2011 – 2016

Strategic Information Technology Guide

Prepared June 8, 2011
Management Services
IT Division

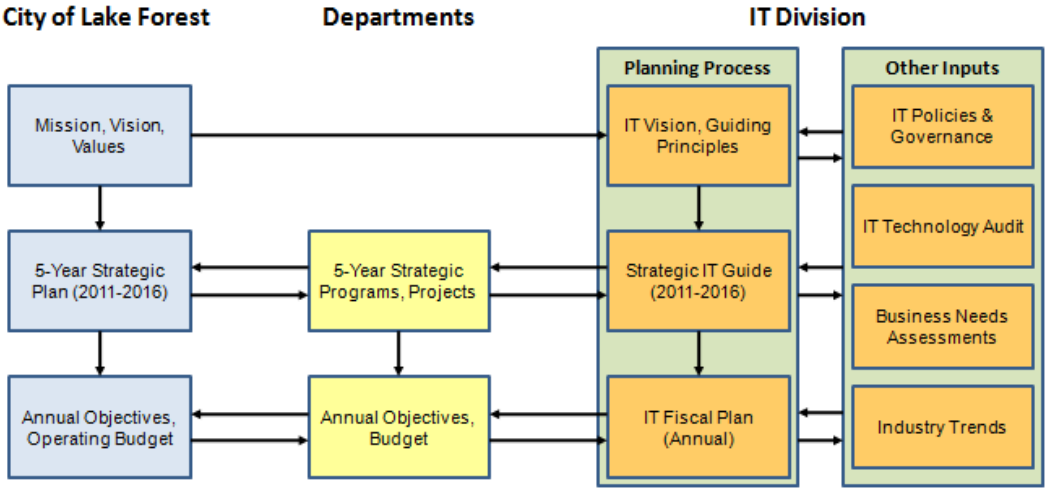
Table of Contents

1. Overview

The Strategic Information Technology Guide (SITG) describes the City's strategic Information Technology (IT) initiatives, as well as the mission, vision, and technology environment that guides them. Adopting and deploying new technologies and processes requires significant change management and financial resources. To achieve the transformations described in this document and to gain the full support of the City's stakeholders and constituents, Staff regularly communicates the vision and objectives in this document. As objectives are achieved, this document is updated to ensure that the information is aligned with the technology industry's advancements and meets the changing needs of the City.

The SITG prioritizes new initiatives while providing background information to place them in context and provides estimated costs and implementation timelines. The SITG covers a five year time frame and is updated every two years in alignment with the City's 5-Year Strategic Business Plan. It is prepared by the City's Deputy City Manager and IT Manager in conjunction with Synoptek's Chief Technology Officer and Project Manager. The chart below shows the relationship between the City's and IT Division's planning process.

IT Division Planning Process



The 2011-16 SITG focuses on new strategic IT programs and projects. The new programs and projects are distinguished from existing baseline projects that have already been initiated and detailed from previous SITGs and existing baseline projects have also been incorporated into the ongoing baseline operating costs of previous fiscal years. This document includes the estimated budgets for the new strategic IT programs and projects as well as ongoing baseline projects and their respective budgets. To provide context of ongoing costs, the total (non-staff) baseline operating costs of the IT Division budget for 2010-11 fiscal year was $902,900, which is 2.9% of the City's General Fund budget ($30.7MM).

2. IT Vision and Guiding Principles

The City of Lake Forest prides itself on providing excellent, cost-effective services to its constituents. As a contract city, the City uses a combination of staff, contractors, and professional services consultants to maximize efficiencies by leveraging the knowledge and abilities of a team of experts. In the same vein, the City seeks to utilize its Information Technology (IT) to provide a similar standard of service, in terms of cost and convenience, while maximizing internal efficiencies. The City utilizes IT to expand the public's access to its municipal government, thus promoting democracy, while marketing itself as a safe and attractive community.

The City of Lake Forest will leverage technology to provide excellence in customer service as well as promote and foster effective communications between the City and its constituents. We will provide convenient, cost effective, interactive services to our constituents and will embrace technology to stimulate economic growth and further community safety.

To realize our vision for the City's information technology, the following Guiding Principles will provide a framework for developing new IT initiatives and evaluating current policies and practices. These principles support teamwork and collaboration, which are critical to success as more and more initiatives span traditional departmental boundaries. The City's IT Guiding Principles are:

1. IT exists to support the achievement of the City's goals and strategic initiatives.
2. IT will provide the public and employees with timely, convenient access to information and services.
3. Technology initiatives bring measurable value to the City's business – specifically improve public services and increase productivity.
4. IT will be used to enhance our business processes in a manner that engages users.
5. IT will utilize best practices to continually refresh and renew our commitment to keep pace with technology.

3. Strategic Issues and Technology Trends

Summary

The SITG is prepared within the context of the City's 5-Year business plan and identified industry trends. By reviewing the City's mission and vision and then aligning the SITG programs with the short-term and long-term strategic issues and technology trends, the foundation for the SITG is established. Strategic Issues are identified by public input, as captured in biennial surveys and other inputs. Technology trends are defined by leading technology research companies such as Gartner Inc and Deloitte Consulting. Only the technology trends that the IT Division considers as new trends have been documented in this section. The input from these issues and trends are critical to the City's ability to reach its vision for the community, and serve as a framework in developing programs and projects in this guide.

Strategic Issues

Opportunity Study Area Business Plan

The Opportunity Study Area ("OSA") Business Plan, in the planning stage for several years, will break ground in two to three years, and be fully developed in five to seven years. The precise timing is dependent on many factors, in particular the overall business outlook. The City is expecting modest economic growth beginning this year, but city revenue will lag behind this growth by two to three years. In part from the OSA development, the City anticipates the addition of 10,000 – 12,000 residents to the City. Peak population size anticipated is about 100,000. With the increase in resident and business user population, the IT Division will need to prepare to meet their communication and e-Government needs with readily available, scalable solutions.

Increasing and Enhancing Public Facilities

The next five years will see the construction of a new sports park, a recreation center, and a Civic Center complex. The City will also continue to implement recommendations from the 2007 Recreation Master Plan including various park improvement projects and the Etnies Skatepark of Lake Forest expansion. These facilities will require programs to determine the IT needs of each facility, plan the systems and infrastructure, and execute the implementation.

Traffic

Traffic continues to be a top concern of Lake Forest residents and businesses. Each year, the City invests in Capital Improvement Projects designed and constructed to enable the public to travel safely and efficiently along the city's roadways. Optimizing traffic management is a priority for the City that requires IT resources. The IT Division will need to prepare its infrastructure to consolidate and manage multiple remote traffic signal systems that may be administered by City staff or contracted vendors.

Emergency Readiness/ Business Continuity

Emergency preparedness and homeland security remain issues of concern to the community. The City will continue to pursue funding opportunities to mitigate or prevent disasters where possible and actively training staff and prepare the public to response effectively to the actual occurrence of a disaster. The IT Division will continue to prepare system infrastructure and IT processes to enable the City to communicate with the public during and after a disaster. The City will also require the IT Division to ensure systems that support essential City processes meet departmental return-to-operation requirements.

Technology Trends

Cloud Computing

Cloud computing is a paradigm shift in the delivery model of IT services whereby software, services, and systems are delivered over the Internet or “Cloud”. These services typically involve “over-the-Internet” provisioning of dynamically scalable and often virtualized resources. Typical cloud computing providers deliver common business applications online that are accessed from another Web service or software like a Web browser, while the software and data are stored on servers. A key element of cloud computing is customization and the creation of a user-defined experience.

In an effort to maintain a balance and to continue investing in enabling technologies, the City will take advantage of Cloud Computing efforts that reduce the infrastructure and systems support costs and aid in the effort to reduce legacy systems. This will shift the paradigm from investing in systems and technologies locally, whereby the investment begins to age immediately after implementation and sometimes even before, to an investment in “Cloud Computing” which stays current as providers compete to stay relevant and deliver a service and performance based end user experience.

