DATE: **March 2,2020**

TO: Honorable Mayor and Members of the City Council through City Manager

FROM: Ingrid Alverde, Director, Economic Development & Open Government
Tim Williamsen, IT Manager
Trae Cooper, Software and Data Manager

SUBJECT: Presentation of a 5-year Master Plan for Information Technology Programs and Infrastructure.

RECOMMENDATION

It is recommended that the City Council receive the report and provide direction on proposed technology staffing, projects and programs.

BACKGROUND

Over the past decade, the demand for technology has increased significantly in every industry and area of life. As such, demands for technology solutions to support city services has also increased. And, demands for streamlined and 24/7 services to our clients using technology continues to grow.

To help meet these demands the technology staff have found creative ways to provide technology solutions within the limited available budgets. As a result, the community can reach staff by email, find information and report problems on our website, and renew their business license, register for recreation programs, make payments on certain services, and report problems online. Our community can also report crimes, review staff reports, and monitor river gauges online.

The additional technology we have implemented also supports internal management. For instance, the City's financial accounting and reporting, land development permitting, city council records, code compliance cases, traffic signal coordination, water delivery, wastewater treatment, and emergency response rely on technology systems that can store and recall data, perform tasks, locate personnel, and communicate critical information to staff so that they can quickly and appropriately respond to needs. Without these systems, services would be slower, less accurate and require more people to perform tasks automated by technology.

Much of our maintenance, replacements and data backups do not meet industry standards. This is due to increased demand for services and decreasing budgets. As a result, we are at risk of losing critical data and experiencing unpredictable system failures. As cyber threats and natural disasters

increase, we are at even more risk. And, as we rely more on technology to provide essential services, these loses, and interruptions will have larger impacts.

To help identify and prioritize future technology investments, the City Council approved a dedicated workplan item in its 2020-2021 Goals and Priorities stating that the City would develop a citywide IT Master Plan that identifies and prioritizes City technology needs, funding, and implementation strategies (Goal – A City That Works For Everyone, Objective #4, Workplan item #35). In response, we hired an experienced consulting firm, SDI Presence (SDI), to assess our technology infrastructure and programs, identify threats and weaknesses, and develop a plan to fortify and expand technology to support city services going forward.

DISCUSSION
The attached Information Technology Master Plan (Plan) provides a detailed assessment of Petaluma's current technology infrastructure and systems, compares that against industry standards and departmental needs, and proposes a series of system upgrades, program enhancements, staffing suggestions, and hardware and network replacements that will support Petaluma services reliably.

A key element of the Master Plan is a strengths, weakness, opportunities and threats (SWOT) analysis. That assessment is based on interviews with staff, a detailed assessment of our current systems, and a comparison to industry standards.

The report finds that Petaluma's technology benefits from supportive leadership, an extensive portfolio of business applications, use of cloud-based services, a "can do" approach and creativity. However, Petaluma suffers from long-term under-investment in technology, insufficient staffing, aging equipment, insufficient disaster recovery plans, uncoordinated data, and incomplete use of existing applications.

Looking forward, Petaluma could better manage its technology and associated costs by coordinating decision making among departments and considering opportunities to convert capital purchases and onsite programing to subscription services. Doing so could reduce upfront investment and needed staff support. Petaluma needs to implement a plan to protect technology services following a disaster or cyber security attack. And, as Petaluma takes advantage of cloud-based services, Petaluma needs to assure that City data is protected.

Pulling from the SWOT analysis, department interviews, and the technology infrastructure assessment, the Plan provides a roadmap to improve the use of technology, promote operational efficiencies, support economic development and provide essential services. This roadmap takes the form of a projects list / workplan that the City could implement over the next five years. The list of projects is divided into three categories: foundational, mandatory, & discretionary.

Foundational projects are projects that support the basic networks and systems upon which all other systems work. These projects include upgrading and or replacing aging servers and other network hardware that support city wide technology systems. Other important foundational projects include developing and implementing a cyber security plan, developing a business resiliency and disaster recovery plan, and creating redundant backups to the cloud. The City's

computer hardware fleet also needs to be replaced. Finally, to meet the City's foundational technology needs and to support department work, the technology staff will either need to find ways to contract additional work or hire 2 new FTEs.

Mandatory projects are those that support city wide departments, meet legal requirements, and allow the city to provide basic services. The projects include an upgraded permit management system, a new enterprise resource management system, public records management, traffic system upgrades, agenda management, replacement of the emergency response CAD system, and the implementation of an online document management system.

Discretionary projects are those that support department specific needs and include a new system for tracking fire response, a consolidation of work order systems, upgrades to a system that supports legal activity, an upgraded contract management and electronic signatures system, new hardware and software to support emergency management, a system to manage property and leases and other upgrades to conference rooms and communications that allow for staff mobility and productivity.

Figure 5-5 (pg. 32-35) of the Master Plan (Attachment 1) provides the full list of proposed projects and provides timing and budget suggestions to complete the Plan. If fully implemented, the additional work will cost $6.2 million over five years. Broken out over five years, the estimated costs are approximately $285,000 in fiscal year 2020, $1.063 million in fiscal year 2021, $1.273 million in fiscal year 2022, $2.63 million in fiscal year 2023 and $985,000 in fiscal year 2024. This plan is a snapshot and will need to be revisited annually to fine tune each budget cycle with more specific information and costs.

Looking at this work through another lens, making these system, software, staffing and program upgrades will improve our ability to protect and maintain the technology systems we are using today, be prepared and responsive during emergencies, streamline our data and increase public access to public data, maximize staff efficiency and improve staff responsiveness, and meet our clients where they are either in the field, in council chambers or online.

PUBLIC OUTREACH
This Master Plan was developed as an internal guidance document. It will be included in the budget options tool being developed for community interaction as part of the Fiscal and Organizational Sustainability process underway.

FINANCIAL IMPACTS

There is no fiscal impact with this plan. Future budgets may be informed by this plan but will be discussed later during future budget cycles.

ATTACHMENTS

    1.   Information Technology Master Plan

The City of Petaluma

Information Technology Master Plan

January 10, 2020

Client Working Draft

Revision Log

Version	Date	Description
1.0	10 January 2020	Client Working Draft

Table of Contents

Section 1. Introduction

1.1 – Scope and Objectives

This document, entitled, Information Technology Master Plan (IT Master Plan), was prepared for the City of Petaluma (City) by SDI Presence, Inc. (SDI). The IT Master Plan will enable the City to better allocate its information technology resources and to obtain greater benefits for its investments in information technology. Although the IT Master Plan provides a holistic view of the City's information technology needs and priorities at the present time it does not attempt to predict the future; but rather, it provides a baseline that will enable the City to allocate scarce resources based on operational priorities and to re-allocate them as needed in order to effectively respond to new and/or changing requirements.

Coupled with an effective process for the governance of information technology, the IT Master Plan will enable the City to proactively change its information technology environment (including processes, organization, people, and infrastructure) to remediate service delivery issues and to meet changing requirements, to obtain greater benefits for the investments being made in information technology, and to improve the City's ability to more effectively respond to future requirements.
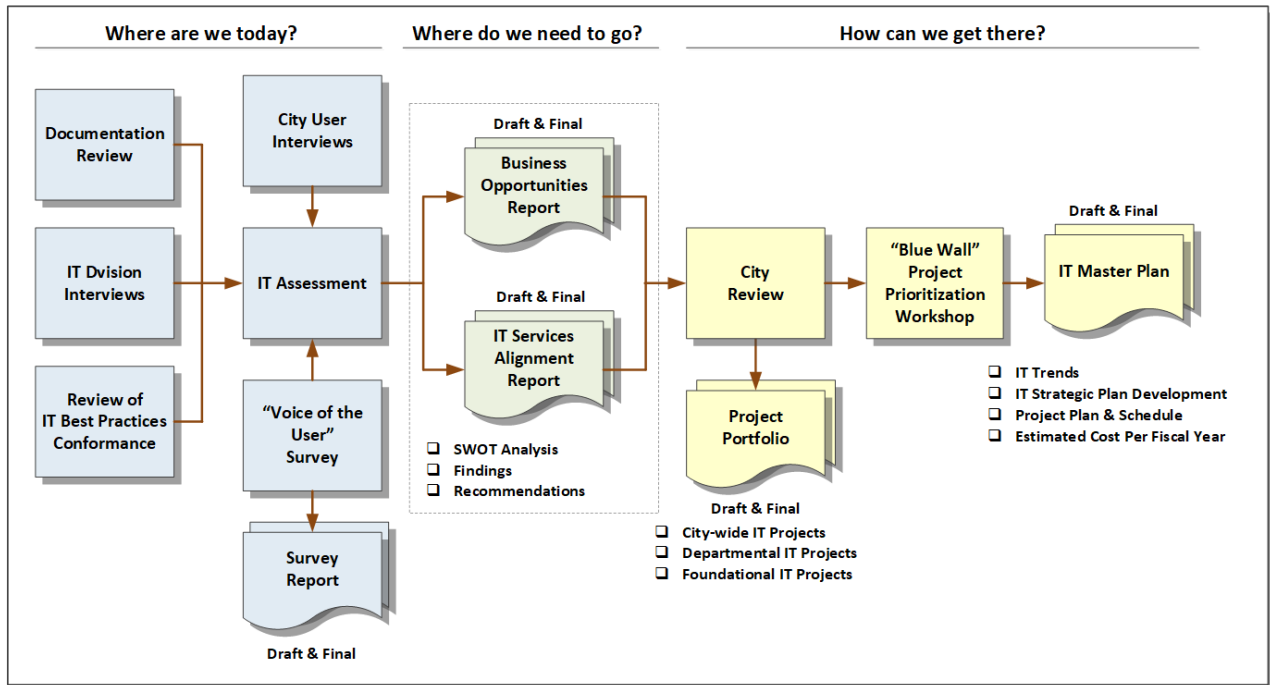
Figure 1-1 – Phases in the Development of the IT Master Plan

As depicted in Figure 1-1, Phases in the Development of the IT Master Plan, the process to develop the plan for the City consisted of three phases:

❑ In the first phase, SDI conducted an online survey of City employees to gather information concerning their use of technology, support received for the City's IT Division, and future plans for the use and/or expansion of information technology in their departments. A separate report of the survey results was submitted to the City on September 24, 2019.

❑ In the second phase of the project, SDI prepared and delivered the Business Opportunities and IT Alignment Report which identified and documented the City's business opportunities and the steps that it needs to take to overcome the challenges that it is experiencing in the governance, management, and delivery of IT services. This report, along with the survey report, provided a detailed and objective assessment of where the City is today regarding its use of information technology services, and where it needs to go. The report was submitted to the City on December 9th, 2019 and included:

- A summary of the interviews conducted with the City's user community including how they currently use information technology, what issues they are experiencing, and future needs.

- A summary of the interviews conducted with the manager and staff members of the City's Information Technology Division.

- An analysis of the City's core business applications.

- A SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis.

- Findings and recommendations.

- An initial portfolio of proposed IT projects to support the City's business needs.

❑ The third, and final, phase in the development of the IT Master Plan will included a workshop for the City's management team in which SDI worked with the participants to arrive at a consensus regarding the City's most critical operational priorities and information technology needs and to shape the plan for the responding to them. The IT Master Plan resulted from this phase as well as from the work products from the prior phases.

1.2 - City's Information Technology Vision and Direction

The City of Petaluma's vision for the use of information technology is set forth in its statement of goals and priorities for FY 2019-2020 and FY 2020-2021, under "A City that Works for Everyone," Objective 4, "Implement Technology Initiatives to Improve the Accessibility, Efficiency And Effectiveness of City Operations, Provide the Highest Level Of Customer Service, and Make the City the Primary Source For City Information."

Objective 4 identified a number of workplan items including:

❑ Develop a citywide IT Masterplan that identifies and prioritizes City technology needs, funding, and implementation strategies. [In progress].

❑ Implement an online permitting system. [In progress].

❑ Implement agenda management software system. [In progress].

❑ Complete the roll-out of an updated City website that creates a more user-friendly, accessible, and interactive information resource and online experience for the community. [Completed].

❑ Leverage technology to improve efficiency including improved use of meeting and conferencing technologies.

❑ Enhance mobile technology to increase efficiency of field staff.

❑ Encourage the expansion of internet fiber by carriers to provide access to our community.

Beyond these immediate goals, the City is working to overcome a number of challenges that are related to the prior budget shortfalls including:

❑ **Chronic under-investment** in the City's IT infrastructure (including facilities, servers, and network equipment) which has led to performance issues and prompted concerns regarding the resilience of the City's IT infrastructure and whether the City has the resources needed (facilities, hardware, software, and personnel) to recover from an incident in a timely manner.

❑ **Reduced IT staffing**, which, coupled with recent retirements, has left ITD with insufficient resources to effectively deliver information technology services to the user community, or to ensure their sustainability.

❑ **Under-investment in continuing training for user staff members**, which has resulted in users not being able to take full advantage of the automated functionality available to them, and some business applications having components/modules that are not being used.

