

The City of Alameda

Information Technology Strategic Plan (ITSP)



Prepared by:



September 5, 2017

Final Report

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*This Information Technology Strategic Plan was prepared for the City of Alameda, California, by
NexLevel Information Technology, Inc.*

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SECTION 1 – INTRODUCTION

1.1 – Scope and Objectives

“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

This document, entitled Information Technology Strategic Plan (IT Strategic Plan), was prepared for the City of Alameda (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 IT Strategic Plan will enable the City to better allocate its information technology resources and to obtain greater benefits for its investments in information technology. The plan does not attempt to predict the future; but rather, in conjunction with the establishment of a more thorough process for the governance of the City-wide use of information technology, provides both a process and a baseline to enable the City to more effectively respond to new and/or changing requirements by proactively adapting processes, organization, people, and infrastructure.

1.2 – Document Organization and Contents

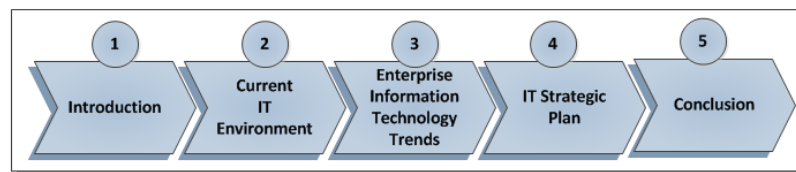


Figure 1 – Document Organization

As depicted in Figure 1, Document Organization, this document consists of the following sections:

- **Section 1, Introduction** – (this section) provides information regarding the scope and objectives of the planning effort, the organization of the document, the methodology used to develop the IT Strategic Plan, and an Executive Summary
- **Section 2, Current IT Environment** – provides a summary of the findings and recommendations provided in the IT Assessment Report, including an overview of the City’s conformance to IT best practices and the resulting recommendations
- **Section 3, Enterprise Information Technology Trends** – provides a discussion of the most significant changes in information technology that will likely impact the City over the duration of the IT Strategic Plan
- **Section 4, IT Strategic Plan** – provides information regarding the open and collaborative process that was used to develop the plan, including the steps in its development and refinement and the resulting project roadmap and resource requirements

- **Section 5, Conclusion** – provides thoughts and observations for the City’s consideration based on NexLevel’s experience in developing IT Strategic Plans for local governments and special districts in the State of California

Terminology

Please note that in order to avoid confusion, references to the City’s Information Technology Department will either be spelled out or use the acronym “ITD.” References to information technology, in general, will either be spelled out or use the acronym “IT.”

1.3 – IT Strategic Planning Methodology

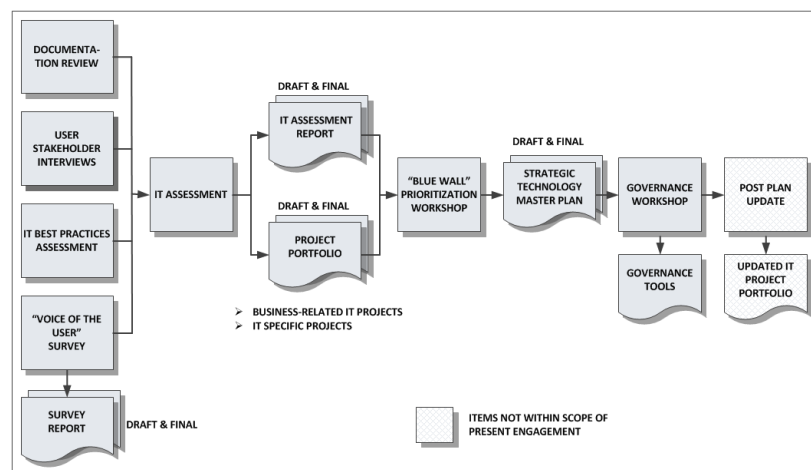


Figure 2 – ITSP Methodology

Figure 2, ITSP Methodology, depicts the process used to develop the City’s IT Strategic Plan. The IT Assessment Report (left, middle) was developed based on information gathered through:

- A review of the City’s IT documentation and procedures
- Interviews with key stakeholders in the City’s user community
- An assessment of the City’s conformance to a set of IT Best Practices including an assessment of the security of the City’s network and physical facilities that was performed by an independent security specialist. The results of this assessment were provided to the City in a separate document, the Security/Risk Assessment
- 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 best and what ITD could improve

Following review of the IT Assessment Report by the City, NexLevel developed a list of potential strategic information technology projects and incorporated that list into a project portfolio that provides information for each of the projects including the project’s sponsor, description, estimated low and high-end costs, the level of risk and the level of effort involved, and an assessment of the project’s

potential business impact. The project portfolio was reviewed by the City, updated by NexLevel, and provided the starting point for the Prioritization Workshop (just right of center in the diagram).

An initial planning and prioritization workshop was held on March 8, 2017. The workshop was conducted in an open and collaborative manner with members of the City's management team including the City Manager, department heads, and key stakeholders. NexLevel provided a briefing for the participants who then reviewed each of the projects. NexLevel then facilitated a voting exercise in which each of the participants was given four green dots to identify high-priority projects. Following the voting exercise, some of the projects were moved into different time slots. Figure 9, Workshop "Blue Wall," depicts the results of the initial planning workshop.

A second planning and prioritization workshop was held on April 6, 2017, with the objectives of completing a review of the projects to resolve some open items from the first workshop. A picture of the completed Blue Wall at the end of the second workshop is provided in Figure 10, Blue Wall Following Second Workshop. The differences between the Blue Wall at the completion of the first workshop and the Blue Wall at the completion of the second workshop include the additional of several new projects, the inclusion of a number of critical information technology projects into the planning timeline, and the delineation of each fiscal year into halves (Jun-Dec and Jan-June).

NexLevel believes that the completed IT Strategic Plan will provide an important reference and for the City's information technology governance committee to enable the City to continually update the plan to accommodate new objectives and priorities as well as changes in existing objectives and priorities.

1.4 – Executive Summary

The Information Technology (IT) Strategic Plan was developed for the City of Alameda by 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 key components of this process included an information technology assessment and the development of an IT Strategic Plan that is detailed in this document.

The information technology assessment included a series of interviews with key user stakeholders and members of the City's management team, a City-wide survey of user satisfaction with the services provided by the City's Information Technology Department (ITD), interviews with ITD's management and staff, and an assessment of the degree to which the City's practices and procedures conform to a set of IT best practices.

IT Assessment Findings

More detailed information regarding the results of the IT Assessment are provided in Section 2.1, Summary of IT Assessment (below); however, in general, the assessment found that the City's conformance to IT best practices has been limited by organizational, funding, and staffing challenges, and is characteristic of an organization that has a reactive approach to the governance of information technology and the management and delivery of IT services.

Key findings from the IT Assessment included:

- Alameda does not have a formal approach for the governance of information technology
- Alameda has not formalized the demarcation of responsibilities for IT support between ITD and user departments
- Alameda does not have dedicated wired and Wireless Networks for Administrative Users
- ITD is not properly organized or adequately staffed to meet the current and future needs of the City's User Community and the Public
- Alameda has manual processes for functions such as Human Resources Management that should be automated
- Alameda does not have an enterprise business applications architecture, does not have an application portfolio, nor does it have a plan to improve the automated sharing of information between business application
- Alameda does not have formal Plans for Business Continuity, Disaster Recovery, and Cybersecurity
- Alameda does not have a plan for the City-wide document / content management plan or a records retention policy
- Alameda does not have a plan for digital government and community engagement

- The Server Room at City Hall is not appropriately configured, does not have adequate environmental controls, and is not secure
- ITD does not have formal processes for the tracking and resolution of user requests
- ITD does not have current and complete operational documentation, nor does ITD have formal processes for critical business processes such as change management, etc.

IT Assessment Recommendations

A number of recommendations were developed by NexLevel to enable the City to gradually improve its level of conformance to the IT best practices, to remediate the findings, and to more effectively govern the use of information technology resources. The recommendations developed by NexLevel are intended to enable the City to maximize the benefits received while limiting the resources required and risk. The recommendations included:

- *Recommendation 1:* Adopt a more comprehensive process for information technology governance to enable the City to better align the use of information technology resources with the City's business objectives and priorities
- *Recommendation 2:* Establish dedicated wired and wireless networks, that are separate from AMP's network, for administrative use to enable the City to respond in a more agile manner to administrative and public access to City information and services
- *Recommendation 3:* Re-organize ITD, including reviewing IT staffing, and implement a service desk management system to enable ITD to better support the City's needs including an increased focus on project management, vendor management, and the sourcing of cloud-based solutions
- *Recommendation 4:* Develop an applications architecture and an application portfolio to enable the City to obtain better value from the business applications that it already owns and improve user productivity through improvements in the exchange of information and through shared use of business processes
- *Recommendation 5:* Develop formal plans for business continuity, disaster recovery, and cybersecurity to ensure the continued availability of mission-critical business applications
- *Recommendation 6:* Develop and implement an electronic document / content management strategy and approve and implement the city's revised records retention policy to enable the City to realize documented cost-benefits and productivity improvements in the handling and storage of documents and other content (such as video)
- *Recommendation 7:* Develop and implement a strategy for digital government / community engagement to enable the City to more effectively provide public access to City information and services. The development and implementation of a digital government strategy will enable the City to better use web assets (including social media) to interact with the public and provide the foundation for the implementation of "Smart City" technologies (please see Section 3, Enterprise Information Technology Trends)

- *Recommendation 8:* Develop and implement a plan for the remediation of physical deficiencies in the City's IT facilities
- *Recommendation 9:* Develop and implement a plan to improve conformance to the IT best practices with emphasis on the implementation of processes that will enable ITD to achieve a sustainable level of performance

IT Assessment – Next Steps

Recognizing that some of these recommendations are most urgent than others and that the City has limited IT resources (which are largely committed to the support of the City's information technology infrastructure and business applications) NexLevel identified activities that the City should undertake within the next 18 months, including:

- 1) Adopting a more comprehensive process for information technology governance;
- 2) Beginning the remediation of the issues with the City's information technology facilities and/or migrate servers to cloud-based infrastructure;
- 3) Implementing a Service Desk Management System;
- 4) Beginning planning for business continuity and disaster recovery;
- 5) Engaging a contractor to design and implement dedicated wired and wireless networks for administrative use; and
- 6) Beginning the process to re-organize ITD, including having a qualified firm perform a staffing and compensation study.

IT Strategic Plan

The IT Strategic Plan was developed in an iterative process that included:

- NexLevel identified a range of strategic IT projects (some of which were already in progress or planned) based on the results of the IT best practices assessment and the interviews with the City's management team, department heads, and user stakeholders. These projects represented opportunities to use information technology to further the City's ability to meet community needs and expectations and fell into several broad categories including:
 - City-wide projects that benefited the operation of multiple City departments
 - Departmental projects that were targeted at improving the operations of individual departments
 - IT projects that are specifically intended to enable ITD to better meet the City's needs
 - Projects related to the implementation of the recommendations identified in the course of the IT Assessment

Of the forty-two projects identified in the course of the IT Assessment, 5 were already in process at the time of the ITSP workshop and one had been completed.

NexLevel prepared descriptions for each of the projects and identified key attributes for them including the relative levels of effort and risk, estimated costs, and the estimated business benefits. This worksheet was distributed to the City's management team and department heads and they provided input on the projects. The project worksheets are provided in the appendix

- Based on the worksheet, NexLevel pre-staged the projects over a timeline in preparation for the ITSP Workshop, otherwise known as the "Blue Wall" workshop since the NexLevel uses a sheet of blue adhesive fabric that readily permits projects to be slotted into timeframes in a participative manner. Due to the number of projects and the participants time limitations, two workshops were required to complete the review of the projects and to spread them over the timeline of the strategic plan

The success of the IT Strategic Plan will be largely dependent on the City's ability to take a more proactive approach to resource management that includes shifting less value-added IT activities to contractors or external service providers to free up internal IT resources as well as generally taking advantage of cloud-based services where feasible in order to implement the initiatives identified in the IT Strategic Plan.