Mobility

Mobility is playing an increasingly important role for City staff and constituents. According to Gartner Inc, by 2013, mobile devices will surpass the PC as the most common web access device worldwide where more people will be accessing the web on their mobile devices than on PC. In order for the City to accommodate this trend, the City websites and application designs will need to be evaluated to ensure that existing architecture is flexible to accommodate accessibility via smart-phones and other mobile devices (tablets, etc). The IT Division will also need to consider the changing mobile needs of the City staff and how and where they manage business processes with mobile devices. With these evolving needs, new organizational and support frameworks, methodologies, standards, and policies will need to be defined to successfully, securely, and cost effectively mobilize the City staff and services.

Social Media

Social media and social networking websites are some of the most popular and fastest growing online categories used by web users. There is also a growing demand from constituents to be communicated through social media channels. According to the Nielsen Company, time spent on social networking sites has grown 143% year-over-year (2010 to 2009). The City has the opportunity to leverage social media to enhance communication and engagement with its constituents. Additionally, the City also has the ability to provide an online presence for its staff or potential recruits by creating online social groups for staff who are interested in specific areas of work and information.

As social media becomes a more prevalent method of communication for City constituents, staff will need to respond accordingly. In order for the staff to successfully deploy social media program for the City, leadership will need to define the purpose and benefits of social media and determine the impact and processes for staff to interact with constituents through these new channels. Strategies and policies will also need to be further defined to ensure that social media interactions are compliant with legal and records requirements.

Capability and Constraints

The likelihood of making meaningful headway on the strategic issues and adapting to new technology trends is a function of the IT Division's capabilities and constraints. An assessment of capabilities (i.e., strengths, talents and abilities) and weaknesses (i.e., restrictions or limitations) helps decision makers understand the circumstances influencing the achievement of the SITG plan objectives. The capabilities of the IT Division include:

- Ability to grow or reduce contract services based upon service demands
- GIS foundation for business applications and data integration
- Governance and management processes are well defined to support consistent ongoing standards and policy creation (Strategic IT planning, IT equipment refresh program, IT Security awareness, Asset Management)
- Storage Area Network and Virtualization Technologies enable a highly available, redundant, and scalable infrastructure

The constraints facing the IT Division include:

- Economy and impacts to City revenues
- Must adhere to market leaders' (such as Microsoft, ESRI, etc.) contracting and licensing practices
- Balance between rapidly changing technologies and organizational adaptation
- Evolving government and legal regulations requiring compliance
- Adhering to regional, state, federal agency technology requirements and specifications

4. Resident and Business Surveys

As part of its commitment to provide high quality services that meet the varied needs of its residents and local businesses, the City of Lake Forest engages both residents and businesses on a daily basis and receives regular feedback regarding its performance. Although these informal feedback mechanisms are a valuable source of information for the City in that they provide timely and accurate information about the opinions of specific constituents and customers, they do not necessarily provide an accurate picture of the community as a whole. Every two years, the City sponsors an independent survey to gauge the community's satisfaction, priorities and needs related to City services and facilities. The City uses the information gathered by the survey to drive strategic decisions in a variety of areas, including development of the Five Year Strategic Plan. Below are excerpts from the survey provides insight into the technology needs and expectations of the community:

Information Sources

Residents and businesses were next asked to indicate which information sources they use to find out about City of Lake Forest news, information, and programming. This question was asked in an open-ended format and respondents were allowed to report up to two sources of information. Thus, the percentages shown in the following figures reflect the percentage of residents and business professionals, respectively, who mentioned a given information source.

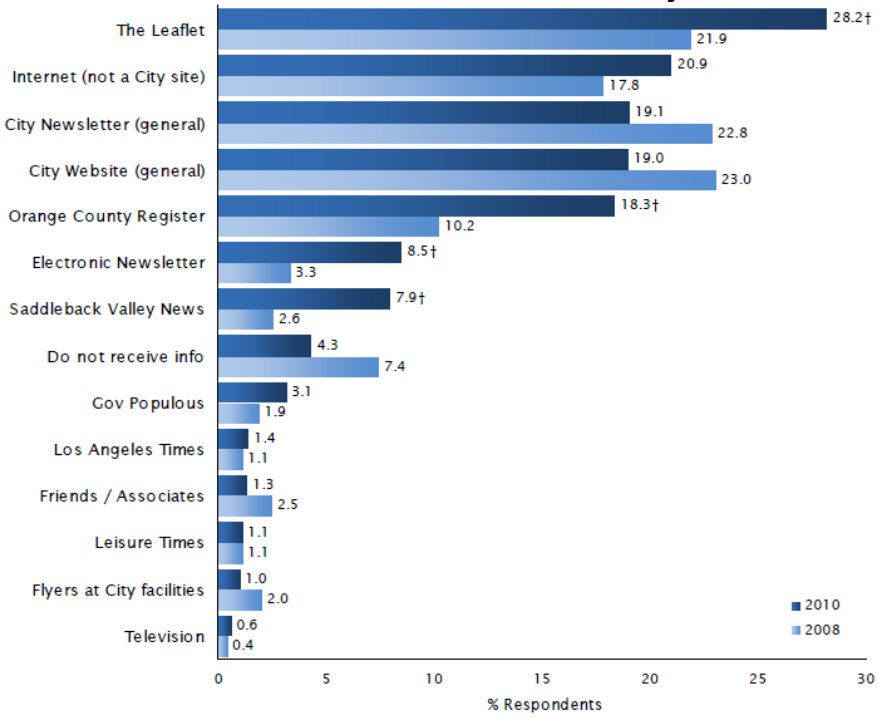
When compared to the 2008 survey results, use of the Internet in general increased significantly. The table below displays the most frequently-cited sources of city-related information according to respondent age, and demonstrates that younger residents are somewhat more likely to use new technologies for their information (website, Internet in general) while older residents are more likely to rely on traditional print and media sources.

Top Information Sources: Resident Survey by Age

Ranking	Age 18 to 29	30 to 39	40 to 49	50 to 64	65 or older
High	Internet (not a City site)	The Leaflet	The Leaflet	The Leaflet	The Leaflet
	The Leaflet	City Website (general)	Internet (not a City site)	City Newsletter (general)	City Newsletter (general)
	City Newsletter (general)	City Newsletter (general)	City Newsletter (general)	Internet (not a City site)	Orange County Register
	Orange County Register	Internet (not a City site)	City Website (general)	City Website (general)	Internet (not a City site)
Low	City Website (general)	Friends / Other people	Orange County Register	Orange County Register	Saddleback Valley News

Members of the business community were most likely to mention the City's newsletter—generally (19%) and by its name The Leaflet (28%)—when asked what information sources they rely on for Lake Forest news, information and programming. Other commonly mentioned sources included the Internet in general (21%), City websites (19%), and the Orange County Register (18%). When compared to the 2008 study, the proportion of business professionals who mentioned that they rely on The Leaflet increased significantly, as did mentions of the Orange County Register, electronic newsletter, and Saddleback Valley News.