❑ **A proliferation of IT solutions and services**, some of which are redundant and with little consideration for the exchange of information between business applications as departments independently took steps to meet immediate operational needs as a result of the limited availability of ITD personnel.
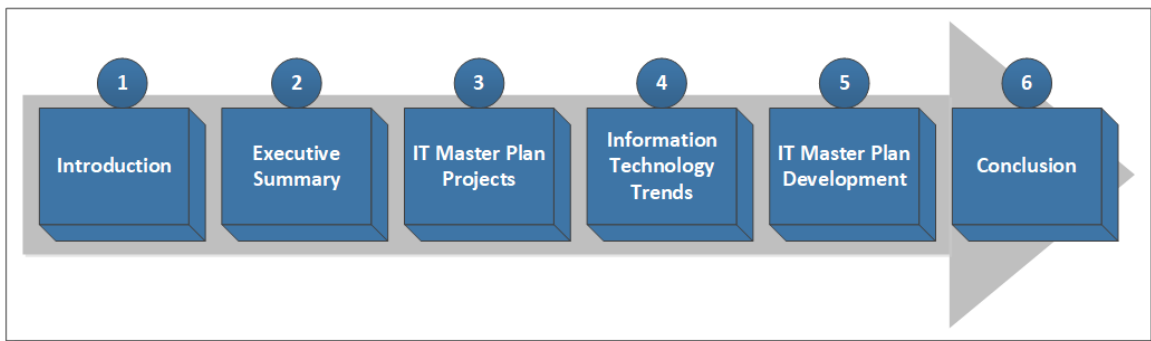
1.3 - Document Organization and Contents

Figure 1-2: Organization of IT Master Plan (Source: SDI)

As depicted in Figure 1-2, Organization of IT Master Plan, this document is organized as follows:

❑ **Section 1, Introduction (this section):** Provides information regarding the scope and objectives of the IT Master Plan, the City's vision and objectives for information technology, and the organization and contents of the document.

❑ **Section 2, Executive Summary:** Provides a high-level summary of the development of the City's IT Master Plan, the proposed directions, projects, and costs.

❑ **Section 3, IT Master Plan Projects:** Provides information regarding SDI's model for the effective delivery of IT services and the alignment of the IT Master Plan projects with the core IT service delivery values in the model.

❑ **Section 4, Information Technology Trends**: Provides information on relevant information technology trends that could impact the City's business needs and priorities over the timeframe of the IT Master Plan.

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- **Section 5, IT Master Plan Development**: Provides information regarding the development of the IT Master Plan including the project roadmap and schedule.

- **Section 6, Conclusion**: Provides information to help the City to successfully govern, maintain, and implement the IT Master Plan based on SDI's experience in working with a wide range of public sector organizations.

Numbering of Figures and Tables

Please note that figures and tables have been numbered consecutively within each section of the report.

Terminology

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

Section 2. Executive Summary

> **"Innovation is less about generating brand-new ideas and more about knocking down barriers to making those ideas a reality."**- Eight Steps to Accelerate Change in 2015, John Kotter

Today, a number of factors have dramatically changed how municipalities use information technology including:

❑ Changes in information technology itself, including the rapid maturation of the Internet and "Cloud" based services, and the widespread use of mobile devices.

❑ Increased public expectations for access to information and services from "any device, any time".

❑ The need for organizations, particularly in the public sector, to be more efficient and to deliver services while minimizing the budget growth.

As a result of these factors, municipalities have transformed their use of information technology from being a "back-office" support function to a public-facing function that enables them to meet their business objectives and ever-increasing public expectations. This has changed how municipalities need to plan for their use of information technology, govern their plan, and manage the delivery of IT services.

Within this context, the Information Technology Master Plan provides a roadmap to enable the City of Petaluma to move forward from its present information technology environment with the objectives of:

❑ Enabling the City to better govern, manage, and deliver IT services.

❑ Enabling the City as a whole, and departments individually, to make better use of information technology to deliver services to the community including increasing the value that the City receives for its investments in information technology.

❑ Promoting operational efficiencies by making better use of IT assets such as business applications, productivity tools such as the City's document management system, improving the resiliency of the City's network, and remediating application and network performance issues.

❑ Promoting economic development by improving access to information and services such as permitting.

❑ Improving productivity in the short-term by meeting immediate user needs for automation using existing IT assets and eliminating obstacles and workarounds.

❑ Remediating deficiencies in the City's IT environment including issues with physical facilities, IT infrastructure, etc.

The IT Master Plan was developed through a collaborative process in which SDI worked closely with the City's management team, key user stakeholders, and the City's Information Technology Division to understand how the City is using information technology, the issues being experienced in both using information technology and delivering information technology services, IT projects that were in progress, and future needs.   This information was gathered, reviewed, verified, and refined through

multiple interviews, work sessions, and deliverable with the objective of developing a plan that was aligned with the changes in how municipalities are using information technology but that was also aligned with the City's specific needs and constraints and that incorporated input from a large cross-section of the City's user community.

One of the key products of this process was the development of a Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis that provides a "snapshot" of the City's current information technology environment as depicted in Figure 2-1, SWOT Analysis.

Tactical / Short-Term	
Strengths	**Weaknesses**
- The City's leadership is highly supportive of the use of IT as a strategic enabler for the delivery of services to the community and the City is prepared to make investments in IT. - The City has a nascent, but ad-hoc, approach to IT Governance. - The City has an effective portfolio of business applications including industry-leading solutions (but also has too many software solutions). - The City is making use of Cloud-based business applications as needed. - City Departments have a "can do" approach to IT. - With limited resources, ITD has been very creative in deployment of technology solutions to meet business requirements.	- As a result of long-term under-investment in IT, the IT Division is understaffed and over extended, and components of the City's IT infrastructure are overdue for replacement. - The City has not sufficiently prepared for business resilience / disaster recovery. - The City has not sufficiently planned for the sharing of information across business applications. - Key City facilities are aging (City Hall and PD) and the IT server rooms in them do not meet current standards. - City staff are not fully familiar with the functions and features of the City's business applications.
Strategic / Long-Term	
Opportunities	**Threats**
- The City could better manage its total cost of ownership for IT and increase the return for its investments in IT through improved governance and planning and through improvements in IT service delivery. - The City could improve IT service delivery by augmenting IT resources (by hiring new staff members and/or leveraging services). - Leverage trends in information technology such as devices-as-a-service (DaaS) to promote increased staff productivity while better managing IT costs.	- Loss of critical IT knowledge through retirements or staff attrition. - The City could be unable to effectively sustain or restore critical services to the user community following a natural or other disaster. - Inability to effectively leverage investments in IT resulting in overall Increased costs for IT ownership. - Potential loss / disclosure of City information in the custody of Cloud-service providers. - Increased exposure to cybersecurity threats.

Figure 2-1: SWOT Analysis (Source SDI)

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The City's strengths should enable it to realize the potential opportunities provided that it is able to effectively remediate its weaknesses, if it does not do so, then the weaknesses could lead to the realization of the potential threats.

❑ **Strengths and Weaknesses**: The strengths and weaknesses reflect SDI's assessment of the City's current (tactical/short-term) information technology environment, the weaknesses being related to:

- The City's long-term fiscal constraints which have reduced IT funding and resources while displacing IT costs to departmental budgets. While the deployment of departmental solutions (largely in the form of Cloud-based solutions, i.e., software-as-a-service) has enabled departments to survive and meet operational priorities in the short-term, the City could realize increase costs and threats unless these are carefully rationalized and consolidated.

- Reductions in the staffing and funding of ITD have greatly reduced its ability to effectively deliver services since at current resource levels IT staff are focused on reactively responding to issues and outages.

❑ **Opportunities and Threats:** The opportunities and threats are similarly based on SDI's assessment of the potential strategic (or long-term) outcomes depending on whether the City acts to remediate the weaknesses and leverage the strengths. These include:

- Depending on the actions that the City takes with regard to the current information technology environment, the weaknesses could result in limited agility and a higher total cost of ownership for information technology as well as weaken the ability of the City to sustain the delivery of IT services to the user community or to effectively restore them following a natural or other disaster.

- Perhaps the single most effective step that the City can take in the short-term is the implementation of a sustainable process for City-wide IT governance.

The IT Master Plan cannot enable the City to remediate the weaknesses and realize the opportunities by itself; these will be greatly dependent on the City's long-term commitment to IT Governance, to providing the funding and other resources required to implement the plan, and to adopting and assimilating organizational and procedural changes in the City's user community. For example, thinking collaboratively about the use of information technology rather than approaching problems solely from a departmental perspective.

It should be noted that the IT Master Plan simply provides a baseline from which the City should manage and adapt as requirements, resources, and priorities change. All of which involves a greater attention to IT Governance than in the past. IT Governance is generally not ingrained in the culture of municipalities in the same way as is budgeting, for example. Although few public sector organizations would be comfortable in not having a budget to manage over the course of a fiscal year; IT Governance does not rise to the same level of attention. Many organizations carefully manage their total cost of ownership for information technology but pay scant attention to maximizing the value they obtain from those expenditures.

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Finally, beyond the immediate objectives of the IT Master Plan, adoption and implementation of the plan will enable the City to transform from being in a reactionary, "survival mode" with regard to its use of information technology, to a proactive and "agile" mode as summarized in Figure 2-2, Attributes of Reactive and Proactive Organizations.

Reactive Organizations	Proactive Organizations
Events are problems	**Events are opportunities**
Focus is on:	**Focus is on:**
❑ Efficiency	❑ Effectiveness / quality
❑ Managing the Total Cost of Ownership (TCO) for information technology	❑ Managing the Return on Investment (ROI) for information technology
❑ Standardization	❑ Innovation
❑ "Fighting Fires"	❑ Continuous improvement
Goal is to survive	**Goal is to thrive**

Figure 2-2: Attributes of Reactive and Proactive Organizations (Source: SDI)

SDI
SDI PRESENCE LLC

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Section 3. IT Master Plan Projects

3.1 – Introduction

Over the last decade there have been substantial changes in both information technology (including the maturation of the Internet, Cloud-based services, and mobility) as well as how public sector organizations use information technology (with digital services being integral to how municipalities collaborate with their regional partners, communicate with the public, and provide services). Despite these changes, and their increased dependence on information technology, the ways in which municipalities govern the use of IT and manage the delivery of IT services have remained relatively static and informal. Additionally, traditional IT governance models and IT organizations that were based on highly centralized IT service delivery models made it difficult for municipalities to keep pace with changes in information technology as well as in obtaining greater value for their investments in information technology.
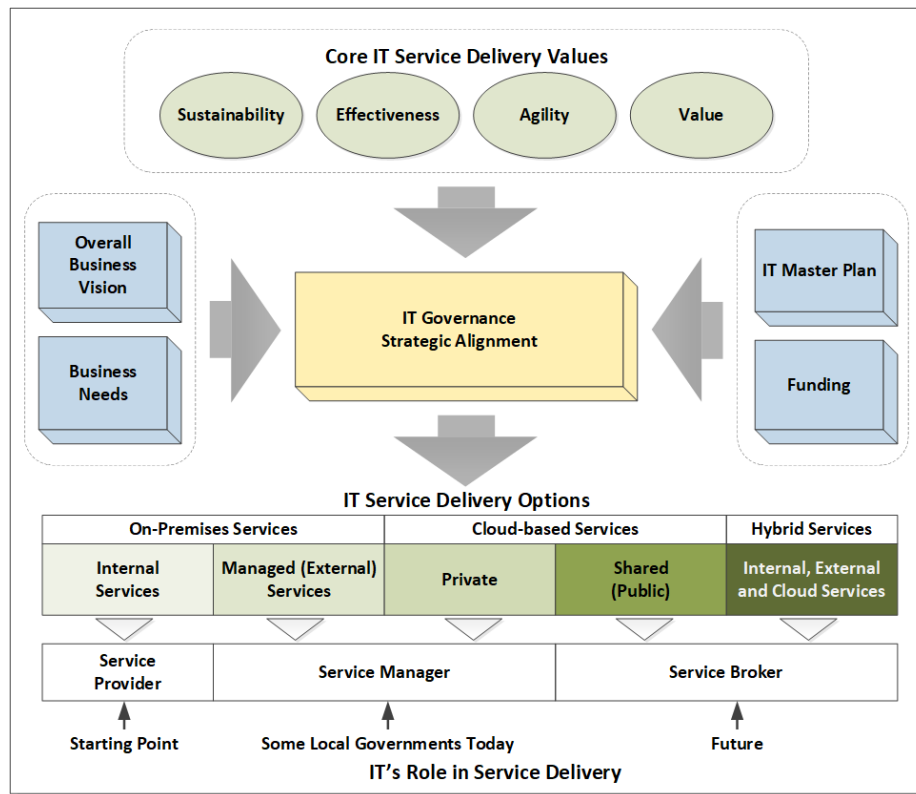
Figure 3-1 - IT Service Delivery Model (Source: SDI)

Figure 3-1, IT Service Delivery Model, depicts SDI's conceptual model of how municipalities should govern, manage, and deliver IT services to internal and external user communities based on SDI's experience in working with local governments. As depicted in Figure 3.1, SDI believes that the City's governance of IT services should be based on core service delivery values including:

❑ **Sustainability:** The City has become increasingly dependent on the continued availability and performance of IT services. These services are delivered by the City's internal IT staff (the Information Technology Division), regional consortiums, departmental staff members

performing IT functions (some of whom are in IT classified positions and some of whom are in non-IT classified positions), external IT service firms, Cloud-service providers, and/or some combination of the above. While the City is dependent on all of these services, some of them are more critical than others, and the City must be able to ensure that access to these services is continually available and that access can be restored following natural or other disasters and incidents (such as cyber-attacks).   Other factors, such as the attrition staff members with critical skills / knowledge without documenting what they do or planning for their replacement, can also diminish the sustainability of IT services.