Observations

Section 5, Conclusion, provides some observations related to key areas for the City including:

- The role of leadership in fostering organizational change including the implementation of new processes for IT governance and resource planning and management
- The role of IT governance in promoting the effective use of information technology, enabling organizational agility, and ensuring that the City receives the highest possible returns for its investments in IT
- The importance of ensuring that the City has a strong IT foundation to provide the platform for effective use of business applications, productivity tools such as document management, and the implementation of "Smart City" capabilities including the use of information for decision making, allocating and programming resources, managing organizational performance, and predictive analysis

SECTION 2 – CURRENT IT ENVIRONMENT

2.1 – 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.

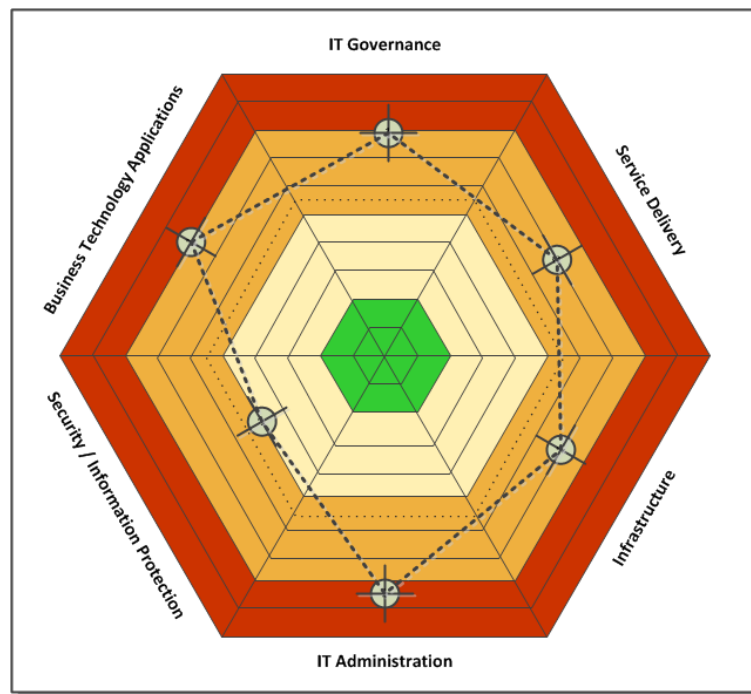


Figure 3 – City Conformance to IT Best Practices

The bands 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.

NexLevel has divided the IT best practices into six categories and plotted the City's conformance within each of the categories with IT Governance being at 20%, Service Delivery at 30%, Business Technology Applications at 20%, Infrastructure at 30%, Security / Information Protection at 50%, and IT Administration at 17%. The City's overall conformance to the IT best practices is 28% (compared to an average of 44% for IT Assessments of this type performed by NexLevel in the past two years). This level of conformance, as depicted in the plot, is in the lower tier of the Reactive Level in the maturity model and reflects the City's long-term IT funding and staffing issues.

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 4, SWOT Analysis. This is also based on the IT best practices assessment as well as on interviews conducted with the City's management team, department heads, and key user stakeholders. The SWOT analysis 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

Strengths	Weaknesses
<ul style="list-style-type: none"> ➤ City is committed to improving governance and management of IT ➤ Change in IT leadership and new IT staffing has enabled improvements in IT performance ➤ City is gradually adopting IT best practices 	<ul style="list-style-type: none"> ➤ IT organization and staffing not optimized ➤ Limited IT resource management ➤ Firefighting takes precedence over planning and root-cause analysis ➤ Heterogeneous business application environment with limited planning
Opportunities	Threats
<ul style="list-style-type: none"> ➤ Expand IT governance to align IT priorities and resources with City-wide priorities and objectives ➤ Implement dedicated administrative wired and wireless networks ➤ Improve delivery of IT services to internal and external user communities ➤ Migrate internal IT services to cloud ➤ Improve City-wide information sharing 	<ul style="list-style-type: none"> ➤ Increased TCO for IT, limited agility, and reduced ROI as a result of the City's heterogeneous business application environment and limited governance ➤ Limited ability to sustain IT services in the event of natural disasters and other events ➤ Physical condition of IT facilities

Figure 4 – SWOT Analysis

Strengths and Weaknesses

Alameda's strengths include:

- A determination on the part of the City's to improve its ability to govern information technology and to improve the management and delivery of IT services to the City's user communities
- The City has recently increased IT staffing including, but not limited to, the recruitment of an Information Technology Director
- Under the direction of the new Information Technology Director, the City has begun to adopt best practices in critical areas such as change management and is working to marshal it's information assets and make them more widely available to the City's user communities

The weaknesses that are inhibiting the City's ability to obtain greater returns for its investments in information technology include:

- A highly diversified IT environment that includes separate financial, billing, and GIS applications at AMP and no plan for the automated sharing of information between business applications. At present, the City of Alameda does not have a cohesive IT environment; rather, it has a collection of business applications that are highly siloed
- The absence of a plan for the allocation of IT resources in accordance with City-wide objectives and priorities
- A culture in the information technology organization that is reactive ("answer the call and fix the problem,") rather than proactive

Opportunities and Threats

Provided that the City is able to implement more proactive approaches to the governance and management of information technology and that sufficient funding and resources are available, the City has a number of potential opportunities to improve how information technology is used in Alameda and to improve the value that the City obtains from its IT environment. These include:

- The implementation of dedicated administrative wired and wireless networks for the City to better accommodate the City's need for improved access to business applications and information (including remote and mobile access)
- The improved delivery of IT services through the adoption of processes to improve resource planning, allocation, and tracking
- The potential migration of business applications and services to the "Cloud" (which would reduce the burden on the IT organization)
- An increased focus on City-wide information sharing that would improve resource utilization and improve the delivery of services to the community

The threats facing Alameda include the consequences of not implementing changes in how the City governs and manages information technology such as:

- Incurring a higher a total cost of ownership (TCO) for IT as well as reductions in the benefits derived from the City's investments in information technology
- The potential inability to sustain IT service delivery levels, particularly as they rate to business continuity (which is vital for mission-critical services that depend on information technology)
- The City's limited ability (considering both IT staff resources and infrastructure) to recover from a natural or other disaster

2.2 – Summary of Findings and Recommendations

Table 1, Summary of Findings and Recommendations, provides a list of the key findings resulting from the IT Assessment along with a description of the potential business impact of each finding and the recommendation(s) developed by NexLevel to enable the City to remediate the finding. While the findings are related to problems, issues, and concerns that have been identified in the course of the information technology assessment, these are not intended to obscure the City's accomplishments in information technology or the dedication and commitment of the City's information technology staff.

As noted in Section 2.1, Summary of IT Assessment, the City has considerable strengths, not the least of which is a strong commitment on the part of the City's leadership team to improving information technology governance to enable the City to realize greater returns for its investments in information technology and to align the use of IT resources with the City's business priorities. Under the leadership of the new Information Technology Director, IT is also beginning to make progress in the adoption of IT best practices, such as change management, which will improve its ability to deliver IT services to the City's user communities.

Table 1 – Summary of IT Assessment Findings and Recommendations

Findings	Business Impact	Relevant Recommendation(s)
(1) Alameda does not have a formal approach for the governance of information technology	<ul style="list-style-type: none"> ▪ Impedes ability to ensure that City-wide IT spending is aligned with City operational objectives and priorities ▪ Impedes ability to better leverage IT expenditures and manage total cost of ownership vs. return on investment for IT spending ▪ Impedes ability to ensure that user and IT resources are appropriately allocated to IT projects ▪ Impedes ability to manage risk associated with IT projects 	Recommendation 1: Alameda Should Adopt a More Comprehensive Process for Information Technology Governance
(2) Alameda has not formalized the demarcation of responsibilities for IT support between ITD and user departments	<ul style="list-style-type: none"> ▪ Results in higher cost of ownership for information technology ▪ Decreases organizational agility ▪ Limits ability of ITD to support administrative users ▪ Places additional burden on limited AMP IT resources 	Recommendation 1: Alameda Should Adopt a More Comprehensive Process for Information Technology Governance
(3) Alameda does not have dedicated wired and Wireless Networks for Administrative Users	<ul style="list-style-type: none"> ▪ Limits ability of ITD to support the needs of administrative users for mobility and remote access ▪ Results in higher TCO for IT as a result of the number of ad-hoc wireless networks installed by user departments ▪ Increases security risk 	Recommendation 2: Alameda Should Establish Dedicated Wired and Wireless Networks for Administrative Use;
(4) ITD is not properly organized or adequately staffed to meet the current and future needs of the City's User Community and the Public	<ul style="list-style-type: none"> ▪ Limits the ability of ITD to support current user requirements or to assist the user community in meeting future user requirements ▪ Limits the ability of the City to respond to new community requirements ▪ Limits the ability of ITD to sustain service levels despite attrition, absences, etc. 	Recommendation 3: Alameda Should Re-Organize ITD, Review IT Staffing, and Implement a Service Desk Management System

Findings	Business Impact	Relevant Recommendation(s)
(5) Alameda has manual processes for functions such as Human Resources Management and Payroll that should be automated	<ul style="list-style-type: none"> ▪ Limits the productivity of the City's user community ▪ Increases staffing needs and costs related to staffing ▪ Reduces the return on investment for the City's spending on information technology 	Recommendation 4: Alameda Should Develop an Applications Architecture and an Application Portfolio
(6) Alameda does not have an enterprise business applications architecture, does not have an application portfolio, nor does it have a plan to improve the automated sharing of information between business applications	<ul style="list-style-type: none"> ▪ Increases the City's total cost of ownership for IT ▪ Decreases productivity and increases costs as a result of the effort related to redundant data entry ▪ Limits the timeliness and accuracy of the information used to manage and deliver City services 	Recommendation 4: Alameda Should Develop an Applications Architecture and an Application Portfolio
(7) Alameda does not have formal Plans for Business Continuity, Disaster Recovery, and Cybersecurity	<ul style="list-style-type: none"> ▪ Limits the ability of the City to ensure that vital business operations that are dependent on information technology can be sustained in the event of outages, natural disasters, or other events ▪ Limits the ability of the City to restore services following an outage ▪ Limits the ability of the City to protect its information assets (including information, services, and infrastructure) from unauthorized access and disclosure, modification, and/or destruction, and places the City's reputation at risk 	Recommendation 5: Alameda Should Develop Formal Plans for Business Continuity, Disaster Recovery, and Cybersecurity
(8) Alameda does not have a plan for the City-wide document / content management plan and has not yet approved a revised records retention policy	<ul style="list-style-type: none"> ▪ Limits the ability of the City to obtain real benefits for its investments in document and content management technology by reducing the time spent in non-value added activities such as searching for documents and content ▪ Limits the ability of the City to respond to public requests for information ▪ Increases the City's costs for the retention of documents that are eligible for disposal 	Recommendation 6: Alameda Should Develop and Implement an Electronic Document / Content Management Strategy and Approve and Implement the City's Revised Records Retention Policy

Findings	Business Impact	Relevant Recommendation(s)
(9) Although the City has a draft Social Media Policy, it does not have a comprehensive plan for digital government and community engagement that addresses the City use of its web-site, social media, and other channels to deliver information and services to the community	<ul style="list-style-type: none"> ▪ The absence of a comprehensive plan for digital government limits the ability of the City to effectively leverage information technology to communicate with the public ▪ Limits the ability of the City to enable members of the community to access City information and services ▪ Limits the desirability of the City for development compared to other Bay-Area communities 	Recommendation 7: Alameda Should Develop and Implement a Strategy for Digital Government / Community Engagement
(10) The Server Room at City Hall is not appropriately configured, does not have adequate environmental controls, and is not secure	<ul style="list-style-type: none"> ▪ The inability to properly secure the Server Room and to monitor access to the room places the City's servers at risk as does the lack of sufficient and reliable environment controls ▪ The absence of appropriate measures for the coding and management of cables limits the ability of ITD to troubleshoot and resolve problems 	Recommendation 8: Alameda Should Develop a Plan for the Remediation of Deficiencies in IT Facilities
(11) ITD does not have formal processes for the tracking and resolution of user requests	<ul style="list-style-type: none"> ▪ Limits the ability of ITD to appropriately support the City's user community, to identify opportunities to improve the resilience of the IT infrastructure by remediating common causes of user problems and outages ▪ Limits the ability to ITD to effectively allocate resources and to monitor and manage resource utilization ▪ Limits the ability of IT to become more proactive and to provide greater value to the City's user community 	Recommendation 3: Alameda Should Re-Organize ITD, Review IT Staffing, and Implement a Service Desk Management System

Findings	Business Impact	Relevant Recommendation(s)
(12) ITD does not have current and complete operational documentation, nor does ITD have formal processes for change management, technology refreshment, staff professional development and succession planning, or for configuration management and planning	<ul style="list-style-type: none">▪ Limits the ability to ITD to quickly and effectively respond to, and remediate, issues as well as to ensure that services can be continually provided to the user community despite attrition and absences▪ Limits the ability of Alameda to routinely budget for the refreshment of components of the City's IT environment and limits the ability of ITD to ensure that users have the technology they need to respond to internal and public requests▪ Limits the ability of ITD to ensure that technical staff members have the expertise they need to support the City and that ITD can continue to support the user community in the event of staff attrition▪ Limits the ability of ITD to monitor the utilization of network, server, and storage facilities and to ensure that the City has sufficient capacity to meet future requirements	Recommendation 9: ITD Should Develop and Implement a Plan to Improve its Conformance to IT Best Practices

SECTION 3 – ENTERPRISE INFORMATION TECHNOLOGY TRENDS



Source: NexLevel

Innovation has always been at the core of information technology – successive developments in information technology, most recently in mobility, have dramatically changed the IT landscape as much as IT has changed the way in which organizations conduct their business and user expectations. Like rafters, organizations seeking to use information technology effectively, may have a general idea of where they are going but often encounter obstacles, some known and some unexpected, along the way, all of which underscores the importance of having a knowledgeable and experienced guide.

