A/V). Although support for A/V is important to the City, it is diverting attention and resources from ITD's core services (which are already stressed). It is anticipated that A/V support will be re-located within the City and is thus not accounted for in Figure 15, Proposed ITD Organization.

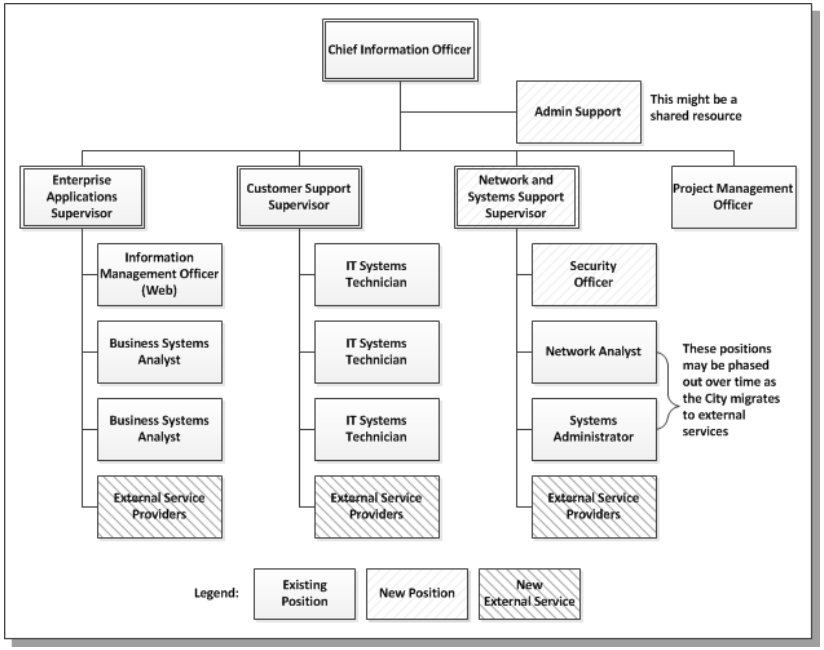

Figure 15 – Proposed ITD Organization

Figure 15 provides a different perspective on how an IT organization should be structured in order to be agile, responsive, and focused on service delivery. The proposed organization is based on four core services: enterprise applications support, customer support, network and systems support, and project management.

The organization is based on thirteen to fourteen FTE's (excluding Administrative Support) which is an increase of two to three from the present staffing and the greater use of external services with the expectation that some of the services presently being provided by ITD staff, such as systems administration and network administration, could be largely shifted to cloud-based services and that these positions could then be phased out. The advantages of migrating internal services to the cloud include reductions in staff and overhead costs, improved continuity (staff

succession becomes less of a concern), and the ability to scale the services as needed. A related advantage is that internal personnel can then be shifted to higher-value tasks that require knowledge of the City's operations and user community.

The key characteristics of this organization include:

- Customer Support would "own" the user relationship and would be responsible for following user support requests sent to the Help Desk ('tickets") from the point of initiation through resolution and follow-up with the user to ensure that their request had been resolved in a satisfactory manner. Customer Support would also serve as the user's advocate within ITD and generally responsible for coordinating ITD's communication with the user community
- The continuing increase in the number and sophistication of "advanced, persistent, cybersecurity threats" coupled with the City's greater reliance on automation and mobility will require a security specialist within ITD, and the City might consider using a consultant in this role as an interim measure, although the City's interests will best be served in the long-term by having a dedicated security specialist in ITD
- Similarly, the City will need the assistance of a Project Management Officer, i.e., a trained project manager who in addition to managing projects would be able to assist and advise other project managers, and the City might also consider using a consultant in this role as an interim measure
- Finally, the proposed organization provides for administrative support for ITD. This support could be provided by a shared resource
- Sample, high-level position descriptions are provided at the end of this recommendation

Summary of Benefits

Benefits	Impact
Improved information technology resilience / security	Direct
Increased staff productivity (user and ITD)	Direct
Improved service delivery / operations	Direct
Reduced cost of information technology ownership	Direct
Improved return on investment for information technology	Direct

Implementation

- The City should consider the organization and staffing of ITD as one of the matters before the TGC, and should consider a phased implementation that includes:
  - Evaluation of the current workload and status of all ITD personnel with the objective of levelling workload, rationalizing responsibilities, and ensuring that each position has a back-up
  - Changes that can be implemented, even provisionally, with existing staff and contracted personnel. The most critical of these being the establishment of the Customer Support Division, and the next most critical being the Security Officer (with the CIO filling the role of the Network and Systems Support Supervisor)
  - Changes that require the reclassification of positions and the recruitment of qualified staff members including the Project Management Officer, the Enterprise Applications Supervisor, and the Network and Systems Support Supervisor. The City should also reconsider the functions and responsibilities of the Business Systems Analysts. These additions / changes should be considered as resources permit
- The City should periodically re-evaluate the organization and staffing of ITD to ensure that it has the skills and resources to meet the City's needs

High-Level Position Descriptions

Table 6 – High-Level Position Descriptions

Position Title	Typical Responsibilities
Chief Information Officer	The City's position of Chief Information Officer (CIO) combines the roles of both a CIO and a Chief Technology Officer (CTO) with responsibilities including: a) Assisting the City in the formulation of information technology strategies and priorities, assisting in the governance of information technology, advising the City with regard to the formulation of IT policies and procedures, working with City departments to develop plans for the adoption of information technology to improve business processes, working with external entities (including the State of Nevada and neighboring communities) on matters related to the joint sharing of applications, information, and infrastructure; and b) Managing the delivery of IT services to the City's user community including ensuring that the IT Department adopts and consistently follows IT best practices, that the organization is providing services consistent with published service levels, and managing IT staff including performance appraisals and professional development.
Administrative Support	Provides support for the administration of the department including assisting in the preparation of the budget, reviewing invoices, preparing purchase requisitions, tracking performance appraisals, and other administrative tasks as needed.
Customer Support Supervisor	This classification replaces the existing classification of IT Manager. The Customer Support Supervisor is responsible for the management of the Help Desk including updating the service catalog, developing service level agreements (SLAs) with the user community, monitoring the performance of ITD in meeting the service levels, managing the workload of the Help Desk, representing the user's needs within ITD, and developing and implementing new user support services. All critical tickets are escalated to the Customer Support Supervisor.
IT System Technician	The IT System Technician provides Second-level support for the user community from the Help Desk including working with users to identify and analyze IT-related problems and resolve including: a) Answering, evaluating and prioritizing incoming telephone, voicemail, e-mail, and in person requests for assistance from users experiencing technical problems or requiring assistance from ITD b) Responding to technical issues as they arise and resolving them either directly or in conjunction with other ITD staff members and escalating matters as needed to third-level support (Enterprise Applications and/or Network and Systems Support); and c) Updating the status of tickets in the Help Desk system and providing information to users and IT management to ensure customer satisfaction and conformance to service levels. Additional responsibilities include support for user desktop computers (PCs), notebooks, and mobile devices (as specified in the service catalog) including installs, moves, and changes, ensuring that all documentation is kept up to date, that desktop images and maintained and documented, and that updates and patches are applied as needed. The IT Systems Technician will also provide backup support (as needed) for the Network Administrator and the Systems Administrator.

Position Title	Typical Responsibilities
Enterprise Applications Supervisor	The Enterprise Applications Supervisor manages the work of the Business Systems Analysts and the Information Management Officer in working with the user community to ensure the effective and appropriate use of the City's business applications and services. The Enterprise Applications Supervisor is responsible for the maintenance of the City's Business Application Portfolio, Enterprise Application Architecture, and for working with the user community to identify requirements for new business applications or for new uses of existing business applications (promoting application re-use). The Enterprise Applications Supervisor also assists departments in the procurement of new applications and is the primary interface between the City and the vendors supporting the Business Applications, and provides information to the CIO regarding trends in enterprise applications and new products.
Business Systems Analyst	The Business Systems Analyst (BSA) assists the users in making the most effective use of business applications through business process reengineering and the development of specifications for the sharing of business processes and information across the City as well as assisting in the users in the definition of requirements for business continuity and disaster recovery. The Business Systems Analyst also assists the user community through the development of use cases and in the generation of reports using standard reporting tools (such as Crystal Reports) as well as online analytic processing (OLAP) for performance dashboards.
Information Management Officer (Web Master)	The Information Management Officer is responsible for administering the City's web site and use of social media sites and assisting City users in making the most effective use of the web and social media in a manner that is consistent with the City's policies. Provides input to the CIO and other City managers regarding new policies and procedures that might be required and recommends changes to existing policies and procedures based on experience in working with the user community and assists users as needed in developing, reviewing, and publishing content to the City's web-site.
Network and Systems Support Supervisor	The Network and Systems Support Supervisor is the most senior and experienced technical staff member and is responsible for overseeing the management and operation of the City's information technology infrastructure including the City's wired and wireless networks, storage devices, and servers. Provides periodic reports to the CIO regarding network and device capacity, utilization, and performance, and recommends upgrades as needed to maintain the resilience and performance of the City's information technology infrastructure. The Network and Systems Supervisor is responsible for working with the user community to develop and maintain business continuity and disaster recovery plans. The Network and Systems Support supervisor is responsible for managing the performance of the Security Officer, Network Analyst, and Systems Administrator, as well as for the management of contracts with external service providers including monitoring their conformance to contractual requirements including SLA's.
Security Officer	The Security Officer (SO) is responsible for working with the CIO and other City officials to secure the City's information assets from unauthorized access, disclosure, modification, and destruction, including both external sources (such as advanced, persistent, cyberthreats) sources and internal sources (disgruntled employees, defalcations, etc.), as well as both physical attacks and virtual attacks. The Security Officer is responsible for working with the CIO and the City's management team to develop and maintain Cybersecurity plans that are conformant to NIST or other standards and is responsible for overseeing the management of the City's firewalls and working with the Enterprise Applications Supervisor to ensure that application security is implemented and maintained in an acceptable manner.

Position Title	Typical Responsibilities
Network Analyst	The Network Analyst is responsible for the management of the City's wired and wireless networks including: establishing and implementing policies, procedures, and standards; coordinating with the Security Officer to ensure that network protocols and remote access are configured appropriately; acquisition, installation, and maintenance of network components; management of user accounts; troubleshooting network and desktop connectivity problems; developing and maintaining network documentation; and monitoring network performance and providing periodic reports of network performance, usage, and capacity to the Network and Systems Support Supervisor. The Network Analyst also assists IT System Technicians in the resolution of user problems and requests.
Systems Administrator	The Systems Administrator is responsible for the management of the City's servers and mass storage devices (i.e., SANs, NAS, etc.) including: acquisition, installation, and configuration of new devices; monitoring the performance, usage, and availability of devices and providing periodic reports; troubleshooting and resolving system problems; the application of updates and patches to system software; reviewing virtual server usage and reclaiming unused virtual servers; and the management of the backup and recovery processes. The Systems Administrator also assists IT System Technicians in the resolution of user problems and requests.
Project Management Officer	The Project Management Officer is a trained and PMP-certified project manager who is responsible for: advising the City on the development and maintenance of policies and procedures related to project management, risk management, and change management, resource management, etc.; assisting other City staff members in managing projects; providing updates to City management regarding the status of enterprise projects and issues that require management attention; performing post-implementation reviews to document lessons learned; and working with the Enterprise Applications Supervisor in the development of requirements for the implementation of applications and in the evaluation of vendor proposals.

3.2.5 - The City Should Develop a Business Application Portfolio

ITD administers most of the hardware/software maintenance contracts held with the City although some of the City's applications are administered by individual departments without oversight from ITD to ensure that the software licenses and maintenance agreements are consistent with the City standards.

The successful implementation of recommendations outlined in this assessment and the deployment of new business applications, and their supporting technologies, will depend on ITD's ability to manage projects and work effectively with external service providers (vendors). Industry research confirms that the ability to effectively collaborate with vendors and to facilitate the successful completion of projects must be a core competency for IT organizations.

Application portfolios provide a repository of information about applications (and their supporting technologies) so that the organization's stakeholders, the IT organization, and end-users can make informed, enterprise-level decisions about the allocation of scarce resources to the maintenance, enhancement, and eventual replacement of applications in systematic and holistic manner that considers organizational goals and priorities rather than looking at each application in isolation and allocating resources by default.

The application portfolio integrates information about applications that is often maintained by different individuals and enables collaboration between the IT organization and the user community. Forrester Research has noted that application portfolios enable IT organizations to optimize the use of "…limited resources while providing the maximum business benefit… This is the world of IT portfolio management — balancing resources, technology, business needs, and changing situations while simultaneously maximizing returns and minimizing risk."[9]

The development of an application portfolio will enable the City to effectively manage its core business applications. The application portfolio will provide the vehicle for the City to:

- Evaluate the impact of technology changes on the business applications
- Conduct more-frequent periodic reviews of the application portfolio
- Develop and defend informed decisions as to the ultimate disposition of an application (retirement, replacement, technical renovation, functional enhancement)
- Define service levels based on the impact of the application on City operations / community impact
- Optimize IT staff resource allocation
- Evaluate and prioritize decisions to source application support (such as to "cloud" or software-as-a- service (SAAS) solutions).

Although there are products for application portfolio management, an effective application portfolio can be maintained in a spreadsheet. Fields typically contained in an application portfolio include:

- Application Acronym
- Detailed Budget Information (Run Rate, License Costs, etc.)
- Application Description
- FTE Support Requirements
- Executive Sponsor
- Additional FTE Requirements
- Current Status (i.e., production, development, etc.)
- Interfaces and Information Exchanges with other Applications
- Planned Status and Date

[9] Defining IT Portfolio Management: Holistic IT Investment Planning, Forrester Research, Sept. 2004

- Source Code Repository / Source Code Escrow
- Priority Classification
- Service Level Agreement Reference and Terms
- Support Profile
- Supporting Technologies
- Purpose
- Disaster Recovery Provisions
- User Sponsor
- User Community
- Business Continuity Provisions
- Version and Status

Summary of Benefits

Benefits	Impact
Improved information technology resilience / security	Direct
Increased staff productivity	Indirect
Improved service delivery / operations	Indirect
Reduced cost of information technology ownership	Direct
Improved return on investment for information technology	Direct

Implementation

- ITD should work with the departments to develop an initial application portfolio and then augment the information as time and resources permit
- ITD should review the information in the Application Portfolio with the objectives of identifying opportunities to consolidate services and applications that may need to be replaced or enhanced
- ITD should keep the information in the Application Portfolio current and perform an annual review with the Technology Steering Committee

3.2.6 - The City Should Adopt a Consistent Approach to Information Technology Refreshment

Although some components of the City's information technology infrastructure are not as visible to the user community as the applications they use and their desktop or mobile computers, the reliability and performance of a wide array of components including servers, storage devices, routers, and switches directly impact the ability of the users to perform their work.

All of these devices have a specific effective lifespan and as they reach the age of that lifespan they may begin to fail and provide intermittent or reduced performance. Manufacturers also only support devices for a specific time frame and beyond that they do not provide software or firmware upgrades and may not even provide support except on a time and materials basis. While some organizations, out of financial or other considerations, chose to adopt "run to failure" policies, the consequences are frequently reduced performance, downtime, and increased expenditures for maintenance and support. For example when devices are proactively replaced, this can often be accomplished in a manner that minimizes the impact on operations and the need for overtime, etc. Organizations facing a crisis related to the failure of a device have fewer options.

Organizations that adopt "run to failure" policies often find that the savings realized through postponing capital expenditures are diminished by:

- Increases in their total cost of ownership for information technology as a result of the increasing diversion of staff resources to maintain, recover, and "patch up" aging systems
- Increased costs related to ensuring that they are in compliance with software licensing requirements, problems installing an debugging operating system and software service packs and patches
- Costs resulting from their increased vulnerability to cyber-attacks and difficulty in detecting and responding to security threats including intrusions, viruses, and malware
- Costs related to lost productivity as result of application performance and availability issues

Another consequence of not following a consistent policy for information technology refreshment is that it places the IT organization in a reactive mode (something breaks and then you fix it) rather than a proactive mode in which devices are renovated or replaced before they fail. In a reactive mode, it is difficult to forecast resource requirements or to maintain schedules and delivery dates in the face of daily interruptions and crises. This can lead to an "organizational performance spiral" that increases user frustration and progressively demoralizes IT staff with the net impact that both user staff and technical staff are less productive.