Information Sources: Business Survey



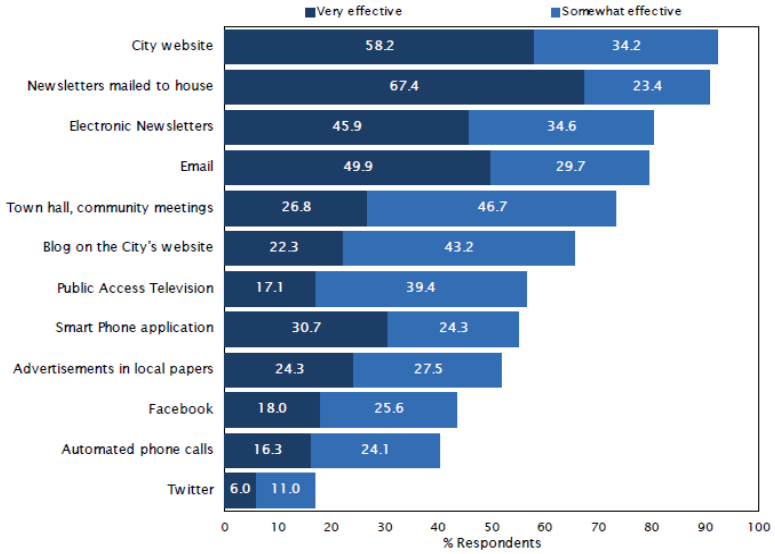
Information Sources: Business Survey (2010 - 2004)

	Study Year			
	2010	2008	2006	2004
High	The Leaflet	City website (general)	Orange County Register	City newsletter (general)
	Internet (not a City site)	City newsletter (general)	The Leaflet	The Leaflet
Ranking	City Newsletter (general)	The Leaflet	Internet (not a City site)	Internet (not a City site)
	City Website (general)	Internet (not a City site)	City website (general)	City website (general)
Low	Orange County Register	Orange County Register	City newsletter (general)	Do not receive info

Communication Preferences

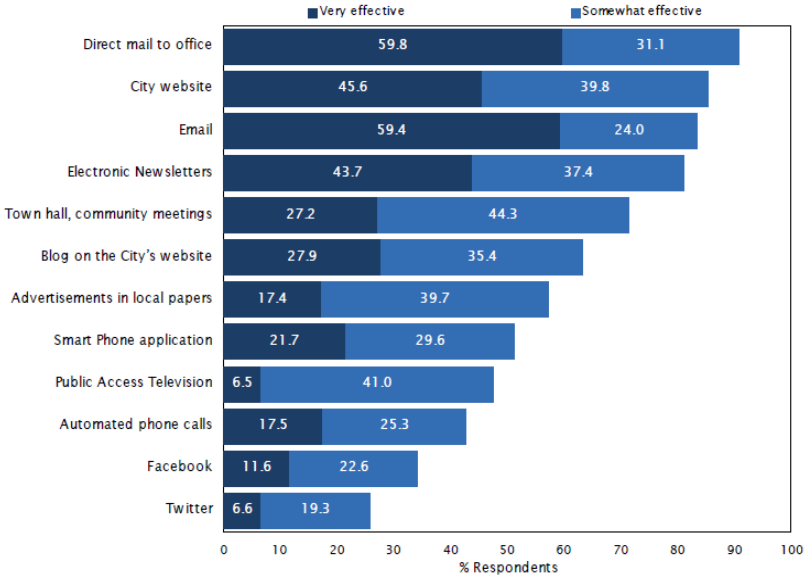
Communication preference questions were presented to resident and business respondents with each of the methods shown on the chart below and simply asked—for each—whether it would be an effective way for the City to communicate with them. Overall, respondents indicated that the City websites were the most effective method (92%), followed by newsletters mailed directly to their home (91%), electronic newsletters (81%), and email (80%). Other methods that were rated as at least somewhat effective by a majority of those surveyed included town hall/community meetings (74%), a blog on city websites (66%), public access television (57%), smart phone application (55%), and advertisements in local papers (52%). When compared to the other methods tested, residents rated Facebook (44%), automated telephone calls (40%), and Twitter (17%) as the least effective ways for the City to communicate with them.

Effectiveness of Communication Methods (Residents)



Overall, business respondents indicated that direct mail to the office was the most effective method (91% very or somewhat effective), followed by the City's website (85%), and email (83%). Social media like Twitter (26%) and Facebook (34%) and automated phone calls (43%) were rated as less effective.

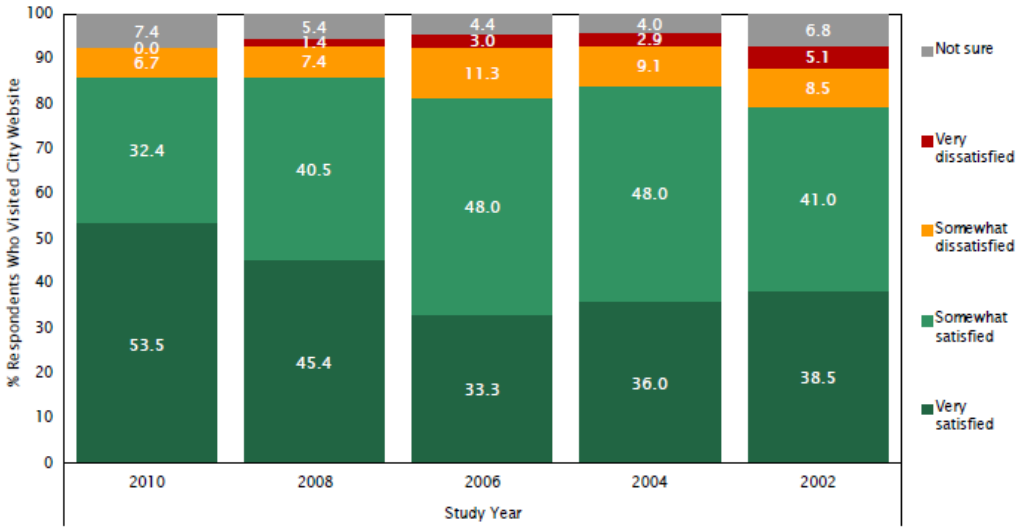
Effectiveness of Communication Methods (Businesses)



Website Content

Visitors to the City's websites were next asked to rate their level of satisfaction with the resources and content available on the sites—the results of which are shown in the charts below for residents and or local businesses. Overall, visitors expressed high levels of satisfaction with the City's websites, with 86% of residents and 91% of businesses indicating that they were satisfied with the resources available on the sites. An indication of residents' satisfaction with the City's websites was that few visitors could provide a specific suggestion for how to improve the sites.

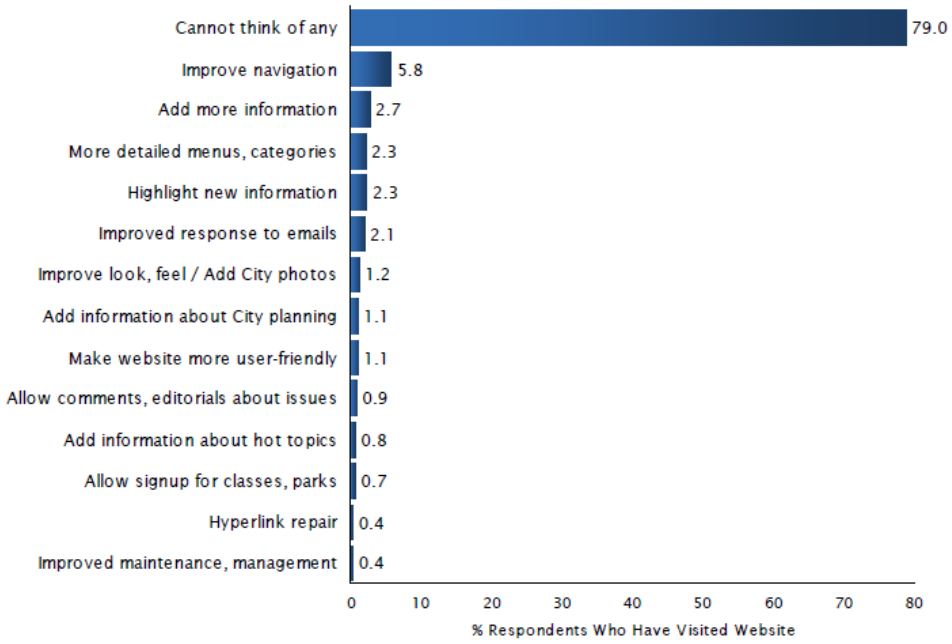
Satisfaction with City Website (Residents)



† Statistically significant change ($p < 0.05$) between the 2008 and 2010 studies.