Organizations seeking to develop effective information technology strategic plans need to consider a number of different factors including internal user needs, public expectations, and trends in information technology to better allocate funds and resources in support of their business objectives and priorities. In particular, 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 partners¹

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:

¹ Capitalizing on Complexity: Insights from the Global Chief Executive Officer Study, IBM Corporation, 2010
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- 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 seven enterprise information technology trends that are changing how local governments invest in IT. Broadly, NexLevel considers that these trends either support the City’s ability to leverage, extend, or protect existing information technology assets, to support innovation in the delivery of services to the community, or some combination of the two. Figure 5, Enterprise Information Technology Trends, places each of the trends discussed in this section into that context.

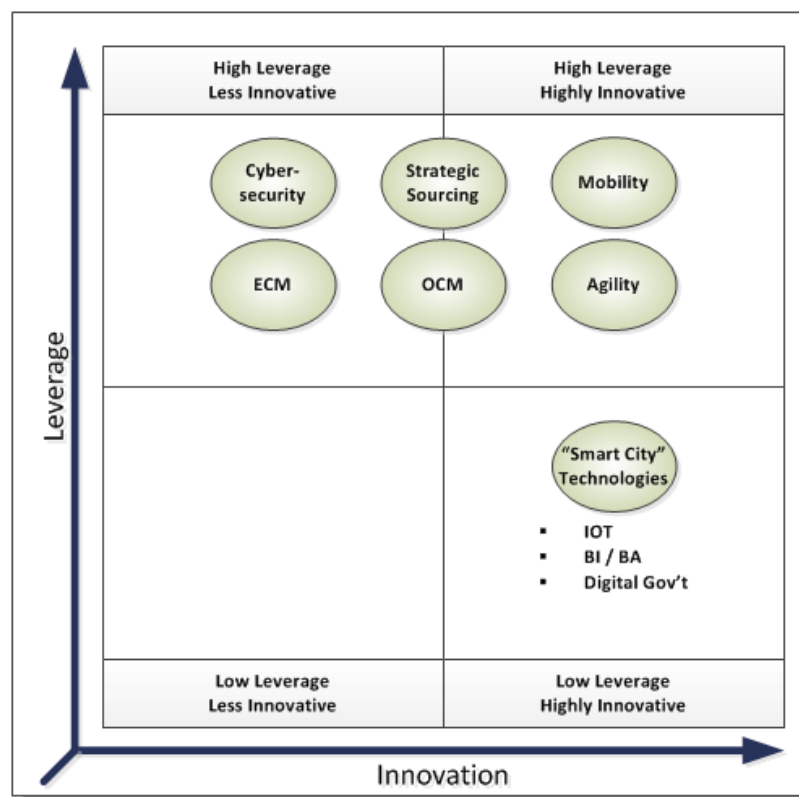


Figure 5 – Enterprise Information Technology Trends

Ultimately, organizations need to find a balance between investing their limited resources in better leverage existing information assets (less risk, greater short-term operational impact) versus investing in

innovative technologies that have the potential to radically transform how services and information are delivered to the public (often with greater risk, but also with greater long-term operational impact).

Within this context, there are no “wrong” directions; rather local governments must plan to invest in information technology based on both immediate and long-term needs. Where possible, investments should be targeted in information technology trends based on:

- The ability to leverage existing IT resources as well as support innovation
- The benefits to be derived through the implementation of the information technology compared to the initial and recurring costs involved (considering both direct and in-direct costs)
- The ability of the organization to effectively implement and support the technology

⇒ IT Trend: “Smart City” Technologies

“A smart city is defined as a city that engages its citizens and connects its infrastructure electronically. A smart city has the ability to integrate multiple technological solutions, in a secure fashion, to manage the city’s assets...” – Dr. Sam Musa

As noted by Dr. Musa, “Smart City” is unusual in that this trend is not a single technology, per-se, but rather represents an integrated approach to the utilization of emerging information technologies and technology trends that enable local governments to more effectively identify trends (such as incidents, traffic, power demand, parking space availability, etc.), to re-allocate or reprogram City resources in response to

these trends, and to support programs such as Smart Building, autonomous vehicles, Smart Payment, and Smart Street Lights. Smart City capabilities also enable members of the community and visitors to obtain information through smartphone apps regarding employment services, public safety, healthcare, social services, transit and driving route information, parking and transit service options, and event information.

The Internet of Things (IoT) provides the foundation for many Smart City Initiatives. 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 (such as collision avoidance).²

Although some local governments look at Smart City in very tactical terms (involving highly-specialized and isolated IoT applications such as “Smart Intersections” and “Smart Corridors,” the effective implementation and continued use of Smart technologies includes:

- The development and implementation of open and collaborative processes to develop the visions for the implementation of Smart technologies as well as for the continuing governance of

² <http://www.mckinsey.com/industries/high-tech/our-insights/the-internet-of-things>

the Smart City initiative. Governance should include the ability to prioritize initiatives, program funds, and take advantage of opportunities made possible by private / public partnerships, and to assess the reproducibility of interoperable solutions. The governance process will also need to provide leadership for the management of the changes in city operations brought about by smart technologies

- The implementation of secure, resilient, and ubiquitous wireless services that enable access to smart services from any device, anywhere, and anytime and that can scale to meet expected surges in demand (such as events) as well as unexpected surges in demand. Planning for the resilience, security, and performance of the wireless services is critical as is the development of processes and agreements to support 24 x 7 operations. IBM has noted that “A resiliency plan should concentrate on both the business and IT processes that are most vital to the enterprise. Creating and sustaining processes that support resilient business operations and infrastructures requires identification of the minimum required process functionality during disruptive events, alternate processes and procedures that will allow operations to continue during times of stress, and redefinition of processes to achieve better workload balance”³
- The development of a comprehensive plan for the implementation and continuing support of the Smart City services that leverages public / private partnerships as well as regional partnerships (including regional transportation) including plans for regional collaboration and information exchange)
- The development and implementation of a plan and the processes required to support continuing communication and collaboration with members of the community as well as the development and implementation of the capabilities to leverage the information produced by smart devices - including business intelligence and business analytics

Business Intelligence and Business Analytics (BI/BA)

There has been considerable progress in the development of tools that enable organizations 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. Recent trends in this area have included making these tools more “user friendly” and available

The development and maintenance of the “enterprise data architecture” required to support the use of BI/BA tools is one of the “hidden costs” of implementing Smart City technologies. This includes:

- 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

³ [“The Evolution of Business Resiliency Management,” IBM Global Technology Services, Thought Leadership White Paper, June, 2011](#)

- 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.

Digital Government

Broadly, digital government is considered to be a comprehensive approach to the use of the Internet and mobile technologies as a conduit for providing information to the public and to enable them to conduct business. The development and maintenance of a digital government strategy has become more complex due to the rapid multiplication of the number of channels for communicating with the public as well as the continued evolution of mobile devices. Organizations must be prepared to deal with "any device (including any browser), anywhere, anytime"

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
- *A "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 privacy⁴

⁴ [Digital Government: Building a 21st Century Platform to Better Serve the American People](#). US Office of Management and Budget, 2012
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⇒ IT Trend: Organizational Agility

Organizations must be agile in order to respond to new business requirements and public expectations for access to information technology services. Agility does not just happen – it is the product of insightful investments by organizations in information technology planning and resources. - NexLevel

Agility is both a trend and an outcome of the significant changes that have taken place in how local governments (and other organizations) respond to both new information technologies and how those information technologies are used by the public. The ability to agilely respond to both changes in IT and changes in user and public expectations rests largely on the ability of an organization to identify and prioritize requirements and to allocate and/or reallocate both IT and user resources accordingly. Effective planning and IT governance are key components of organizational agility.

Agility enables organizations to stand-up solutions to support new business requirements by:

- Re-using existing information technology assets (data, applications, infrastructure, and personnel)
- Developing or acquiring new assets
- Some combination of the above

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, the City of Alameda should consider them in terms of what adoption would mean for City operations.

IT Trend: Organizational Change Management (OCM)

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 (which has since been updated, but the original version is nonetheless highly applicable) for fostering the successful implementation of changes in organizational structure, business processes, and culture.⁵ Kotter's framework for change management included:

- 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

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

⇒ IT Trend: 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. In 2016, the President's Homeland Security and Counterterrorism Advisor warned that "we are in the middle of a revolution in the cyberthreat – one that is growing more persistent, more diverse, more frequent, and more dangerous every day."⁶

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;

⁵ Leading Change, John Kotter, Harvard University Press, 1995, <http://www.kotterinternational.com>

⁶ "Citing a 'revolution,' Obama issues response plan," The San Francisco Chronicle, July 27, 2016
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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.⁷

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 increases 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.).

As a result, organizations must adopt and implement systematic approaches to protect their information assets from cyber threats including the ability to detect and defeat these threats, limit the impact of potential intrusions, recover from them, and adapt processes to better manage similar attacks in the future. The National Institute of Standards and Technology (NIST) has developed a cybersecurity framework (depicted in Figure 6, NIST Cybersecurity Framework) below, that enables organizations to progressively implement procedures to safeguard against cyber threats.⁸

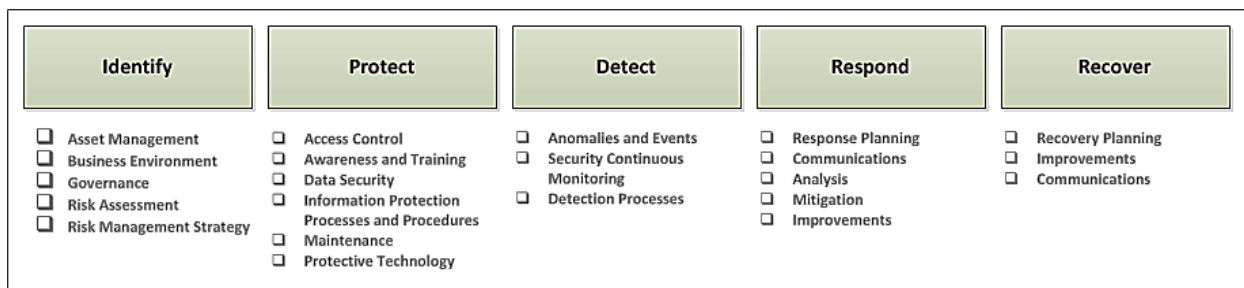


Figure 6, NIST Cybersecurity Framework

⁷ Cisco, 2014 Annual Security Report, http://www.cisco.com/web/offer/gist_ty2_asset/Cisco_2014_ASR.pdf

⁸ <http://www.nist.gov/cyberframework/index.cfm>

⇒ IT Trend: Enterprise Content (and Document) Management (ECM)

“The amount of digital content that we are capturing is exploding. Video cameras are popping up all over the place.” -

Anonymous IT Manager

The management of enterprise content (including documents, audio, video, and images) is not a new trend; however, with the accumulation of increasing amounts of content (particularly video) organizations are adopting enhanced ECM strategies and capabilities 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)
- 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, particularly workers in the field using wireless access

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, a noted information technology research and advisory services firm, 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.⁹

⁹ Gartner Research, Magic Quadrant for Enterprise Content Management, 2015
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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.”¹⁰

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.