A study by Intel that focused on the refreshment of desktop PC's concluded that:

> While it is commonly believed that delaying PC purchases might conserve cash in the short run, we suspected this approach might actually be more expensive in the long term, producing a higher total cost of the life of a PC. We knew that delaying a PC refresh not only saved money normally spent on acquisition and deployment, but also increased the costs for maintenance and support for the older systems.[10]

NexLevel recommends that the City develop a long-term plan (five to ten years) for the consistent replacement of critical components of its information technology environment that considers a variety of options for refreshment including purchasing, leasing, and using cloud services in lieu of on-premises infrastructure. The plan should identify a lifecycle for each

[10] PC Lifecycle Management: Boosting Productivity and IT Efficiency, IT@Intel White Paper, IT Best Practices, Enterprise Mobility and Mobile Business PC, July 2012

component (or classes of components such as switches that tend to be procured in batches) of the City's IT infrastructure from evaluation and procurement through replacement, retirement, and disposal and identify the optimal replacement point for each component considering the continued cost to own and operate versus the cost of replacement.

The City should plan to take advantage of cloud-base services including Platform-as-a-Service (PaaS) as substitutes for on-premises devices such as servers and storage devices. Cloud services are continuing to mature and are becoming more cost competitive considering the costs related to the procurement, operation, and support of on-premises devices (including costs related to facilities, electricity, disaster recovery, etc.).

Summary of Benefits

Benefits	Impact
Improved information technology resilience / security	Direct
Increased staff productivity	Direct
Improved service delivery / operations	Direct
Reduced cost of information technology ownership	Direct
Improved return on investment for information technology	Direct

Implementation

- ITD should prepare an outline for the preparation of the Information Technology Refreshment Plan in conjunction with Finance and review the outline with the TGC
- ITD should then begin compiling the plan beginning with the oldest components and build out estimated replacement costs and potential savings on a year by year basis
- The Information Technology Refreshment Plan should be periodically reviewed by Finance and incorporated in the City's budget planning process

3.2.7 - ITD Should Adopt Additional IT Best Practices

The adoption of IT best practices can significantly improve the ability of an IT organization to support the user community and reduce technology lifecycle costs.

The further adoption of best practices by ITD would benefit the City by improving the ability of ITD to support the City's user community and enable ITD to focus on higher-value activities (i.e., shifting from reactive to proactive activities). NexLevel sees five areas where ITD could modify its approaches to the management and delivery of IT services to benefit both the user community and ITD. These include:

- Project management
- Help Desk management and transparency with the user community
- User communication and collaboration
- Change Management
- Resource management

Each is discussed below.

Project Management

Project management is the discipline of planning, organizing, securing and managing resources to achieve specific goals. Ineffective project management can result in extended timelines, budget overrun, and project failure.

The City does not utilize a formal project management methodology during the implementation of major technology projects either managed by ITD or a City department. Since most projects are initiated without a formal project charter and status reporting process, it is difficult to determine if projects have been completed on-schedule, on-budget, and whether they met original expectations.

Most municipalities do not have the budget resources to implement a best in class project management framework; however, basic project processes such as charters, formal meetings, and status reporting can result in better use of resources and improve overall delivery success.

Once a project is initiated, the City should have standardized templates for the project manager (or designee) to track and report on project progress. At a minimum, the project manager should complete the following templates throughout the project:

- Timeline
- Issue Management
- Risk Management
- Project Schedule and Resource Tracking
- Budget Tracking
- Status Reports

Help Desk Management / User Transparency

"In today's world, business touches the world through IT. The IT organization, and particularly the groups that run, support, manage, and maintain the technology that supports business processes and business services, are critical to the successes and competitiveness of the business." - Exploring Business and IT Friction: Myths and Realities, Forrester Research, 2013

The most profound change in information technology in recent years has not been the shift from on-premises computing to the cloud, but rather the shift from using IT as a back-office productivity tool to using IT as an integral (and often mission-critical) component of how the organization delivers services to the community. It is not an understatement to say that a majority of the City's employees rely on technology to perform their jobs efficiently. Many of these employees are in customer facing positions, meaning they interact directly with the public and any disruption, or an

unstable technology environment, directly impacts the delivery of City services to the community.

The effective management of the delivery of support services to the user community is a key component in achieving higher levels of user satisfaction as well as higher levels of productivity (for both the users and the IT organization). The effective management of the delivery of support services to the user community is nearly impossible to obtain without the effective use of a service desk management system (SDMS). The City has implemented BMC's Track-It, which is a widely used and well regarded product; however, ITD has not implemented all of the functionality provided by Track-It, nor does ITD appear to be making the best possible use of the functions that it has implemented.

ITD has made considerable improvements in user support by dint of sheer effort and determination on the part of the Help Desk team; however, the ability of ITD to not only sustain this level of service but to improve on it, is dependent on ITD's ability to "work smart" as well as hard. This includes:

- Ensuring that nearly all user requests are entered into Track-It and appropriately categorized, escalated as needed, and not closed until the user has accepted the resolution
- Reviewing the information in Track-It to identify trends and common problems that can be resolved by improving user education and training, providing self-help information and tools to the users, and by training users to handle common "first-level" requests
- Defining service metrics and making the information in Track-It, including ITD's performance in meeting the service metrics as well as the status of user requests available to the users
- Conducting root cause analysis to ensure that resources are used effectively
- Tracking staff time to tickets

User Communication and Collaboration

Although ITD has made remarkable progress in increasing the effectiveness of the services it delivers to the City's user community, user satisfaction is mixed. Some departments are still concerned over the level and the quality of the services that they receive and others are very much "on the fence." Although these concerns have their roots in a number of factors, ITD will not be able to overcome them without effectively communicating and collaborating with the users, including providing information to the users as to the status of projects and service requests.

The absence of service level agreements between ITD and City departments, as well as the publication of metrics that reveal how successful ITD has been in meeting them also contributes to user concern. NexLevel considers that internal and external communication and collaboration are the foundation for the effective delivery of IT services. ITD must be prepared and able to maintain effective communication with a variety of communities of interest including:

- Communication between ITD and vendors
- Communication within ITD
- Communication between ITD and City departments
- Communication with external agencies/municipalities
- Communication with the City's customers and the public

Proven approaches to improving communication and collaboration include:

- Providing an online forum where users can collaborate with each other and ITD regarding issues, questions, or pending upgrades, obtain information regarding the status of a request, or obtain immediate assistance from ITD without having to file a ticket and then wait for a response
- Providing users with access to real-time information regarding service levels, project and request status, and workload

- Publishing current compliance with service levels and performance metrics which will demonstrate ITD's commitment to the users and ITD's goal to continually improve service delivery
- Providing a knowledge base and self-help features to enable users diagnose and/or resolve common issues

Change Management

Change is a constant factor in technology projects. Requirements often change as a result of external factors (such as statutory or regulatory changes), but also as a result of the users obtaining greater experience in how technology can best be used to improve operations. Changes in requirements can also lead to changes in policies and procedures and expectations, particularly regarding the availability, timeliness, and accuracy of information.

Change management is a process that is used to identify, analyze, track, and reconcile changes that may occur over the lifetime of a project. It can be used for multiple purposes including the management of:

- The organizational, procedural, and cultural changes that often accompany transformational activities such as the introduction of an enterprise information system.
- Project changes - the seemingly inevitable changes that need to be made to the scope, organization, and other components of the implementation plans for information systems.
- Infrastructure and system configuration change Issues, since these typically relate to items such as scope, requirements, schedule and resources

Resource management

Although many organizations develop detailed project schedules and project management plans for the implementation of key enterprise business applications, these projects still take longer than planned, often these delays are a result of not having sufficient user resources available. User resources play significant roles in the business application projects, beginning with the definition of requirements through application selection, product configuration, data conversion, testing, and acceptance.

While IT resources can usually be supplemented by external services, finding additional user personnel who are familiar with the organization's business processes and objectives is more difficult. Faced with the competing needs to support both existing operations and implementation activities, organizations often make a concerted attempt to "get it done," by reducing the amount of time and resources for data clean-up, user training and testing.

Although organizations frequently plan to catch up on training and the implementation of any remaining functions in future phases following implementation, they seldom do so as the focus shifts to "getting work done." The net of this is that:

- Applications are often implemented without sufficient testing or without having all functions available, resulting in the need for costly "workarounds"
- The users are often unable to make full use of application features and functionality, or to use the new application with confidence
- Users can become fatigued and demoralized, and their emphasis can shift from "doing things better" to "getting by"
- These factors combine to limit the organization's ability to fully realize the intended benefits of new business applications, thus reducing the return on their investment

Summary of Benefits

Benefits	Impact
Improved information technology resilience / security	Direct
Increased staff productivity	Direct
Improved service delivery / operations	Direct
Reduced cost of information technology ownership	Indirect
Improved return on investment for information technology	Indirect

Implementation

- ITD should prepare a draft plan for the phased implementation of IT best practices for project management, Help Desk management and transparency with the user community, user communication and collaboration, change management, and resource management with priority on those activities that directly impact the user community and that can be accomplished with existing resources / assets

  The plan should consider opportunities to improve user service through the expanded use of the Track-It Service Desk Management System which includes change management, knowledge management, and user access functionality

- ITD should provide periodic updates on the progress of the plan to the TGC

3.2.8 – The City Should Take Steps to Ensure the Security and Sustainability of its IT Environment

"Resiliency begins with strategy. Because a business strategy is the road map for achieving business goals, it is imperative that your resilience strategy be in harmony with your business goals. The goal is to enter a state of preparedness so that actions are thought out and pragmatic rather than impulsive and frantic." – IBM, The Evolution of Business Resiliency Management, June, 2011

The City has a decentralized information technology environment that includes:

- Applications provided by external services providers and supported by ITD and individual departments or delivered as a service from the State of Nevada or other application service providers
- Infrastructure, including servers, data networks, and radio networks that are supported either by ITD or individual departments
- Ad-hoc databases and spreadsheets that have been created by individual departments to provide functionality that is not provided by the City's applications or as a "work around" to inefficient applications that are seldom documented

The City needs to protect this environment from cyber-security threats, ensure that mission-critical business applications are available as needed, and the City is prepared to restore components of the IT environment following a natural or other disaster. While each of these items is addressed below, a common theme is that since departments often share, or are dependent on, applications run by other departments, that planning for cybersecurity, business continuity, and disaster recovery should be performed as a unified, enterprise activity.

Cybersecurity

The City does not have a formal cybersecurity plan that addresses all phases of cybersecurity including planning and implementing preventative measures, monitoring network activity to detect intrusion attempts and suspicious network activity, the implementation of procedures to mitigate cyberthreats and to recover from them, as well as processes to review the cyberattack and adapt the City processes to better meet similar threats in the future.

The National Institute of Standards and Technology (NIST) has developed a framework for cybersecurity planning that outlines the steps to be taken to monitor the network for suspicious activity and to remediate the situation.[11] The NIST framework for cybersecurity planning is comprehensive and built around discrete cybersecurity functions including:

- Identify (Asset Management, Business Environment, Governance, Risk Assessment, and Risk Management Strategy)
- Protect (Access Control, Awareness and Training, Data Security, Information Protection Processes and Procedures, Maintenance, and Protective Technology
- Detect (Anomalies and Events, Security Continuous Monitoring, and Detection Processes)
- Respond (Response Planning, Communications, Analysis, Mitigation, and Improvements
- Recover (Recovery Planning, Improvements, and Communication)

[11] NIST developed a detailed cybersecurity framework in conformance to US Executive Order 13636, Improving Critical Infrastructure Cybersecurity, which was issued in February, 2013. Details of the cybersecurity framework are provided at: http://www.nist.gov/cyberframework/index.cfm

Business Continuity

Business Continuity and Disaster Recovery are closely related practices that describe an organization's preparation for unforeseen risks to continued operations. From an information technology perspective, disaster recovery refers to specific steps taken to resume operations from an alternative location in the aftermath of a catastrophic natural disaster or national emergency. Such steps may include restoring servers with backups, re-establishing local area networks, and reconfiguring/installing desktop equipment and applications software.

Business continuity when viewed from an overall management perspective, describes the processes and procedures the organization must put in place to ensure that mission-critical functions can continue during and after a disaster. Business continuity addresses more comprehensive planning that focuses on long term challenges the organization may face. From an information technology perspective, business continuity is the ability to ensure that systems continue to be available and perform as expected regardless of the events facing the City as an organization in time of emergency.

Absent preparations for business continuity, an incident such as the failure of a power feed or air conditioning unit can be as disruptive to information services as a natural disaster. Generally, the servers and storage devices typically used for enterprise applications are built for high-availability and fault-tolerance, so the most significant threats to business continuity are often related to infrastructure components (power lines, data lines, air conditioners, etc.) that have no backup and are thus single points of failure. ITD needs to work to identify and mitigate potential single points of failure in the City's IT infrastructure.

ITD should continue to monitor industry service offerings such as cloud-based infrastructure (IaaS) as a means of lessening its dependence on the equipment installed within the City to also mitigate single points of failure. Redundant and/or mirrored servers, physically located in other area computing facilities are also recommended as a method of ensuring continued operation of key technology components.

Disaster Recovery

While ITD ensures all servers are routinely "backed-up" and copies are retained at an off-site facility, the City does not have a comprehensive, well-tested, disaster recovery plan to cover emergency operational scenarios. NexLevel recommends the City develop a comprehensive Disaster Recovery Plan that would establish the priorities for restoring technology services and ensures adequate processes, procedures, and resources would be available to support an orderly recovery of the City's applications within the defined timeframe and in priorities as deemed by the City departments.

Once the Disaster Recovery plan has been completed, ITD should exercise the plan to validate that the servers, operating systems, application software, and databases can be brought into service from the recovery site within the specified timelines, that the applications will function as expected, that network connectivity can be successfully established, and that system performance is acceptable. Provisioning physical systems for recovery, configuring these systems, and recovering applications can be time consuming; as a result, recovery may take from several hours to several days for each system. Successive recovery drills are needed to refine processes to reduce the time required to restore critical information systems

The following best-practice considerations should also be evaluated in the development and maintenance of plans for business continuity and disaster recovery for the City:

- The plans must be relatively agile since the support for business operations and user expectations for support evolve continually whereas disaster recovery and business continuity plans are updated less frequently
- The restoration of complex applications is highly dependent on resources with specialized skills and experience who might not be available in the event of an emergency
- Provisioning physical systems for recovery, configuring these systems, and recovering applications can be time consuming; as a

result, recovery may take from several hours to several days for each system. Successive recovery drills are needed to refine processes to reduce the time required to restore critical information systems

- Organizations need to be realistic in planning for disasters. Full-scale exercises, even when conducted on weekends, etc., can be very expensive and disruptive to business operations. Load testing is useful, but cannot ensure the performance and reliability of applications hosted from recovery centers
- Organizations often overlook single points of failure in their technology environments, especially where connectivity is concerned. It is not sufficient to simply restore systems and applications in an alternative location, connectivity to the users must also be provided
- The effort to develop, maintain, and refine these plans is significant, thus organizations need to prioritize their recovery needs based on a thorough risk and business-impact analysis
- The highly specialized knowledge and experience required to support the City's applications. Planners commonly think of business continuity in terms of having the necessary facilities and resources to maintain service levels in the event of a natural disaster, public disturbance, emergency, or other event; however, if key personnel are unavailable, this can ultimately be as detrimental to sustaining service levels as is damage to a facility or the loss of a network link

NIST has published an Disaster Recovery Contingency Planning Guide for Information Technology Systems as well as a template for the development of a Business Impact Analysis (please refer to http://nvlpubs.nist.gov/nistpubs).

Summary of Benefits

Benefits	Impact
Improved information technology resilience / security	Direct
Increased staff productivity	Indirect
Improved service delivery / operations	Indirect
Reduced cost of information technology ownership	Direct
Improved return on investment for information technology	Direct

Implementation

- The City should direct user departments to prepare a business impact analysis that identifies each mission critical business application and the potential impacts to the City if the application is not available, the steps that can be taken to sustain operations without automation, and the maximum amount of time that the department can sustain operations without the application being available
- ITD should create, at a minimum, an IT Disaster Recovery Plan for City "mission critical" business applications
- ITD should test and modify the IT Disaster Recovery Plan on an annual basis
- ITD should participate in mock City disaster preparedness drills and other EOC planning activities

Appendices

Appendix A – IT Best Practices Checklist

The IT Best Practices Checklist provides a mechanism for the Client and NexLevel to conduct a dialog regarding IT best practices conformance. The Client initially completes the checklist and it is then reviewed by NexLevel. For each of the assessment factors the Client is asked to determine if they are fully conformant ("Y"), somewhat or minimally conformant ("O") or non-conformant ("N"). Items that are fully conformant receive a score of 3, items that are substantially conformant receive a score of 2, items that are minimally conformant receive a score of 1, and items for which the City is non-conformant receive a score of 0. Comments are provided in the right-most column, with comments from NexLevel being preceded by "NL."