Satisfaction with City Website (Businesses)

Suggestions for Improving City Website


Cannot think of any
79.0
Improve navigation
5.8
Add more information
2.7
More detailed menus, categories
2.3
Highlight new information
2.3
Improved response to emails
2.1
Improve look, feel / Add City photos
1.2
Add information about City planning
1.1
Make website more user-friendly
1.1
Allow comments, editorials about issues
0.9
Add information about hot topics
0.8
Allow signup for classes, parks
0.7
Hyperlink repair
0.4
Improved maintenance, management
0.4
0
10
20
30
40
50
60
70
80
% Respondents Who Have Visited Website

5. IT Objectives

The IT Division staff seeks to contribute to the City's mission of providing innovative, effective and efficient services for Lake Forest constituents. This will be accomplished by maintaining a services baseline, as well as initiating new objectives. The new IT objectives help realize the strategic issues described in the City's Five-Year Business Plan, take advantage of IT industry trends, synthesize relevant information from the Resident and Business Survey, and are aligned with the City's IT Vision.

Staff will use creativity, innovation and evolving technology to accomplish the following broad objectives:

- Enhanced Constituent Transactions
- Increased Resource Efficiency and Mobility
- Effective Knowledge Management.

Specific IT programs and projects described in Section 6 contribute to one or more of these objectives.

Enhanced Constituent Transactions/E-Government

Enhanced Constituent Transactions provide the public convenient online access to City services and information, creating a 24-hour "virtual" City Hall. This open communication and information exchange between the government and the public through the internet is termed "E-Government". Improving communication and information exchange between constituents and City officials helps achieve open government goals, enhancing transparency by providing more visibility into the legislative process. Enabling the public to conduct transactions with the City across a variety of platforms will maximize accessibility to City services.

Staff will seek well-managed applications, processes, and policies to accommodate the public's interest in communicating with the City via social media. IT will also research and deliver a method for safely and securely enabling card transactions at the building counter and elsewhere as needed; this will likely be delivered as a hosted or "cloud" solution.

Increased Resource Efficiency

This objective promotes increasing energy efficiency, reducing e-waste, reducing existing legacy systems and preventing the development of future legacy systems or other inefficiencies. The consolidation of servers through virtualization will reduce power consumption, while thin client technology will improve the lifespan of existing desktop computers. Analysis of the benefits of "cloud computing" for various applications will be conducted to ensure the City's resources are maximized while avoiding inefficiencies.

As an organization grows, it risks spending more time and effort managing and maintaining its supporting infrastructure and existing applications rather than investing in new and relevant technologies which will further enable the business. Although this effort is necessary to keep systems stable and current it can become the focus rather than the exception. Eventually these systems may become "legacy" systems, which are prone to failure, difficult to improve or expand, and, in extreme cases, poorly supported by the manufacturer and thus dependent on institutional knowledge to maintain. To enable continued growth and efficiency while maintaining low operational maintenance and IT support costs, a thorough review of existing IT systems will be performed annually as part of the Technology Refresh Program. The recommendation and implementation of new or replacement systems will be based on scalability, flexibility, and ease of integration.

Effective Knowledge Management

Knowledge management can be improved by providing individuals tools to access the entire relevant business context when conducting an analysis and/or making recommendations. Business context may include resident transaction history, relevant permit history, project plans and so on. The Geographic Information System (GIS) is one such tool that provides both information and analysis for decision makers, and facilitates multiple users benefiting from the same data. Projects that facilitate collaboration between disciplines and promote successful project outcomes help leverage organizational knowledge and maximize resources. Information silos and non-integrated systems are an impediment to effective knowledge management. To ensure continuous access to the City's knowledge base, business continuity planning (i.e., the City's ability to provide services) and security awareness are priorities to insure the continued integrity of City information.

System integration points are considered bridge hardware and/or software that tie disparate systems throughout the City together. This provides the City the ability to centralize, access, and redistribute valuable data and knowledge through fewer interfaces. An example of this is providing the public with parks and recreation maps from GIS over the internet. The front-end web access portal is easy for the user, but due to the lack of integration between back-end processes and the GIS system, the map creation is complex and requires a high degree of maintenance and support.

The City will continue to review disconnected systems to assess the value of integrating them into more easily accessible solutions that provide greater data accessibility and knowledge management. The current implementation of a permit automation software system is an example of consolidating multiple business processes into a single application or system.

6. New IT Programs

Summary

This section focuses on new strategic IT programs and projects. The table below provides an overview of how each program is aligned to the stated IT objectives. The following subsections details each program with a description of the current state, business need, and cost details (where available).

New IT Programs Aligned to IT Objectives

		IT Objectives		
		Enhanced Constituent Transactions	Increased Resource Efficiency	Effective Knowledge Management
1	**Finance Accounting System**		X	X
2	**Mobile Access for Constituents to Key Applications**	X		
3	**Online Records**	X	X	
4	**Online Payment Transactions**	X	X	X
5	**Social Media Management**	X		X
6	**Wifi for Public Areas**	X		
7	**Paperless Agenda**		X	
8	**IT Planning for Recreation Center/Sports Park**	X		
9	**Civic Center Facility IT Infrastructure**	X	X	X
10	**Website Enhancements**	X		X

New IT Programs Budget Summary

		2011-12	2012-13	2013-14	2014-15	2015-16
1	**Finance Accounting System**	Planning	$350,000	$60,000	$60,000	$60,000
2	**Mobile Access for Constituents to Key Application**	$0	$0	$20,000	$15,000	$15,000
3	**Online Records**	$11,800	$1,000	$1,000	$1,000	$1,000
4	**Online Payment Transactions**	$0	$20,000	$4,000	$4,000	$4,000
5	**Social Media Management**	Planning	$20,000	$4,000	$4,000	$4,000
6	**Wifi for Public Areas**	Planning	$0	$20,000	$0	$0
7	**Paperless Agenda**	$0	$5,000	$5,000	$0	$0
8	**IT Planning for Recreation Center/Sports Park**	TBD	TBD	TBD	TBD	TBD
9	**Civic Center Facility IT Infrastructure**	$0	Planning	TBD	TBD	TBD
10	**Website Enhancements**	$0	$0	$70,000	$0	$0
	Total City New IT Programs	$11,800	$396,000+	$184,000+	$84,000+	$84,000+

Finance Accounting System

Fund Balance is an accounting system of discrete but integrated financial modules used city-wide. Fund Balance is a legacy system currently used by Finance Department, Directors and Division Managers of all departments, and Cash Register at building counter. The City's Finance Department has realized that the current business needs and requirements have outgrown the existing system functionalities and capabilities. The new accounting system will provide system functionalities and capabilities to automate manual processes and integrate redundant data silos. Depending on the type of the type of technologies utilized to deploy the system (In-house versus Software-as-a-Service), the cost of the system will range from $50,000 - $350,000 with an ongoing maintenance cost estimated to be 20% of the implementation. Planning for the system will begin in FY 2011-12.

Fiscal Year	Cost
2011-12	$0
2012-13	$350,000
2013-14	$60,000
2014-15	$60,000
2015-16	$60,000
TOTAL	$530,000

Mobile Access for Constituents to Key Applications

The City currently uses software to track communication with residents and residents' access through the City website to ensure that residents' requests and questions are responded to in a timely manner (Ask Lake Forest application). The City also plans on providing an online portal for City constituents to submit permit, plan check, inspection, and code enforcement requests in a similar manner (Build Lake Forest). As an extension of these two applications to provide City residents and constituents more convenient methods to communicate with City Staff, the IT Division will evaluate the feasibility and deploy an application that will integrate with our current request systems to submit requests and report issues from mobile phones. The application will be a convenient tool intended to provide users with wireless and mobile access to securely access these application without the need of a personal computer or laptop. The application will be free for all City of Lake Forest constituents to download and use and will available on major mobile application platforms (iPhone, Droid, etc).

Fiscal Year	Cost
2011-12	$0
2012-13	$0
2013-14	$20,000
2014-15	$15,000
2015-16	$15,000
TOTAL	$50,000

Online Records

The City currently uses software (Documentum ApplicationXtender) for Imaging and Enterprise Document Management to digitally store City documents and records. Access to the documents and records of this application is only available to City staff. City constituents are required to make formal records requests in order to retrieve public records, which requires time and resources from City staff to manage and respond to requests. This program will better serve the City's constituents by providing free access to public records that are already stored in the City's current imaging system and conveniently display them through the City's website.