❑ **Effectiveness:** Effectiveness looks at not only how well the delivery of IT services meets with the City's needs. but also considers how effectively the services (such as business applications) are being used. Service delivery effectiveness generally receives the most attention; however, making the most effective use of IT services is equally critical and includes measures to maintain competencies (such as providing continuing training, providing knowledge bases, and cultivating the development of subject matter experts within the user community.

❑ **Agility:** Agility is defined by Gartner (a leading information technology research and advisory services firm) as "the ability of an organization to sense environmental change and respond efficiently and effectively to that change." In the context of the IT Master Plan, agility includes not only the ability to adapt to changes in information technology but also the ability of the organization, as a whole, to modify business processes to take advantage of them. Agility requires that organizations implement processes to continuously govern information technology (and thus be able to re-realign priorities and re-allocate resources as business objectives and priorities change), to adopt processes for change management, and to adapt IT service delivery processes as needed.

❑ **Value**: Organizations in the public sector have limited resources and thus need to be able to continually work to maintain the value that they receive for their investments in information technology services as well as to enhance it. This has both strategic and tactical implications with the former including the development of an organizational vision for the use of information technology and continually refining the vision based on experience, changes in requirements, and changes in information technology and service delivery. Tactical implications include an organizational commitment to continuous improvement to maintain hard-won competencies and to build on them.

The decisions that cities make with regard to priorities and the resources available influence how they elect to deliver IT services to the internal user community and the public. As depicted at the bottom of the diagram there are three basic approaches to the delivery of IT services including:

❑ **On-premises services**: Services that are based on a city's on-premises IT infrastructure can be delivered by the city's internal IT support organization, by a third-party provider (variously described as "managed services" or "outsourcing"), or by a combination of internal and external resources.

❑ **Cloud-based services:** Cloud-based services can either be "private" (meaning that they are specific to a city and managed by either the city's internal staff or an external services provider) or "public' (meaning that the service is provided to a number of clients). It should be noted that

although the service is hosted from a remote site, a city's network infrastructure connects the users to the service.

❑ **Hybrid services:** A portfolio of services that is comprised of both on-premises and Cloud-based services. SDI has found that most municipalities use some combination of on-premises and Cloud-based services with most gradually shifting to a greater use of Cloud-services as business application providers shift to Cloud-based services (Software-as-a-Service) rather than traditional software licensing and on-premises installations.

As shown in the boxes below the IT service delivery options in Figure 3-1, the role of an internal IT support organization can change significantly based on the services being used ranging from:

❑ **Being a traditional service provider** (which is where most IT organizations started).

❑ **Being a service manager** that provides internal services as well as oversight for the external services used by an organization (which represents the current state for many public sector IT organizations today). One of the greatest challenges facing IT organizations in this environment is that the ubiquity of Cloud-based services, and the ease with which users can sign-up for the them, facilitates the growth of "shadow IT" services – which may or may not conform to the organization's requirements for security, confidentiality, and availability.

❑ **Ultimately becoming a service broker** in a hybrid environment that is capable of both directly providing services as well as being able to advise users as to the relative merits of internal, external, and cloud-based services.

3.2 - Alignment of Projects with Core Service Delivery Values

The projects that form the core of the IT Master Plan were identified by SDI in the course of reviewing the results of the "Voice of the User" Survey and through the interviews with the City's user stakeholders, decision-makers, and ITD's manager and staff members. These were documented by SDI, reviewed with the City's management team, and revised as needed. Additional projects were also identified during this process. The resulting ITMP Project Portfolio is provided as Appendix A. It provides information for each of these projects including:

❑ The name of the project and the project sponsor.

❑ Project Description.

❑ An assessment of the potential difficulty of implementing the project considering the estimated level of effort, risk, project duration, and financial impact.

❑ Additional considerations that should be address doing the implementation of the project or alternatives to the City's approach.

These projects have a range of objectives including:

❑ Enabling the City to better govern, manage, and deliver IT services.

❑ Enabling user departments to make better use of information technology to deliver services to the community.

❑ Promoting operational efficiencies.

❑ Promoting economic development.

❑   Meeting immediate user needs.

❑   Remediating deficiencies in facilities, IT infrastructure, etc.

❑   Remediating application and network performance issues.

The projects fall into three broad categories:

❑   **Mandatory / Enterprise Projects:** These include City-wide projects that would benefit all departments as well as those projects that SDI recommends that the City should complete during the timeline of the IT Master Plan.

❑   **Discretionary / Departmental Projects:** These include projects that would benefit a smaller range of departments and/or whose completion was deemed to be at the City's discretion based on the availability of resources.

❑   **Foundational IT Projects:** These include projects to enable the transformation of ITD from an organization that is largely a service provider to a service broker and that would improve the resilience and performance of the City's IT infrastructure. These projects would provide the foundation for the completion of the other projects in the IT Master Plan and remediate many of the issues facing the City today.

Table 3-2, Alignment of Projects with Core IT Service Delivery Values, provides an analysis of the degree to which each of the ITMP projects supports the Core IT Service Delivery Values, and this information helped SDI prepare the initial project roadmap which was then reviewed and revised by the City's management team (please see Section 5, IT Master Plan Development). Each of the projects in Table 3-2 has been given a score (ranging from 1 to 4) based on SDI's assessment of the degree to which the project supports the Core IT Service Delivery Values.

Table 3-2: Alignment of Projects with Core Service Delivery Values

Project Name	Alignment with Core IT Service Delivery Values				Score
	Sustain-ability	Effective-ness	Agility	Value	
Agenda Management	☐	⊠	⊠	⊠	3
EnerGov	☐	⊠	⊠	⊠	3
Lucity Expansion	☐	⊠	☐	⊠	2
Traffic Management Upgrade	☐	☐	☐	⊠	1
IT Governance	⊠	⊠	⊠	⊠	4
SCADA Roadmap	⊠	⊠	⊠	⊠	4
Continuing Application Training	☐	⊠	☐	⊠	2
Council Chambers A/V Upgrade	⊠	⊠	☐	⊠	3
SharePoint Implementation	☐	⊠	☐	⊠	2
CAD/RMS Replacement	☐	⊠	⊠	⊠	3
Augment IT Resources	⊠	⊠	⊠	⊠	4
Public Records Email Search Application	☐	⊠	☐	⊠	2
Document/Content Management Strategy	☐	⊠	☐	⊠	2
Digital Records Retention Policy	☐	⊠	☐	⊠	2
Public Safety Applications Roadmap	⊠	⊠	⊠	⊠	4
EDEN Post Implementation Review	☐	⊠	⊠	⊠	2
ERP Replacement	⊠	⊠	⊠	⊠	4
Application Data Sharing	☐	⊠	⊠	⊠	3
Social Media Policy & Guidelines	☐	☐	☐	⊠	1
Firehouse RMS Replacement	☐	⊠	⊠	⊠	3
Early Warning Application	☐	⊠	☐	⊠	2
Fire Prevention RMS	☐	⊠	⊠	⊠	3
Work Order Consolidation	☐	⊠	⊠	⊠	3
IT Infrastructure Replacement	⊠	⊠	☐	⊠	3
EOC Application & Hardware	⊠	⊠	☐	⊠	3
CityLaw Post Implementation Review	☐	⊠	☐	⊠	2
Contract Management	☐	⊠	☐	⊠	2
GIS Roadmap	⊠	⊠	⊠	⊠	4
Conference Rooms Upgrades	☐	⊠	☐	⊠	2
Electronic Signatures	☐	⊠	☐	⊠	2
Property/Lease Management Application	☐	⊠	☐	⊠	2
Form 700 Application	☐	⊠	☐	⊠	2
Keyed/Keyless Access Systems Consolidation	☐	⊠	☐	⊠	2
Telephone Plan	⊠	⊠	⊠	⊠	4
NEOGOV Expansion	☐	⊠	☐	⊠	2
Security Camera Plan	☐	⊠	☐	⊠	2
Stream Gauge Upgrade	☐	⊠	☐	⊠	2
Website Enhancement	☐	⊠	☐	⊠	2
Backup Improvement (Short-term)	⊠	⊠	☐	⊠	3
Remote Access	⊠	⊠	☐	⊠	3
Cyber & Data Security Plan	⊠	⊠	☐	⊠	3
IT Infrastructure Annual Refreshment	⊠	⊠	☐	⊠	3
Network Performance	⊠	⊠	☐	⊠	3

Project Name	Alignment with Core IT Service Delivery Values				Score
	Sustain-ability	Effective-ness	Agility	Value	
Customer Service Training Program	☐	☒	☐	☒	2
Business Resilience (Long-term)	☒	☒	☐	☒	3
IT Capacity/ Performance Monitoring	☐	☒	☐	☒	2
Software Licensing Standards	☐	☐	☐	☒	1
Application Portfolio	☐	☒	☐	☒	2
IT Best Practices	☒	☒	☒	☒	4

Section 4. Information Technology Trends

Not only does information technology continually evolve but the pace of this evolution is continually accelerating. As a result, 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 key consideration in evaluating the potential impact of information technology trends is that they do not impact the operations and priorities of organizations in different sectors of government services to the same degree.   Although predicting the future of information technology can be problematic, SDI has identified six key information technology trends that are relevant to the City, that have become mature (i.e., are stable, scalable, and that are effectively supported), and that will likely impact the City's business objectives and priorities in the future and shape how the organization implements this IT Master Plan.

Figure 4-1: Strategic Information Technology Trends (Source: SDI)

As depicted in Figure 4.1, Strategic Information Technology Trends, the following trends are discussed in this section of the report:

- ❏   Mobility and the Consumerization of IT (including Bring-Your-Own Device).
- ❏   Cybersecurity.
- ❏   Analytics (Business Intelligence and Artificial Intelligence).
- ❏   Strategic Sourcing and Cloud Services.
- ❏   Smart Communities/Digital Transformation.
- ❏   Organizational Transformation.

Each of these is discussed below.

⇨ **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). This is particularly relevant to the City as field staff increasingly use their own devices in the field to take pictures of installations and problems they encounter and to retrieve and share information. As the City has seen, the consumerization of IT and mobility are closely linked, and can present both challenges and a drain on resources. Collectively, they represent a significant opportunity for government to become more customer-centric and to improve the effectiveness and timeliness of service to the public; however, they are also vexing for managers and 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%.[1] Some organizations 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.

- User access to enterprise information and services from mobile / wireless devices potentially exposes both the enterprise assets and the mobile device 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

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

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

⇨ Analytics (Business Intelligence and Artificial Intelligence)

"One increasingly common way to get BI into the hands of … decision makers more quickly and painlessly is by leveraging an existing implementation of another enterprise application such as Enterprise Resource Planning (ERP) or Customer Relationship Management (CRM)." – Analytical Execution for Today's Mid-Sized Enterprise, Aberdeen Group	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 business intelligence. The development of the enterprise business architecture includes:

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

- 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.

As noted by the Aberdeen Group (please see text box above), mid-sized organizations are often able to leverage the data stores within enterprise applications (such as ERP) and dashboard technology within the application to achieve an effective, but limited, implementation of BI. Nonetheless, organizations without an enterprise data architecture, supporting standards, and staff to support it, often attempt to support the information needs of 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.

Artificial Intelligence (AI)

One of the primary challenges being faced in the implementation of analytics is the ability to process masses of information including disparate forms of data and media content while at the same time enabling workers to consistently maximize options and outcomes for their customers. AI can also be used to analyze this mass of disparate data to optimize the delivery of services in real or near-real time with less human intervention. The AI environment is developing very rapidly, and for this reason as well as due to the cost and complexity of AI, many enterprises implement AI as a cloud-based service.

⇨ Cybersecurity

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

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."

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 an increase in the range of motivations from mischief and activism to profit. As a result, the community of hackers has expanded to include criminal enterprises that profit through extortion as well as through the theft of digital assets (such as social security numbers, account numbers, etc.).

As a result, organizations must adopt and implement systematic approaches to protect their information assets from cyber threats including the abilities to: (a) detect and defeat cyber threats; (b) limit the impact of intrusions; (c) recover from them; and (d) learn from them and adapt processes to better prevent and/or manage similar attacks in the future. The development and implementation of a cybersecurity plan that is conformant with the requirements of NIST (National Institute of Standards and Technology) Special Publication 800-53 is a starting point for the implementation of controls to heighten the security of information systems.

⇨ Strategic Sourcing and Cloud Services

"Unless [they are] very small, most enterprises will continue to have an on-premises (or hosted) data center capability… but enterprises… need to focus on managing and leveraging the hybrid combination of on-premises, off-premises, cloud and non-cloud architectures, with a focus on managing cloud-delivered capacity efficiently and effectively." - Thomas J. Bittman, Vice President, Gartner.

Strategic sourcing is based on the concepts of: (a) obtaining and using the most effective service provider to respond to user needs; and (b) enabling permanent IT staff members to focus on high-priority, high-value tasks and technologies while allocating functions such as the support of business applications (including support for the products and the system infrastructure supporting them as well as 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 Platform as a Service (PaaS), 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.

Firms supporting commercial-off-the-shelf business applications are also moving toward cloud-based models since they provide the opportunity to lower product development and support costs and to streamline the development and delivery of new releases and functionality by reducing the number of variations between client installations. Increasingly, a number of commercial-off-the-shelf business applications are now being offered only as cloud-based application services.