⇒ IT Trend: 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%¹¹
- 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

¹⁰ Document Management: The Buyer’s Handbook, Laserfiche, <http://www.laserfiche.com>, 2015

¹¹ The Impact of Mobility on the IT Service Desk, Gartner, 2013

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.

⇒ IT Trend: Strategic Sourcing and Cloud Services

Strategic sourcing is based on the concept of obtaining and using the most effective service providers to respond to user needs and enabling permanent IT staff members to focus on high-priority, high-value tasks and technologies while allocating functions such as the support of COTS business applications and non-mission critical “utility” functions to lower-cost service providers.

For many organizations in both the public and private sector who have aging IT facilities and infrastructures, the use of “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 procurement of traditional staff-supplementation services (contractors). An additional benefit for many organizations is that using SaaS simplifies their disaster recovery and business continuity planning since they can quickly resume operations from a facility that has connection to the internet.

Common strategies for cloud-based services include:

- *Public Cloud* – Public Cloud services are generally shared (thus “public”) with users sharing a common code base but with their data maintained separately. The advantages of a public cloud service include reduced cost (as a result of the cost for the service being spread over a larger number of users), but organizations find that they have less flexibility (the code base generally changes for all users at the same time) and less control over the security of their information
- *Private Cloud* – is similar to a Public Cloud, but in a COTS / SaaS environment the private cloud is based on a separate code base and database for each organization (although multiple organizations may share a virtualized computing environment). Since the code base is not shared with other organizations, users have more control over the timing of updates and the installation of new versions and more control over the security of their data, but at a higher cost than for Public Cloud services. Organizations can also host legacy, proprietary solutions in a private cloud
- *Hybrid Cloud* – a combination of private and public cloud services, potentially from different service providers. This permits organizations to use more expensive private cloud services for

mission-critical applications and confidential information while leveraging the public cloud for less critical and/or confidential applications and information

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 defer, or avoid, capital costs for the acquisition of information technology infrastructure (such as servers and storage devices)
- The ability to more readily scale the IT environment to meet demand
- Reduced dependence on local staff resources, including training and planning for staff succession

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
- Data ownership
- The costs and effort related to potentially exiting the sourcing arrangement in the future

SECTION 4 – IT STRATEGIC PLAN

4.1 – Plan Development

“It’s not the man, it’s the plan. It’s not the rap, it’s the map.” – Ossie Davis, actor, director, poet, playwright, author, and civil rights activist

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.

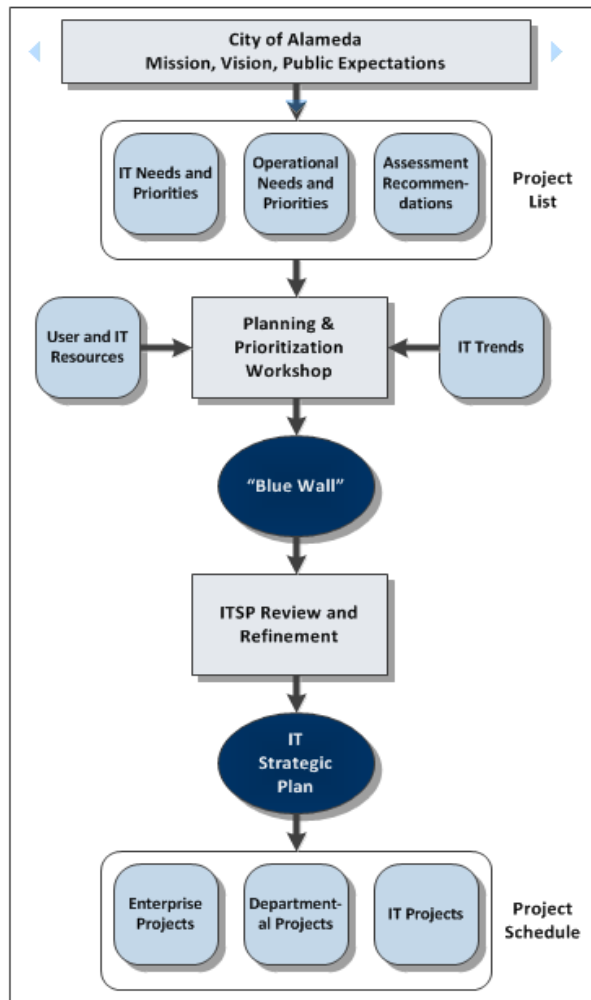


Figure 7, IT Strategic Plan Development, depicts the process used to develop the IT Strategic Plan:

- Strategic projects were identified based on operational needs and priorities identified in the course of the interviews with the City’s user stakeholders, IT needs and priorities, and the 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 IT resources that would be required to implement the projects and information regarding information technology trends
- The refined project list then served as the foundation for the planning and prioritization workshop
- The “Blue Wall” from the planning and prioritization workshop was then reviewed with City Management and provided the basis for the development of the IT Strategic Plan

Figure 7 – IT Strategic Plan Development

4.2 – Project Portfolio

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

- Project Title
- Sponsor(s)
- Impacted Departments
- Description

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

- Project Title
- The project sponsor(s)
- The status of the project (such as In Progress, Planned, etc.)
- The estimated levels of risk and effort associated with the project
- The estimated low and high costs (in \$000's) for each project based on information developed by NexLevel
- The estimated impact on City operations for each project looking at four key factors including:
 - Community Engagement, the degree to which the project contributes to improving the ability of the City to provide public access to information and services
 - Business Enhancement, the degree to which the project can contribute to improving the City's ability to conduct operations by enabling the elimination of redundant and/or non-value added activities or improving productivity, etc.
 - Cost Reduction, the degree to which the project can contribute to reducing the City's total cost of ownership for information technology or otherwise reducing costs
 - Technology Replacement, the degree to which the project can enable the City to replace existing components of its information technology infrastructure (including applications, hardware, system software, etc.)
- A weighted score (low, medium, high)

Please note that since the Project Prioritization Worksheet was prepared prior to the initial Planning and Prioritization Workshop, it does not contain information for projects added during the initial and follow-up workshops.

4.3 – Plan Development and Refinement

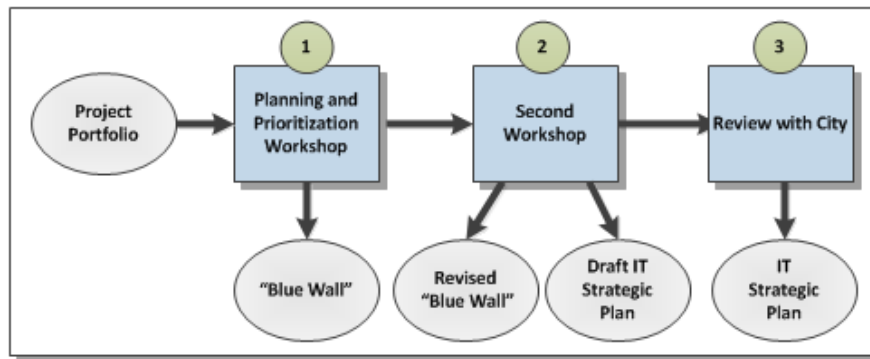


Figure 8 – Steps in IT Strategic Plan Development and Refinement

Figure 8, Steps in IT Strategic Plan Development and Refinement provides an overview of the steps in the development of the IT Strategic Plan and the work products associated with each step in the process.

Step 1 - Planning and Prioritization Workshop

The planning and prioritization workshop was held on March 8, 2017. The workshop was conducted in an open and collaborative manner with members of the City’s management team including the City Manager, department heads, and key stakeholders. The participants reviewed the proposed strategic projects, put some of them into a preliminary timeline and identified projects, which although important, could not be at that time. The workshop was conducted using a sheet of adhesive blue fabric (the “Blue Wall”) that was divided into fiscal years including: In Progress (the remaining months of FY 2016/17 and FY 2017/18), FY 2018/19, FY 2019/20, FY 2020/21, and FY 2021/22. Pages were printed out for each of the proposed strategic IT projects and pre-staged on the Blue Wall.

NexLevel facilitated a voting exercise in which each of the participants was given four green dots to identify high-priority projects. Following the voting exercise, some of the projects were moved into different time slots. Figure 9, Workshop “Blue Wall,” depicts the results of the initial planning workshop. The participants were of the opinion, as denoted by the green dots, that the procurement and implementation of an ERP system to replace the City’s existing financial and HR applications was the City’s highest priority.

Step 2 – Second workshop

The second workshop was held on April 6, 2017, with the objectives of completing a review of the projects and resolving some open items from the first workshop. This workshop was also conducted using the fabric Blue Wall. A picture of the completed Blue Wall at the end of the second workshop is provided in Figure 10, Blue Wall Following Second Workshop. The differences between the Blue Wall at the completion of the first workshop and the Blue Wall at the completion of the second workshop include the additional of several new projects, the inclusion of a number of critical information technology projects into the planning timeline, and the delineation of each fiscal year into halves (Jun-Dec and Jan-June).

Step 3 – Review with the City

Following the second workshop, NexLevel worked with the City to review and refine the project timeline. This effort included the development of:

- An electronic copy of the Blue Wall in Visio. An image of the Visio Blue Wall is provided in Figure 11, Visio Blue Wall, Project Schedule Following Second Workshop, Part 1; and Figure 11, Visio Blue Wall, Project Schedule Following Second Workshop, Part 2. The Visio diagram was provided to the City with the final report so that it can be updated as needed in the future

A project schedule based on the latest version of the Blue Wall provided in Figure 11. The project schedule is provided in Figure 12, Project Schedule, Part 1 (which deals primarily with user-sponsored projects), and Figure 12, Project Schedule, Part 2 (which deals with information technology projects being sponsored by ITD, AMP, and jointly by the two organizations). For each project, the schedule provides:

- The name of the project
- The project sponsor(s)
- The estimated low and high range cost estimates in \$000's (please note that the scope of some projects has not yet been determined and the cost for these is shown as TBD)
- The estimated duration of the project in quarters
- The project timeline

The schedule also provides a total of the number of concurrent projects that are in progress per quarter

Please note that the scheduling of the remediation of the City's IT facilities for FY 2019/20 may be problematic in that the City may be exposed to the risk of service disruptions due to facility failures (although this may be partially mitigated by the planned migration from on-premises business applications to cloud-based business applications)

- An estimate of the total cost for the projects and the cost per Fiscal Year. This is provided in Figure 13, Mid-Range Project Cost by Fiscal Year. Figure 13 has been broken out in the same manner as Figure 12 and provides sub-totals for user-sponsored projects and information technology projects sponsored by ITD and AMP. The cost for each project is based on an average on the estimated low and high costs (in \$000's), and the total cost for a project is considered to be incurred when the project begins, and project costs that are not known at this time are shown as \$0