Fiscal Year	Cost
2011-12	$11,800
2012-13	$1,000
2013-14	$1,000
2014-15	$1,000
2015-16	$1,000
TOTAL	$15,800

Online Payment Transactions

The City currently provides online payment transactions through its Class Recreation system for the class registration process. There are other City services that could benefit from a similar online system to streamline the payment collection and reporting process as well as enhance the services provided to the City's constituents. This program will provide constituents the ability to make online payments for City services. The IT Division will need to consider solutions that meet Payment Card Industry (PCI) security standards to reduce data exposure and compromise. One of the best methods for the City to avoid PCI security risks is by providing systems where staff can avoid handling credit cards and constituents facilitate self-payment, such as kiosk terminals setup at key reception areas. The initial online payment transaction services include permit fees and City records, but depending on future needs, the system will be designed so it can be easily expanded to include other services.

Fiscal Year	Cost
2011-12	$0
2012-13	$20,000
2013-14	$4,000
2014-15	$4,000
2015-16	$4,000
TOTAL	$32,000

Social Media Management

The City's Community Services Department currently administers seven (7) social media accounts (Facebook: Community Services, Etnies Skatepark of Lake Forest, Lake Forest Teens, Lake Forest Events, and Nectar Lake Forest; Twitter: @etniesskatepark, @lakeforestca). These accounts were created to meet a growing demand from their constituents to facilitate communication through social media. This program will evaluate and determine if there is a need to update the City's communication process and policies. Additionally, the IT Division and the Media/PR Division will assess and implement system that can centrally manage and monitor Social Media interactions with City constituents to be compliant with legal and records requirements. Planning will begin in FY 2011-12.

Fiscal Year	Cost
2011-12	$0
2012-13	$20,000
2013-14	$4,000
2014-15	$4,000
2015-16	$4,000
TOTAL	$32,000

Wifi for Public Facilities

The City Hall currently has a wireless access infrastructure to provide wireless network and internet access to all of the indoor areas of the building. Wireless internet at the City Hall is available to City staff and contractors to conveniently connect laptops and mobile devices to the City's network and internet. Public wireless internet access for the City Hall is planned for FY 2011-12.This program seeks to expand wireless internet access for the public at major City facilities and parks such as the Etnies Skatepark, Pittsford Park, and Heroes Park. An evaluation will be conducted in FY 2013-14 to determine the feasibility to provide public wireless internet access at City facilities. Following the evaluation, infrastructure will be implemented at selected City facilities. This project will be funded by the IT Division.

Fiscal Year	Cost
2011-12	$0
2012-13	$0
2013-14	$20,000
2014-15	TBD
2015-16	$0
TOTAL	$20,000

Paperless Agenda

City Council Members are currently provided printed Agendas by the City Clerk Division, at substantial expense in the form of staff time and paper cost required to print, copy, and compile each binder by hand. The Agendas are already digitally produced in electronic form (Adobe PDF) through the SIRE Agenda Management process. Using a wireless mobile computer such as an Apple iPad or similar device for distribution and viewing of the electronic Agenda in place of the conventional printed agendas will reduce paper cost and increase efficiency in the City Clerk Division. This Project would involve investigation, testing, pilot program, and selection of appropriate devices and software for optimum performance and usability for the Council Members, as well as the deployment and training on the devices. Ongoing cost and replacement will be absorbed by the baseline IT operating costs.

Fiscal Year	Cost
2011-12	$0
2012-13	$5,000
2013-14	$5,000
2014-15	$0
2015-16	$0
TOTAL	$5,000

IT Planning for Recreation Center/Sports Park

The City's constituents have stated a need for a Recreation Center as identified by community surveys and input, staff input, and a Needs Assessment Study for a Recreation Center and Sports Park prepared in 2004. The Recreation Center is projected to be completed in FY2013-14. This program is to determine the IT needs of the Recreation Center, plan the systems and infrastructure, and execute the implementation. A start date for this project has not yet been determined.

Fiscal Year	Cost
2011-12	TBD
2012-13	TBD
2013-14	TBD
2014-15	TBD
2015-16	TBD
TOTAL	TBD

Civic Center Facility IT Infrastructure

The City of Lake Forest has a stated need for a Civic Center as identified by community surveys and input and staff input. The current lease for the Current City Hall will expire in 2014. The City anticipates moving to a new Civic Center at the end of the lease. Planning and construction of a Civic Center and related facilities will begin in FY2012-2013. All new City facilities should be networked and able to communicate seamlessly. The technology must be designed to be smart and flexible to anticipate future enhancements and longevity. This program is to determine the IT needs of the Civic Center, plan the systems and infrastructure (beginning in FY 2012-13), and execute the implementation. An initial list of projects may include the implementation of a voice-over-IP phone system, City Council Chamber video system, centralized records inventory management system, wireless access infrastructure, and server room requirements.

Fiscal Year	Cost
2011-12	$0
2012-13	$0
2013-14	TBD

2014-15	TBD
2015-16	TBD
TOTAL	TBD

Website Enhancements

This program will consist of periodic reviews, updates, and redevelopment/redesign (as deemed necessary) of the City website to ensure the website remains a dynamic, reliable source of current City information. As website design and administration technology evolve, it is important for the City to stay current with and take advantage of those resources that capture efficiencies, promote more transparency into the legislative process, and support the provision of enhanced online services. Such services include, but are not limited to, citizen relationship management software, connections to social media, and streaming video. In addition, it is critical that the website is updated so that the site and associated content are accessible via mobile platforms. Website maintenance costs are incorporated in Baseline IT projects.

Fiscal Year	Cost
2011-12	$0
2012-13	$0
2013-14	$70,000
2014-15	$0
2015-16	$0
TOTAL	$70,000

7. Baseline Projects

Summary

This section highlights ongoing baseline projects and their respective budgets. Baseline projects are those that have been incorporated into ongoing operating costs, and may include operations and maintenance, contract services, or capital outlay expenditures, depending on the nature of the project. For example the Workstation Refresh project includes the purchase of new equipment and software, but is an ongoing project.

The following table provides a summary of each baseline project with an associated cost for 2011 - 2016.

		Fiscal Year				
		2011-12	2012-13	2013-14	2014-15	2015-16
1	**IT Support**	$ 380,000	$ 380,000	TBD	TBD	TBD
2	**GIS Software Licensing**	$ 57,000	$ 57,000	$ 57,000	$ 57,000	$ 57,000
3	**GIS Integration**	$ 7,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000
4	**EnerGov Permit Automation**	$ 46,300	$ 41,300	$ 46,300	$ 41,300	$ 46,300
5	**SIRE Agenda Workflow Mgmt**	$ 11,000	$ 11,000	$ 11,000	$ 11,000	$ 11,000
6	**Documentum Image Storage**	$ 25,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000
7	**CLASS Recreation Class Mgmt**	$ 9,300	$ 9,300	$ 9,300	$ 9,300	$ 9,300
8	**Website Management and CRM**	$ 24,000	$ 24,000	$ 24,000	$ 24,000	$ 24,000
9	**DR Assessment & Risk Mitigation**	$ -	$ 30,000	$ -	$ 30,000	$ -
10	**IT Security Audit**	$ -	$ 30,000	$ -	$ 30,000	$ -
11	**Office Productivity Software**	$ 55,500	$ -	$ -	$ -	TBD
12	**Exchange Upgrade**	$ 20,000	$ -	$ -	$ -	$ -
13	**Desktop Operating System**	$ 9,000	$ 14,000	$ 14,000	$ 14,000	$ 14,000
14	**Workstation Refresh**	$ 34,000	$ 29,000	TBD	TBD	TBD
15	**Storage Area Network**	$ 38,300	$ 10,300	$ 10,300	$ 10,300	$ 10,300
16	**Other IT Division Software, Maintenance, and Supply**	$ 66,100	$ 66,100	TBD	TBD	TBD
17	**IT Division Personnel**	$ 191,000	TBD	TBD	TBD	TBD
18	**Other City IT Operations**	$ 107,400	TBD	TBD	TBD	TBD
	Total City IT Operations	$ 1,092,700	TBD	TBD	TBD	TBD

IT Support

The City of Lake Forest will continue to outsource IT support services (currently provided by Synoptek, Inc.) to supply staff augmentation services that deliver an enterprise level IT organization to enhance and manage the City's IT infrastructure. Synoptek's services include strategic planning and oversight of the City's IT program, subject matter expertise, project management, onsite and remote IT service desk support, and full management of servers, desktops, networks, phone system, and applications. The current service term is from July 1, 2008 – June 30, 2011 with two optional one-year extensions. The City has extended Synoptek's contract to June 30, 2012 and has the option to extend the contract to June 30, 2013. In FY2012-13, the City will be required to go to bid for IT Support services.