Common strategies for cloud-based services include:

❑ **Public Cloud** – Public Cloud services are generally shared (thus "public") with other user organizations and all users of the service sharing a common infrastructure and/or code base but with their data kept separately (but often located

in the same database). 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 physical resources in a virtualized computing environment). Since the code base is not shared with other user 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 including both services that are hosted on-premises as well as cloud-based services. The deployment of hybrid cloud architectures (and the need to support them) is becoming a significant trend in both government and the private sector. An industry source noted that, ""The ability of hybrid cloud to function as an extension of an existing IT environment and processes allows IT to quickly deliver the agility benefits of cloud computing to the business. IT can use the same management tools and governance policies they have already adopted in their data centers and maintain security and visibility."[2] Finally, hybrid cloud solutions also appeal to organizations that need to have their business applications continuously available, since in a "multi-cloud" environment (that could potentially include both locally hosted and remotely hosted services) access can fail over to the backup service.

As noted above, commercial-off-the-shelf application providers are increasingly turning to SaaS as their preferred method of delivery. Compared to the traditional model where software was installed in multiple client sites, often with some variation in both the installation of the software and the supporting systems environment and with differing levels of technical currency, SaaS greatly simplifies the process of providing user support and helps limit the variety of releases and versions that the application provider must support.

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[2] Mathew Lodge, vice president, Cloud Services Product Management and Marketing, VMware, cited in White Paper: Cloud Adoption - Hybrid Is the Future, VMware, 2016

SaaS can be delivered either as private cloud or public cloud offering (with private cloud offering more flexibility and security and public cloud offering the opportunity to lower license / subscription and support costs through the economies of scale). For user IT organizations, SaaS dramatically reduces application management and support costs, particularly with regard to backup and disaster recovery.

Key benefits of strategic 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 operations.
- ❑ 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 ability of the cloud-service provider to comply (and to certify continuous compliance) with applicable information-protection standards such as CJIS and HIPAA.
- ❑ The costs related to implementation including training, data extraction and purification, and testing (in a public cloud environment, these costs can be higher since you may have less choice about when to go live with an update).
- ❑ The continuing costs for utilization as well as for the management of multiple service providers.
- ❑ The provisions for the availability and security of information that is stored off-site (particularly if the service is hosted offshore).
- ❑ Potential issues with data ownership and security.
- ❑ The costs and effort related to potentially exiting the sourcing arrangement in the future.
- ❑ Network connection capacity bandwidth and redundancy should be evaluated to ensure the hosted services are available when needed and meet performance expectations.

⇨ "Smart Communities" / Digital Transformation

"In leading organizations, the digital business strategy is the business strategy." – Gartner	The implementation of "Smart" technologies is unusual in that this trend is not a single technology, per-se, but rather represents an integrated approach to the utilization of a variety of emerging information technologies that enable local governments to more effectively identify trends (such as incidents, traffic, power demand, parking space availability, etc.), to re-allocate or reprogram government resources in response to these trends, and to support programs such as Smart Buildings, autonomous vehicles, Smart Payment, and Smart Street Lights that benefit the public. Although SDI sees "Smart" technologies as an emerging trend; it is maturing rapidly as a result of the need for communities to maximize the use of assets and facilities as well as public expectations.

Smart Community capabilities can also benefit residents and visitors by enabling them to obtain information through smartphone apps regarding employment services, public safety, healthcare, social services, transit and driving route information, parking and transit service options, etc., as well as to report incidents and concerns.

The Internet of Things (IoT) provides the foundation for many Smart Community 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).

Although some local governments look at Smart Community 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 include:

❑ 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 the Smart Community 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 |

pg. 28

	management of the changes in governmental 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 can scale to meet expected or 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 Community 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 that are required to support continuing communication and collaboration with members of the community (digital government), to identify community needs and priorities, and preferred delivery channels so that "Smart" features can be readily accessed by the public.
	❑ The development and implementation of a plan to leverage the information produced by smart devices, including the use of business intelligence, business analytics, and artificial intelligence. A critical success factor for the effective use of these tools is surmounting separate silos of information through the development of an enterprise data architecture that provides a framework for the storage and aggregation of the information produced by "Smart" devices.
	One of the inhibitors to the fuller use Smart Community technologies is that they are typically implemented as siloed, departmental applications rather than as an enterprise program, since local governments often wish to gain experience in a limited

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[3] "The Evolution of Business Resiliency Management," IBM Global Technology Services, Thought Leadership White Paper, June, 2011

	area first, external funding is often targeted to specific initiatives, and the time to implementation, immediate cost, and risk are less with siloed applications.

⇨ Organizational Transformation

	Changes in information technology, particularly the move to Cloud-based services, mobility, and the increasing user dependence on IT services to effectively meet changes in public needs and expectations are, in turn, changing how organizations govern the use of information technology and manage the delivery of IT services. Services that were formerly delivered by internal IT departments are now being delivered by external (usually Cloud-based) service providers with the objectives of reducing costs, increasing scalability and sustainability, and freeing up valuable internal resources to focus on the organization's key needs.
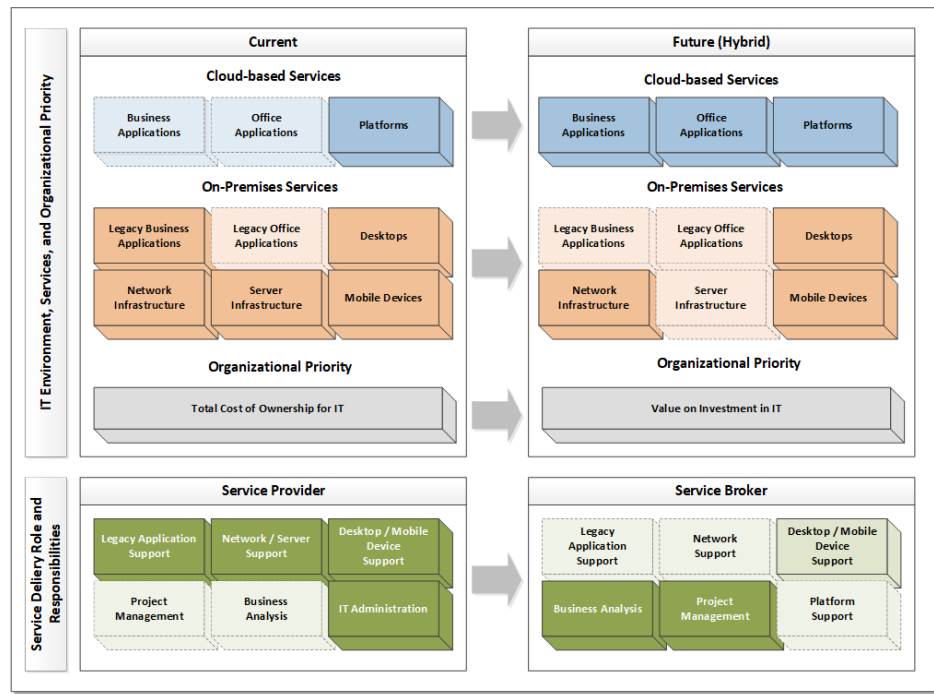
Figure 4-2: IT Service Delivery Options (Source: SDI)

Figure 4-2, IT Service Delivery Options, depicts the impact of this transformation, illustrating how the services provided and the responsibilities of IT organizations are changing as organizations transform from current IT environments (the left side of the diagram) that are primarily based on services that are hosted on premises with some cloud-based applications to hybrid environments (the right side of the diagram) in which the IT organization supports a greater variety of services with a general shift from services that are based on-premises to services that are cloud-based.

In this model, both the current and future IT environments (depicted in the two upper frames) consist of cloud-based services, on-premises services, and organizational priority for information technology.   SDI anticipates that the

following transformations in each of the areas will occur over the time frame of the City's IT Master Plan:

❑ **Cloud-based Services**: The lighter blue boxes with dotted lines represent cloud-based services that are emerging today while the darker blue boxes with solid lines represent established services. Although, business applications and office applications (such as Microsoft Office 365) are available today, these are not as well developed (and thus competitive) as are platform services; however, in the next five years the former will be become just as ubiquitous.

❑ **On-Premises Services:** The support of on-premises infrastructure and the delivery of services based on this infrastructure such as legacy business applications and office applications, are a traditional core competency of IT organizations.   Of these services (depicted by the orange-shaded boxes), legacy office applications are already being gradually phased-out and shifted to the cloud. SDI anticipates that the same will happen for legacy business applications and on-premises servers in the future.

❑ **Organizational Priority**: SDI is of the opinion that one of the most difficult transformations over the length of the IT Master Plan will be the shift in organizational priorities from minimizing IT investments (particularly in staffing) to using IT resources (both internal and external) to obtain greater value (such as operational efficiencies, etc.) for their investments in information technology. In the future IT environment, IT governance and planning will play critical roles in enabling organizations to respond to increased user and customer expectations by ensuring that IT and user resources are allocated (or reallocated as needed) based on organizational objectives and priorities. Absent governance, organizations can adopt cloud-based services without a complete understanding of the benefits, costs, risks, and support requirements, resulting in organizations incurring additional costs for the ownership of information technology without fully realizing the potential value that could be obtained.

The lower two frames in Figure 4.2, depict the impact that the transformation from the current IT environment to the future IT environment will have on the service delivery roles and responsibilities of IT organizations in general.   As depicted above:

❑ **In the current IT environment** IT organizations are generally service providers who deliver services (including legacy application support, network / server support, desktop / mobile-device support, and IT administration) based on the on-premises IT infrastructure that they support. With the exception of some enterprise-level services such as office applications, the adoption of cloud-based in being generally driven by the user community (sometimes in collaboration with the IT organization) rather than being driven by the IT organization. Although some IT organizations provide project management services,

few are staffed to provide support for business analysis activities such as requirements analysis and business process re-engineering (BPR) and thus rely on external service providers.

❑ **In the future IT environment** IT organizations will need to transform from being primarily service providers to service brokers, organizations that can continue to deliver legacy, on-premises services, while also being able to work with the user community to enable them to select and implement cloud-based services that are consistent with organizational priorities and standards and that can effectively exchange information with both legacy business applications and cloud-based business applications. SDI is of the opinion that the shift from on-premises IT infrastructure and business applications to web-based services will free up internal IT resources to perform higher-level functions such as planning for innovation, business analysis, business process re-engineering, and assisting the users in optimizing IT services to meet their needs. As a result, the role of the IT organization in the future will be somewhat reversed compared with the current environment in that project management and business analysis will become core competencies, with other services either farmed out to external service providers (the light shaded boxes with dotted lines), or shared, such as desktop / mobile device support. As a result, IT organizations will need to reconsider how they are organized and staffed.

Section 5. IT Master Plan Development

5.1 – Introduction

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 a plan 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. 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.

This multi-year IT Master Plan sets forth a roadmap for the City that identifies current technology projects and, to the extent possible, future technology needs. The plan lays out the strategy and steps to meet those needs and to make IT resources move effective in delivering high quality services to internal and external users.

5.2 – Development of the IT Roadmap and Project Schedule
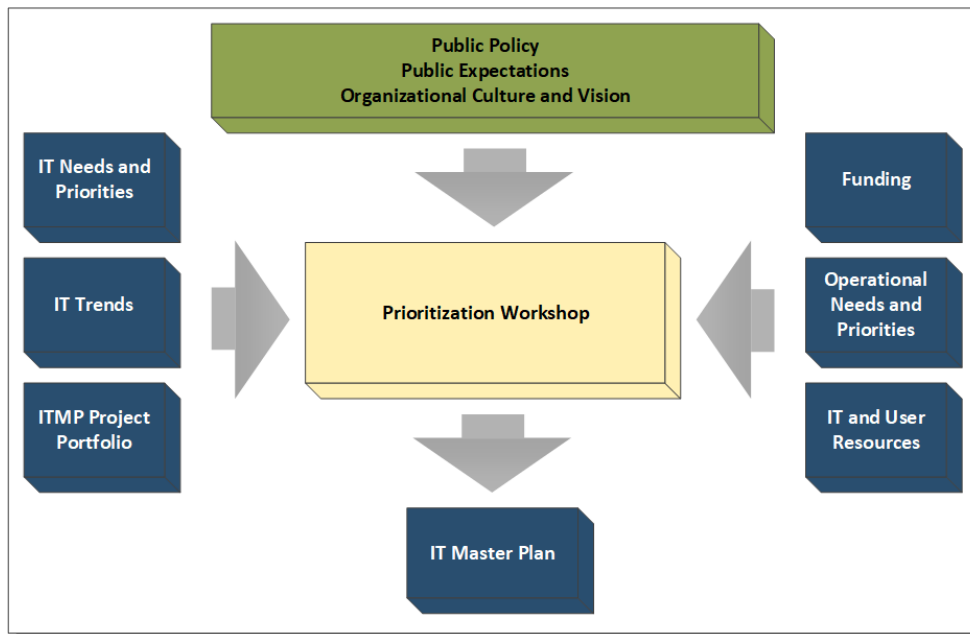
Figure 5-1: IT Master Planning Process (Source: SDI)

As depicted in Figure 5-1, IT Master Planning Process, IT Governance plays a pivotal role in enabling organizations to effectively allocate their IT resources to respond to new and/or changed requirements (including public policy and public expectations), trends in information technology, organizational needs and priorities, and resources. The key deliverables for IT governance include the project portfolio (which defines what the organization needs to do) and the IT Master Plan (which defines how the organization proposes to implement the projects). The IT Master Plan provides the City with a baseline for continued planning.