Figure 9 – Blue Wall Following First Workshop

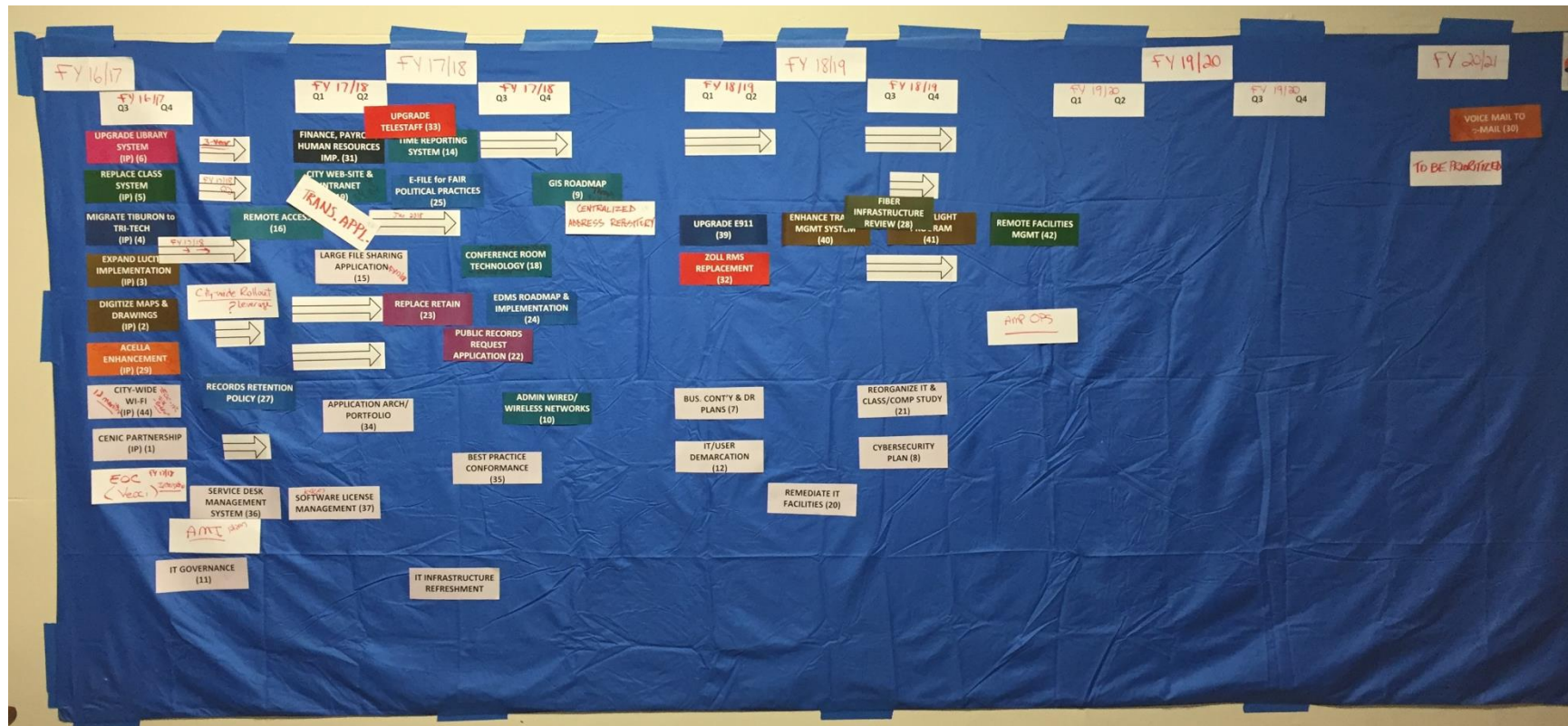


Figure 10 – Blue Wall Following Second Workshop

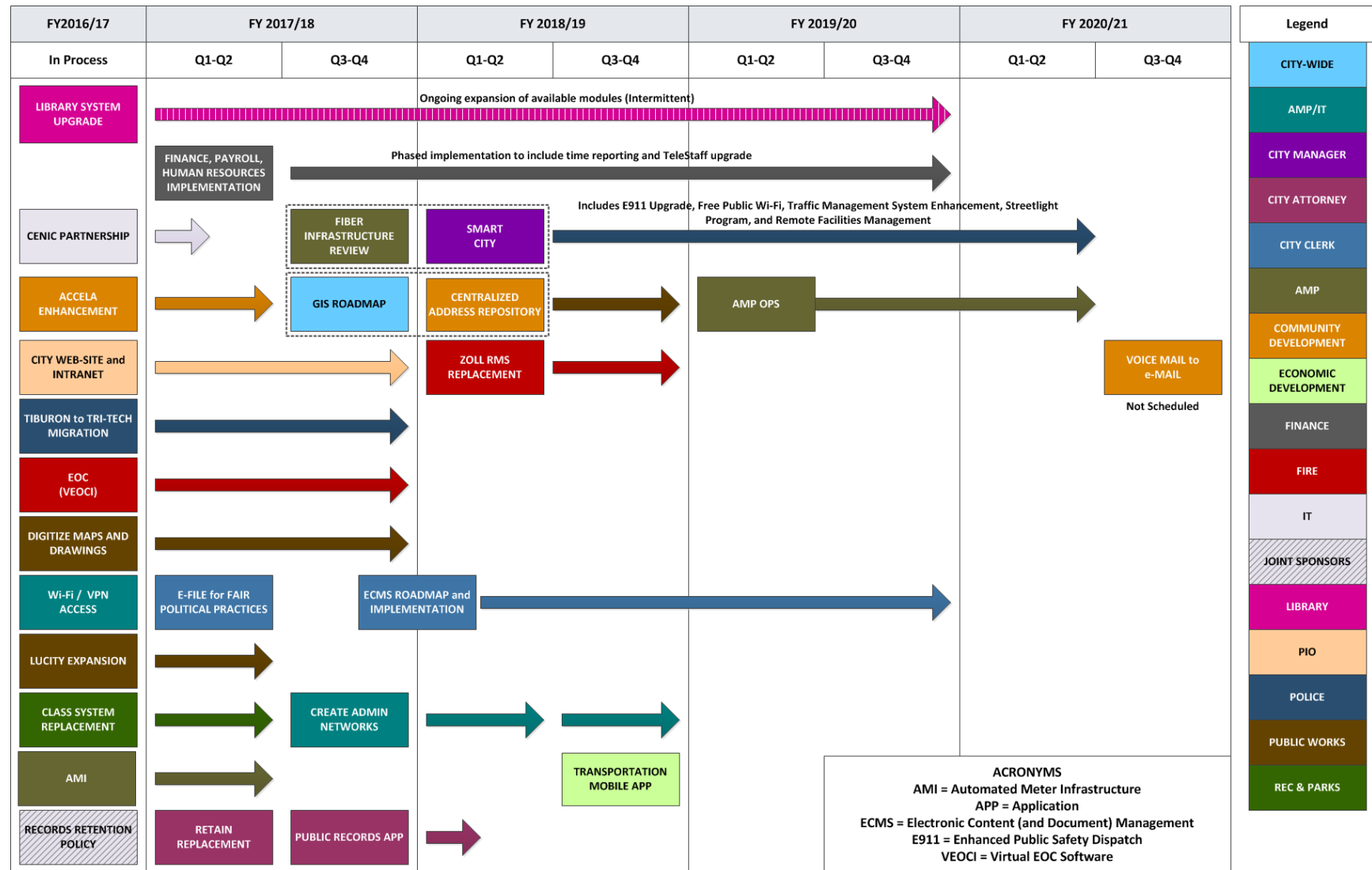


Figure 11 – Visio Blue Wall, Project Schedule Following Second Workshop, Part 1

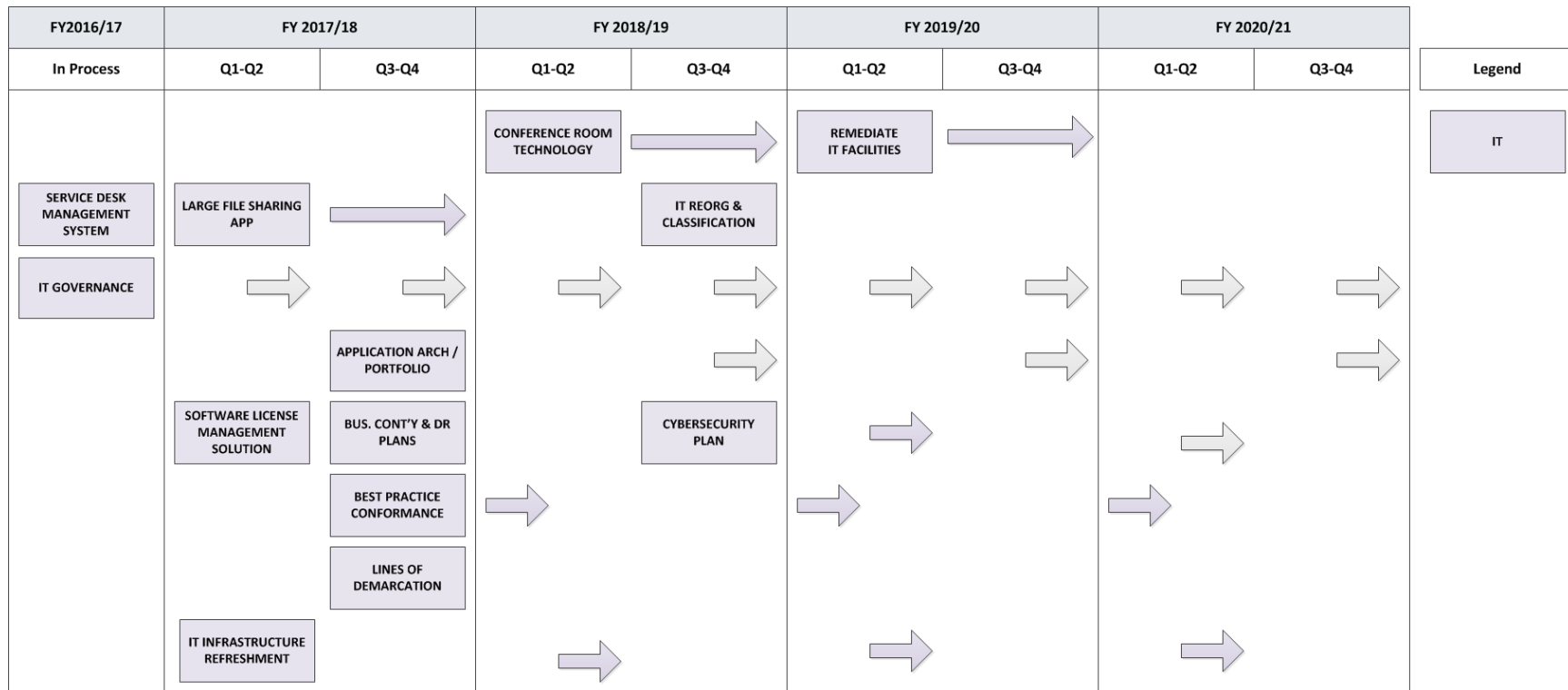


Figure 11 – Visio Blue Wall, Project Schedule, Following Second Workshop, Part 2

Project Title	Owner/ Sponsor	Est. Cost Low Range (\$000's)	Est. Cost High Range (\$000's)	Duration In Qtrs	FY 2016/17		FY 2017/18				FY 2018/19				FY 2019/20				FY 2020/21			
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
AMP Operations Management	AMP	TBD	TBD	7											■	■	■	■	■	■	■	
Automated Meter Infrastructure (AMI)	AMP	TBD	TBD	4	■	■	■	■														
Accela Enhancement	CD	\$ 25	\$ 40	4	■	■	■	■														
Centralized Address Repository	CD	\$ -	\$ 25	4							■	■	■	■								
Voice Mail Messages to e-Mail Application (1)	CD	\$ 5	\$ 10	0																		
Public Records Request Application	City Attorney	\$ 15	\$ 20	3					■	■	■											
Retain Replacement	City Attorney	\$ 15	\$ 20	2			■	■														
e-File for Fair Political Practices Application	City Clerk	\$ 15	\$ 25	2			■	■														
Enterprise Content Management System (ECMS)				9						■	■	■	■	■	■	■	■	■				
ECMS Roadmap	City Clerk	\$ 25	\$ 30																			
ECMS Implementation	City Clerk	TBD	TBD																			
Records Retention Policy	City Clerk, et. al.	\$ 10	\$ 15	2	■	■																
Finance, Payroll, Human Resources System				12			■	■	■	■	■	■	■	■	■	■	■	■				
Finance, Payroll, Human Resources System	Finance	\$ 1,000	\$ 1,500																			
City-wide Time Reporting System	Finance	\$ 10	\$ 15																			
TeleStaff Upgrade	Fire	\$ 5	\$ 10																			
Virtual Emergency Operations Center (VEOC)	Fire	TBD	TBD	6	■	■	■	■	■	■												
Zoll RMS Replacement	Fire	\$ 25	\$ 30	4							■	■	■	■								
Cenic Partnership	IT	\$ -	\$ -	3	■	■	■															
Wi-Fi / VPN Access	IT / AMP	\$ 5	\$ 10		■	■																
Create Administrative Networks	IT / AMP	TBD	TBD						■	■	■	■	■	■								
Library System Upgrade (2)	Library	\$ -	\$ -	14	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
Smart City Program				12					■	■	■	■	■	■	■	■	■	■	■	■		
Fiber Infrastructure Review	AMP	\$ 5	\$ 10						■	■												
Enhanced 911 (E911) System Upgrade	Police	TBD	TBD								■	■	■	■								
Free Public Wi-Fi	City Manager	TBD	TBD									■	■	■	■	■						
Traffic Management System Enhancement	PW	\$ 35	\$ 50								■	■	■	■								
Streetlight Program	PW	TBD	TBD														■	■	■	■		
Remote Facilities Lighting & Irrigation Management System	Rec&Parks	\$ 15	\$ 25																			
City Website and Intranet	PIO	\$ 35	\$ 65	6	■	■	■	■	■	■												
Tiburon Migration to Tri-Tech Inform	Police	\$ -	\$ -	6	■	■	■	■	■	■												
Digitize Maps and Drawings	PW	\$ -	\$ -	6	■	■	■	■	■	■												
GIS Roadmap	City-wide	\$ 15	\$ 25	2					■	■												
Lucity Implementation Expansion	PW	\$ -	\$ -	4	■	■	■	■														
Transportation Mobile Application	Economic Dev.	\$ 5	\$ 15	2									■	■								
Class System Replacement	Rec&Parks	\$ -	\$ -	4	■	■	■	■														
Notes:	Number of Concurrent Projects Per Quarter:				12	12	13	12	11	13	10	9	11	11	6	6	7	7	4	4	1	0