Fiscal Year	Cost
2011-12	$380,000
2012-13	$380,000
2013-14	TBD
2014-15	TBD
2015-16	TBD
TOTAL	TBD

Geographic Information System (GIS)

The GIS program is a long-term operational initiative at the City composed of software, data, procedures, training, and staffing components. The GIS system serves as the authoritative source for much City data such as Addresses and Zoning, and is intended to function as a central database repository by integrating data with other business applications. The Needs Assessment conducted in 2008 identified requirements that departments expected from the GIS System. As these initiatives were completed, existing requirements were re-prioritized, and new requirements identified.

GIS Strategic Planning

The GIS Strategic Plan will consolidate the GIS vision and needs assessment. It will define how the City's GIS program supports City strategic objectives, prioritize new and ongoing initiatives, and estimate project schedules. The GIS Strategic Plan will be updated every two years in conjunction with the SITG. The GIS Strategic Plan will be reviewed and approved by the Development Coordinating Committee (DCC).

The GIS Functional Specification (FS), reflects the current state of the GIS data and application infrastructure, including documenting the location and uses of existing databases and data layers, and the purpose and configurations of online map applications and back-end services. The FS will be updated annually, or as needed.

ArcGIS Server Enterprise License

The software and database foundation of the City's GIS is ArcGIS by ESRI. ArcGIS provides the tools that enable GIS users to add and maintain data for the enterprise, create and publish maps online, and share data with other applications using SQL Server. The City licenses ArcGIS under a program called the Small Municipal and County Enterprise License Agreement (ELA). The components of the ELA are:

- Desktop GIS - enable users to create data and publish maps
- Server GIS – provides the tools to publish maps online for internal or public consumption
- SDE – central database repository for first-tier data
- Training – Free GIS online training for all City GIS users
- Maintenance – Includes upgrades, maintenance, and support

The ELA extends for a three-year term at a fixed price and renewal costs are expected to remain unchanged.

Fiscal Year	Cost
2011-12	$57,000
2012-13	$57,000
2013-14	$57,000
2014-15	$57,000
2015-16	$57,000
TOTAL	$285,000

GIS Integration

The requirement for integration services exists to both expand current capabilities (e.g. Energov Business List, Online Maps) and to prevent the development of data "silos" as new business systems are purchased or upgraded. In Fiscal Year 2010-11 the City Budgeted $54,500 for GIS integration, which was temporarily reduced to $7,000 for FY 2011-12 to compensate for the MS Office and Exchange upgrades.

Fiscal Year	Software
2011-12	$7,000
2012-13	$55,000
2013-14	$55,000
2014-15	$55,000
2015-16	TBD
TOTAL	TBD

EnerGov Permit Automation System

The EnerGov automated permitting system is an enterprise application with multiple integration points. EnerGov modules include Permitting, Planning, Code Enforcement, MobileGov, and IVR. The costs associated with this baseline project includes professional services for version upgrades and application patches, access portal design and implementation, work order tracking, license usage monitoring, user onboarding, and other workflow enhancements expected every other year. Mobile equipment upgrades if needed will be captured in department IT costs. If staff use of the permit system expands, it may be necessary to purchase additional licenses, increasing the baseline cost. Development Services and Public Works (and potentially RDA) share costs for the Energov Permit System. In addition to the Version upgrade in FY2011-12, the online Plan Submittal and Review process will also be launched, and electronic signature recognition for permit submittals will be investigated.

Fiscal Year	Cost
2011-12	$46,300
2012-13	$41,300
2013-14	$46,300
2014-15	$41,300
2015-16	$46,300
TOTAL	$221,500

SIRE Agenda Management and Workflow System

The SIRE Agenda Management system is a centralized system to manage the process of the three main components of agenda creation and management: pre-meeting activities such as agenda creation and public notices; meeting activities including taking minutes of the meeting; and Post-Meeting activities such as posting agendas with attachments, summaries, and minutes. The City Council, Redevelopment Agency, Parks and Recreation Commission and Planning Commission meetings use the SIRE system to manage the agenda process. This project includes version upgrades and application patches, workflow

enhancement, and remote access to the SIRE system by staff from outside of the City Hall network. Sire system costs are funded by the City Clerk Division.

Fiscal Year	Cost
2011-12	$11,000
2012-13	$11,000
2013-14	$11,000
2014-15	$11,000
2015-16	$11,000
TOTAL	$55,000

Documentum Imaging System

The Documentum Imaging System is an enterprise imaging and document management system that provides applicable departments the ability to scan and quality control City documents and records on an ongoing basis. The City currently contracts with Maris Imaging for Documentum licensing, support, and professional services. This project includes version upgrades, application patches and ongoing image scanning, quality control, business system integration, and licensing. In Fiscal Year 2010-11 the City budgeted $15,000 for Documentum integration, which was temporarily reduced for FY 2011-12 to compensate for the MS Office and Exchange upgrades. The requirement for integration services will continue to exist to both accommodate upgrades to existing databases and applications, and to integrate Imaging with new business systems.

Fiscal Year	Cost
2011-12	$25,000
2012-13	$35,000
2013-14	$35,000
2014-15	$35,000
2015-16	$35,000
TOTAL	$165,000

CLASS

The Class system automates processes related to activity registrations, facility bookings, participant management, class scheduling, point of sale, and reporting. This project includes version upgrades, application patches, and implementing a kiosk for constituents to sign up for classes at reception counters (which would use spare computer equipment).

Fiscal Year	Cost
2011-12	$9,300
2012-13	$9,300
2013-14	$9,300
2014-15	$9,300
2015-16	$9,300
TOTAL	$46,500

Website Management and CRM

The City's Website and Ask Lake Forest CRM application are hosted and managed by Civica Software. This project consists of regular updates to the City website to ensure the website remains a dynamic,

reliable source of current City information. It also includes version upgrades, application patches, content creation, and improving workflows.

Fiscal Year	Cost
2011-12	$24,000
2012-13	$24,000
2013-14	$24,000
2014-15	$24,000
2015-16	$24,000
TOTAL	$120,000

Disaster Recovery and Business Continuity Planning

DR and Business Continuity Planning

The City's DR and Business Continuity project partly involves an ongoing effort to assess, mitigate, and prepare for recovery and continuation of technology infrastructure critical to the City after a disaster. Business continuity involves planning for keeping critical aspects of a business functioning in the midst of disruptive events and requires the significant involvement of all departments. Disaster Recovery focuses on the technology systems that support business functions. Both planning efforts are within the scope of the Computer Support Services agreement.

DR Assessment

This project consists of the bi-annual assessment of single points of failure within the IT infrastructure and environment, identification of infrastructure and business systems dependencies, mitigation of failure risk through reconfiguration and purchase of additional equipment and software, and enabling offsite disaster recovery requirements & solutions to support business continuity.

Fiscal Year	Cost
2011-12	$0
2012-13	$30,000
2013-14	$0
2014-15	$30,000
2015-16	$0
TOTAL	$60,000

IT Security

Security Program

The IT Security Program provides assurance that the information managed within City Hall can only be accessed or modified by those authorized to do so. Baseline security measures taken to ensure integrity include controlling the physical environment of networked terminals and servers, restricting access to data, and maintaining rigorous authentication practices. To ensure continuous awareness to the application of data integrity best practices within City Hall, as well as other relevant IT policies, all staff will attend regular security awareness seminars. The Security Program is implemented within the scope of the Computer Services agreement.