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
Information Technology Governance						
1	IT Oversight	Does the City have a defined IT Governance process?	O	1	Y	This needs to be revisited as there are exclusions that should not be in this. NL: City has a governance committee but is not well documented, nor is the scope of the process sufficient wide.
2	IT Oversight	Does the IT organization report, directly or indirectly, to an IT governance committee?	O	1		The TGC is more of an advisory committee at this point. I would like to strengthen the TGC
3	IT Oversight	Does the IT governance process provide oversight for all City applications and services?	O	1		In theory, but not in practice.
4	IT Oversight	Does the IT Governance Committee meet regularly?	O	1		The TGC is an extension of our Internal Finance Committee (IFC) and they meet weekly. I am the only one to request an agenda item for TGC currently.
5	IT Oversight	Does the City have formal procedures to ensure that departmental applications or web services conform to enterprise standards and best practices?	O	1		We try our best
6	IT Oversight	Does the City have Steering Committees for enterprise (City-wide) projects or applications?	N	0		
7	IT Oversight	Are the City's policy makers and senior executives involved in making technology decisions?	N	0		TGC is advisory only. Nick Marano the City Manager is the only one to vote. This is the same as IFC. Other members are HR Director, CFO and DA.
8	Strategic Business Plan	Does the City have a strategic business plan?	Y	3	Y	NL: On City web-site
9	Strategic Business Plan	Are the City's business goals and objectives identified, tracked and measured?	Y	3	Y	http://performance.carson.org
10	Strategic Business Plan	Is the business plan updated on a regular basis? If so, please indicate how often.	O	1		Probably every other year
11	eGovernment Strategy	Does the City have a formal eGovernment / Community Engagement (i.e., social media) Strategy?	O	1		In process. Have social media staff. Working on policy and strategy.
12	eGovernment Strategy	Does the City's web site provide citizen-facing functions?	Y	3		Transparency tab on carson.org

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
13	eGovernment Strategy	Does the IT organization formally monitor and manage the performance of external service provider(s) used to support the web-site?	O	2		This is a new process that just went live on June 1, 2016
14	Enterprise Project Management	Does the IT organization have project management processes and standards?	O	2	Y	TGC Just approved IT Project Charter and Management Plan policy in May 2016
15	Enterprise Project Management	If so, does the IT organization have a separate Project Management Office (PMO) function to ensure project quality and conformance with standards?	N	0		
16	Enterprise Project Management	Are user stakeholders involved in IT projects?	Y	3		
17	Enterprise Project Management	Are project charters developed for each major project? If so, is there a standard format or checklist for project charters?	Y	3		Again this is very new. See item 14
18	Enterprise Project Management	Does the IT organization maintain an application portfolio?	O	1		Could be updated more often.
19	Enterprise Project Management	Does the IT organization have formal procedures for reporting project status to users?	O	2		See item 14
20	Enterprise Project Management	Does the IT organization have a high project success rate? Does the IT organization have a formal definition of what constitutes project success?	O	2	Y	I would only look at the past 12 months and we have started and completed multiple projects. There is no current definition of success. However, I have received multiple compliments from Board Members and consider that a success. Also, news articles written about IT projects all in good standing.
21	Enterprise Project Management	Does the IT organization maintain a list of enterprise IT projects in progress and planned?	N	0		
22	Enterprise Project Management	Does the IT organization have adequate funding and staffing to handle current enterprise projects?	O	1		Staffing – Yes Funding – No – Capital projects all declined, even ongoing projects
23	Enterprise Project Management	Does the IT organization have adequate funding and staffing to handle anticipated future enterprise projects?	O	1		Staffing – Yes Funding – No – Capital projects all declined, even ongoing projects

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
24	Internal and External Communication	Does the IT organization have a formal process for facilitating communication between functional managers?	O	2		I use the City Managers Bi-Weekly Department Head meeting and Bi-Weekly all Department Head (including elected) meetings to communicate.
25	Internal and External Communication	Does the IT organization have a formal process for keeping its all staff members informed of system and application updates, policy changes, priorities, etc.?	O	2		We have Bi-Weekly IT Staff meetings. Need a more formal document of changes
26	Internal and External Communication	Does the IT organization keep the user community informed of changes to information technology environment?	Y	3		We send out multiple notifications on any system changes via email and text to desk phones
27	Internal and External Communication	Does the IT organization have formal processes for communicating with the user community?	Y	3		We send out multiple notifications on any system changes via email and text to desk phones
28	IT Strategic Plan	Does the City have an IT strategic plan?	N	0		This is why you are here
29	IT Strategic Plan	Does the IT strategic plan align with, and support, support the City's business plan?	N/A			
30	IT Strategic Plan	Are goals and objectives identified, tracked and measured?	N/A			
31	IT Strategic Plan	Is the IT Strategic Plan updated on a regular basis? If so, please indicate how often the ITSP is updated and the date of the last update.	N/A			

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
Service Delivery						
32	Help Desk	Does the IT organization provide a single point of contact for user departments?	Y	3		Call or email help desk. We try to encourage not to call or email a person directly as they may not be available.
33	Help Desk	Does the IT organization have a dedicated Help Desk?	Y	3		
34	Help Desk	Is the Help Desk organized along functional or organizational lines?	Y	3		
35	Help Desk	Does Help Desk staffing include subject matter experts who can assist users with both application usage and technology issues?	Y	3		
36	Help Desk	Does the Help Desk use an issue tracking system? Is the system available to other staff members in the IT organization? To users?	O	2		This is available to all IT staff members. We have not opened this up to end users. Risk/reward?
37	Help Desk	Does the IT organization routinely analyze call data for trends, volume and escalation?	O	1		In our staff meeting we discuss items briefly. Need a more formal process of escalation
38	Help Desk	Does the Help Desk have specific service levels for response to customers?	O	2		We have them in theory and they are documented but we have not adhered to them.
39	Help Desk	Does the Help Desk have a formal methodology to prioritize requests?	O	2		Nothing documented, but Public Safety (Sheriff/Fire) are always #1.
40	Help Desk	Does the IT organization have a formal method for assessing user satisfaction with the services provided by the Help Desk?	O	1		We try to send out annual surveys. Has been about 2 years.
41	Help Desk	Does the IT organization believe that the Help Desk services provided to the user community are effective?	Y	3		
42	Help Desk	Does the IT organization have a formal escalation procedure?	N	0		Nothing formal. CIO and IT Manager and try review tickets monthly. Need a more formal process.
43	Help Desk	Does the IT organization have a formal process and dedicated channels to handle requests from VIPs?	O	1		Nothing formal, however all understand the City structure and try escalate VIP tickets.

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
44	Help Desk	Does the IT organization provide and support remote access tools to take over user desktops to diagnose and correct problems? If so, what tools are used and how effective are they with regard to: • Ease of use? • Ensuring that access is restricted to authorized users? • Access management?	Y	3		We use Solarwinds Dameware products for remote support. IT is supposed to get verbal acknowledgement prior to connecting.
45	Help Desk	Does the IT organization maintain a centralized knowledge base (wiki or other repository)? • If yes, is the information contained in the knowledge base considered to be complete, current, and readily accessible? • If no, is the IT organization planning to develop a knowledge base?	Y	3		Internal SharePoint site just for Help Desk.
46	Help Desk	Does the IT organization centrally develop and manage desktop and mobile device images that ensure appropriate "lock down" of desktops?	O	1		Desktop admin access is not locked down. We have been working on this but getting some push back. For mobile devices we use IBM/Fiberlink MaaS360 and have this locked by policy.

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
47	Training	Does the IT organization provide training for users? If yes, please indicate whether: • Training is provided on a regular basis? • Does the IT organization have dedicated training resources or does it source training? • Does the IT organization have formal training curriculums? • Does the IT organization perform user surveys to assess the effectiveness of the training provided?	O	1		We do have training for specific things. Primarily when we deploy a new system (i.e. conversion from GroupWise to Outlook/Exchange). Phone system training as new departments are deployed. Users are asked to fill out a training survey after completion. There is no regular training provided for standard applications. IT will be presenting Security policy and Social Media overview in New Hire Orientation which is done by HR. This is scheduled to start in the next few months.
48	Hours of Service	Does the IT organization provide Help Desk services on a regularly scheduled basis and, minimally, during prime shift / normal business work hours?	Y	3		Help Desk hours are M-F 8-5. (starting July 1st)
49	Hours of Service	Does the Help Desk provide support for users who may need extended support (such as public safety)?	O	2		We provide on call service for system wide outages only.
50	Hours of Service	Does the IT organization provide after-hours support for mission-critical systems? If yes, who provides the support?	Y	3		We always have IT staff on call. This person may be able to correct issue or call other staff member or call vendors like SunGuard or TriTech.
51	Hours of Service	Does the IT organization schedule routine and ad-hoc system maintenance so as to minimize the impact on internal users and the public?	Y	3		Maintenance widows is set for Wednesday evenings. This has been set for many years. Probably need a formal policy to remind all. We send out notifications prior maintenance with brief explanation. Ad-hoc we send notifications and depending on who is effected we may call.
52	Service Delivery Management - Service Levels	Does the IT organization have formal service level agreements (SLAs) with the user community?	N	0		

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
53	Service Delivery Management - Service Levels	Does the IT organization have a service catalogue that identifies what IT services are provided, the service levels for each, and that is readily accessible by users?	N	0		
54	Service Delivery Management - Service Levels	Does the IT organization have formal service expectations for vendors?	O	1		Depending on the vendor this varies. This is in our maintenance contracts.
55	Service Delivery Management - Service Levels	Does the IT organization report performance against SLAs, to whom, and with what frequency?	N	0		
56	Service Delivery Management - Service Levels	Have City departments defined their need for IT systems availability?	N	O		Nothing formal
57	Service Delivery Management - Service Levels	Is the IT organization able to meet user needs with current IT resources, staff and infrastructure?	O	2		We are close. Need funding to refresh infrastructure.
58	Service Delivery Management - Change Management	Does the IT organization have well-defined change management procedures?	N	0		
59	Service Delivery Management - Change Management	Are procedures in place to ensure conformance with the change management procedures?	N	0		
60	Service Delivery Management - Change Management	Are proposed changes routinely reviewed with the users?	N	0		
61	Service Delivery Management - Change Management	Does the change management process define how proposed changes are communicated to the user community?	N	0		
62	Service Delivery Management - Change Management	Does the change management process provide escalation procedures?	N	0		
63	Service Delivery Management - Change Management	Does the IT organization have an infrastructure change management process?	O	1		We normally discuss internal and put out notifications but no formal policy

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			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
64	Service Delivery Management - Capacity Management	Does the IT organization routinely monitor the performance, availability, and the capacity of the network, servers, disk arrays, and other devices?	O	2		Yes individuals monitor systems daily. I would like to develop an overall NOC view so I can see this at any time. Currently I have to ask each individual how this is going.
65	Service Delivery Management - Capacity Management	Does the IT organization utilize dedicated appliances (SAN, NAS, etc.) for the storage of shared enterprise data?	Y	3		
66	Service Delivery Management - Capacity Management	Does the IT organization have a formal capacity plan? Is it used for the annual budgeting process? If not, what is used?	N	0		
67	Service Delivery Management - Root Cause Analysis	Does the IT organization have a formal process for identifying, analyzing, and correcting the root cause of incidents?	O	1		No policy, but we do research and try to document for future reference.

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			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
Business Technology Applications						
68	Application Support	Are enterprise applications primarily centralized and supported by the IT organization?	Y	3		
69	Application Support	Does the IT organization have a formal resource management plan to allocate resources to applications?	O	2		No formal plan. Each person has primary responsibilities and this is common knowledge within the IT staff
70	Application Support	Does the City have an enterprise IT architecture and supporting standards?	N	0		NL: The City does not have a documented enterprise IT architecture, the application portfolio is essentially a mix of applications
71	Application Support	Has the IT organization been charged to provide oversight for departmental applications or services (potentially supported by vendors)?	Y	3		With the exception of Public Works. IT is the primary support for all other applications.
72	Application Support	If yes, are procedures in place to ensure that applications that are acquired and/or supported by departments conform to standards?	Y	3		All purchases are supposed to go through IT. We evaluate and make recommendations based on IT best practices.
73	Application Support	Are there procedures in place to formally assess requested exceptions to the standards?	O	1		I would recommend these go to TGC for approval, but no formal policy.
74	Application Support	Does the City have procedures in place that require users to formally declare mission-critical applications and data and their requirements for availability as well as to periodically review the declarations?	O	1		No procedure or policy. This decision is usually more of an understanding between the department and IT. More at the executive level.
75	Application Support	Does the City have procedures in place to ensure the ownership, security, and integrity of information that is stored in external applications or services (such as Dropbox)?	N	0		We need this. We know departments are using dropbox with no controls in place. However, we need to have a solution that meets all needs before just putting in restrictions. (this is more of a CM standard. “Bring me solutions not problems”)
76	Application Support	If the IT organization supports any ad-hoc applications based on products such as MS Access or FileMaker Pro, are their procedures in place to ensure their appropriate use?	O	1		No formal policy or procedure. We usually just use standard file system security and let the departments tell IT who need access.

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77	Application Support	Does the City have procedures to control the user development of ad-hoc applications and spreadsheets?	N	0		Departments have created their own procedures for internal use. One that comes to mind that had a citywide consequence. PW created an access database for Risk Management training using an older version of MS Access that was installed city-wide.
78	COTS Products	Does the City have processes to ensure that commercial-off-the-shelf (COTS) applications are utilized largely as delivered with no or only essential custom modifications?	O	2	y	All purchases are supposed to go through IT and/or TGC per IT Technology purchasing policy.
79	COTS Products	Does the IT organization track the product positioning for each COTS product?	O	2		NL: The City does not perform formal application portfolio management but is informally tracking the status of some applications may be nearing the end of vendor support
80	COTS Products	If any of the COTS applications no longer supported by the vendor, is IT working with the user community to replace them?	Y	3		Still trying to remove WordPerfect from our environment. We do require that when a hardware is replaced we will no longer install outdate/unsupported products or versions and they must purchase the latest version for IT to install.
81	COTS Products	Do application staff members and key users attend and participate in vendor user groups and conferences?	O	1		We try to send staff is funding and resources are available.
82	Cloud Solutions	Does the City have standards for the use of web-based (“cloud”) services such as software as a service (SaaS), cloud-based IT infrastructure (IaaS), etc.?	O	1		We use them when possible. No formal standards. This would be nice to have something formal.
83	Cloud Solutions	Does the City have standards in place to ensure the security and availability of the information stored off-site?	O	2		When IT evaluates systems we use best practices. Also we always make sure that all data stays within US in contracts.
84	Cloud Solutions	Does the City or the IT organization have a formal process for evaluating and approving the use of cloud-based services?	N	0		No formal process
85	Cloud Solutions	Does the City have processes in place to fully review agreements with cloud-service providers to ensure that all logistical provisions and costs (such as those related to exiting the service agreement) are identified and considered?	N	0		No formal process. IT reviews contract for general guidelines

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86	Standards	Does the IT organization regularly apply new vendor releases and upgrades (production vs. current release)?	O	1		We try to keep updated but need to do better at this.
87	Standards	Are test environments provided for each application and are application updates formally and routinely tested by the user community?	O	1		HTE updates are always done in a test environment prior to release. Tiburon upgrade was done in a test environment. Other usually are not done in test.
88	Standards	Does the IT organization have a defined system development lifecycle?	N	0		We need this!
89	Standards	Does the IT organization have formal procedures to ensure that all components of the City's information technology environment (i.e., hardware, system software, applications, etc.) are running on supported versions?	O	1		No actual formal process. We try to keep up with technology with supported HW & SW. We use SolarWinds to notify us when hardware is out of support (Cisco).
90	Standards	Does the IT organization have application development standards?	N	0		No documented standards
91	Application Effectiveness	Does the IT organization routinely survey users to measure and track their satisfaction with the business application(s) they use?	O	2		We try do yearly surveys. Last completed in 2014.
92	Application Effectiveness	Does the IT organization routinely assess the degree to which applications conform to City standards?	O	1		No formal process. We try meet with the user community to see how they are functioning on a bi-annual basis.
93	Application Effectiveness	Does the IT organization routinely assess the degree to which applications meet the users' performance expectations?	O	1		No formal process. We try meet with the user community to see how they are functioning on a bi-annual basis.
94	Application Effectiveness	Does the IT organization routinely plan for the functional enhancement, technical renovation or replacement of applications?	O	1		We do our best at planning for routine upgrades. However, this is rarely funded.