- (1) Project not scheduled
(2) Project continues intermittently over timeline

Figure 12, Project Schedule Part 1
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Project Title	Owner/ Sponsor	Est. Cost Low Range (\$000's)	Est. Cost High Range (\$000's)	Duration in Qtrs	FY 2016/17		FY 2017/18				FY 2018/19				FY 2019/20				FY 2020/21			
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Service Desk Management System	IT	\$ -	\$ 15	1	■																	
IT Governance (process beginning now then ongoing every other quarter)	IT	\$ -	\$ 10	10	■	■		■		■		■		■		■		■		■		■
IT Refreshment	IT	TBD	TBD	18	■	■		■				■				■				■		
Applications Architecture Plan and Application Portfolio (ongoing)	IT	\$ -	\$ 15	5					■	■				■				■				■
Large File Sharing Application	IT	\$ -	\$ 25	4			■	■	■	■												
Software License Management Solution	IT	\$ -	\$ 15	2			■	■														
Conformance to IT Best Practices	IT	\$ -	\$ 15	6					■	■		■				■				■		
Lines of Demarcation Between City IT and City Departments	IT	\$ -	\$ 10	2					■	■												
Business Continuity and Disaster Recovery Plans	IT	\$ 25	\$ 30	2					■	■												
Conference Room Technology Upgrade	IT	\$ 35	\$ 40	4							■	■	■	■								
Cybersecurity Plan	IT	\$ 10	\$ 15	4									■	■		■				■		
IT Reorganization and Classification and Compensation Study (factored into new two year budget cycle)	IT	\$ -	\$ 15	2									■	■								
Remediate IT Facilities	IT	TBD	TBD	5											■	■	■	■		■		
Number of Concurrent Projects Per Quarter:					3	2	4	4	6	7	2	4	4	6	2	5	2	4	1	5	1	3

Figure 12 – Project Schedule Part 2

Project Title	Owner/ Sponsor	Est. Mid-Range Cost (\$000's)	Allocation of Cost By Fiscal Year					Not Scheduled
			FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21	
AMP Operations Management	AMP	\$ -						
Automated Meter Infrastructure (AMI)	AMP	\$ -						
Accela Enhancement	CD	\$ 33	\$ 33					
Centralized Address Repository	CD	\$ 13			\$ 13			
Voice Mail Messages to e-Mail Application (1)	CD	\$ 8						\$ 8
Public Records Request Application	City Attorney	\$ 18		\$ 18				
Retain Replacement	City Attorney	\$ 18		\$ 18				
e-File for Fair Political Practices Application	City Clerk	\$ 20		\$ 20				
Enterprise Content Management System (ECMS)								
ECMS Roadmap	City Clerk	\$ 28		\$ 28				
ECMS Implementation	City Clerk							
Records Retention Policy	City Clerk, et. al.	\$ 13	\$ 13					
Finance, Payroll, Human Resources System								
Finance, Payroll, Human Resources System	Finance	\$ 1,250		\$ 1,250				
City-wide Time Reporting System	Finance	\$ 13		\$ 13				
TeleStaff Upgrade	Fire	\$ 8		\$ 8				
Virtual Emergency Operations Center (VEOCI)	Fire	\$ -	\$ -					
Zoll RMS Replacement	Fire	\$ 28			\$ 28			
Genic Partnership	IT	\$ -		\$ -				
Wi-Fi / VPN Access	IT / AMP	\$ 8	\$ 8					
Create Administrative Networks	IT / AMP	\$ -						
Library System Upgrade (2)	Library	\$ -	\$ -					
Smart City Program								
Fiber Infrastructure Review	AMP	\$ 8		\$ 8				
Enhanced 911 (E911) System Upgrade	Police	\$ -		\$ -				
Traffic Management System Enhancement	PW	\$ 43		\$ 43				
Streetlight Program	PW	\$ -		\$ -				
Remote Facilities Lighting & Irrigation Management System	Rec&Parks	\$ 20		\$ 20				
City Website and Intranet	PIO	\$ 50		\$ 50				
Tiburon Migration to Tri-Tech Inform	Police	\$ -	\$ -					
Digitize Maps and Drawings	PW	\$ -	\$ -					
GIS Roadmap	PW	\$ 20		\$ 20				
Lucity Implementation Expansion	PW	\$ -	\$ -					
Transportation Mobile Application	PW	\$ 10			\$ 10			
Class System Replacement	Rec&Parks	\$ -		\$ -				
*** SUBTOTAL		\$ 1,603	\$ 53	\$ 1,493	\$ 50	\$ -	\$ -	\$ 8
Service Desk Management System	IT	\$ 8	\$ 8					
IT Governance (process beginning now then ongoing every other quarter)	IT	\$ 5	\$ 5					
IT Refreshment	IT	0	\$ -					
Applications Architecture Plan and Application Portfolio (ongoing)	IT	\$ 8		\$ 8				
Large File Sharing Application	IT	\$ 13		\$ 13				
Software License Management Solution	IT	\$ 8		\$ 8				
Conformance to IT Best Practices	IT	\$ 8		\$ 8				
Lines of Demarcation Between City IT and City Departments	IT	\$ 5		\$ 5				
Business Continuity and Disaster Recovery Plans	IT	\$ 28		\$ 28				
Conference Room Technology Upgrade	IT	\$ 38			\$ 38			
Cybersecurity Plan	IT	\$ 13			\$ 13			
IT Reorganization and Classification and Compensation Study (factored into new two year budget cycle)	IT	\$ 8			\$ 8			
Remediate IT Facilities	IT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
*** SUBTOTAL		\$ 138	\$ 13	\$ 68	\$ 58	\$ -	\$ -	\$ -
GRAND TOTAL		\$ 1,740	\$ 65	\$ 1,560	\$ 108	\$ -	\$ -	\$ 8

Notes:

(1) Project not scheduled

(2) Project continues intermittently over timeline

Figure 13 – Mid-Range Project Cost by Fiscal Year

SECTION 5 – CONCLUSION

In closing, NexLevel would like to emphasize three thoughts that have emerged in the course of developing the IT Strategic Plan for the City of Alameda 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

“We know that leadership is very much related to change. As the pace of change accelerates, there is naturally a greater need for effective leadership.”
– John Kotter, Expert on Organizational Change Management

IT Strategic Plans are often likened to roadmaps in that they chart the optimal route for an organization to get from where they are today (“the current state”) to where they need 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, the driver must be prepared to answer some very pointed questions:

“Do we really have to go?”

“Are we there yet?”

“Wasn’t that our exit?”

“Can’t we get there faster?”

These questions are all too familiar to organizations that are working to transition their IT environments (including the ways in which they govern information technology and manage and deliver information technology services) 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.”¹²

¹² James R. Martin, Ph.D., CMA, Professor Emeritus, University of South Florida
September 5, 2017 – Final Report

IT Governance

"IT governance is the responsibility of executives and the board of directors, and consists of the leadership, organizational structures and processes that ensure that the enterprise's IT sustains and extends the organization's strategies and objectives" - IT Governance Institute (ITGI) – <http://www.itgi.org>

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.

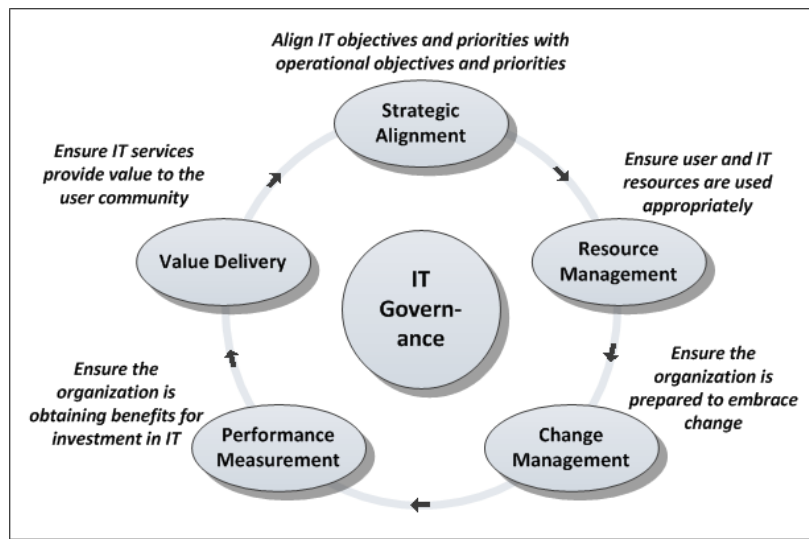


Figure 14 – Dynamics of IT Governance

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 implement a formal structure 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.

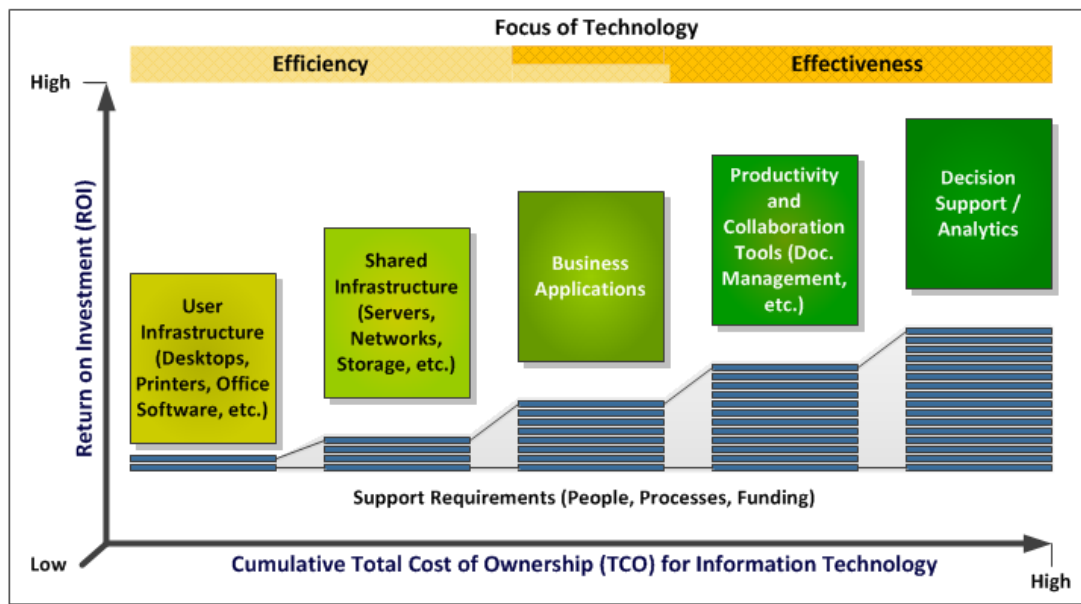
Critics often complain that information technology governance stifles organizational agility; however, the reality is that the converse is true: it enables organizational agility by allowing organizations to allocate their technology resources to the most critical projects and to keep technology objectives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

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 IT Strategic Plan 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.