IT Security Audit

The IT Security Audit is a project to ensure the privacy and protection of the City's technology. A third-party consultant conducts comprehensive internal and wireless network vulnerability tests and provides an assessment to determine the current network security status of the City-operated information systems and networks. The assessment includes recommendations which the City prioritizes and as needed integrates into the IT plan.

Fiscal Year	Cost
2011-12	$0
2012-13	$30,000
2013-14	$0
2014-15	$30,000
2015-16	$0
TOTAL	$60,000

Desktop Office Productivity Software

The City currently uses Office XP/2003 for its office productivity application. Technology operations best practices suggest that software not fall more than three versions behind the most current available version of software. This is due to the limitations set by software vendors to support and deploy older versions of software. Office XP is three versions behind, and Office 2003 is two versions behind the most current available version of Office (2010). This project is to upgrade the City's desktop office productivity software as well as provide applicable user training to ensure a smoother user transition. An additional $10,000 not shown here is budgeted for staff training. IT anticipates using Office 2010 at least through FY 2014-15 based on Microsoft's historical product release pattern.

Fiscal Year	Cost
2011-12	$55,500
2012-13	$0
2013-14	$0
2014-15	$0
2015-16	TBD
TOTAL	$55,500

Exchange Upgrade

The City's current desktop office productivity software (Office XP, Office 2003) is integrated with the email server (Exchange 2007). The IT Division has proposed an upgrade to its desktop office productivity software in FY2011-12. Due to the limitations set by the software vendor to support and deploy older versions of software, the email application Outlook in Office 2010 will not be able to utilize many of its features and deployed patches without the upgrade to Exchange 2010. This project is to upgrade the City from Exchange 2007 to Exchange 2010. IT anticipates using Exchange 2010 at least through FY 2015-16.

Fiscal Year	Cost
2011-12	$20,000
2012-13	$0
2013-14	$0
2014-15	$0
2015-16	$0
TOTAL	$20,000

Desktop Operating System

The City currently uses Windows XP for their workstation operating systems. Technology operations best practices suggest that software not fall more than three versions behind the most current available version of software. This is due to the limitations set by software vendors to support and deploy older

versions of software. Windows XP is two versions behind the most current available version of Windows (7).Windows 7 has been in the market since 2008 and has received positive ratings and reviews for its stability and usability. This project is to upgrade the City's desktop operating system and manage the ongoing maintenance and licensing, including an assessment of all City software on the new OS.

Due to changes in how Micr0soft licenses Windows 7, and IT's recommendation to avoid "OEM" licenses, the City will need to purchase maintenance therefore Windows 7 desktop licensing will be a new recurring cost. IT anticipates using Windows 7 as the base desktop operating system at least through FY 2015-16.

Fiscal Year	Cost
2011-12	$9,000
2012-13	$14,000
2013-14	$14,000
2014-15	$14,000
2015-16	$14,000
TOTAL	$65,000

Workstation Refresh Project (Thin Client/ Virtual Desktop)

The City's workstation refresh strategy is to purchase new computers on a four-year cycle for the workstations used by City staff and public. Thin Client/ Virtual Desktop technology was selected to improve the deployment process of new workstations, centralize desktop processing, and reduce costs to manage the infrastructure environment. This project is a continuation of the effort to deploy a thin client/virtual desktop to the remainder of City staff. In Q1, FY10/11, the first phase was successfully deployed for the training lab and City staff. Staff estimates that, based on function, 90-95% of City desktop computers can be replaced by thin client/virtual desktops. The project will be partially funded through the ARRA Energy Efficiency and Conservation Block Grant through FY 2011-12.

Fiscal Year	Cost
2011-12	$34,000
2012-13	$29,000
2013-14	TBD
2014-15	TBD
2015-16	TBD
TOTAL	TBD

Storage Area Network (SAN)

SAN Storage Management

A storage area network (SAN) was implemented in FY 2010-11 to expand data storage capacity, improve the ability to expand storage capacity, and enhance server recovery capabilities. The existing SAN storage totals 6.14 Terabytes (TB), and will be expanded in FY 11-12 by 18 Terabytes to a total of 24 Terabytes. Between June 2010 and June 2011, data storage use on the SAN grew 45% annually. Projecting that same rate of growth for the next five years indicates that additional storage will be required by the end of FY 2014-15 as shown in the following table.

	Actual Growth FY 10-11		Projected 45% Annual Growth				
	Jun-10	Jun-11	Jun-12	Jun-13	Jun-14	Jun-15	Jun-16
Data Capacity (TB)	6.14	6.14	24	24	24	24	24
Required (TB)	3.64	5.29	7.67	11.12	16.13	23.38	33.91
Growth Rate	n/a	45%	45%	45%	45%	45%	45%
% Capacity	59%	86%	32%	46%	67%	**97%**	**141%**

Pricing for that additional storage has not been estimated in this SITG. Historically disk storage costs have decreased significantly over time; alternatively cloud storage solutions may be more cost effective than additional disk storage. A growth estimate of 45% may under- or over-estimate future requirements. This project includes baseline maintenance, storage capacity expansion, version upgrades, and application patches out to FY 2013-14.

Fiscal Year	Cost
2011-12	$38,300
2012-13	$10,300
2013-14	$10,300
2014-15	TBD
2015-16	TBD
TOTALS	TBD

Backups and Offsite Replication

Data and system configuration backups are currently managed through a tape backup system. As outlined originally in the 2009 SITG, with the implementation of the SAN there is an opportunity to take advantage of disk-to-disk backup technologies and cloud storage services. This project will strategize and document a new process to optimize the tape backups in conjunction with SAN offsite replication capabilities, and assess the feasibility of moving all or a portion of data backups from tapes to offsite backup storage facilities. This project will be within the scope of the IT contract services.

Other IT Software, Maintenance, and Supply

Computer maintenance and supply describes the costs to manage and maintain the computer and network equipment at City facilities, excluding the IT support agreement with Synoptek and specific projects identified previously. It includes backup tapes and supplies, domain name and service subscriptions, network device warranties, hardware and software maintenance agreements. Maintenance costs will change incrementally as new systems are brought online, and older technologies retired.

Fiscal Year	Cost
2011-12	$66,100
2012-13	TBD
2013-14	TBD
2014-15	TBD
2015-16	TBD
TOTAL	TBD

IT Division Personnel

The IT Division personnel costs for the IT Manager, GIS Intern, and personnel allocations are included below. No changes are factored into the projected costs.

Fiscal Year	Cost
2011-12	$191,000
2012-13	TBD
2013-14	TBD
2014-15	TBD
2015-16	TBD

TOTAL	TBD

Other Citywide IT Operating Costs

The following are department IT operating costs included in the SITG to capture the entire IT expenditures of the City for tracking purposes. They include the city website hosting and upgrades, miscellaneous desktop software and department-specific online subscription services.

Fiscal Year	Cost
2011-12	$107,400
2012-13	TBD
2013-14	TBD
2014-15	TBD
2015-16	TBD
TOTAL	TBD

8. Summary

The IT Division carefully analyzed a number of inputs in preparing the 2011-16 SITG, primarily the City's 5-Year Business Plan. Staff carefully analyzed the Business and Resident survey results to determine constituent needs and expectations, and considered the current state of the City's IT, as well as general technology trends and strategic issues. The implementation status of existing City business systems was evaluated using an industry-standard capability-maturity model. Throughout, the City's IT Vision guided the planning process.

IT Staff considers the projects described in the SITG to represent the most effective way, given existing strengths and constraints, for IT to help the City achieve its goals. The largest individual business system upgrade on the planning horizon is the selection and implementation of a new Accountin system, which will impact all departments and interface with existing business applications. The potential requirement to plan for a new City Hall Complex added significant ambiguity to this process. Whether or not City Hall moves, and into what type and size of facility if it does, will impact budget and project schedules.

The following sections provide a summary view of the Strategic IT Plan and its relationship to the City budget, describe recent accomplishments, and highlight current objectives.