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Infrastructure						
95	Network	Does the IT organization maintain Open-Systems Interconnection (OSI) conformant diagrams that depict its topology as well as the configuration of major nodes?	O	2		We have docs but they are not always up to date. We need to have a better process for keeping this documentation up to date.
96	Network	Does the IT organization ensure that the network is protected from intrusions by firewalls, DMZ, et al?	O	2		We have Firewalls in our major external links. We need to upgrade or install between Public Works and State SilverNet connection. In process of deploying Cisco ISE for IPS.
97	Network	If the City has a wireless network, is access to the network restricted?	O	2		We have 3 separate SSIDs: 1. City employees on City hardware secured and locked to hardware; 2. City Employee's on personal devices – secured but not locked by hardware; and 3. Guest – unsecured.
98	Network	If the City provides wireless access for "guests" is this provided on a separate wireless network or to segregate "guest" traffic?	Y	3		See above
99	Network	Does the IT organization have network management tools (CiscoWorks, Openview, etc.) and use them to routinely assess network usage, performance, and track trends?	O	1		SolarWinds. We do not use routinely. We need to do this.
100	Network	Does the IT organization routinely review all telecomm circuits to ensure the adequacy of the service as well as the continued need for the circuits?	O	1		We look at every once in a while and try to validate. This could be done better by an outside vendor with expertise in this field.
101	Internet Access	Does the City have an acceptable use policy that is signed by all employees with internet access?	Y	3		We have just updated this to be signed via PolicyTech annually.
102	Internet Access	Does the IT organization actively monitor and manage internet access including intrusion attempts?	O	1		Cisco FirePower was just installed June 2016 to do this.
103	Internet Access	Does the City have software deployed to filter content and report policy exceptions?	O	1		Cisco FirePower was just installed June 2016 to do this

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
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104	Intranet Access	Does the City have tools (such as SharePoint) to facilitate collaboration and to edit, approve, and publish documents?	O	1		This is only live in the IT Department. I requested funding for enterprise, which was not approved. NL: The CM wwould like to go live with collaboration for the entire City Also as a replacement for current WordPress intranet site.
105	Intranet Access	Does the City have formal standards for the use of collaboration tools?	N	0		
106	Remote Access	Does the City provide remote access for employees? If so, is a structured and secured method (i.e., VPN) used for remote access?	O	2		We use VPN and GoToMyPC depending on situation
107	Remote Access	Does the City have an acceptable use policy for remote users?	O	1		No separate policy for City staff. Vendors must sign the CJIS Security document. This needs to be redone in a City Policy.
108	Remote Access	Are there procedures in place to ensure that remote users are in conformance with the policy?	N	0		Need to update VPN Policy on firewall/VPN appliance.
109	Remote Access	Does the City have a formal policy governing which users are eligible for remote access and that defines the procedures for granting and revoking access?	N	0		
110	Remote Access	If the City grants remote access to vendors: • Is there a formal process for granting and monitoring remote access by vendors? • Does the IT organization routinely audit vendor usage to ensure compliance with policy? • Do the grants automatically expire after a specified period?	O	1		Vendors must sign the CJIS Security document. This needs to be redone in a City Policy. No routine audit No expiration
111	Servers / Data Storage	Does the IT organization have well-defined hardware and software standards?	O	1		We have standards but nothing formally documented.
112	Servers / Data Storage	Does the IT organization perform periodic audits to confirm compliance with the hardware and software standards?	N	0		

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
113	Servers / Data Storage	Does the IT organization have a formal process for reviewing and approving exceptions to the hardware and software standards?	N	0		No formal process. IT will review and approve if necessary.
114	Servers / Data Storage	Does the IT organization have formal policies for the granting of administrative rights for physical and virtual servers?	N	0		No formal policy. IT does review and provide access if necessary. Usually CIO or IT manager approves.
115	Servers / Data Storage	Does the IT organization periodically review grants of administrative rights?	N	0		
116	Servers / Data Storage	Does the IT organization perform routine performance monitoring to ensure that servers can support business applications?	O	2		Server Admin monitors servers on a daily/weekly basis. This could be better done with notifications on a dashboard.
117	Servers / Data Storage	Does the IT organization virtualize servers? If so, does it have formal processes for the creation of instances and to periodically review their use?	O	2		95% virtualized. All that can be. No formal process for creation and review.
118	Servers / Data Storage	Does the IT organization perform routine performance monitoring to ensure that that all servers (virtualized or not) are being used effectively and that sufficient capacity is on-hand to meet current and future requirements?	Y	3		IT gets a daily log monitoring disc utilization.
119	Servers / Data Storage	Does the IT organization perform routine performance monitoring to ensure that that centralized storage (NAS, SAN) is being used effectively and that sufficient capacity is on-hand to meet current and future requirements?	Y	3		See above
120	Servers / Data Storage	Has the City deployed file servers and storage devices in departmental locations? If so, are they located in appropriate and secure facilities?	O	1		Public Works has their own infrastructure that we do not maintain. Public Safety has servers in secure location maintained by IT. Dispatch has servers in secure location maintained by IT
121	Routers and Switches	Are wiring / server closets neat and free of extraneous materials / clutter?	O	1		Depends on location.
122	Routers and Switches	Does the IT organization have procedures for cable management and labeling?	O	1		We have an internal procedure. Need to formally document.

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
123	Routers and Switches	Are routers and switches located in secure locations?	Y	3		
124	Desktops, Laptops and Printers	Does the IT organization have formal standards for desktops, laptops, printers, and other user devices?	O	2		These are formal standards know to IT. We need to document these in policy.
125	Desktops, Laptops and Printers	Does the IT organization control the granting of Administrator rights on desktops?	O	1		We are working on removing Admin Rights for all city computers. Not many completed at this time.
126	Data Center Environment	Has the main server room been appropriately sized for future expansion?	Y	1		
127	Data Center Environment	Is the general layout of the main server room acceptable? Does the layout provide access to both the front and rear of racks?	Y	3		
128	Data Center Environment	Has provision been made to prevent situations such as flooding and fire?	Y	3		
129	Data Center Environment	Are server racks and equipment cabinets secured front and rear with locking doors?	Y	3		
130	Data Center Environment	Does the IT organization control and monitor access to facilities such as server rooms?	O	2		All IT rooms are keyed only for IT and facilities maintenance personnel. Others may request but CIO must approve. This is an internal procedure only.
131	Data Center Environment	Does the IT organization have automated environmental controls to alert appropriate personnel to HVAC issues and other facility problems?	O	1		We have temperature gauges that email at server locations, but these need to be upgraded with better services (i.e. video)
132	Data Center Environment	Does the data center have sufficient electrical capacity and reliability / business continuity features such as a UPS, stand-by generators, and redundant power sources?	Y	3		
133	Data Center Environment	Does the City routinely test to ensure that standby power facilities perform as expected and that the capacity is sufficient?	O	2		Generators are tested by Facility Maintenance on a routine basis.
134	Data Center Environment	Are the server racks braced for seismic shock?	N	0		

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
135	Data Center Environment	Is the data center, server rooms, wiring closets, generally clean and clear of clutter such as decommissioned equipment or unboxed devices?	O	1		
136	Data Center Environment	Are the cables well managed (i.e., orderly cable runs, color-coded and labelled cables, etc.)?	O	1		
137	Hardware Refreshment	Does the IT organization have a formal refreshment plan for desktops? Servers?	N	0		I requested in Capital Improvements and funding was denied.
138	Hardware Refreshment	Does the IT budget provide dedicated funds for the refreshment / renovation of desktop PCs, etc. per year?	N	0		

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
Security / Information Protection						
139	Network Security	Does the IT organization routinely perform perimeter of other testing to ensure that intrusions are blocked and reported? Discuss the results of any independent vulnerability/penetration testing that has been conducted.	N	0		
140	Network Security	Does the IT organization have procedures in place to control wireless access (such as MAC addresses to access point, encrypted login stream, etc.)?	O	2		Working on completing deployment with Cisco ISE
141	Physical Security	Does the IT organization monitor access to sensitive IT and business areas?	O	1		We have access to system but do not routinely monitor logs
142	Data Protection	Does the IT organization have procedures in place to manage user passwords (such as requiring strong passwords and periodic changing of passwords)?	Y	3		
143	Data Protection	Does the City have a formal process to notify IT when employees are terminated or out on extended leave?	O	2		Not sure if in policy. HR sends a weekly termination to IT for verification. Nothing is done for extended leave.
144	Data Protection	Does the City have a formal process for requesting network and application access for new users?	Y	3		
145	Desktop Security	Does the City have a formal user security policy regarding data sensitivity, confidentiality, etc.?	Y	3		Confidentiality policy in PolicyTech
146	Desktop Security	Does the City have formal procedures in place to ensure that all users are familiar with, and conform to, the security policy?	O	1		IT will be presenting in New Hire Orientation in the near future.
147	Desktop Security	Does the City have formal procedures to ensure the security of information on mobile and portable systems (such as the encryption)?	Y	3		

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
148	Data Backups	Does the IT organization perform backups on a regularly scheduled basis? • If yes, what is the schedule? • If yes, what is the process (i.e., disk to disk to tape, etc.)?	O	2		Yes we currently use ComVault Disk – Disk – Tape. We have purchased Dell Data Protection Suite June 2016. Working on Deployment.
149	Data Backups	Does the IT organization have multiple backup devices, e.g., mirroring, redundant servers, removable media, etc.?)	Y	3		Mirroring and redundant servers.
150	Data Backups	Does the IT organization routinely backup critical application information?	Y	3		
151	Data Backups	Does the backup include documentation, configuration settings, and system software?	O	2		Some are documented
152	Data Backups	Does the IT organization routinely verify and test backups?	O	2		Periodically we verify and do test (or Live) restores. We do not do complete system recovery tests.
153	Business Continuity and Disaster Recovery	Does the City have a formal IT business continuity plan that identifies mission critical applications, their availability requirements, and the maximum duration that the application can be down?	O	2		Yes, we use an online program provided by Emergency Operations (http://www.NevadaContinuity.com). Not sure how updated this system is.
154	Business Continuity and Disaster Recovery	Has the IT organization systematically identified all single points of failure and the actions required to remediate them?	N	0		
155	Business Continuity and Disaster Recovery	Does the IT organization have the ability (people, plans, processes, procedures, and other resources) needed to react to a service interruption and resume service in an acceptable timeframe?	O	2		Some hardware may take time to get from vendor
156	Business Continuity and Disaster Recovery	Does the IT organization have a disaster recovery plan? If so, please indicate when the plan was last updated?	O	1		Plan has not been updated in over 5 years

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
157	Business Continuity and Disaster Recovery	Does the IT organization conduct regular exercises to validate the disaster recovery plan and to ensure that systems and applications can be recovered as planned? If so, please provide the date of the most recent exercise.	N	0		
158	Emergency Operations Center (EOC)	Does the City have an emergency operations center?	Y	3		NL: The City has not continued maintenance for WebEOC.
159	Emergency Operations Center (EOC)	Does the IT organization have personnel assigned to support the EOC?	Y	3		
160	Emergency Operations (EOC)	Does the City routinely conduct drills to ensure that the EOC is fully functional and can be brought online in a timely manner?	Y	3		
161	Emergency Operations (EOC)	Does the City have plans for the activation of an alternate EOC if needed?	Y	3		
162	Virus/Spam Protection	Does the IT organization deploy software to control viruses, spyware, other malware, and e-mail spam on user desktops? If yes, please indicate in the comments section: • What vendors / products / versions are used? • Does the IT organization have enterprise licenses for these products?	Y	3		Kaspersky Enterprise v10
163	Virus/Spam Protection	Does the IT organization apply updates to this software in an automated and timely manner?	O	2		We need to better monitor to make sure all are updated
164	Cybersecurity, Intrusion Detection and Management	Does the IT organization have a cybersecurity plan in place for the detection, reporting, management, and response to intrusions? Is the plan conformant to recognized cybersecurity frameworks such as NIST?	O	1		No formal plan. I have reported up to DHS on major issues.

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
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165	Cybersecurity, Intrusion Detection and Management	Does the IT organization routinely review logs to identify incoming and outgoing traffic to potentially suspicious or malicious sites?	O	1		In process of installing new Firewall and IPS systems
166	Cybersecurity, Intrusion Detection and Management	Does the IT organization have an independent testing organization routinely perform perimeter and other testing to ensure the adequacy of controls?	N	0		
167	Cybersecurity, Mobility	If users access City information or services using remote devices has the IT organization adopted appropriate procedures (such as mobile device management) to secure these devices from use by unauthorized individuals?	Y	3		We use IBM (fiberLink) MaaS360 MDM
168	Patch Management	Is security patching up to date on all components including servers, routers, switches, and desktops?	O	1		We use WSUS for patch management.
169	Patch Management	Is patching automated?	O	1		Depending on the software
170	Patch Management	Does the IT organization have formal (i.e. documented), change management procedures for infrastructure patches and upgrades?	N	0		No documented procedures
171	Patch Management	Does the IT organization apply patches and hot fixes in a timely manner according to the severity of the issue and as per vendor recommendations?	O	1		Depending on software

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
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Administration						
172	IT Organization	Is there an organization chart for the IT organization?	Y	3		
173	IT Organization	Are the functional responsibilities for each unit and staff member clearly delineated?	O	2		
174	IT Organization	Does the IT organization have a resource management plan to ensure that it can continue to meet user requirements in the future?	N	0		
175	IT Organization	Does the IT organization have formal job descriptions for each position?	Y	3		
176	IT Organization	Does the IT organization have a succession plan for each position?	O	2		
177	IT Organization	Does the IT Organization have a training / development plan for each position?	O	1		
178	Procurement, Contracts and Vendor Management	Does the IT organization rely on contractors, outside vendors or interns to assist with support? If so, does it have procedures to ensure that their work is documented and conforms to standards?	O	2		Depends on application Sheriff uses TriTech for CAD RMS support
179	Procurement, Contracts and Vendor Management	Does the IT organization review all procurements of IT goods and services?	O	2		New Policy was sent out May 2016 that defines this.
180	Procurement, Contracts and Vendor Management	Are all IT contracts centralized and accessible by IT?	O	2		Public Works is the exception.
181	Procurement, Contracts and Vendor Management	Does the IT organization have contracts tracking and management process in place?	N	0		
182	Procurement, Contracts and Vendor Management	Does the IT organization regularly meet with IT vendors?	Y	3		
183	Procurement, Contracts and Vendor Management	Are SLAs specified in vendor contracts?	O	1		

Nbr	Dimension / Category	Best Practice Factor	Best Practice Conformance			Comments (NL = Comment from NexLevel)
			Yes, No, Other	Score (3,2,1)	Doc Avail-able?	
184	Procurement, Contracts and Vendor Management	Does the IT organization generally have positive vendor relationships?	Y	3		
185	Software License Management	Does the IT organization have a central repository for all IT licenses?	N	0		
186	Software License Management	Does the IT organization handle license renewals on a timely basis?	Y	3		
187	Software License Management	Does the IT organization have a formal license management/auditing process?	N	0		
188	Inventory Management	Does the IT organization have a hardware and software inventory control system?	Y	3		
189	Inventory Management	Does the IT organization have a current inventory of servers, desktops, printers, applications, etc.?	Y	3		
190	Budget	Are all technology maintenance contracts budgeted within the IT organization?	N	0		
191	Budget	Does the City have a formal process for submitting items for the IT budget?	Y	3		I turn in CIP and Supplemental requests annually
192	Technical Documentation	Are operational procedures documented (i.e. backups)?	O	2		Needs to be redone when we upgrade July 2016
193	Technical Documentation	Does the IT organization maintain a master vendor list with contact information?	Y	3		NVCOOP (Nevada Continuity of Operations)
194	Policies and Procedures	Does the IT organization plan have a process for the periodic review and update of additional policies and procedures?	N	0		
195	IT Documentation	Does the IT organization maintained detailed and current technical documentation for the City's IT infrastructure?	N	0		
196	Tactical Workplan	Does the IT organization maintain a tactical work plan that details the tasks assigned to each staff member, the duration of the tasks, and the start and completion dates?	O	1		We have an informal plan

Information Technology Strategic Plan

"Voice of the User" Survey Results Report

Prepared by:

NEXLEVEL
Information Technology, Inc.