Assessment of Project Priority
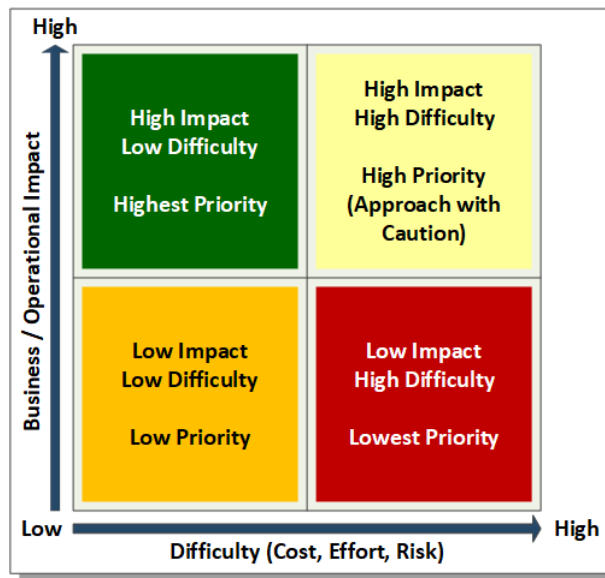
Figure 5-2: Methodology for Assessment of Project Priority (Source: SDI)

Two of the most vexing questions for organizations that are developing or maintaining IT master plans are "What do we do first?" and "What do we do next." To assist the City in making these determinations SDI provided initial priorities for each of the projects in the IT Master Plan based on the model depicted in Figure 5-2, Methodology for Assessment of Project Priorities. As shown, the model has two axes: Business/Operational Impact on the vertical axis, and Difficulty (considering the cost, level of effort, and risk) of implementing the project on the horizontal axis. This results in four quadrants:

❑ High impact, low difficulty, highest priority.

❑ High impact, high difficulty, high priority (but proceed with caution).

❑ Low impact, low difficulty, low priority.

❑ Low impact, high difficulty, lowest priority.

Project Roadmap

The details of the project roadmap for the IT Master Plan are provided below including:

❑ Figure 5-3, "Blue Wall" Following Prioritization Workshop, is a photograph of the "Blue Wall" at the completion of the prioritization workshop. Please note that the hand-written project placards represent projects that were added by the participants.

❑ Figure 5-4, Project Roadmap Following SDI Review: Provides a "cleaned up" version of the "Blue Wall." Each project has been colored coded (please see the legend at the bottom of the page) based on the sponsors of the project. The shaded areas indicate related projects that have been grouped together. Figure 5-2 also includes:

  - A month by month review of projects in progress for the last quarter of FY 2019/20.

  - Proposed project schedule by half-year intervals for FY 2020/21.

  - Proposed project schedule by year for FYs 2021/22, 2022/23, and 2023/24.

❑ Figure 5-5, Project Schedule, Part 1 of 2 and Part 2 of 2, provide a Gantt-format project schedule based on the Project Roadmap that indicates work completed, work in-progress, work planned, and the overall planned duration of the project. Please note that in some instances a group of related projects have been grouped under a "master project" with the related projects indented beneath it. Costs are shown only for the master projects. Fields provided in this figure include:

- Project Name, Sponsors, and Status.

- Core IT Service Delivery Value: The relationship of the project to the core IT service values from Section 3.2, Alignment of Projects with Core IT Service Delivery Values (High, Medium, Low).

- Business Value: An assessment of the business / operational value provided by the project (High, Medium, Low).

- Level of Effort: An assessment of the relative level of effort involved in implementing the project including both user and IT resources (High, Medium, Low).

- Level of Risk: An assessment of the level of risk involved in the implementation of the project (High, Medium, Low). Generally, SDI considers that City-wide projects and projects that involve the implementation of new technologies are higher risk.

- Initial Priority: An assessment of each project's priority based on its relationship to the core IT service delivery values, the business / operational value, the level of effort, and the level of risk.

- Duration and Project Schedule: The number of quarters that the project is planned to be either fully or partially in progress and the proposed timeline.

- Concurrent Projects by Quarter: The number of projects that would be either partially or fully in progress during any quarter of the IT Master Plan.

❑ Figure 5-6, Summary of Project Attributes and Cost Per Fiscal Year provides a summary of information for each of the projects including:

- Project Name, Project Sponsor(s), and Project Status.

- Initial Priority (from Figure 5.5).

- The estimated low and high range cost estimates for in $000's. Please note that some projects have already been budgeted and are in progress and these are shown as "n/a". Some projects have a range of cost beginning with $0 indicating that the project could be completed by internal staff, and project costs that are not known at this time are shown as "TBD".

- The estimated mid-range cost (the average of the low and high cost).

- Cost per Fiscal Year: The cost per fiscal year for each project. Please note that based on general public sector procurement practices the total cost for a project is considered to be encumbered at the time the project is initiated; however, the actual expenditure of funds occurs over the length of the project. Since the project plan is not known at this time, the full cost of the project is allocated in the fiscal year in which it is initiated.

Figure 5-3: "Blue Wall" Following Prioritization Workshop

Figure 5-4: Project Roadmap Following Management Team Review

Project Name (Grouping Sequence)	Project Sponsor(s)	Status	Core IT Service Delivery Value	Business Value	Level of Effort	Level of Risk	Initial Priority	Duration (Qtrs)	FY 2019/20 Q2	Q3	Q4	FY 2020/21 Q1	Q2	Q3	Q4	FY 2021/22 Q1	Q2	Q3	Q4	FY 2022/23 Q1	Q2	Q3	Q4	FY 2023/24 Q1	Q2	Q3	Q4	Parking Lot
Mandatory / Enterprise Projects																													
Agenda Management	City Clerk	In Progress	Medium	High	Medium	Low	High	3	■	■	□																	
EnerGov	Community Development	Planned	Medium	High	High	High	High	6	□	■	■	■	■	■														
Lucity Expansion	Community Development	In Progress	Medium	Medium	Medium	Low	High	8	□	□	□	□	□	□	□	□												
Traffic Management Upgrade	Public Works	In Progress	Low	High	Medium	Medium	High	16	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□			
IT Governance	City Manager	Recommendation	High	High	Low	Low	High	17		□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
SCADA Roadmap	Public Works	Planned	High	High	Medium	High	High	3		■	■	■															
Continuing Application Training	City-wide	Recommendation	Medium	High	Medium	Low	Medium	3		□	□	□															
Council Chambers A/V Upgrade	City Manager	Planned	Medium	Medium	Medium	Low	High	4		□	□	□	□														
SharePoint Implementation	City-wide	Planned	Medium	High	High	Medium	High	6		■	■	■	□	□	□												
CAD/RMS Replacement	Police	Planned	Medium	High	High	High	High	6		□	□	□	□	□	□												
Augment IT Resources	City Manager	Recommendation	High	High	Medium	Low	High	6		■	■	□	□	□	□												
Public Records Email Search Application	City Clerk	Planned	Medium	Medium	Low	Low	Medium	1			□																
Document/Content Mgt. Strategy	City-wide	Planned	Medium	High	Medium	Low	High	3				■	■	■													
Digital Records Retention Policy	City Clerk	Planned	Medium	High	Low	Low	Low	1							■												
Public Saftey Applications Roadmap	Police & Fire	Recommendation	High	Medium	Medium	Low	Low	3							■	■	■										
EDEN Post Implementation Review	Finance	Recommendation	Medium	Medium	Medium	Low	Low	3								■	■	■									
ERP Replacement	Finance	Planned	High	High	High	High	Low	8												■	■	■	■	■	■	■	■	
Application Data Sharing	City-wide	Recommendation	Medium	High	High	Medium	Medium	6													□	□	□	□	□	□	
Discretionary / Departmental Projects																													
Social Media Policy & Guidlines	City Manager	In Progress	Low	High	Low	Low	High	1	□																		
Firehouse RMS Replacement	Fire	In Progress	Medium	High	Medium	High	High	6	□	□	□	□	□	□													
Early Warning Application	City-wide	In Progress	Medium	High	Medium	Low	Low	3	□	□	□																
Fire Prevention RMS	Fire	Planned	Medium	Medium	Medium	Medium	Medium	6			□	□	□	□	□	□											
Work Order Consolidation	City-wide	Planned	Medium	High	High	High	High	8			□	□	□	□	□	□	□	□									
IT Infrastructure Replacement	City-wide	Recommendation	Medium	High	High	High	High	12			□	□	□	□	□	□	□	□	□	□	□						
EOC Application & Hardware	Police & Fire	Planned	Medium	High	High	Medium	High	12				□	□	□	□	□	□	□	□	□	□	□	□				
CityLaw Post Implementation Review	City Attorney	Planned	Medium	Medium	Low	Low	Medium	1							□												
Contract Management	City-wide	Planned	Medium	Medium	Medium	Low	Medium	3							□	□	□										
GIS Roadmap	ITD	Recommendation	High	High	Medium	Low	High	3							■	■	■										
Conference Rooms Upgrades	City-wide	In Progress	Medium	Medium	Medium	Low	High	6							■	■	■	□	□	□							
Electronic Signatures	City-wide	Planned	Medium	Medium	Low	Low	Medium	2								□	□										
Property/Lease Management Appl.	Public Works	Planned	Medium	Medium	Medium	Low	Low	3												□	□	□					
Form 700 Application	City Clerk	Planned	Medium	Low	Low	Low	Low	1																			●

Figure 5-5: Project Schedule, Part 1 of 2

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Project Name (Grouping Sequence)	Project Sponsor(s)	Status	Core IT Service Delivery Value	Business Value	Level of Effort	Level of Risk	Initial Priority	Duration (Qtrs)	FY19/20 Q2	Q3	Q4	FY20/21 Q1	Q2	Q3	Q4	FY21/22 Q1	Q2	Q3	Q4	FY22/23 Q1	Q2	Q3	Q4	FY23/24 Q1	Q2	Q3	Q4	Parking Lot
Keyed/Keyless Access Consolidation	Public Works	Planned	Medium	Medium	Medium	Medium	N/A	N/A																				●
Telephone Plan	City-wide	Planned	High	Medium	Medium	Low	N/A	N/A																				●
NEOGOV Expansion	Human Resources	Planned	Medium	High	Medium	Medium	N/A	N/A																				●
Security Camera Plan	Public Works	Planned	Medium	High	Medium	Medium	N/A	N/A																				●
Stream Gauge Upgrade	Public Works	Planned	Medium	Low	Low	Low	N/A	N/A																				●
Foundational (ITD) Projects																													
Website Enhancement	ITD	In Progress	Medium	High	High	Low	High	3		□	□																	
Backup Improvement (Short-term)	ITD	Recommendation	Medium	High	Medium	High	High	3		■	■	■																
Remote Access	ITD	Planned	Medium	High	Low	Low	High	1					■															
Cyber & Data Security Plan	ITD	Planned	Medium	High	Medium	Medium	High	3			■	■	■															
IT Infrastructure Annual Refreshment	ITD	Recommendation	Medium	High	Low	Low	High	2					■	□		■	□			■	□			■	□			
Network Performance	ITD	Recommendation	Medium	High	Medium	High	High	3					■	■	■													
Customer Service Program	ITD	Recommendation	Medium	Medium	Medium	Low	Medium	3					■	■	■													
Business Resilience (Long-term)	ITD	Recommendation	Medium	High	High	High	Medium	6							■	■	■	□	□	□								
IT Capacity/ Performance Monitoring	ITD	Recommendation	Medium	Low	Medium	Low	Medium	3								■	■	■										
Software Licensing Standards	ITD	Recommendation	Low	Medium	Low	Low	Low	1									■											
Application Portfolio	ITD	Recommendation	Medium	High	Medium	Low	Low	3													□	□	□					
IT Best Practices	ITD	Recommendation	High	Medium	Medium	Low	Low	6														□	□	□	□	□	□	
Concurrent Projects by Quarter									0	9	12	21	19	18	20	21	19	9	8	9	8	9	7	7	7	4	4	

■ Project schedule based on full-time staffing
□ Project schedule based on part-time staffing
● Project has not been scheduled