While the creation of the IT Strategic Plan 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 IT Strategic Plan 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

For each of the proposed information technology projects that are part of the City's Information Technology Strategic Plan, this document provides information regarding:

- ID: A unique number for each project, projects with an "IP" preceding the project number are presently in process, new projects that were identified in the course of the workshops have a "N" preceding the project number
- Project Name: The name of the project
- Status: The status of the project, i.e., either in process or planned
- Sponsor: The project's sponsor, please note that some projects are City-wide in scope
- Impacted Departments: Other departments / City offices that are involved in the project
- ERP: Whether the project could be related to the implementation of an ERP (Enterprise Resource and Planning) solution for financial processing, human resources, etc., and thus might be a candidate for consolidation with the ERP project
- Scope and Objectives: The scope and objectives of the project, please note that some of these projects are identified and further discussed in the IT Assessment Report, particularly where the project is related to the implementation of a recommendation

Please note that in the course of the planning workshops some of the projects were consolidated or deleted and these are noted below.

ID	Project Name	Status	Sponsor	Impacted Departments	ERP	Scope and Objectives
In-Process Projects (in alphabetic order by sponsor):						
IP1	Develop Partnership with CENIC (Corporation for Educational Network Initiatives in California) for Base Re-Use	In-Process	IT	Economic Development Base Re-Use	No	In conjunction with the redevelopment of the former Alameda Naval Air Station, the City is exploring a number of “SMART City” initiatives with regional partners including the implementation of an “ultra” broadband pipeline.
IP2	Digitize Maps and Drawings	In Process	Public Works		No	Public Works has a large number of plans that exist only as paper-documents resulting in problems with storage and retrieval. Mobile access to the information is desired to support field staff. This project would identify how the documents could be scanned and indexed in a format that would facilitate search and retrieval as well as supporting the archival of plans.
IP3	Enhance Accela Implementation	In Process	Community Development	Economic Development Base Re-Use Public Works	No	Community Development has implemented Accela for land management (permitting, planning, etc.), but there are a number of open issues with the current implementation that need to be resolved in order to make the product more effective
IP4	Expand Lucity Implementation	In Process	PW	PW	No	The Public Works Department has implemented Lucity, a computer maintenance management solution (CMMS), to support the asset and maintenance management. The department also uses ESRI Geographic Information System (GIS) which is integrated to Lucity. Remote access to GIS and Lucity is provided to field staff using tablet computers and cell modems. Work is underway to expand the use of GIS and Lucity to meet additional asset management needs and improve inventory management.

ID	Project Name	Status	Sponsor	Impacted Departments	ERP	Scope and Objectives
IP5	Migrate Tiburon to Tri-Tech Inform	In Process	Police	Police	No	The department is migrating from its current Tiburon computer aided dispatch (CAD), records management system (RMS) and mobile application to Tri-Tech's Inform Solution (Tri-Tech acquired Tiburon). The project is scheduled to complete in the spring of 2018.
IP6	Replace Class System	In Process	Rec & Parks	Rec & Parks City Clerk	No	Recreation and Parks is using Class to support certain business functions, including facility reservations and program registration. Vendor support for Class will end in November, 2017, and the department has developed an RFP for a cloud-based replacement. The City Clerk is using another application (Asana) for wedding reservations. The City Clerk's requirements for wedding reservations should be included in the procurement.
IP7	Upgrade Library System	In Process	Library	Library	No	The Library is moving to a hosted version of the Polaris Integrated Library System (ILS) and expects the project to be completed in December.

ID	Project Name	Status	Sponsor	Impacted Departments	ERP	Scope and Objectives
Planned Projects (in alphabetic order by sponsor):						
7	Develop Business Continuity and Disaster Recovery Plans	Planned	City-wide	AMP IT	No	The City should develop a business impact analysis that identifies mission critical business applications and the potential impact to the City if they are 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. The City should also prepare a Disaster Recovery Plan that identifies the steps to be taken to restore mission-critical IT services and applications in the event of a natural or other disaster.
8	Develop Cybersecurity Plan	Planned	City-wide	AMP IT	No	The City should develop and implement a NIST (National Institute of Standards and Technology) conformant cyber-security plan that identifies the steps to be taken to prepare for a cyber-security attack and the measures to safeguard the City against cyber-threats, to detect and mitigate cyber-attacks, and to recover from them. The plan should provide for the periodic assessment of the City's cyber-security plan and measures by an independent testing entity.
9	Develop GIS Roadmap	Planned	City-wide	AMP Comm. Dev. Police Public Works	No	Multiple geographic information systems (GIS) are in use in the City and this project would provide for the development of a GIS roadmap to enable the City to optimize its use of GIS resources, make GIS information more readily available to both users and business applications, and identify short and long-term actions that the City should take to govern the use of this asset.
10	Create Administrative Networks	Planned	City-wide	All Departments	No	Establish wide area networks (both wireless and wired) that are separate from AMP's network. The new networks should be administered separately from AMP's.

ID	Project Name	Status	Sponsor	Impacted Departments	ERP	Scope and Objectives
11	Establish Process for City-wide Information Technology Governance	Planned	City-wide	IT	No	The City should create an Information Technology Advisory Committee (ITAC). ITAC's membership would consist of department heads and selected stakeholders and it would be responsible for the continuing alignment of the City's information technology spending, resources, and priorities with the City's overall business objectives and priorities and sponsor City-wide information technology projects.
12	Formalize Lines of Demarcation Between City IT and User Departments	Planned	City-wide	AMP IT	No	ITAC should formalize the demarcation of responsibilities for IT projects and services between City IT and user departments with the objective of balancing needs for agility with the need to better manage the City's total cost of ownership for information technology and improve its return on investment for its spending on IT. The demarcation would serve as the first step in the development of a service catalog for IT.
13	Upgrade City Web-site and Intranet	Deleted and Combined	City-wide	City Manager Econ. Dev. Public Works	No	This project was combined with project 19 – Upgrade or Replace City Web-site.
14	Implement City-wide Time Reporting System	Planned	City-wide	Finance Police Public Works Rec & Parks	Yes	Implement an enterprise-wide time reporting system with an automated interface to the payroll system. The current time keeping processes are cumbersome and time consuming and require staff time to collect, sign, track, and manually enter time into the payroll system. The time reporting system should include features such as approval routing, vacation request, etc.
15	Implement Large File Sharing Application	Planned	City-wide	All	No	This project would provide for the procurement and implementation of a software solution to support the sharing, collaboration and exchange of large documents (e.g. Dropbox, Basecamp, SharePoint, etc.).

ID	Project Name	Status	Sponsor	Impacted Departments	ERP	Scope and Objectives
16	Wi-Fi / VPN Access	Planned	City-wide	City Manager City Attorney AMP Base Re-Use Finance Rec & Parks, Base Re-Use	No	Develop and implement a remote access strategy that would provide executives, managers, and staff working offsite with access to desktop files and applications, including the procurement of the required network hardware and software. Please note that this project is related to project 10, Establish Centralized, Administrative Wired and Wireless Networks.
17	Perform a Work Order Management Consolidation Analysis	Deleted	City-wide	All	No	This project was deleted in the course of the Prioritization Workshop.
18	Upgrade Conference Room Technology	Planned	City-wide		No	Implement audio/visual technologies (e.g. projection systems, high-quality conference phone, video conferencing, etc.) to support more effective and professional presentations in the conference rooms.
19	Upgrade or Replace City Web-Site	Planned	City-wide	City Manager City Clerk Comm. Dev. Econ. Dev. Library Police IT	No	<p>This project supports the City's objectives for either improving the functionality and information provided by the web-site (if economically and technically feasible) or replacing the site to make it easier for the public to access City information and services and for the City to create, update, and publish content. This project may become part of the City's overall Community Engagement Strategy, please see project 38, Develop Digital Government/Community Engagement Plan.</p> <p>Update: This project will include providing new Intranet functionality for the City's internal use.</p>

ID	Project Name	Status	Sponsor	Impacted Departments	ERP	Scope and Objectives
20	Remediate IT Facilities	Planned	City Manager	IT	No	The City's main server room at City Hall does not conform to data center standards for security, temperature control, and uninterruptible power supply and the facility should either be improved or the equipment relocated. This project would provide the development and implementation of a plan to remedy this situation including the possibility of migrating some of the IT services that are presently hosted on-premises to cloud-based infrastructure or applications.
21	Reorganize IT and Conduct a Classification and Compensation Analysis	Planned	City Manager	IT	No	The City should reorganize IT to enable it to better support the City's user community and conduct a classification and compensation study to ensure that the IT job descriptions are aligned with the City's requirements for IT support including user support, business intelligence, and project and vendor management.
22	Implement a Public Records Request Application	Planned	City Attorney	All	No	Public records requests are currently handled through the City Attorney's office and the City Attorney would like to have a more effective application to track public records requests including workflow to submit and track records requests to other departments.
23	Replace Retain Application	Planned	City Attorney	All	No	Public records requests are currently coordinated by the City Attorney's office. The City Attorney uses Retain to access archived e-mail messages; however, the product is difficult to use. This project would provide for the procurement and implementation of a more effective solution for searching stored records including documents and e-mail.

ID	Project Name	Status	Sponsor	Impacted Departments	ERP	Scope and Objectives
24	ECM Roadmap and Implementation	Planned	City Clerk	City Manager City Attorney Comm. Dev. Rec & Parks	No	The City should engage a consultant to perform a records management review, as well as to develop an ECM implementation plan. The plan should also consider how the City can best use SharePoint in conjunction with Laserfiche (or if at all) for collaboration.
25	e-File for Fair Political Practices	Planned	City Clerk	City Clerk	No	The City must comply with the Fair Political Practices Commission (FPPC) and campaign disclosure requirements. The current processes are largely manual and burdensome for staff. This project would focus on implementing systems and processes to streamline the collection, tracking, and retention of the Form 700's and campaign disclosure materials.
26	Replace Agenda Management Search Tool	Deleted	City Clerk	Comm. Dev.	No	This project was deleted in the course of the Prioritization Workshop. Please see Project 19, Upgrade or Replace City Web-Site.
27	Records Retention Policy	Planned	City Manager City Attorney City Clerk	All	No	This project would provide for the assessment of the City's current records retention policy and the development of a revised policy that is more flexible and that enables the City to store, archive, dispose, and retrieve documents more effectively than present.
28	Conduct Fiber Infrastructure Review	Planned	AMP	All	No	The City's fiber network includes portions that Alameda Municipal Power owns. This project would complete a review of the existing fiber infrastructure.

ID	Project Name	Status	Sponsor	Impacted Departments	ERP	Scope and Objectives
29	Enhance Accela Implementation	Planned	Community Development	Economic Development Base Re-Use	No	The Accela land management system is not fully implemented to support Community Development activity. The application should be configured to support best practice. Desired features include workflow to support planning activity; a dashboard to provide the status of plan review to support transparency; electronic plan review; a customer portal to support online application submittal, request inspections and view inspection results; the ability to issue simple permits online (i.e. water heater); workflow to support Planning Commission activity (staff reports, publish dates); ability to track staff hours within the application number instead of in a separate Excel spreadsheet; the ability to easily generate letters using templates; full implementation of remote access for field staff; and workflow to support code enforcement activity. This project should include the integration of HDL (Business License) with Accela.
30	Voice Mail to E-Mail	Planned	Community Development	Potentially all Departments	No	The Community Development Department receives a high volume of voice mail. Redirection of voice mail messages to text message would reduce the amount of time required for staff to listen to and respond to voice mail messages. This project should be evaluated for City-wide deployment.