July, 2016

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1.0 Survey Methodology

Between June 10, 2016 and June 24, 2016, NexLevel Information Technology, Inc. (NexLevel) conducted an on-line survey of City of Carson City (City) employees to assess their satisfaction with the support they receive from the Information Technology Department. Of the approximately 575 City employees invited to take the survey, 193 employees participated (34%).

The survey included four types of survey questions: Demographic, Standard Rated Response, Yes/No, and Open-Ended.

Demographic Questions

These questions provide a profile of the respondents and include:

- Department
- Role within the department
- Method, frequency and reasons to contact IT for assistance

Standard Rated Response Questions

For each question that asks for a "rated" response of satisfaction, a chart documents the percentage of responses for level of satisfaction (Very Satisfied, Satisfied, Somewhat Satisfied, Very Dissatisfied, Dissatisfied, Somewhat Dissatisfied). The total number of responses may not equal 193 as the respondents could stop the survey at any point.

Yes/No Questions

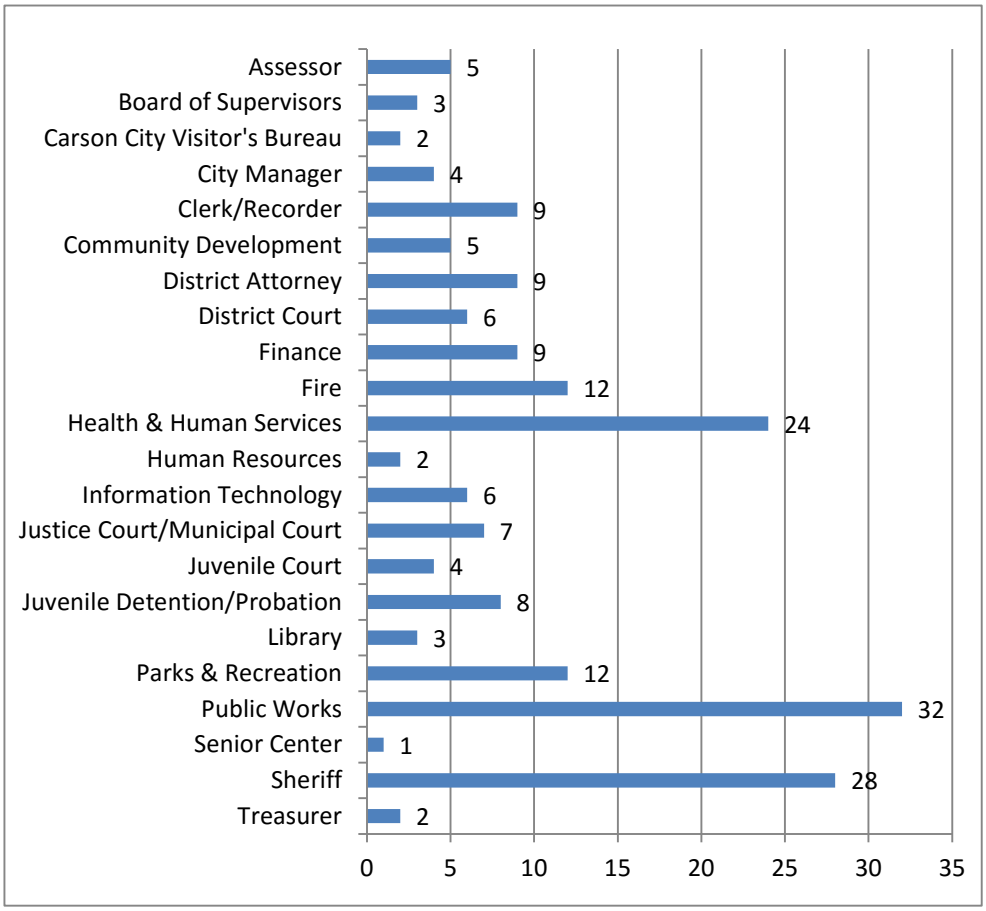
Questions that ask for a "yes" or "no" response, and allow comments when the response is "yes".

Open-Ended Questions

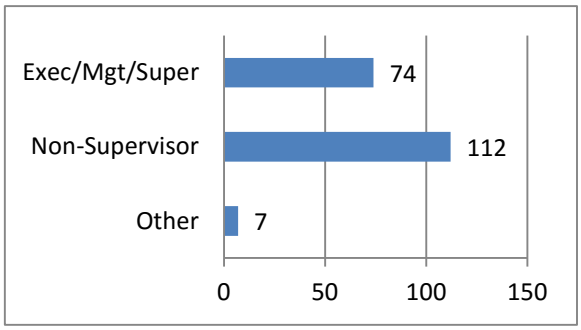
Some survey questions provide for open-ended responses, comments or observations. NexLevel provides these comments from all users; however, comments relative to specific individuals, duplicate answers, no comment, or N/A responses have been deleted. In addition, some misspellings have been corrected.

2.0 Respondent Information

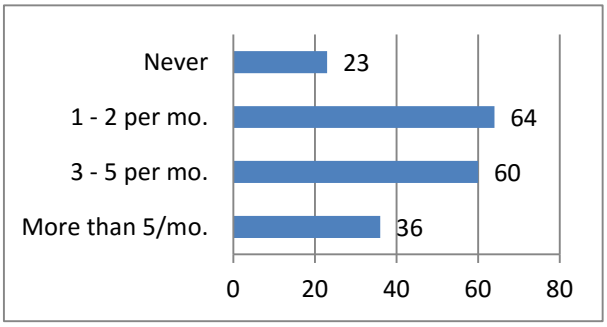
Q1 - Department (193 Responses)



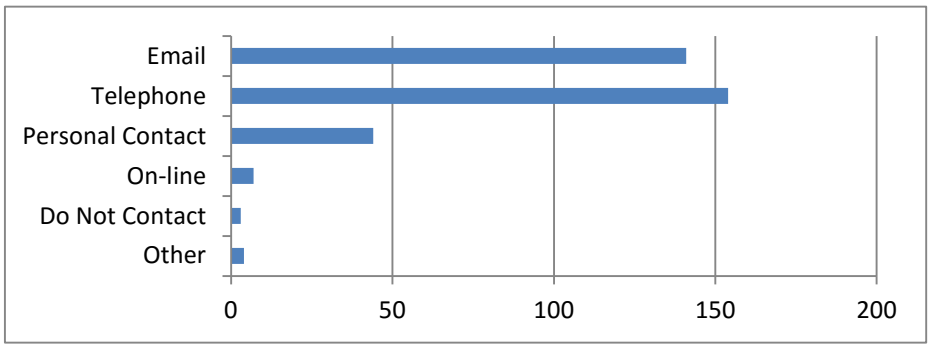
Q2 - Role in Organization (193 Responses)



Q4 - Frequency of IT Contact (183 Responses)



Q3 - Method of Contacting IT (184 Responses, multiple answers allowed)



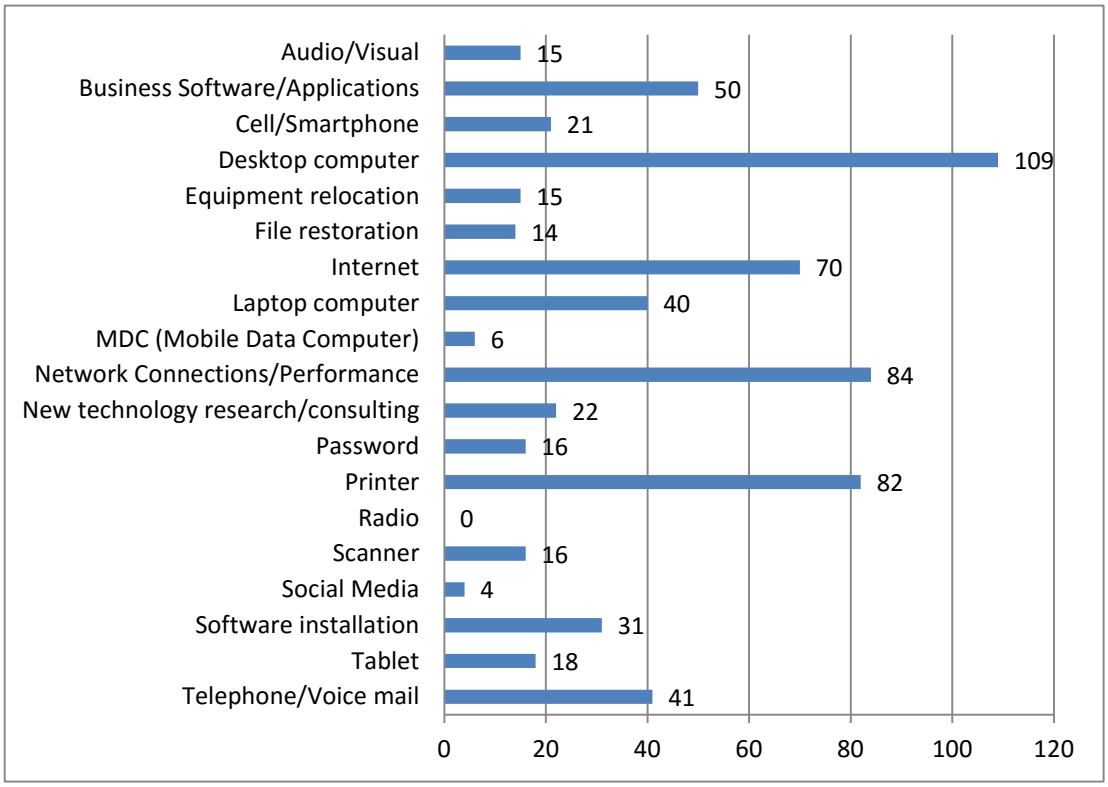
Other (Please specify)

- Depends on what I need and how urgent
- Email
- Sometimes I contact office manager and sometimes direct phone call.
- Through the court's IT person, Tracy

3.0 Service Delivery

Q5 - Reasons you contact IT

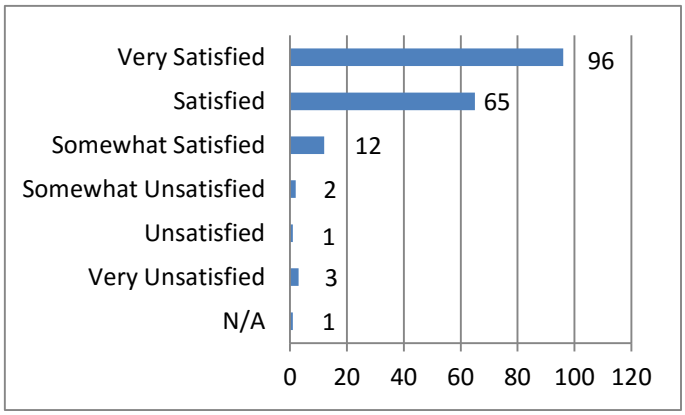
174 people responded to this question. The following chart identifies the reasons respondents provided for contacting IT. Respondents could check more than one reason.



Other (Please specify)

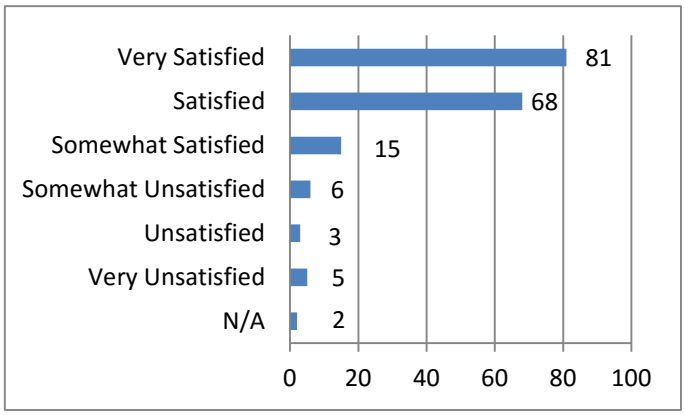
- AS400
- e-Clinical Works
- Electronic Medical Records functioning
- I am a new employee so setting up devices.
- I am sent a 45-day report through a secure email. I have problems opening the attachment. I have also had problems with errors and the CAREWare system, which is a work in progress.
- Mostly for the new Granicus program
- Network Access for new employee
- Posting information, corrections on website
- Programs not working
- Software Program issues
- Specific reports and HTE issues
- We had just moved into the MAC so there were some connectivity issues, but IT has been great with us!
- Website and outside access to files

Q6 - Hours of Service provided by IT



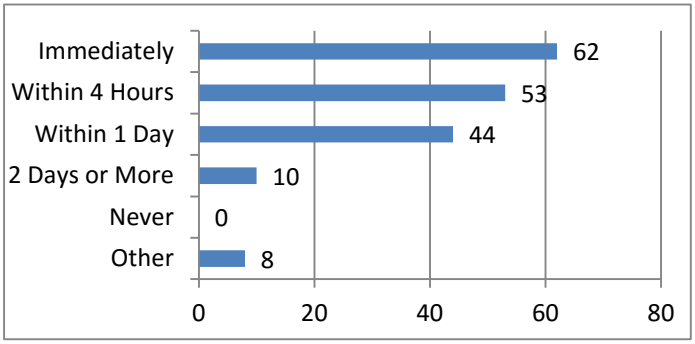
180 Responses

Q7 - Process to report issues to IT or request services from IT



180 Responses

Q8 - Time it takes IT to acknowledge your request for service

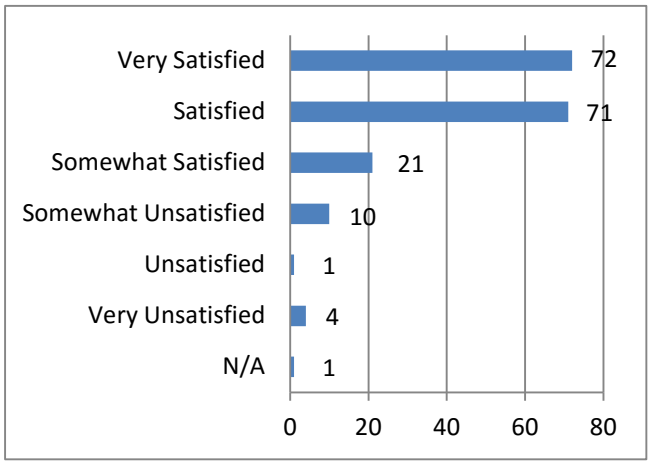


177 Responses

Other (Please specify)

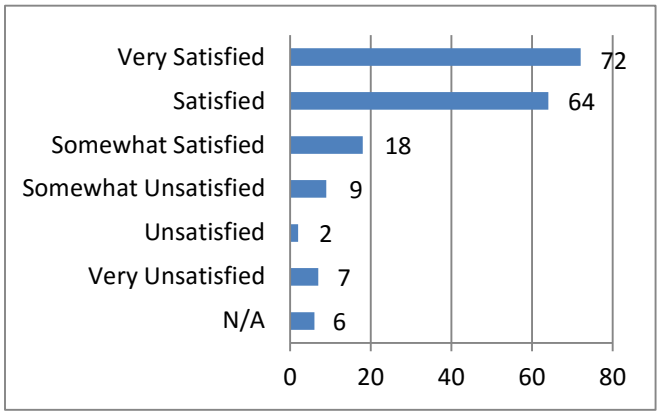
- Almost everytime I have needed help its been within Immediately to about an hour.
- At times it may be more than 2 days, or could be weeks.
- Depends - Auditors request 3 reports on Wednesday regarding GMBA security, I only received one so far. It's now Friday.
- Depends on who the request goes to. Sometimes it is immediate and then there are times that it takes forever to take care of the problem.
- It varies
- Usually same day turn around
- Usually within an hour
- Very good response from hours to 1 day, with the exception of one person who never responded to my emails.