Figure 5-3: Project Schedule, Part 2 of 2

Project Name (Alpha Order)	Project Sponsor(s)	Status	Initial Priority	Estimated Cost in $000's		Est'd Mid-Range Cost	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	Parking Lot	Notes
				Low	High								
Agenda Management	City Clerk	In Progress	High	N/A	N/A	N/A							
Application Data Sharing	City-wide	Recommendation	Medium	$25	$35	$30				$30			Plan only
Application Portfolio	ITD	Recommendation	Low	$0	$20	$10				$10			
Augment IT Resources	City Manager	Recommendation	High	$450	$550	$500		$500	$500	$500	$500		Per year incl. GIS pos.
Backup Improvement (Short-term)	ITD	Recommendation	High	$150	$250	$200	$200						
Business Resilience (Long-term)	ITD	Recommendation	Medium	$25	$55	$40		$40					Plan only
CAD/RMS Replacement	Polce	Planned	High	$5	$20	$13		$13					
Council Chambers A/V Upgrade	City Manager	Planned	High	$50	$80	$65		$65					
CityLaw Post Implementation Review	City Attorney	Planned	Medium	$0	$5	$3		$3					
Document & Content Management Strategy	City Clerk	Recommendation	High	$15	$25	$20		$20					
Continuing Application Training	City-wide	Recommendation	Medium	$10	$15	$13		$13	$13	$13	$13		Annual
Conference Rooms Upgrades	City-wide	In Progress	High	N/A	N/A	N/A							
Contract Management	City-wide	Planned	Medium	$0	$25	$13		$13					Related to Electronic Signature
Customer Service Program	ITD	Recommendation	Medium	$0	$25	$13		$13					
Cyber & Data Security Plan	ITD	Planned	High	$25	$50	$38	$38						
Digital Records Retention Policy	City Clerk	Planned	Low	$0	$5	$3			$3				
Early Warning Application	City-wide	In Progress	Low	N/A	N/A	N/A							Everbridge Update/Consolidate
EDEN Post Implementation Review	Finance	Planned	Low	$0	$10	$5			$5				
Electronic Signatures	City-wide	Planned	Medium	$0	$25	$13			$13				Related to Contract Management
ERP Replacement	Finance	Planned	Low	$1,500	$2,000	$1,750				$1,750			125/yr. hosting
EnerGov	Community Development	Planned	High	$90	$125	$108			$108	$108	$108		Recurring Annual Costs
EOC Application & Hardware	Police & Fire	Planned	High	$5	$20	$13		$13					WebEOC?
Fire Prevention RMS	Fire	Planned	Medium	$10	$20	$15		$15					Use ImageTrend?
Firehouse RMS Replacement	Fire	In Progress	High	N/A	N/A	N/A							
Form 700 Application	City Clerk	Planned	Low	$3	$5	$4						$4	
GIS Roadmap	ITD	Recommendation	High	$25	$35	$30		$30					
IT Best Practices	ITD	Recommendation	Low	$0	$30	$15				$15			
IT Capacity Planning/Performance Monitoring	ITD	Planned	Medium	$10	$25	$18		$18					
IT Governance	City Manager	Recommendation	High	$0	$10	$5	$5						
IT Inftrastructure Annual Refreshment	City-wide	Recommendation	High	$550	$750	$650		220	120	210	100		Per Petaluma ITD
IT Infrastructure Replacement	ITD, Police, Public Works	Planned	High	$500	$1,000	$750			$500		$250		Place holder - Est. Only
Keyed/Keyless Access Consolidation Plan	ITD	Planned	Low	$10	$20	$15						$15	Plan only
Lucity Expansion	Public Works	In Progress	High	N/A	N/A	N/A							
NEOGOV Expansion	Human Resources	Planned	Low	$10	$20	$15						$15	Annual
Network Performance	ITD	Recommendation	High	$25	$50	$38		$38					

Figure 5-5, Summary of Project Attributes and Cost Per Fiscal Year, Part 1 of 2

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Project Name (Alpha Order)	Project Sponsor(s)	Status	Initial Priority	Estimated Cost in $000's		Est'd Mid-Range Cost	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	Parking Lot	Notes
				Low	High								
Property/Lease Management Application	Public Works	Planned	Low	$5	$15	$10				$10			
Public Records Email Search Application	City Clerk	Planned	Medium	$15	$20	$18		$18					
Public Saftey Applications Roadmap	Police & Fire	Recommendation	Low	$0	$15	$8			$8				
Remote Access	City-wide	Planned	High	$0	$10	$5	$5						
SCADA Roadmap	Public Works	Recommendation	High	$25	$50	$38	$38						
Security Camera Plan	ITD	Planned	Low	$10	$20	$15						$15	Plan only
Sharepoint Implementation	City-wide	Planned	High	$0	$20	$10		$10					
Social Media Policy & Guidelines	City Mananger	In Progress	High	N/A	N/A	N/A							
Software Licensing Standards	ITD	Planned	Low	$0	$10	$5			$5				
Stream Gauge Upgrade	Public Works	Planned	Low	$0	$20	$10						$10	
Telephone Plan	City-wide	Planned	Low	$0	$50	$25						$25	
Traffic Management Upgrade	Public Works	In Progress	High	N/A	N/A	N/A							
Website Enhancement	City Manager	In Progress	High	N/A	N/A	N/A							
Work Order Consolidation	Public Works	Planned	High	$0	$50	$25		$25					Internal staff costs
Total Cost Per Fiscal Year:							$ 285	$ 1,063	$ 1,273	$ 2,630	$ 985	$84	
Total Cost For Plan:							$ 6,319						

Figure 5.4, Summary of Project Attributes and Cost Per Fiscal Year, Part 2 of 2

Section 6. Conclusion

Not too long-ago organizations developed IT master plans and were able to leverage them for a period of time, often for as much as five years, since information technology, user requirements, and public expectations were relatively constant. In recent years, the rapid evolution of information technology, particularly the rapid maturation of cloud-based services, increased public expectations for access to information and services, and changes in user requirements have meant that the shelf life of an IT master plan has become limited. Rather than serving as a long-term roadmap, IT master plans now serve more as a baseline against which organizations assess the impact of change, reset priorities, and re-allocate resources. As a result, the discipline of planning and IT governance has become as important as the development of the baseline plan.

Figure 6.1 – ITMP Planning Process (Source: SDI)

IT master 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. As anyone who has embarked on a journey with friends or family knows, no matter how well planned the roadmap is, there are always unforeseen events, opportunities, and obstacles along the way as well as questions from the rest of the travelers including:

- ❑ "Do we really have to go?"
- ❑ "Are we there yet?"
- ❑ "Can we get there faster?"

IT master planning is not much different from this road trip, and for all these reasons, an IT master plan should not be an event, but rather a process. Most organizations, however, treat IT master planning as an event since the need to plan is not engrained in organizational culture in the same way as budgeting is, for example. Policy makers and managers have learned that budgets must be continually tracked, verified, and updated in the course of a fiscal year; then successively refined in outer years. Organizations that place a premium on managing their total cost of ownership for information technology and obtaining the highest possible return for their investments in IT have found that they must have the same continuing commitment to IT master planning as they do to budgeting.

Throughout this engagement, SDI has worked to provide the City with not only an IT Master Plan, but also with a process to continually maintain the plan and to increase awareness among the City's key stakeholders as to the need to continually update the plan.

The IT Master Plan is a result of a comprehensive, City-wide, planning effort that has provided an opportunity for management and staff to review, discuss, and integrate their technology needs into a common framework. Hopefully, it provides an understanding of the City of Petaluma's technology priorities and serves as an overall picture of the information technology environment today, what has been accomplished, what needs to be addressed, and how to meet its longer-term objectives.

While the creation of the IT Master Plan represents the culmination of one step in the planning process, it also marks the beginning of another step – one through which the City's leadership team must work together to create an environment that supports the IT Master Plan. ITD will need to work closely with the leadership team 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 Master Plan will need to come in terms of priorities, dollars, policies and practices. Successful implementation may mean making compromises but will mean exercising patience, taking a City-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 ever-changing needs, technologies and resources.

Section 7. Appendices

Appendix A – ITMP Project Portfolio.

Appendix A – ITMP Project Portfolio

AGENDA MANAGEMENT – In Progress	
Sponsor:	**City Clerk**
Description:	The City has implemented Granicus for streaming Council meetings. The City is planning on implementing Granicus for Agenda Management which will enable the City to produce and distribute digital agenda packets in lieu of paper.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	Low
Estimated Cost ($000's):	N/A
Other Considerations:	None

APPLICATION DATA SHARING (DATA WAREHOUSING)	
Sponsor:	**City-wide**
Description:	This project creates a City-wide strategy for the development and implementation of an approach to improve information sharing between business applications. The City will likely need to consider both short-term and long-term approaches to information sharing with the short-term approach including the development and implementation of standalone interfaces as needed, and the long-term approach being built on a more enterprise-wide approach such as middleware.
Attributes:	
Level of Effort:	Low
Duration:	12 – 18 months
Risk:	Low
Estimated Cost ($000's):	$25 - $35
Other Considerations:	The development of the plan will likely require that the City engage the services of the vendors and other organizations supporting the business applications.

APPLICATION PORTFOLIO	
Sponsor:	**ITD**
Description:	This project would create an application portfolio as a repository of information about applications and/or cloud-based services (and their supporting organizations and technologies) so that the City's stakeholders, ITD, and the end-users can make informed, enterprise-level decisions about the allocation of resources for the maintenance, enhancement, and eventual replacement of applications in a systematic and holistic manner that considers organizational goals and priorities rather than looking at each application in isolation and allocating resources by default.

APPLICATION PORTFOLIO	
Sponsor:	**ITD**
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	Low
Estimated Cost ($000's):	$0 - $20 (can be completed by ITD staff).
Other Considerations:	The City has a proliferation of software which makes the management of each application extremely difficult considering the limited support resources within ITD. As the City develops the Application Portfolio, consideration should be given to eliminating duplicate functionality and consolidating similar functions under a single application (Work Order, SCADA, imagining, etc.).

AUGMENT IT RESOURCES	
Sponsor:	**City Manager**
Description:	This project enhances the delivery capabilities of ITD by: ▪ Increasing the ITD staffing level. ▪ Taking a hybrid approach that would include hiring a smaller number of additional ITD staff members along with the selective sourcing of services that are essentially "commodity" based and that do not require specialized knowledge of the City. ▪ Reorganizing ITD to enable a more effective delineation and assignment of responsibilities, i.e., user support (Help Desk), application support, GIS support, system administration, network / security administration, and database administration. ▪ Formalizing the relationship between ITD and the City's other (i.e., non-ITD) staff members who are performing IT responsibilities.
Attributes:	
Level of Effort:	Medium
Duration:	Obtaining interim staffing: 3 -63 months. Developing sourcing plan and recruiting new staff members: 6 -12 months. Procuring and implementing external services: 6 - 12 months.
Risk:	Low
Estimated Cost ($000's):	Develop Staffing / Sourcing Plan: $0K - $25K. Hire two IT FTEs (equivalent of IT Specialist II): $225K - $250K (annual recurring cost). Cost for external Help Desk services: $225K - $275K per year (annual recurring cost).

AUGMENT IT RESOURCES	
Sponsor:	**City Manager**
Other Considerations:	The proposed ITD organization would consist of: ▪ Director of Economic Development and Open Government. ▪ Information Technology Manager. ▪ User Support/Help Desk Administrator plus external services. ▪ GIS Administrator. ▪ GIS Analyst. ▪ Application Analyst. ▪ Network/Security Administrator. ▪ Database Administrator.

BACKUP IMPROVEMENT (SHORT-TERM)	
Sponsor:	**ITD**
Description:	This project implements recommendations relative to the routine backup of servers and data within the City including: ▪ Contracting with an external professional service provider to assist in developing and executing a cloud backup strategy. ▪ Prioritizing the data backup inventory project and complete this work as quickly as possible. ▪ Assigning a person to be accountable for all back up jobs including backups within PD and SCADA operations. ▪ Continuing to virtualize ITD servers. ▪ Confirming that all servers are properly backed up and are regularly tested. ▪ Exploring, evaluating, and selecting appropriate Cloud storage provider(s) to implement Disk to Cloud backups for all environments (City Hall, PD, and SCADA). ▪ Developing and implementing a strategy to back up the City's Microsoft Office 365 data (all email and SharePoint documents) to a Cloud backup solution provider. ▪ Considering additional bandwidth to the City's Internet connection.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	High
Estimated Cost ($000's):	$150 - $250
Other Considerations:	None

BUSINESS RESILIENCE (LONG-TERM)	
Sponsor:	**ITD**
Description:	Business Continuity and Disaster Recovery plans establish the priorities for restoring information technology services following a natural disaster or other incident that disables an organization's IT facilities. This project would identify and create plans that: ■ Ensure that the plans are agile since the requirements for the support for business operations and user expectations evolve continually and are driven by a thorough risk and business-impact analysis. ■ Consider the feasibility of using cloud-based resources as an alternative to the acquisition and maintenance of physical facilities. ■ Recognize that the restoration of complex applications is highly dependent on resources with specialized skills and experience who might not be available in the event of an emergency. ■ Ensure the plans are realistic since full-scale exercises, even when conducted on weekends, etc., can be very expensive and disruptive to business operations.
Attributes:	
Level of Effort:	High
Duration:	12 – 18 months
Risk:	High
Estimated Cost ($000's):	$0 (Existing resources) $25K - $55K (Consulting and Plan Development)
Other Considerations:	The City should consider updating the business continuity and disaster recovery requirements through the development of a business impact analysis. The business impact analysis should identify critical business applications and information for each business application including Maximum Tolerable Downtime (MTD), Recovery Time Objectives (RTOs), and Recovery Point Objectives (RPOs) (the point in time from which a critical application should be recovered).

CAD/RMS REPLACEMENT	
Sponsor:	**Police**
Description:	The Police Department uses the Intergraph CAD/RMS application which is supported by a Countywide consortium of law enforcement agencies. The consortium is preparing to replace Intergraph with a newer product from TriTech (Central Square) and this will impact the PD in a number of ways including training, testing, as well as requiring modifications to the interface between Intergraph and Guardian.