ID	Project Name	Status	Sponsor	Impacted Departments	ERP	Scope and Objectives
31	Finance, Payroll, HR Implementation	Planned	Finance	Citywide	Yes	<p>The City needs a modern, proven ERP system that supports improved processes for processing and managing the financial, payroll, and human resource functions. The new system should have the ability to exchange information with other City business applications and to integrate with the City's document management system (Laserfiche). Other ERP modules could also meet the City's need for Time Reporting, Contract Management, Project Management, Budgeting, and Training/Certification Tracking.</p> <p>Update: Projects consolidated with this project include:</p> <ul style="list-style-type: none"> City-wide Time Reporting Upgrade TeleStaff to Current Version
32	Replace Zoll Records Management System	Planned	Fire	Fire	No	Fire currently uses the Zoll RMS and it is not meeting their needs. The new records management solution should be integrated with TeleStaff and Intergraph (County CAD).
33	Upgrade TeleStaff to Current Version	Deleted and Consolidated	Fire	Fire	Yes	This project was consolidated with Project 31, Finance, Payroll, and HR Implementation in the course of the Prioritization Workshop.

ID	Project Name	Status	Sponsor	Impacted Departments	ERP	Scope and Objectives
34	Develop Applications Architecture Plan and Application Portfolio	Planned	IT	IT	No	Create a citywide applications architecture blueprint, supporting standards, and resources to create uniformity in databases, information gathering, and reporting. Create an application portfolio (inventory) 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.
35	Develop Plan for Conformance to IT Best Practices	Planned	IT	IT	No	The City should develop plans for the implementation of formal processes and procedures for project management, user communication and collaboration, change management, organizational change management, and resource management. ITD should leverage existing processes and procedures where possible.
36	Implement Service Desk Management System	Planned	IT		No	The City should procure and implement a service desk management system to enable IT to better support the City's user community and to provide the basis for continual improvement in the delivery of IT services. The project should include the development of formal processes for the tracking and management of user requests and the development of a service catalog with defined service levels based on the demarcation of responsibilities between IT and user departments.
37	Implement Software License Management Solution	Planned	IT	All Departments	No	This project would provide the development and implementation of a strategy to better manage (i.e., consolidating, truing-up) applications software licenses (enterprise, Office 365, etc.).
38	Develop Digital Government / Community Engagement Plan	Deleted	PIO	IT	No	This project was deleted in the course of the Prioritization Workshop.

ID	Project Name	Status	Sponsor	Impacted Departments	ERP	Scope and Objectives
39	Upgrade Enhanced 911 (E911) System	Planned	Police	Police	No	This project would provide for an upgrade to the City's existing E911 software using funds provided by the State of California.
40	Enhance Traffic Management System	Planned	Public Works	PW, Police, ED	No	The City has implemented Horizon traffic signals and some traffic cameras to help manage traffic. This project will expand the use of the application and real-time monitoring of traffic data to improve overall traffic management capabilities.
41	Implement Remote Facilities Lighting and Irrigation Management Systems	Planned	Rec & Parks	Rec & Parks	No	This project would provide for the procurement and implementation of application(s) to remotely control facility/field lighting and park irrigation and would reduce the Recreation and Parks staff time required to support these activities.
42	Upgrade Audio/Visual Equipment	Deleted	Rec & Parks	Rec & Parks	No	This project was deleted in the course of the Prioritization Workshop.

ID	Project Name	Status	Sponsor	Impacted Departments	ERP	Scope and Objectives
Projects Added During the Workshops						
N1	AMI	Planned	AMP			This project involves the continuing installation of automated meters for AMP customers.
N2	EOC / Veoci	Planned	Fire	City Manager Police Public Works		This project involves the procurement and implementation of Veoci – a cloud-based software product that supports the creation and operation of virtual Emergency Operations Centers.
N3	Transportation Mobile App	Planned	Transportation Planning			The scope of this project has not yet been fully defined but is generally related to the implementation of a mobile app for the public that would assist them in locating transportation options including public transit, ridesharing, etc.
N4	Smart City	Planned	City Manager	All departments, particularly: Community Development, Economic Development – Base Re-use, Fire, Police, and Public Works.		This project was created as an umbrella to consolidate a number of projects related to the implementation of Smart City capabilities and enhanced public access to City information and services. Projects that are part of this effort include: <ul style="list-style-type: none"> ▪ E911 Upgrade ▪ Implementation of Free Public Wi-Fi ▪ Traffic Management System Enhancement ▪ Streetlight Program ▪ Remote Facilities Management
N5	Central Address Repository	Planned	Community Development	AMP Fire Police Public Works		This project would provide for the consolidation of and reconciliation of multiple repositories of address information in the City – and the creation of a master address schema in the City's GIS system that would be accessed by all users and applications needing address information.
N6	AMP Ops	Planned	AMP			This project would provide automated work scheduling and management capabilities for AMP to replace existing manual procedures.

Appendix B: Project Prioritization Worksheet

The Project Prioritization Worksheet was used a reference source for the participants in the prioritization workshop. For each of the proposed ITSP projects, the Project Prioritization Worksheet provides the following information:

- **Project ID:** A sequential number assigned to projects to facilitate the “Blue Wall” workshop
- **Project Title:** The name of the project
- **Owner / Sponsor:** The name of the department that is the primary project sponsor, enterprise projects are identified as “City-wide”
- **Estimated Level of Effort (Low, Medium, High):** The estimated level of effort for City staff (including user staff and IT staff) related to the implementation of the project , based on projects of similar scope that NexLevel has encountered
- **Estimated Level of Risk (Low, Medium, High):** The estimated level of risk associated with the project, in general projects involving new technologies are considered to be higher in risk as are projects that involve mission-critical business applications
- **Estimated Costs, Low Range and High Range in \$000’s:** Estimated range of cost for the project based on similar projects encountered by NexLevel
- **Total Business Value:** As assessment of the business value of the project based on the degree to which it will improve community engagement, enhance the City’s business operations, reduce costs, or replace obsolescent technology
- **Weighted Priority (Low, Medium, High):** The weighted priority was developed based on the level of effort, the level or risk, and the business value of the project
- **Notes:** Additional information

ID	Project Title	Owner / Sponsor	Level of Effort (Low, Med, High)	Risk (Low, Medium, High)	Est. Cost - Low Range (in thousands)	Est. Cost - High Range (in thousands)	Assessment of Business Value 1=Low, 3 = Medium, 5=High						Weighted Priority (Low, Med, High)	Notes
							Community Engagement	Business Enhancement	Cost Reduction	Technology Replacement	Total Business Value	Overall Business Value (L, M, H)		
In-Process Projects														
1	Develop Partnership with Cenic for Base Re-Use	IT	M	M	\$ -	\$ -	5	5	1	1	12.0	M	M	
2	Digitize Maps and Drawings	PW	M	L	\$ -	\$ -	1	1	3	3	8.0	M	M	
3	Expand Lucity Implementation	PW	H	M	\$ -	\$ -	5	5	1	1	12.0	M	M	
4	Migrate Tiburon to Tri-Tech Inform	Police	H	H	\$ -	\$ -	5	5	1	5	16.0	H	H	
5	Replace Class System	Rec&Parks	H	M	\$ -	\$ -	5	3	1	1	10.0	M	M	
6	Upgrade Library System*	Library	M	L	\$ -	\$ -	3	3	1	3	10.0	M	M	Complete
Planned Projects														
7	Develop Business Continuity and Disaster Recovery Plans	City-wide	M	M	\$ 25	\$ 30	3	5	1	1	10.0	M	M	
8	Develop Cybersecurity Plan	City-wide	M	L	\$ 10	\$ 15	3	3	1	1	8.0	M	M	
9	Develop GIS Roadmap	City-wide	M	L	\$ 15	\$ 25	3	3	1	3	10.0	M	M	
10	Establish Centralized, Administrative Wired and Wireless Networks	City-wide	H	H	TBD	TBD	5	5	1	5	16.0	H	H	
11	Establish Process for City-wide IT Governance	City-wide	M	L	\$ -	\$ 10	1	1	1	1	4.0	L	L	
12	Formalize Lines of Demarcation Between City IT and City Departments	City-wide	L	L	\$ -	\$ 10	1	5	1	1	8.0	M	L	
13	Implement City Intranet Site	City-wide	M	L	\$ 25	\$ 30	1	1	1	3	6.0	L	L	
14	Implement City-wide Time Reporting System	City-wide	H	M	\$ 10	\$ 15	1	5	3	5	14.0	M	M	
15	Implement Large File Sharing Application	City-wide	M	M	\$ -	\$ 25	3	3	1	3	10.0	M	M	
16	Implement Remote System Access Solution	City-wide	M	M	\$ 5	\$ 10	1	1	1	1	4.0	L	M	
17	Perform a Work Order Management Consolidation Analysis	City-wide	H	M	\$ -	\$ 10	1	3	1	1	6.0	L	M	
18	Upgrade Conference Room Technology	City-wide	M	M	\$ 35	\$ 40	1	1	1	5	8.0	M	M	
19	Upgrade or Replace City Website	City-wide	M	L	\$ 35	\$ 65	5	3	1	3	12.0	M	M	
20	Remediate IT Facilities	City Manager	H	M	TBD	TBD	1	1	3	5	10.0	M	M	

ID	Project Title	Owner / Sponsor	Level of Effort (Low, Med, High)	Risk (Low, Medium, High)	Est. Cost - Low Range (in thousands)	Est. Cost - High Range (in thousands)	Assessment of Business Value 1=Low, 3 = Medium, 5=High						Weighted Priority (Low, Med, High)	Notes
							Community Engagement	Business Enhancement	Cost Reduction	Technology Replacement	Total Business Value	Overall Business Value (L, M, H)		
21	Reorganize IT and Conduct a Classification and Compensation Study	City Manager	H	M	\$ -	\$ 15	1	1	1	1	4.0	L	M	
22	Implement a Public Records Request Application	City Attorney	M	L	\$ 15	\$ 20	3	5	3	1	12.0	M	M	
23	Replace Retain Application	City Attorney	H	M	\$ 15	\$ 20	5	5	3	3	16.0	H	H	
24	Develop an ECM Plan	City Clerk	M	M	\$ 25	\$ 30	5	3	1	1	10.0	M	M	
25	Implement a Fair Political Practices Application	City Clerk	M	M	\$ -	\$ 5	5	3	1	1	10.0	M	M	
26	Replace Agenda Management Search Tool	City Clerk	M	M	\$ -	\$ 5	3	3	1	3	10.0	M	M	
27	Revise Records Retention Policy	City Clerk	M	L	\$ 10	\$ 15	3	5	5	1	14.0	M	M	
28	Conduct Fiber Infrastructure Review	AMP	L	L	\$ 5	\$ 10	1	1	1	1	4.0	L	L	
29	Enhance Accela Implementation	CD	H	M	\$ 25	\$ 40	5	3	1	1	10.0	M	M	
30	Implement Capability to Redirect Voice Mail Messages to Text Messages	CD	L	L	\$ 5	\$ 10	1	1	1	1	4.0	L	L	
31	Procure and Implement ERP Solution	Finance	H	H	\$ 500	\$ 1,000	3	5	3	5	16.0	H	H	
32	Replace Zoll RMS	Fire	M	H	\$ 25	\$ 30	3	3	1	5	12.0	M	M	
33	Upgrade TeleStaff to Current Version	Fire	M	H	\$ 5	\$ 10	1	3	3	3	10.0	M	M	
34	Develop Applications Architecture Plan and Application Portfolio	IT	M	L	\$ -	\$ 15	1	3	3	1	8.0	M	M	
35	Develop Plan for Conformance to IT Best Practices	IT	M	L	\$ -	\$ 15	1	3	1	1	6.0	L	L	
36	Implement Service Desk Management System	IT	M	L	\$ -	\$ 15	1	1	1	1	4.0	L	L	
37	Implement Software License Management Solution	IT	M	L	\$ -	\$ 15	1	5	5	1	12.0	M	M	
38	Develop Digital Government/Community Engagement Plan	PIO	H	M	\$ -	\$ 10	5	5	1	3	14.0	M	M	
39	Upgrade Enhanced 911 (E911) System	Police	L	H	N/A	N/A	3	1	1	1	6.0	L	M	Grant Funded
40	Enhance Traffic Management System	PW	M	M	\$ 35	\$ 50	5	5	1	3	14.0	M	M	
41	Implement Remote Facilities Lighting & Irrigation Management System	Rec&Parks	M	L	\$ 15	\$ 25	3	3	1	3	10.0	M	M	
42	Upgrade Audio/Visual Equipment	Rec&Parks	L	L	TBD	TBD	1	1	1	3	6.0	L	L	