Q9 - Time it takes IT to solve/correct your problem



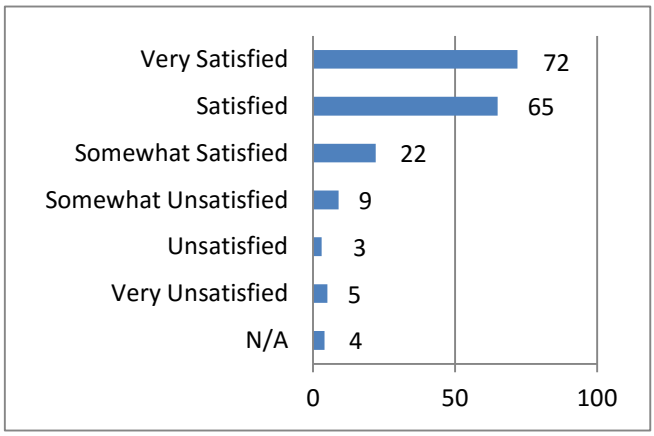
180 Responses

Q10 - Communications on issue resolution from IT



178 Responses

Q11 - IT follow-up on the service provided



Q12 - Comments on IT service delivery

- Always very helpful and informative. Service with a smile!
- Everyone there is very helpful and nice!
- Front line crew is exceptionally eager to get things fixed and working as fast as possible. Their demeanor is outstanding. Market your guys and gals.
- Great people.
- I am not saying that this is all of the IT department. It is only some individuals that I have had to have contact with in my department recently. I understand fully that they have a very busy schedule, as well as myself. I feel as if some things have fallen poorly through the cracks. If you were to look back a year or so ago, I believe that we had better services. There is a severe lack of communication and zero follow up. I also understand that these individuals have gone to school for this career but they have argued with individuals in our department about how some electronics work for us. If they would just take a second and a step back, then they may learn something new and easier. I cannot say I could do this myself but they could learn a thing or two from their colleagues.
- I appreciate all the help we receive from IT.
- I have experienced being unable to log into webmail and the system on weekends which usually don't get fixed until the week starts. Maybe I need to have more familiarity with the emergency contact numbers.
- I have not experienced a follow up/check back. Lucky if I am even able to discuss what was the issue. My normal experience with an IT Technician is he "flies in and flies out" with little to no communication. Also the issue may not be resolved the way I need it. IT tends to do what they want and not what you ask/need. If one technician knows how to resolve the issue, the tech that arrives doesn't want to hear that nor get advice from the one that can successfully resolve the problem. We have been told we can request a specific technician so we deal with the problem or a bigger issue arises from the results of that specific service.
- I receive quick, friendly, and attentive service from most everyone in the IT dept.
- I think that some of the staff needs more training? Changes can be made to computers, but then the following week, you have to call again and have it fixed. Security is another issue. Why can't you copy a user's access and give it to another?
- I'm very satisfied with IT's service delivery. Good job and thank you!
- IT has consistently been very responsive and efficient in resolving my issues
- It is refreshing to see the type of professional and knowledgeable employees IT is composed of. Always

ready to find a solution to the problem and follow up after the issue has been resolved.

- IT Staff provides respectful and considerate customer service. I personally appreciate this quality service
- It would be helpful to have a standardized IT request form in order to forward and advise the full nature of the problem, as well as the urgency in resolution, and receive a ticket number right away. Being at the Court, it is imperative that our systems are always in full working order or else time and money is wasted on a large scale and schedules have to be reworked which is not always possible within given time frames of the court system.
- Keep up the good work.
- Kind and professional
- More cross training is needed with specialty application/software as one of eight requests will result in the person who takes the request has to pass it on to someone who has the expertise - and that person may be off for the day, out sick, etc., resulting in a delayed response. However, this has started to occur with less frequency than before.
- Most of the time service is prompt with good communication. There was one instance in which it took over a month to complete a very simple task.
- Not only are they prompt, but they are also always very friendly and helpful with a great attitude! Thank you!
- Once we obtain the service from IT, 99% of the time it is wonderful. Our problem is generally at the beginning of an issue, we don't know what to tell customers other than the computers aren't working right now because IT doesn't inform us of what, when, why & how.
- One IT staff member does not timely respond or acknowledge requests sent directly to this person via email.
- Our whole daily functioning depends on the computers working. It is very difficult if it goes down and we are not able to function. Wish we had the ability to always have it working correctly.
- Service is much better now than it has been in the past. I remember waiting weeks for a response to some problems.
- Sometimes it takes too long to get things done. Maybe more communication will be better
- Thank you for all you do. I am sure the staff are not thanked often enough and those that need IT assistance are often demanding. I can only imagine all of the tasks that are completed City-wide. What you do is very important to the operations of the City. Thank you!
- The IT guys are awesome, pleasant, attentive and extremely helpful. The equipment, not so much.
- The IT staff is very knowledgeable, customer service has been outstanding.
- The only problem is not with our IT dept., but with our Internet connections. It is frustrating when unable to maintain/establish internet connections and our IT guys can't do anything to fix it, as they are waiting for state IT, etc. Our IT dept. is fabulous and very helpful to those of us that are not very tech savvy. They are always kind and considerate, and make sure we understand what we can do in the future by ourselves.
- The staff at ITare knowledgeable, accommodating and very helpful.
- There are certain items that it takes longer to get resolved, such as scanning issues.
- There were some problems and miscommunication when I started using Granicus but those issues seem to have been resolved and things are running smooth for now.
- Top-notch service
- You guys always do a great job!

4.0 IT Infrastructure

Q13 - Satisfaction with technology devices

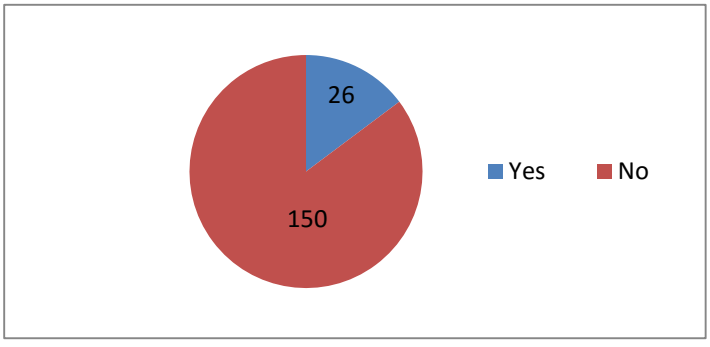
The table below depicts user satisfaction with technology devices used within City departments. Respondents could evaluate multiple equipment.

Device	Very Satisfied	Satisfied	Somewhat Satisfied	Somewhat Unsatisfied	Unsatisfied	Very Unsatisfied	N/A
Desktop PC	43	67	22	13	5	3	23
Laptop PC	21	22	10	5	0	0	87
Moblile Data Computer	7	12	1	4	0	1	111
Printer	35	74	28	9	4	7	12
Scanner	29	71	7	6	3	2	37
Smartphone	25	29	4	1	0	1	83
Tablet/iPad	11	16	4	1	0	1	107
Telephone	41	80	26	3	3	2	9

Other (Please specify)

- A new phone was installed and with no operations manual. This would be very helpful to be able to know how to navigate all the functions.
- Douglas County provides our telephone services
- Have been trying to get department -wide encrypted email functions for quite some time without success. Would request that this be put on a priority list for completion
- I am not satisfied with internet.
- My monitor doesn't work very well.
- Our phone systems seem to have some challenges pretty often and our internet is very slow and it drops coverage pretty easy
- Telephone system is not user friendly. We just do not like this system
- Working with Scott on printers.

Q14 - Is there hardware or equipment you need to perform your job

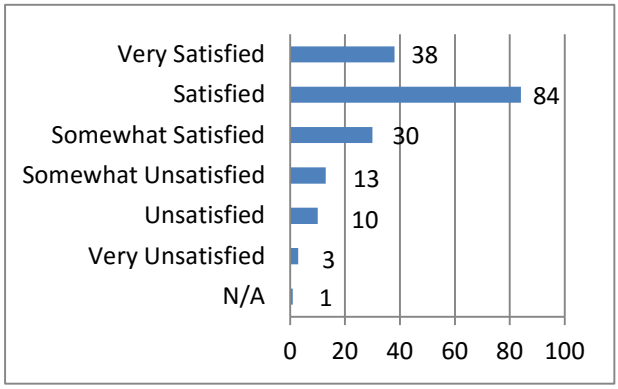


Yes (Please specify)

- A better printer to accommodate the needs of the department.
- A disk drive on my desk top. Thin client
- Air card for tablet
- An iPad I can take notes with
- Considering a tablet for one of our field personnel.

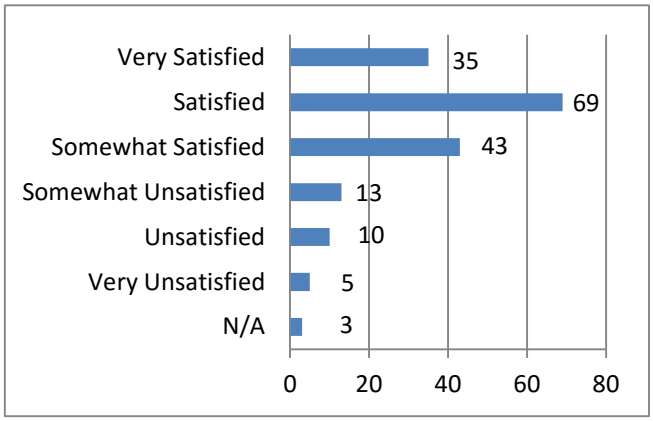
- Electronic Plan Check
- Fax equipment and scanner
- I'd love a laptop. So I could access HTE/GMBA when out of the office. (Not a Macpro) I have no desire to learn a new operating system and Nancy has been very frustrated with hers. Nancy and I attend meetings together at times, and the burden falls on her a lot. Should really be the other way around.
- Just a simple printer
- Laptop for out of office outreach and services to clients
- Large monitor for reviewing plans.
- Larger Wi-Fi network at Fleet.
- Optical cd/dvd drive
- Phone, scanner
- Tablet would allow me to access our systems while in Court.
- Telephone access (no outlet in office)
- We may be moving in the direction of needing mobile devices but not now
- We would like tablets
- Printer/copy machine lease for library.
- Would like to have technology set up to work from home occasionally
- Yes however there is a ticket in for the work and it's been planned for next week

Q15 - Network availability



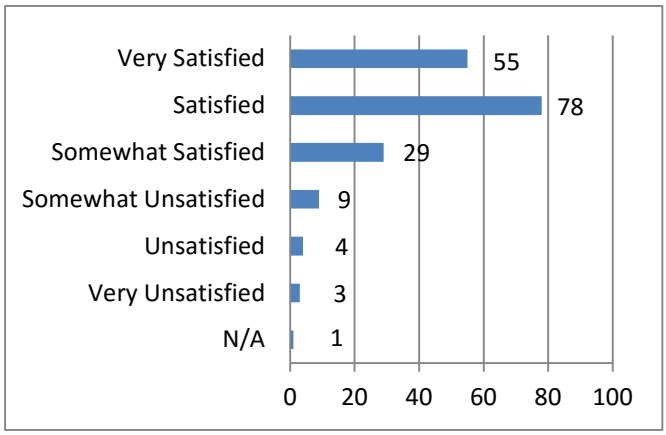
179 Responses

Q16 - Speed of Internet



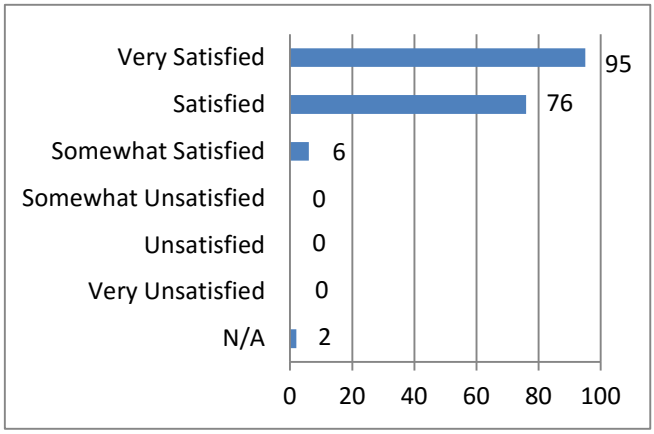
178 Responses

Q17 - Control of spam and unwanted email



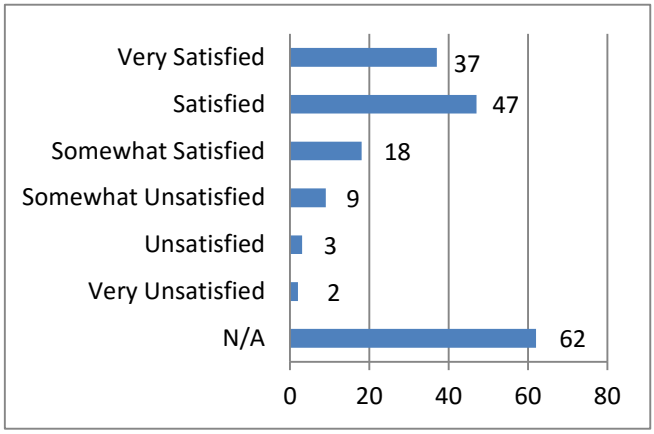
179 Responses

Q18 - Communications on service outages and maintenance



179 Responses

Q19 - Availability of mobile, wireless and remote access



178 Responses

Comments on mobile, wireless, or remote access

- Cell phone usage inside the administration building is spotty, unable to use in certain areas throughout the building
- I cannot get my wireless phone to work well in the setting that I work in and it has apps on it that I work with
- I only have remote access to e-mails from my iPhone. So it's very limiting.
- I still would like to learn about remote access.
- Internet is not very good.
- It would be nice if we could use Microsoft Outlook for mobile devices, since it has much better management tools than the native options we are required to use.
- Maas 360 uses a lot of data
- More to do with GoToMyPC than with IT. I use two monitors at work and two monitors at home but I can only have GoToMyPC on one of my monitors at home and only look at one work monitor at a time.
- Now that we have VPN our Internet is better for the officers
- Staff hooked up my smartphone immediately and were very helpful.
- Station 52 Internet speed is very slow
- The Internet to my computer is not working very well. It says the Browser is outdated. This is starting to affect my work - have not reported it yet.
- The spam software only catches about 50% of the advertisements and other useless junk mail.
- These services are not available to our program
- VPN access is severely lacking
- VPN remote access is extremely slow.
- VPN works well.
- Would like to have technology set up to work from home occasionally

Q20 - Comments on IT Infrastructure, communications network or its support

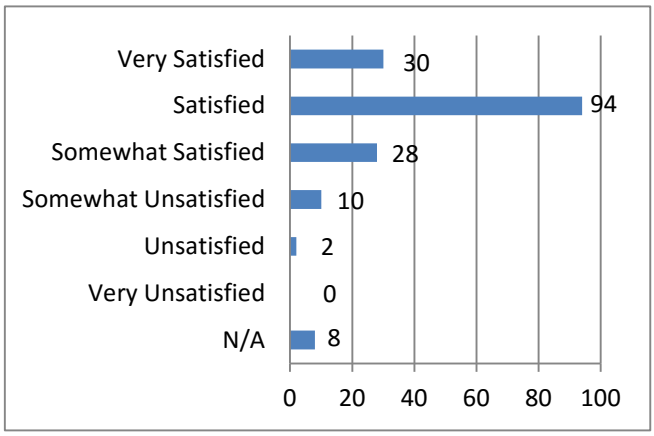
- I know that some of these things are out of their hands. It gets very frustrating on our part when we feel like we are not being heard. All around there is a lack of communication. It can be difficult explaining things to IT when an issue arises and tend to walk away feeling pretty dumb.
- I feel if there is a specific technician that knows your equipment or service that was provided you should be able to contact Help Desk requesting that technician.
- I think the IT staff is responsive as well as knowledgeable on the needs of the Division. In other words, they understand that when we are locked out or shut down it affects more than just typing a letter. They respond quickly and respectfully. Sometimes it's hard to do when everyone that calls you believes they are the most important emergency---your team handles it well and treats everyone as the most important! Thank you!
- Juvenile needs to get a better connection to the Internet.
- Our department is "extremely happy" with the IT department. Friendly, knowledgeable & patient, a perfect mix when dealing with computer illiterates like ourselves. Our only request is better communication. Please.
- Printers fail often and I receive way too many spam emails
- The current staff is highly responsive to IT technology needs of our department. I commend the personal customer service and passion for the job that has been a part of IT staffing changes.
- The network access/Internet is very unreliable and I am often sitting, waiting for it to be restored, restarting computer, having service go out and come back intermittently -- while on tight deadlines and

in court is very frustrating. It happens at least every other week is seems.

- The timing of updates seems to coincide with challenges met on the individual devices. Example, today's updates caused us to have to reboot our conference room (laptop) computer twice before all updates were applied. It worked well after second reboot.
- Unfortunately, we have experienced extremely slow network connections at peak times. I'm not sure whether this is due to a provider change or the network delivery system being old. But, it's extremely frustrating when work cannot be completed in a timely manner or calls are dropped when the network is consistently down.