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CAD/RMS REPLACEMENT	
Sponsor:	**Police**
Attributes:	
Level of Effort:	High
Duration:	12 –18 months
Risk:	High
Estimated Cost ($000's):	$5 - $20
Other Considerations:	None

CITYLAW POST IMPLEMENTATION REVIEW	
Sponsor:	**City Attorney**
Description:	The objective of this project would be to conduct a post-implementation review of the current implementation and use of CityLaw to determine whether the product can meet the City Attorney's requirements for litigation/case management and whether the CityLaw can be effectively integrated with Laserfiche to make documents/records more readily available to the City Attorney's staff.
Attributes:	
Level of Effort:	Low
Duration:	1 – 3 months
Risk:	Low
Estimated Cost ($000's):	$0 - $5
Other Considerations:	None

CONFERENCE ROOMS UPGRADE – In Progress	
Sponsor:	**City-wide**
Description:	The City has a number of aging facilities including City Hall and the Police Department that have conference rooms with limited A/V and conferencing facilities. This project would provide for the development and implementation of a plan to improve/standardize the A/V facilities in the conference rooms.
Attributes:	
Level of Effort:	Medium
Duration:	12 –186 months
Risk:	Low
Estimated Cost ($000's):	N/A
Other Considerations:	None

CONTINUING APPLICATION TRAINING	
Sponsor:	**City-wide**
Description:	The City does not have a formal program to ensure that users maintain sufficient competency levels in the use of business applications. This project is to develop and implement an on-going formal training program to address on-going training needs to ensure staff is fully leveraging desktop productivity tools and core business applications. The project would create regular, on-going training on the core business applications as refresher classes or as beginning classes for newly hire staff. The training program may provide either self-training (including a knowledge base) or instructor-led training.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	Low
Estimated Cost ($000's):	Development of the plan can be completed by City staff. Budget allocation is estimated $10K - $15K per year for vendor supplied training.
Other Considerations:	The City should provide follow-up vendor training for new applications once staff has had an opportunity to use the software for several months. This vendor-provided training is often more effective after staff have had an opportunity to exercise the software in the operational environment rather than solely during the initial implementation period.

CONTRACT MANAGEMENT	
Sponsor:	**City-wide**
Description:	Although there is a contract management module in Eden, it is not being utilized City-wide specifically the City Clerk and the City Attorney are manually tracking contracts. This project would provide for the City-wide implementation of Eden's contract module including integration with existing risk management functionality.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	Low
Estimated Cost ($000's):	$0 - $25
Other Considerations:	None

COUNCIL CHAMBERS A/V UPGRADE – In Progress	
Sponsor:	**City Manager**
Description:	The audio/visual equipment supporting meetings of the City Council is aging, problematic, and unable to support newer devices. This project would provide for the renovation of the A/V facilities with the objectives of: ▪ Making information more accessible to the Council, staff, and public including multiple large-format displays. ▪ Improving ease of use and reliability. ▪ Improving acoustics. ▪ Renovating facilities to better accommodate streaming of Council meetings.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	Low
Estimated Cost ($000's):	$50 - $80
Other Considerations:	None

CUSTOMER SERVICE PROGRAM	
Sponsor:	**ITD**
Description:	This project would provide for the development and implementation of a plan to improve customer service including improved use of the service desk management system and improving communication and collaboration between ITD staff members and the user community.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	Low
Estimated Cost ($000's):	$0 - $25
Other Considerations:	None

CYBER AND DATA SECURITY PLAN	
Sponsor:	**ITD**
Description:	This project would develop and implement a NIST (National Institute of Standards and Technology), International Organization for Standardization (ISO), or SANS Institute) conformant cyber-security plan that identifies the steps to be taken to prepare for a cyber-security attack, the steps required to identify intrusions, to neutralize them, and to identify exposures that lead to intrusions.

CYBER AND DATA SECURITY PLAN	
Sponsor:	**ITD**
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	Medium
Estimated Cost ($000's):	$25 - $50
Other Considerations:	The cybersecurity plan should cover all phases of cybersecurity including planning and implementing preventative measures, monitoring network activity to detect intrusion attempts and suspicious network activity, the implementation of procedures to mitigate cyberthreats and to recover from them, as well as processes to review the cyberattack and continually adapt City security processes to better meet similar threats in the future.

DIGITAL RECORDS RETENTION POLICY	
Sponsor:	**City Clerk**
Description:	The City does not currently have a digital records retention policy, as a result, it is likely retaining documents that are not needed, obsolete, etc. While there is some question as to whether the case law related to the retention of digital documents is settled, the City should be able to take steps to begin to identify and manage digital assets through the adoption of a City-wide policy governing document and email retention.
Attributes:	
Level of Effort:	Low
Duration:	1 – 3 months
Risk:	Low
Estimated Cost ($000's):	$0 - $5
Other Considerations:	None

DOCUMENT AND CONTENT MANAGEMENT STRATEGY	
Sponsor:	**City Clerk**
Description:	Although the City Clerk is utilizing the Laserfiche document management system, the City does not have a strategic framework for document management or a formal plan for the City-wide implementation of Laserfiche including the development of a project charter, the formation of a steering committee, training plan, or the phased deployment of Laserfiche within all departments.

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DOCUMENT AND CONTENT MANAGEMENT STRATEGY

Sponsor:	City Clerk
Attributes:	
Level of Effort:	Medium
Duration:	6 –12 months
Risk:	Low
Estimated Cost ($000's):	$15K - $25K (Plan only)
Other Considerations:	The project should also provide for the development of a strategy to include "back file" conversion of existing paper documents as well as identify the opportunity to automate manual workflows.

EARLY WARINING APPLICATION – In Progress

Sponsor:	City-wide
Description:	City department personnel expressed a need for early warning tool which would alert City staff and citizens of potential life-threating events. This project is currently underway utilizing the installed Everbridge software application.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	Low
Estimated Cost ($000's):	N/A
Other Considerations:	None

EDEN POST IMPLMENTATION REVIEW

Sponsor:	Finance
Description:	The City implemented Eden during the fiscal crisis without sufficient time and resources to explore tasks such as the re-engineering of business processes and the implementation of workflow. This project would provide for the development of a post-implementation review for Eden with the objectives of identifying features, functionality, and modules that are not being used, lessons learned in the course of implementation and in the City's use of the product, and software defects that need to be resolved with Tyler.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	Low
Estimated Cost ($000's):	$0 - $10
Other Considerations:	None

ELECTRONIC SIGNATURES	
Sponsor:	**City-wide**
Description:	This project would define the City's requirements for the use of electronic signatures to improve document flow throughout the organization. The project would identify and acquire software such as DocuSign, that would provide necessary functionality.
Attributes:	
Level of Effort:	Low
Duration:	1 – 3 months
Risk:	Low
Estimated Cost ($000's):	$0 - $25
Other Considerations:	Electronic signatures may be included as a component of the Document and Content Management project.

ENERGOV – In Progress	
Sponsor:	**Community Development**
Description:	The City has selected Tyler's EnerGov solution for the management of the planning, permitting and licensing functions within Community Development. The contract with Tyler is currently being negotiated and City Council approval is expected in early 2020. This project is for the implementation, training, and deployment of EnerGov within the City.
Attributes:	
Level of Effort:	High
Duration:	12- 18 months
Risk:	High
Estimated Cost ($000's):	N/A
Other Considerations:	Interfaces and data sharing between other operational business applications (i.e. GIS) will be critical to the success of the EnerGov implementation.

EOC APPLICATION & HARDWARE	
Sponsor:	**Police & Fire**
Description:	The City's Emergency Operations Center (EOC) is located in the Police Department's briefing room. The City does not have a permanent facility for the EOC or dedicated equipment for operations should a local emergency require the EOC to be activated. This project would define the City's EOC requirements (including hardware and software) and acquire the necessary space and facilities for the permanent location of a full-functioning EOC.

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EOC APPLICATION & HARDWARE	
Sponsor:	**Police & Fire**
Attributes:	
Level of Effort:	High
Duration:	24 – 36 months
Risk:	Medium
Estimated Cost ($000's):	$5 - $20
Other Considerations:	None

ERP REPLACEMENT	
Sponsor:	**Finance**
Description:	The City has implemented Tyler Technologies Eden product for many financial functions including general ledger, accounts receivable, accounts payable, utility billing, etc. Although Eden is presently being supported by Tyler it is likely that the application could be retired during the timeframe of the IT Master Plan. The City would then need to consider whether to replace Eden with another Tyler product (such a MUNIS) or procure and implement a different solution. The City will need to be prepared to address the issues related to the replacement of a core business application including potential configuration changes, data integration, data conversion, and re-engineering business processes to make better use of the new solution.
Attributes:	
Level of Effort:	High
Duration:	18 – 24 months
Risk:	High
Estimated Cost ($000's):	$1500 - $ 2000
Other Considerations:	None

FIRE PREVENTION RMS	
Sponsor:	**Fire**
Description:	The Fire Department is in the process of migrating its RMS from the Firehouse application to ImageTrend. However, the Fire Prevention Division believes that the ImageTrend functionality will not meet their specific requirements. This project will define those needs and provide a gap analysis when compared to ImageTrend. If the gaps can't be reconciled, this project would subsequently acquire and implement a separate RMS application for Fire Prevention.

FIRE PREVENTION RMS	
Sponsor:	**Fire**
Attributes:	
Level of Effort:	Medium
Duration:	12 – 18 months
Risk:	Medium
Estimated Cost ($000's):	$10 - $20
Other Considerations:	None

FIREHOUSE RMS REPLACEMENT – In Progress	
Sponsor:	**FIRE**
Description:	Fire is in the process of replacing its aging Firehouse RMS (Records Management System) with a newer, cloud-based product (ImageTrend). This project includes: ▪ A post-implementation review of Firehouse to document the lessons learned and to identify opportunities to improve business processes through the implementation of ImageTrend (including integration with the City's land management and financial management systems). ▪ The procurement of ImageTrend. ▪ Full implementation and acceptance of the ImageTrend application.
Attributes:	
Level of Effort:	Medium
Duration:	12 – 18 months
Risk:	High
Estimated Cost ($000's):	N/A
Other Considerations:	None

FORM 700 APPLICATION	
Sponsor:	**City Clerk**
Description:	Pursuant to State law, the California Fair Political Practices Commission (FPPC) requires that candidates for municipal office and public officials (including public committee members) file Form 700, Statement of Economic Interests, to disclose personal investments, interests in real property, sources of income, gifts, loans and business positions. This project would provide for the acquisition and implementation of a web-based application that would enable the filing to be completed digitally.

FORM 700 APPLICATION

Sponsor:	City Clerk
Attributes:	
Level of Effort:	Low
Duration:	1 – 3 months
Risk:	Low
Estimated Cost ($000's):	$3 - $5
Other Considerations:	None

GIS ROADMAP

Sponsor:	ITD
Description:	The City is currently using ESRI's ArcGIS application for its Geographic Information System (GIS). GIS has evolved into a significant program within the City. However, there is no GIS strategic plan or steering committee to inventory user needs, prioritize projects, or allocate resources for new deployment of GIS functionality or services.
	This project would create a GIS roadmap for the ongoing use and expansion of the ERSI GIS application and provide a platform for current and future users of GIS to better understand the long-term goals of GIS and the City's strategy for the use of GIS. The roadmap would facilitate the development of annual budgets for new projects and system upgrades, assist in the prioritization of GIS projects, and enable efficient planning of GIS staff duties and roles.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	Low
Estimated Cost ($000's):	$25K - $35K
Other Considerations:	The City should consider adding a GIS analyst to the staff. An additional GIS staff member would reduce the risk of loss of GIS support due to potential staff attrition and it would also free up the existing GIS staff to engage with users more frequently and plan for more efficient service delivery.

IT BEST PRACTICES

Sponsor:	ITD
Description:	ITD should undertake a continuing program to improve its conformance with IT best practices including:
	▪ Communication & Collaboration – internal and external communications between ITD and user departments.
	▪ Policies and Procedures – information technology polices adopted and enforced City-wide.
	▪ Root cause analysis – identification and resolution of problems at the originating source.

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IT BEST PRACTICES

Sponsor:	ITD
	- Infrastructure documentation – the creation and maintenance of technical documentation. - Service catalog – menu of services provided by ITD. - Service Desk (Help Desk) Improvement – methodologies for enhanced support to user departments.
Attributes:	
Level of Effort:	Medium
Duration:	12 – 18 months
Risk:	Low
Estimated Cost ($000's):	$0K - $30K (Outside resource for writing policies, facilitation, and planning)
Other Considerations:	In the future, ITD's program for continuous improvement should include focus areas such as: network monitoring, capacity planning, vendor management, service level agreements, succession planning, change management, enterprise application architecture, and resource management.

IT CAPACITY PLANNING/PERFORMANCE MONITORING

Sponsor:	ITD
Description:	This project would provide for the development and implementation of policies and procedures to enable ITD to better monitor the usage of servers and storage devices and to plan for future requirements. It would also enable ITD to better identify and resolve performance issues through the acquisition of software for proactive planning and resolution of operational issues.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	Low
Estimated Cost ($000's):	$10 - $25
Other Considerations:	None

IT GOVERNANCE

Sponsor:	City Manager
Description:	The lack of a formal information technology governance structure eliminates an effective forum to plan, communicate, manage, and coordinate technology projects or initiatives. The strategic direction, services provided, prioritization and approval for the expenditure of technology funds should not be left solely to ITD; rather, these decisions should, at a minimum, be ratified by the City's Executive Management. This project will create an IT Governance Committee to provide: - Oversight of City's IT Master Plan - Formal review and prioritization of proposed IT projects

IT GOVERNANCE

Sponsor:	City Manager
	▪ Guidance on IT policies and standards
	▪ A forum for inter-department IT communication
Attributes:	
Level of Effort:	Low
Duration:	1 – 3 months (on-going)
Risk:	Low
Estimated Cost ($000's):	$0 - $10k (Can be completed with City resources or assistance from outside)
Other Considerations:	The Governance Committee should be supported through the use of standing and ad-hoc sub-committees that are created as needed to operate at a more detailed level for communities of interest within the City (such as GIS, Document Management, Finance, etc.).