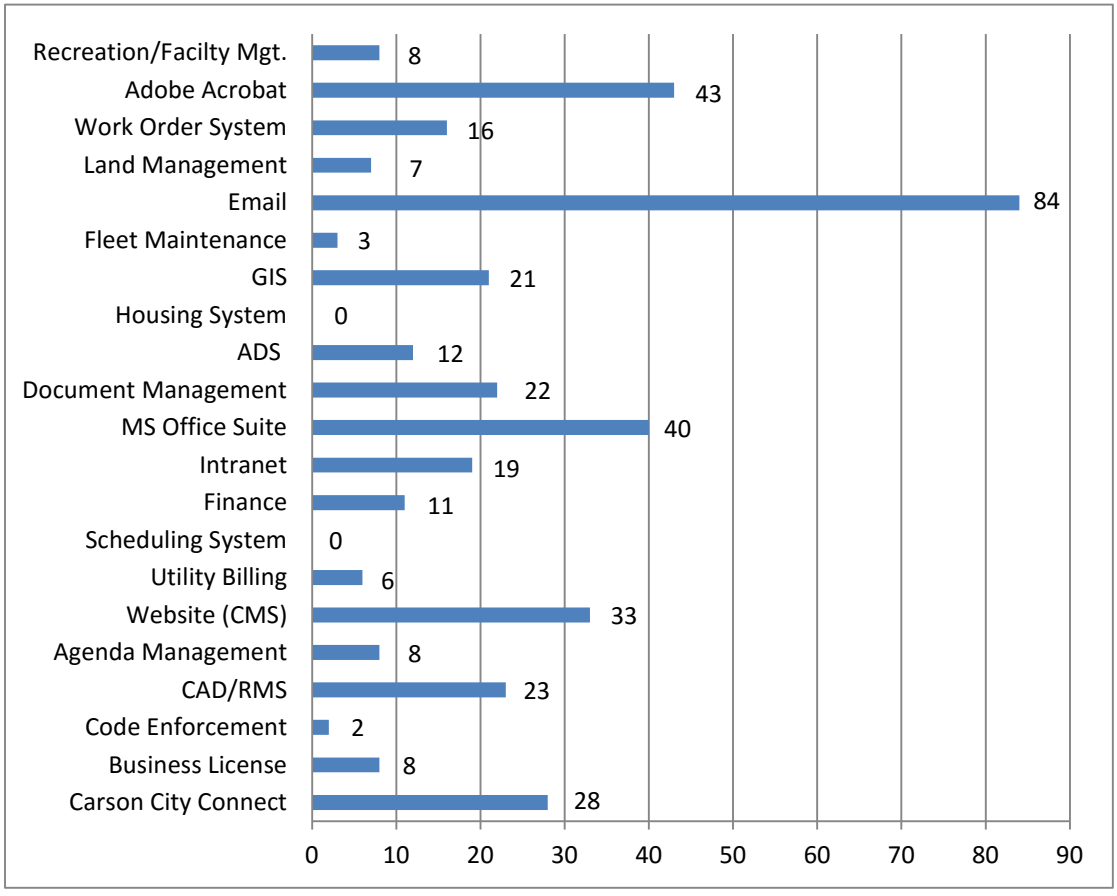
5.0 Business Technology Applications

Q21 – Business applications used



172 Responses

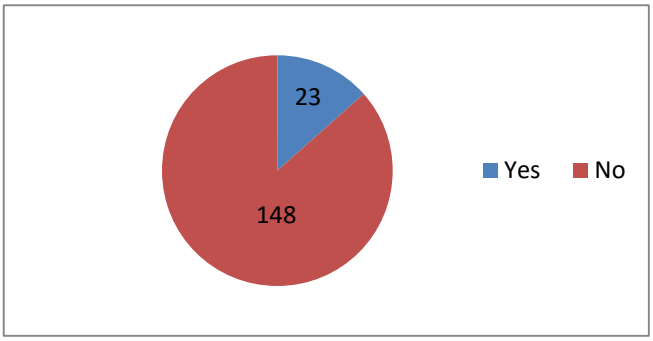
Q22 - Business applications requiring IT assistance (141 responses, multiple answers allowed)



Other (Please specify)

- AS400, HTE, ArcView Map
- Basis
- Court related software.
- Courtview
- Document Management runs really well. I only need to contact IT when my memory space is used up.
- e-Clinical Works
- ECW
- Encryption Protected Email
- FireHouse
- HTE
- If the Historical Society (HRC) was placed into GIS would help.
- Network Access
- Our EMR, eclinical works.
- Parking software click to Gov
- Printer software
- Quicken
- Still trying to get the Library's Board Meetings onto Granicus.
- Sweeps
- Tiburon
- Website is often down for the public to view/print our documents

Q23 - Are there business applications you need

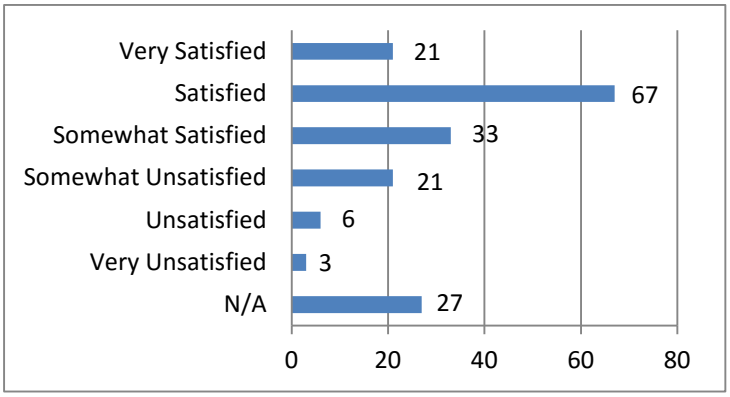


Yes (Please specify)

- Adobe acrobat
- Adobe Acrobat Pro for all computers and increased memory
- Asset management, playground safety inventory/inspection
- AutoTurn for Civil 3D 2016
- Better parking software
- Crystal Reports
- EPC discussed earlier.
- eRPortal / Axis camera station /
- First, I have not requested assistance yet but I need to. For our field personnel, I would like a tablet with a map application to identify property ownership.

- Have been trying to get department -wide encrypted email functions for quite some time without success. Would request that this be put on a priority list for completion
- I can live with Internet Explorer, but Firefox might be more efficient
- It is very hard to get data out of HTE to create reports. I have to print the report then manually transfer the data to excel so I can create the report. Also, there is no good "dashboard" to see how many projects are in our queue and how long they have been there at a glance.
- Latest Adobe and form management, fleet management software web based is a huge need within the city.
- Photoshop
- Photoshop would be great for our department.
- Possibly, to set up access for working at home.
- Snag It, etc.
- Some programs are not available to watch or edit video
- We could use the updated and upgraded Webextender.
- We would like MLS and a new CAMA system
- We've tried to work with IT in the past on a document scanning system. Documentum is not user friendly, and there is way too much data entry. GMBA/HTE has an icon to add documents to the AP transactions, fixed asset transactions, etc., so someone was supposed to find a program that could index and secure documents attached to a transaction. Currently anyone can add or delete documents in that system, so we don't use it, because documents can be deleted by someone not knowing what they are doing, and we have no back-up or support, and then we end up with audit findings, break State retention laws, etc. We haven't heard anything in over a year. If there is nothing out there that'll work with GMBA, that's fine, I just haven't heard. In addition, we purchased the P-Card Module from HTE and have never used it because what they originally sold us on, what untrue, they said they'd fix it, well it's been over 3 years. My understanding is we've never received a refund.

Q24 - Training on business applications



Q25 - Comments on business technology applications or support:

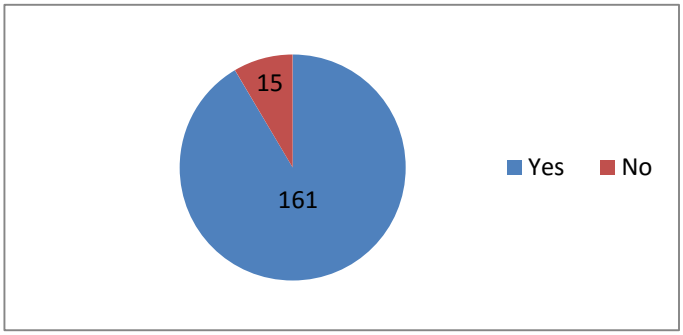
- Haven't received hardly any training in SunGard
- I have requested onsite training for the past few years and have not received it.
- It would be nice if we were allowed to speak directly to individuals who helped us with a problem on the business application previously. Instead of having to go through several different IT employees, getting a different answer every time. When the issue was resolved the first time and we got what we needed

then. It seems as if we are not allowed to request certain individuals for the same issue. What I am trying to say is we need the same steps taken for someone else in our department but because we get another individual answering a work order. We get a completely different outcome and causes issues after-the-fact that seem irreversible. The reason I say irreversible is because basically we hate to call back. Then left feeling like we are pestering IT.

- Need for form management and Adobe needs. Also wireless printing is a must. (Air print)
- NeoGov does not provide one-on-one training. Rather offers tutorials for individuals to learn their program. I have had to form a user group for others who are also in the same situation, so that we can have some sort of resource to turn to regarding NeoGov functionality.
- No training
- Only training I'm aware of is what I can find on the Internet.
- The new website training was too long and not very flexible for our schedules.
- Training sessions are few and far between. Much of what we learn we have to experiment or ask others in the office.
- We (library) would like to work closely with IT, in the ability to offer more basic instruction to city employees on software applications. Lynda.com is currently available, but sometimes staff need more specific help with applications (such as Microsoft Office)
- We were not aware of the web page changing until it was too late. We wanted to make changes but we weren't consulted. By the time we were aware of the change it was too late to do anything about it. Again, I just think that communicating will alleviate these issues.
- What training? We just figure things out.
- Would like to see a user's guide developed for HTE users.

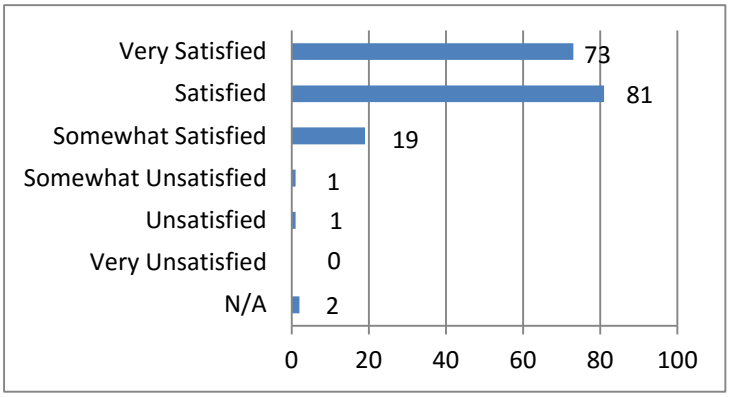
6.0 Security and Data Protection

Q26 – Awareness of technology usage and security policies



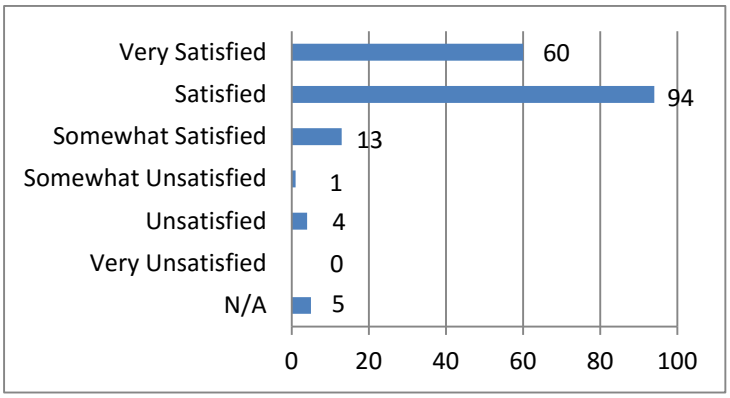
176 Responses

Q27 - Control of malware and prevention of viruses



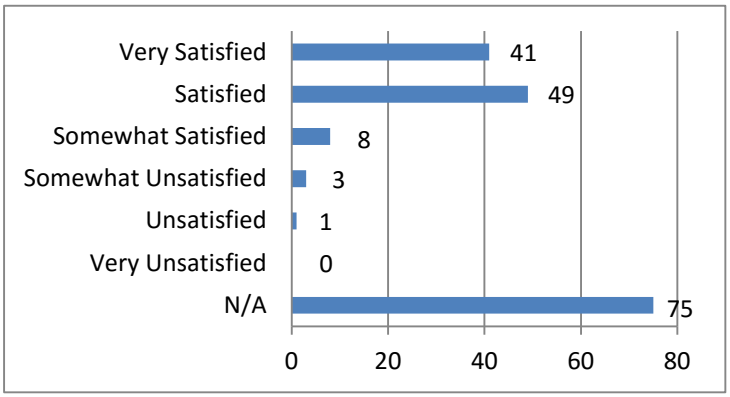
177 Responses

Q28 - Enforcement of password policy



177 Responses

Q29 - Ability to recover lost file or damaged files

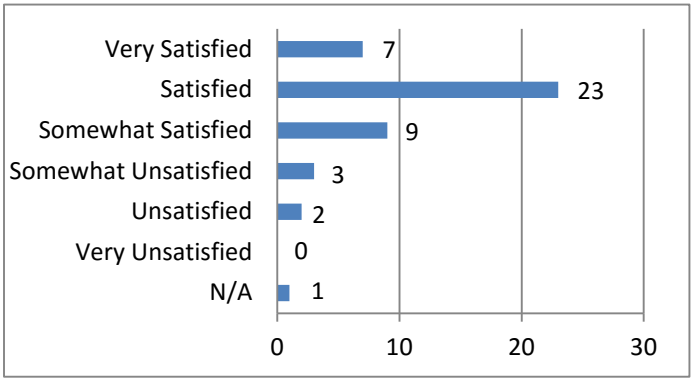


Q30 - Comments on IT's security oversight

- IT has been actively involved in collaborative processes for HIPAA and confidentiality in IT equipment and processes. Appreciate that IT has taken such an active role. Your expertise is necessary and invaluable
- I've never needed to attempt to recover a lost file or damaged file.
- Lost a hard drive within second month of being with Carson City
- Need alert from IT when password is going to change
- The Mobile Device Policy is not useful. If I purchase a laptop my department will reimburse me $1,000. However, because it is my property, the security policies state I cannot use it for work - that's crazy.
- Too many passwords and too case and number sensitive
- We used to be able to "restore previous versions of files.