IT INFRASTRUCTURE ANNUAL REFRESHMENT

Sponsor:	ITD
Description:	This project would establish an annual budget allocation for the systematic replacement of desktops, laptops, and network infrastructure devices. This proactive planning and replacement of aging hardware and software is critical to maintaining the security and reliability of the IT infrastructure, network, and user department hardware.
Attributes:	
Level of Effort:	Low
Duration:	1 – 3 months (annually)
Risk:	Low
Estimated Cost ($000's):	Development of the plan, policies, and updated inventory can be done by City staff. Refreshment fund of the life of the IT Master Plan - $550 - $750.
Other Considerations:	ITD should create an inventory of installed software licenses for all applications within the City. This inventory should be compared to license purchase agreements thereby providing a "true-up" of installed licenses verses acquired software.

IT INFRASTRUCTURE REPLACEMENT

Sponsor:	ITD
Description:	The City's network and server infrastructure is aging and has performance issues that impact the ability of users to perform their work. Some City facilities, including the server rooms at City Hall and the Police Department, are cramped, unorganized, lack proper air handling and power, rack bracing, and expansion room. This project would provide for the development and implementation of a strategy to refresh the City's IT infrastructure including:

IT INFRASTRUCTURE REPLACEMENT

Sponsor:	ITD
	▪ Evaluation of the feasibility and cost benefits related to the migration of components of the City's server infrastructure to cloud services. ▪ The implementation of network improvements including the connections between City facilities and the switches/wiring within the facilities and the City's Internet connection. ▪ Renovation of existing server rooms in order to meet IT best practices for computer operating environments. ▪ Retirement and replacement of business applications that are dependent on older/unsupported technologies.
Attributes:	
Level of Effort:	High
Duration:	24 – 36 months
Risk:	High
Estimated Cost ($000's):	$500 - $1,000
Other Considerations:	As the City migrates its core business applications to the "cloud", the requirement for on-premise servers and storage should become less of a consideration. Accordingly, opportunities such as server room consolidation and reduced space requirements will become beneficial.

KEYED/KEYLESS ACCESS CONSOLIDATION PLAN

Sponsor:	ITD
Description:	The City's facilities vary considerably in age and construction including the use of keyed and keyless entry systems. This project would provide for the development and implementation of a plan to replace as many existing keyed systems as possible and allow for the consolidation of the keyless entry systems to improve administration, to provide better control of who has access to what facilities, and expand monitoring of access attempts (including video recording where appropriate).
Attributes:	
Level of Effort:	Medium
Duration:	12 – 18 months
Risk:	Medium
Estimated Cost ($000's):	$10 - $20
Other Considerations:	This project should include the implementation of keyless access and video surveillance for all server rooms and network closets.

LUCITY EXPANSION – In Progress

Sponsor:	Public Works
Description:	Public Works is currently working to implement Lucity within the Parks Department and plans to implement the software within the Street

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LUCITY EXPANSION – In Progress	
Sponsor:	**Public Works**
	Department in the near future. In addition to completing these tasks, the City should consider conducting a post-implementation review of Lucity with the objectives of:
	▪ Identifying lessons-learned and opportunities to better use Lucity.
	▪ Evaluating whether the functionality provided by Lucity could replace Mainsaver.
	▪ Developing resources (i.e., self-training modules, knowledge bases, etc.) to enable users to better use Lucity and to maintain competencies.
Attributes:	
Level of Effort:	Medium
Duration:	18 – 24 months
Risk:	Low
Estimated Cost ($000's):	N/A
Other Considerations:	None

NEOGOV EXPANSION	
Sponsor:	**Human Resources**
Description:	The City is presently using NEOGOV (a Cloud-based service that has become nearly standard for cities in California) for employee application submittal, applicant tracking, and hiring processes. This project would provide for a review to determine if the City could make better use of NEOGOV and implement additional modules such as On-boarding, Performance Management, and Learning Management. In the future other NEOGOV modules could assist with applicant testing, eligibility lists, hiring manager portal, and dashboards/reporting.
Attributes:	
Level of Effort:	Medium
Duration:	12 – 18 months
Risk:	Medium
Estimated Cost ($000's):	$10 - $20
Other Considerations:	NEOGOV recently acquired High Line Corporation (full suite of Human Capital Management software) and are beginning to offer core HR, Payroll, and Time/Attendance modules in their product suite. The City should evaluate these options (particularly the HR module) as they become integrated into the core NEOGOV product or seek to implement human resource functionality separate from the implementation of a new ERP system.

NETWORK PERFORMANCE

Sponsor:	**ITD**
Description:	Network performance is a City-wide issue which includes access to the Internet, access to business applications that are hosted on-premises (particularly Eden), and retrieval of data from file repositories on shared network drives. This project would provide for the development and implementation of a plan to improve network performance including: ▪ The expanded use of network monitoring tools to pinpoint the specific performance issues being experienced by the user community and to identify their root causes. ▪ The identification and documentation of the steps required to remediate the performance issues including cost and resources required. ▪ The allocation of funds, as needed, for the implementation of short-term and long-term solutions.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	High
Estimated Cost ($000's):	$25 - $50
Other Considerations:	None

PROPERTY/LEASE MANAGEMENT APPLICATION

Sponsor:	**Public Works**
Description:	The City owns and leases property throughout the City. Tracking these assets is currently handled through manual processes (spreadsheets). This project would identify and acquire a property management application that would assist the City in tracking and overseeing its investments in property acquisitions and leases.
Attributes:	
Level of Effort:	Medium
Duration:	1 – 3 months
Risk:	Low
Estimated Cost ($000's):	$5 - $15
Other Considerations:	None

PUBLIC RECORDS EMAIL SEARCH APPLICATION

Sponsor:	**City Clerk**
Description:	The City receives Public Records Access (PRA) requests from the community and other interested parties which seek E-mail messages and other documents related to specific issues. This project would provide for the acquisition and implementation of a tool that would enable the City Clerk to specify criteria to

PUBLIC RECORDS EMAIL SEARCH APPLICATION

Sponsor:	City Clerk
	automatically search employee inboxes and to categorize the returned items as being relevant or not relevant to the PRA.
Attributes:	
Level of Effort:	Low
Duration:	1 – 3 months
Risk:	Low
Estimated Cost ($000's):	$15 - $20
Other Considerations:	None

PUBLIC SAFETY APPLICATIONS ROADMAP

Sponsor:	Police & Fire
Description:	The Police Department has a diverse portfolio of business and specialized law enforcement software applications (including mobile applications). This project would provide the Department with a roadmap/architecture for the future use and support of these business applications including the identification of opportunities to expand, consolidate, or replace them to better support the operations of the Department.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	Low
Estimated Cost ($000's):	$0 - $15
Other Considerations:	None

REMOTE ACCESS

Sponsor:	City-wide
Description:	Working away from the office has become a new normal for City staff. This mobile workforce requires computer access to City information technology resources any place, at any time. Accordingly, this project creates a robust tool for employees to gain network and computer file access from any location, seamlessly, and with a high-level of reliability and responsiveness.
Attributes:	
Level of Effort:	Low
Duration:	1 – 3 months
Risk:	Low
Estimated Cost ($000's):	$0 - $10
Other Considerations:	None

SCADA ROADMAP	
Sponsor:	**Public Works**
Description:	Public Works has multiple SCADA systems and is supporting them with internal staff (the servers and network are supported by ITD). This project would provide for the development of a SCADA Roadmap that would: ■ Evaluate the feasibility of utilizing a single SCADA solution for both Water and Wastewater with the objectives of reducing costs and improving support. ■ Improve expanded remote access and cybersecurity protection. ■ Map the long-term expansion capabilities of the SCADA application, its support, and potential data interfaces which would provide for a more robust use of the application.
Attributes:	
Level of Effort:	Medium
Duration:	6 – 12 months
Risk:	High
Estimated Cost ($000's):	$25 - $50
Other Considerations:	None

SECURITY CAMERA PLAN	
Sponsor:	**ITD**
Description:	The City is making increasing use of video surveillance to protect City facilities from vandalism and to ensure the safety of the persons using the facilities. This project would provide for the development and implementation of a plan to improve the City's video surveillance equipment including: ■ The replacement or remediation of equipment that is not working or that is not providing quality video. ■ Improvements to the City's network infrastructure to enable the transmission of stored video from facilities to a central site where it can be retained. ■ Improving facilities for the monitoring of video.
Attributes:	
Level of Effort:	Medium
Duration:	18 – 24 months
Risk:	Medium
Estimated Cost ($000's):	$10 - $20
Other Considerations:	None

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SHAREPOINT IMPLEMENTATION	
Sponsor:	**City-wide**
Description:	The City would like to utilize the SharePoint application for City-wide communication and collaboration. This project would define the role of SharePoint within the City in conjunction with the Document and Content project and define the use, maintenance, training, and management of SharePoint within the City.
Attributes:	
Level of Effort:	High
Duration:	12 – 18 months
Risk:	Medium
Estimated Cost ($000's):	$0 - $20
Other Considerations:	SharePoint is extremely valuable as a collaboration tool and as a replacement for traditional Intranet sites for many organizations, but is not, by itself, a substitute for a fully functional document, records, and content management solution.

SOCIAL MEDIA POLICY & GUIDELINES – In Progress	
Sponsor:	**City Manager**
Description:	This project would provide for the development and implementation of City-wide standards for the use of social media channels for communication between the City and the community under the aegis of the City's proposed IT Governance committee.
Attributes:	
Level of Effort:	Low
Duration:	1 – 3 months
Risk:	Low
Estimated Cost ($000's):	N/A
Other Considerations:	None

SOFTWARE LICENSING STANDARDS	
Sponsor:	**ITD**
Description:	ITD has standards for software licensing, including the use of hosted (i.e. Cloud-based) services but these are dated, incomplete, and not always being followed by departments. This project would provide for the development and implementation of a new, more comprehensive policy under the aegis of the proposed City-wide IT Governance committee including a requirement mandating department compliance.

SOFTWARE LICENSING STANDARDS

Sponsor:	ITD
Attributes:	
Level of Effort:	Low
Duration:	1 – 3 months
Risk:	Low
Estimated Cost ($000's):	$0 - $10
Other Considerations:	None

STREAM GAUGE UPGRADE

Sponsor:	**Public Works**
Description:	The current stream gauge application, which is used to monitor, and test, bodies of water within the City and surrounding areas, needs to be updated to a newer release of the software. If the newer version does not meet the City's requirements this project would be expanded to acquire and implement a new application from a different vendor.
Attributes:	
Level of Effort:	Low
Duration:	1 – 3 months
Risk:	Low
Estimated Cost ($000's):	$0 - $20
Other Considerations:	None

TELEPHONE PLAN

Sponsor:	**City-wide**
Description:	The City's Voice-over-IP (VoIP) telephone system continues to be upgraded on a 5-year cycle including operational software. However, handsets need replacement before the next planned software release. This project would identify the costs associated with new equipment as well as exploring options for expanded and more effective telephone service throughout the City including: ■ Contingency planning to provide telephone service in the event of a network failure. ■ Leased circuits for radio repeaters. ■ Replacement of DSL and T1 service. ■ Fiber strategy. ■ Cellular providers and services. ■ Integration with 9-1-1 dispatch consoles. ■ Integrated panic buttons to include alarm systems. ■ Integration with overhead paging (SingleWire Informacast).

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TELEPHONE PLAN

Sponsor:	City-wide
Attributes:	
Level of Effort:	Medium
Duration:	12 – 18 months
Risk:	Low
Estimated Cost ($000's):	$0 - $50
Other Considerations:	None

TRAFFIC MANAGEMENT UPGRADE – In Progress

Sponsor:	**Public Works**
Description:	The City has recently acquired the Advanced Traffic Management System (Transparity) from McCain, Inc. This project provides for the implementation of the application which will enable Public Works to proactively monitor traffic and devices, analyze traffic trends, and implement control strategies.
Attributes:	
Level of Effort:	Medium
Duration:	24 – 36 months
Risk:	Medium
Estimated Cost ($000's):	N/A
Other Considerations:	None

WEBSITE ENHANCEMENT – In Progress

Sponsor:	**City Manager**
Description:	The City has been working on updating its website with the objectives of making the site easier for the community to use, providing additional self-help features, streamlining the maintenance of content, and promoting economic development in the region. The new website has been deployed, but citizen or staff feedback may require additional modifications over the next few months.
Attributes:	
Level of Effort:	High
Duration:	1 – 3 months
Risk:	Low
Estimated Cost ($000's):	N/A
Other Considerations:	None

WORK ORDER CONSOLIDATION	
Sponsor:	**Public Works**
Description:	The City has a number of business applications that can generate work orders including Lucity, Mainsaver, PublicStuff, and ServiceDesk. This project would provide for the development and implementation of a plan to centralize work order processing under a single application and consolidate the use of Customer Relationship Management applications (ConstantContact, PublicStuff, EnerGov, etc.) to a single platform.
Attributes:	
Level of Effort:	High
Duration:	18 – 24 months
Risk:	High
Estimated Cost ($000's):	$0 - $50
Other Considerations:	None