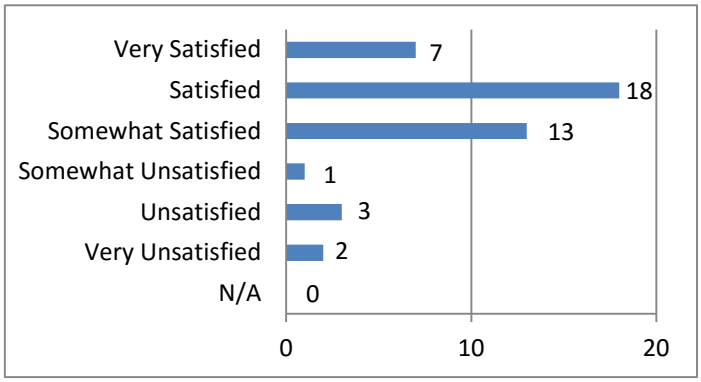
7.0 Technology Governance

Q32 - IT's understanding of City's business objectives



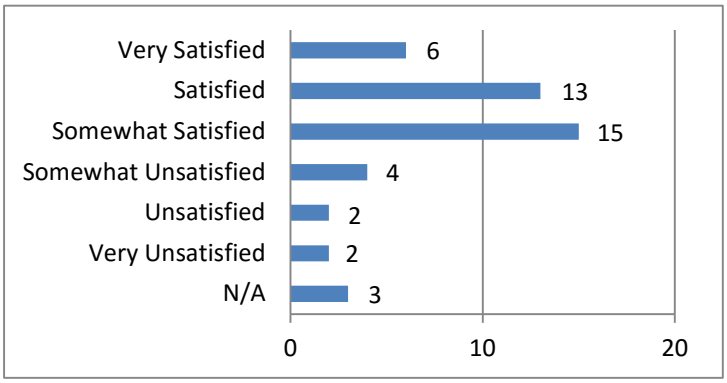
45 Responses

Q33 - IT's understanding of your department's business operations



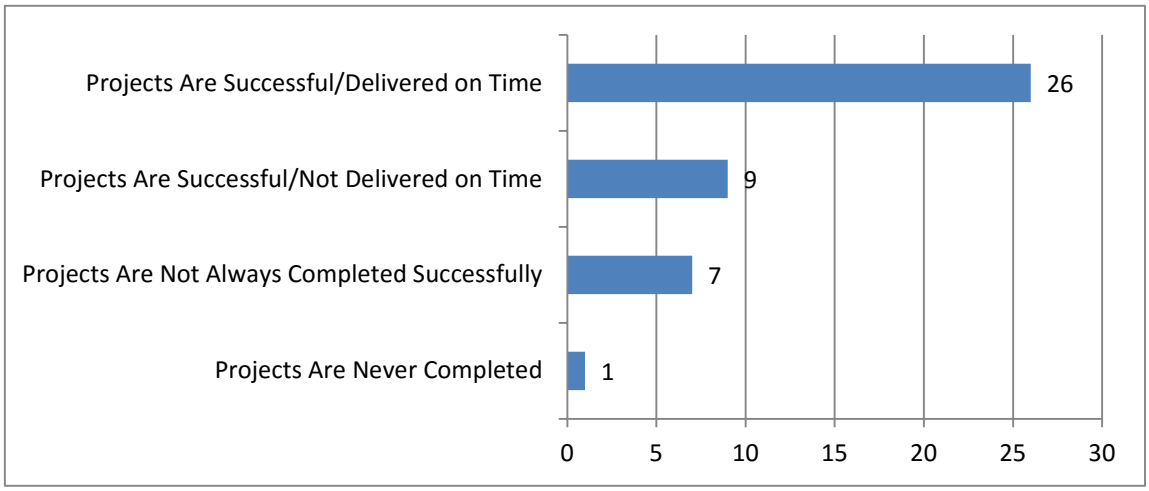
44 Responses

Q34 - City's technology planning efforts



45 Responses

Q35 - IT's management of technology projects

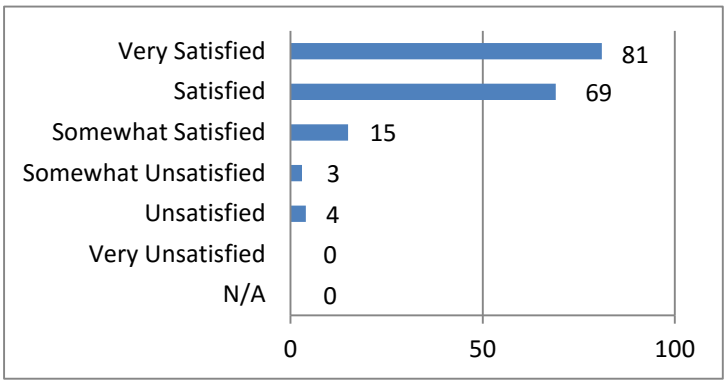


Q36 - Comments on technology leadership and governance practices

- Certain projects over the past 12 months have been completed successfully, but I can't answer that way, when a few items we have asked for repeatedly are never completed (Document storage and P-Card Application). If IT is working on them, it hasn't been communicated to me, so it appears nothing is happening. These items have been open for close to 3 years, so it's hard to believe they are really being worked on.
- Classes provided by IT for city staff would be beneficial, so departments wouldn't have to pay for training to a third party.
- IT should be responsible and funded for a computer replacement schedule.
- Low ratings result from inability to achieve connectivity with Sheriff's Office assets (mobile camera). The department has to use outside Wi-Fi in order to connect and the problem is not being resolved. This goes just as well to Wi-Fi installation in the jail, and video/phone technology in the jail. Inability to connect to resources makes expenditures wasteful.
- Not receptive to user input.
- The phone system has been very helpful.
- There should be a comprehensive IT plan to replace computers and other technology rather than relying on individual departments to plan for it.

8.0 Overall Assessment

Q37 - Overall support received from IT



Q38 - What does IT do well

- All the guys are great!
- Asks questions.
- Communicate
- Communicate, pleasantly
- Communication and response, I know that if I have a problem IT will do what they can to help out and they will do it as quickly as possible.
- Communication has greatly improved over the last year.
- Communication is much better.
- Communications and quick replies to requests have definitely improved over the last 12 months.
- Contact you, letting you know what is wrong and giving a time frame of when it'll be fixed
- Customer Service
- Customer Service Timely Responses Consistent resolution of issues Providing education in non-technical, everyday language
- Customer Service and knowledge on how to resolve issues.
- Customer service is done well; friendly and courteous.
- Customer service, timeliness of requests, knowledge base
- Data recovery, PR is great. Overall they do a good job when needed.
- Efficiency and customer service
- Everything I've needed.
- Everything. Very prompt service. IT team is always professional and kind. You don't get the typical "did you make sure it's plugged in" attitude.
- Everything.
- Exceptional employees and rapid response repair
- Fast and efficient
- Fast Response - to all problems I have had.
- Fast, correct and friendly response.
- Fix the issue and provide input.
- Fixing the issue.

- Fixing things with a smile. (So appreciated)
- Friendly, personal staff.
- Help desk
- Helps get back online
- I believe their customer service is outstanding! Always helpful, polite, and prompt when responding. Extremely knowledgeable in their specific areas of expertise.
- I have found them responsive and helpful
- I know they are very busy, but they respond to problems quickly and I am generally pleased with the results.
- I think we all understand that the IT staff are very busy and do the best with what they have. IT is just like the rest of the departments, struggling to meet the demand for services with limited staff and resources.
- IT always responds quickly to any issues and resolves them as quickly as possible.
- IT fixes my problems. Fast. Correctly. And they all have great attitudes, and terrific customer (me) service.
- IT responds promptly, they are always friendly and professional.
- IT staff personally checking in with us to see if there are concerns, problems, and needs.
- ITs response time is very fast and most people have a positive demeanor while doing it.
- Keep a network and Internet system running mostly well.
- Keep computers and networks available and operating; respond to requests to keep employees' computers operating.
- Most of IT has great attitudes. What I put forth, under normal circumstances comes back.
- Most staff members respond quickly. All are very friendly.
- Notice for updates or interruptions in service
- On the initial contact, they try to solve the problem right then. If they can't then they get back to me on an answer.
- Personal and quick response. Explains information well.
- Personal contact is prompt. Are now always asking what else they can do. When small needs are met, makes people feel like IT cares
- Personnel contact and follow up.
- Pleasant and solves the problems
- Process' work orders in a timely manner, keeps us updated on the process.
- Prompt response to problems, friendliness of IT staff, and quick resolutions
- Quick response and patience with user
- Quick service, takes care of issue the first time
- Quick to respond to issues, kind, helpful, and speak English instead of tech.
- Research issues
- Resolve issue fairly quickly
- Resolving problems quickly.
- Respond on the help line
- Respond quickly in a helpful, friendly manner.
- Respond quickly to issues.
- Respond to and resolve problems/inquiries in a timely manner
- Respond to problems given the infrastructure they have.
- Respond to request for assistance, explain solutions in terms we can understand.
- Respond to requests for service

- Respond, explain, and resolve. If they are in the building and have a minute they will pop in and make sure all is working well.
- Responds promptly, very professional and courteous, quick resolution of problem
- Response time
- Response time is great
- Response times and attention to bringing IT needs into the 21st century.
- Responsive, very nice.
- Return phone calls and works hard to take care of our issues.
- Since the changes in personnel with IT, I think this group is fabulous! They get back to me right away, remember who I am, and resolve issues quickly. I very much appreciate this team.
- Solves most issues quickly.
- Speedy response time, helpful attitudes, patience
- Super friendly and willing to assist with any problems that arise in our department.
- The guys are really easy to work with.
- The technicians are courteous and considerate.
- Their responses to service requests are timely and thorough.
- They all try to help us out here, but there needs to be more cross training, and communication within the department
- They are responsive when a problem arises and they fix the issue in a timely fashion.
- They are very friendly, always quick to try and resolve issues.
- They are very quick in their response or know where to direct you for the help that is needed.
- They do their best with the resources they have and try to ensure problems are resolved ASAP.
- They're fast, friendly, and efficient.
- Try to fix the issue as quickly as possible. Friendly with us and don't get impatient.
- Very friendly and helpful. Great supportive attitude!
- Very quick to respond, and very courteous.
- Very responsive and quick to address concerns.
- Well in being available
- When I have called about computer issues they are able to resolve them quickly by phone.
- When making a call to IT with a phone or computer issue it is usually resolved while I am on the phone and no ticket needed.
- When they are notified of a problem they jump right on it.
- You do very well for the staffing you have, you need more people

Q39 - What can IT do better

- A quick call back to let people know that they are not going to address a problem right away.
- Answer the phone before the first ring (just kidding).
- At least for board members, more instruction on file and data storage techniques and requirements.
- Be more objective to different department needs.
- Better communication on progress being made on the issue, and when and how the issue was (or wasn't) resolved and what next steps would be, if any. All relevant parties should be notified of this--the one(s) submitting the request and the one(s) affected by the work performed by IT (if different).
- Communicate please
- Communicate the status of projects. A lot of times requests and other items disappear for weeks/months. Explanation of impacts of the other departments decisions/requests on IT's workload. Every department is busy, but a clear understanding of where IT's priorities stand and where my/our

items fit in could be much improved.

- Continue to see the users before there is a problem
- Create a work order list that is sent out regularly for all work orders and users. This would allow users to see the status of all work orders that are pending. Get connectivity back that was previously in place to assets owned by the department. Having to use "hotspots" and alternative Wi-Fi discredits the IT department
- Cross-training on software systems and ensuring someone with knowledge is available, at the very least during normal business hours, to address an issue that may be urgent
- Ensure there are resources for success for both IT and the customer, and improved documentation regarding communicating issues of systems failures.
- Even the simple projects seem to take a very long time with multiple requests having to be sent to get something done. It seems saying no it can't be done or no we won't do something like that is easier than fixing the problem.
- Follow up on work requests (much improved from the past), track life span of equipment and plan for regular replacement of outdated computers. Streamline new hire network access.
- Get here faster,
- Give status updates on projects/issues.
- Have someone on site at Public Works to take care of issues
- Help us get the software, products and support we need. Helping us fast track certain needs more expeditiously by prioritizing based off of department/city needs. Critical system to the top of the list not the back burner
- Hire more people
- I am satisfied with IT.
- I don't have time to nit-pick. They are awesome!
- I don't think there's anything they can do better, most of our issues are out of their control. All the guys are awesome!
- I realize IT is busy but offer one-on-one training for new programs, for those that need it. Before a new program is installed, meet with the people that will be affected by it the most and get their input.
- Improve network reliability as on-line applications are becoming more important in our work and we lose productivity when they are down.
- Improve speed of infrastructure. Improve infrastructure so that it is more resilient / redundant links & paths to critical sites. Improve technical skillset of all IT staff so that expertise area's overlap (i.e. we can't fix that because Mr. XYZ is on vacation).
- In house Instruction to city staff.
- In private business, IT's job is to make sure each employees computer is set up for the most efficient use on their job. I realize this is much more difficult in a government setting, especially with jobs like mine that vary so much. However, having computers set up properly for different jobs would make for a much more efficient work day.
- Internet is often slow at the Health Department.
- Issues are not always resolved and due to busy schedule the techs may not return to check if it has been. They also have difficulty following through with their promises of whatever they said they would do. When a request is made, at times it could take months, even longer, to get the service. Very frustrating. For an example having a printer/copier/scanner/fax machine finally getting the fax line connected to use the fax machine. It took multiple requests and nearly a year to get it connected and it took 5 minutes to connect. Phones and computer requests have been made and still waiting.
- Keep doing what you're doing.

- Knowledge and/or communication within IT Department are not consistent. Each IT person seems to have a niche but when we use the helpdesk, the person responding should forward it to the most knowledgeable person to help.
- Listen to users/customers, should not assume they know better what the user/customer wants/needs.
- Listen. We are not here trying to make things difficult or are trying to tick anyone off. We are explaining things to the best of our ability. We don't understand most of what is explained to us. That is why we did not get in to that line of work and have you all for. Follow through. Check back to see if changes that have been made are working for us. Maybe not closing the work orders right after the problem has been addressed. Communication is key. Know that we are by no means trying one bit to do any of your jobs but over the years have seen ways that our requests have been handled. We may ask for it to be handled that way again and maybe you all could learn something new. I have learned some new and pretty cool things from you all.
- Make setting up software for encrypted email a higher priority
- Maybe more hands on when having to deal with installation of new programs/software. Especially on cell phones.
- Move your office to the clinic!! (haha)
- Need to be better cross trained. Need to get schedules from various departments that let them know when a big job or file needs to be done. Year end, fiscal year end, 1099's, W2's, check printing, etc.
- Nothing customer service-wise. I do wish that we had someone that was a bit more accessible when it comes to technical situations and/or training in certain department programs, i.e., HTE, NeoGov, etc. This way when there are technical questions, or training needs to be conducted, perhaps they would be able to assist. I do realize this not something that IT can control, just a wish list.
- Nothing that I can think of - they are smart, courteous, and work hard.
- Nothing; all of the staff is awesome.
- On more specialized issues, service is not so good. Specifically, I had an issue with ARC, contacted the ARC person at IT and was told to deal with it.
- On site visits rather than remote as I am a hands-on learner.
- People skills and patience. There are several people that do an amazing job and have wonderful customer service. There are several others that need to learn how to speak to people. I have spoken to people from IT with issues and the way I am spoken to like I am being talked down to. People need to understand that people outside of IT do not have all the knowledge that they do. Patience's and people skills need to be improved.
- Perhaps be more transparent about the prioritization of help desk requests. If our staff knew that there was an urgent technology issue in another department, maybe they would be more patient if a request is not met immediately.
- Prevent spam in email
- Provide training to detention staff
- Research new technology/programs, be willing to institute and teach new technology or programs
- Sometimes you are dealing with lay people when it comes to information technology, a little patience goes a long way
- Spam blocking
- The special projects. Remote access. New technology.
- They are fine for everything that I need them for.
- Training
- Turnaround time
- Update our browsers - my Internet is starting to now work. But I have not reported it yet.

- Without additional staffing, not much. If there were more staff members, then perhaps more hands on training, evaluation of age of IT equipment and recommendations for replacement, and more assistance with Departments for technology and business software needs.

Q40 - Other comments

- Air printing and air play. Form management is critical to processes we have. Intranet for individual departments needs to be a priority as well. Fleet management software most become critical.
- Coordination of advanced "in-house" or "in-city" training on business software (Excel, Word, etc.) as well as HTE.
- Create internally a review of the projects that have been longest open. These are probably few and likely need greater asset coordination to work through the problem and achieve closure.
- I think overall the IT department does a good job.
- I think we need an automatic electronic court filing system and an updated system.
- I would have liked to know the Public Web site was changing as we needed some changes made to make it more user friendly for the public
- I would like to see City provided Wi-Fi in all our parks and recreation facilities, to include 3rd Street and Telegraph Square.
- I would like to see more of a collaborative effort on projects and policy development. I often feel as though the departments are very siloed when it comes to technology projects and can do better to partner together and share limited resources.
- I would like to see us move more quickly to paperless technology. We are lagging behind the rest of the world.
- I would love to have apps available to use
- Just something I thought you should know: At the internal audit meetings, one of the findings was brought up regarding IT, and it was in question as to why the Strategic Plan was being done first. They thought the intrusion detection system seemed more important so they asked the logic of doing the Strategic Plan before it.
- Keep up the good work!
- Like all the new people.
- More & better utilization of fiber optic interconnect cabling. We have the fiber and bandwidth; let's get the hardware to improve the backbone infrastructure.
- New website is beautiful and easy to navigate!
- Not at this time. Thank you for all you do.
- Possible new CAMA for the passage of SJR 13.
- Tablets may be more helpful than laptop in the field in the future.
- The library handles a lot of its IT separately from the city which makes it difficult to answer many of the questions on this survey.
- The up-coming process and what will become with GIS with Carson City.
- We appreciate all of IT's hard work and efforts and understand that they have a limited staff and funding to carry-out all that they do.
- We appreciate you guys.
- We need one on one work with our website. Want to make some changes but don't know how.
- We truly appreciate all the help we receive. We couldn't do it without you.