Five-Year Budget Overview

The following table shows the 5-year budget plan based on implementing the 2011-16 SITG projects. Although many costs are not known at this point the table shows minimum expected expenditures for the coming five years. The significant increase between 2011-12 and 2012-13 will be due to the Finance System implementation planned for FY 2012-13. With each subsequent Fiscal Year the number of unknown costs increases.

IT Programs Budget Summary

		2011-12	2012-13	2013-14	2014-15	2015-16
1	**New IT Programs Budget**	$11,750	$396,000+	$184,000+	$84,000+	$84,000+
2	**Baseline IT Budget**	$1,067,300	$792,000+	$261,900+	$316,900+	$261,900+
3	**Total City IT Budget**	**$ 1,079,050**	**$1,188,000+**	**$445,900+**	**$400,900+**	**$345,900+**

To provide context, the following table shows the citywide IT budget for all IT-related items from FY 2005-06 to FY 2010-11, with the last row containing the percent of the City's operating budget absorbed by IT across all departments. Figures from the current draft budget for FY 2011-12 are the latest available.

		Fiscal Year				
		2007-08	2008-09	2009-10	2010-11	2011-12*
1	**IT Div ****	$596,100	$1,045,100	$1,002,700	$903,400	$920,600
2	**Other City IT**	$826,100	$617,800	$212,800	$148,200	$172,100
3	**Total City IT**	$1,422,200	$1,662,900	$1,215,500	$1,051,600	$1,092,700
	City Operations Budget	$36,256,700	$38,821,050	$38,392,200	$30,700,000	*$30,000,000*
4	**IT as % Of City Budget**	**3.92%**	**4.28%**	**3.17%**	**3.43%**	***3.64%***

* Estimated as of this report's writing.
** IT-related expenses only.

Accomplishments 2009-2010

The 2009-14 SITG outlined a series of related key projects intended to ensure the City's IT Infrastructure will meet the growing demands of data storage and business systems. The following projects have been completed during the last two years:

- Server Virtualization – instead of a growing number of costly and hard-to-maintain physical servers, a "virtualized" server architecture was created that allows greater flexibility and reduced maintenance effort.
- Storage Area Network (SAN) – In place of the finite, inflexible, and distributed storage capacity on individual servers, the SAN offers a scalable, flexible, redundant data storage device.
- High Availability Infrastructure – This project ensured that the City's network maintains high speed and availability (low downtime) by increasing the performance, and redundancy of key components while providing the capacity to accommodate planned future growth.

In addition the following important initiatives have been completed, and will continue to be integrated, upgraded, and improved as needed:

- City Hall wireless - providing greater work mobility and flexibility to staff.
- Energov Permitting System - integrating Building Safety, Code Enforcement, Planning, and Water Quality to GIS.
- Agenda Management System – automating the agenda creation and approval processes.
- Security Program – implementing effective security precautions including security software and an IT Security Awareness program for Staff, to reduce the likelihood of a successful network attack and respond quickly if it occurs.

Furthermore, the Thin Client/Refresh effort was initiated, and is currently in progress as a baseline project to migrate 90-95% of staff from a traditional desktop computer to Thin Client workstations, reducing equipment maintenance costs while adding greater flexibility to deployments and refresh projects.

2011-16 Objectives

The projects described in the current 2011-16 SITG build on the foundation developed during the previous two years, and further contribute to the City's mission of providing innovative, effective and efficient services for Lake Forest constituents.

The IT projects to be completed during the next five years fulfill the broad objectives of: enhanced constituent transactions, increased resource efficiency and mobility, and effective knowledge management. During the next five years, the City will accomplish the following high priority initiatives:

- **Implement a New Accounting System** – Fund Balance is the last remaining legacy software to be upgraded in order to migrate to an "Enterprise" system able to integrate with the City's other business systems. The Finance Department will need to review and assess the 2009 Accounting System Needs Assessment, issue an RFP, select a vendor and implement a new system.

- **Enhance E-government and Transparency** – The City will enhance public accessibility to City services by providing an online portal designed for mobile devices such as the iPhone or Droid. This will open an entirely new avenue of communication and improve City services by reducing staff response time. The City will also provide an online record search capability in FY 2011-12 that will open up appropriate Documentum records to search by the public. Finally the City plans to provide online payment transaction ability for Permits and selected City services. IT will utilize online services to provide a secure transaction method that does not require the City to store credit card numbers or other sensitive personal information.

- **Improve Communication and Mobility** – The City will increase the use of Social media to communicate with the public; as it does so, the City will establish a Social Media Policy to manage and monitor this communication. The City will also create an accessible Wireless

Internet capability in existing public facilities, including Etnies Skate Park, Heroes Park, and Pittsford Park.

During the SITG planning process it became evident that the potential City Hall move to a new facility and construction of a Sports Park Complex factored significantly. In the current SITG, IT has not assumed any particular outcome for the City Hall, but focused on those projects that will be relevant in any eventuality. It has also remained flexible in regard to the Sports Park Complex, which of this writing does not have an approved design. The following projects will be addressed in detail in the next SITG:

- **IT Planning for Recreation Center/Sports Park** –The project will begin with a needs analysis for an IT infrastructure at the future Sports Park, and will likely include a need for seamless network capability with City Hall and may involve wireless capability.
- **Civic Center Facility IT Infrastructure** – Like the Sports Park, all new City Hall facilities will need to be networked seamlessly allowing a mobile, possibly decentralized workforce to communicate and collaborate effectively. This project may include a Voice-over-IP phone system, Council Chamber audio/video system,

The IT Division distributes the SITG as a way to communicate with City leadership and stakeholders, and achieve their support. The City should look forward with excitement to the coming transformations in the City's capabilities.

APPENDIX A: IT Division Accomplishments

1. SITG 2009-2014 Initiatives

SITG 2009-2014 Projects

Objective	Project Type	Project	Result
IT Infrastructure Maintenance (Baseline)	Data Accessibility	IT Disaster Recovery Planning	Ongoing
		Offsite Backups	Ongoing
		SAN (Compellent)	Implemented
		Internet Connectivity	Ongoing
		WAN Connectivity	Ongoing
	Technology Refreshment & Supplies	Back Office System Server Upgrades	Implemented
		Network Switches	Implemented
		Redundant Firewall	Planned in Q4, FY10-11
		Printers	Ongoing
		Computer replacement	Implemented
		Laptops - new building system	Implemented
		Miscellaneous computer supplies	Ongoing
	Equipment & Back Office Application Maintenance & Stability	Miscellaneous Equipment & Back Office Application Maintenance Contracts, Warranties, Licenses	Ongoing
	General Technology Training	Computer Training - All Staff	Ongoing
	IT Division Staffing	IT Manager	Ongoing
		GIS Intern	Ongoing
Knowledge & Data Management	Data Integrity	IT Security Assessment & Review*	Ongoing
		IT Security Remediation & Mitigation	Ongoing
	Project Management Office	City Wide PMO Needs Analysis	Will be included in IT Policy Revision - Governance Document
	Business Systems Integration, Development & Reporting	Report Writing & Development	Ongoing/ As needed
	Document Management System (Imaging)	Backfile Scanning & Quality Assurance	Ongoing
	Digital Asset Management System	Digital Asset Management System (Widen)	Implemented
Legacy System Review & Reduction	Accounting Systems Implementation	Accounting System Implementation Project Management**	Reschedule to SITG 2011-2016
	CRM Software Replacement Project	CRM Software Replacement Project	Implemented Temporary Solution/ Rescheduled in SITG 2011-2016

Objective	Project Type	Project	Result
Consolidating System Integration Points	Geographic Information System (GIS)	GIS ESRI classes	Ongoing
		General Technical Training	Ongoing
		GIS Consultant/Integration	Rescheduled to SITG 2011-2016
		Intelligence Led Policing	Needs Assessment Completed/ Project Tabled
E-Government & Communication	E-Government & Communication	Assessment of Facilities Planning	Rescheduled to SITG 2011-2016
		Economic Development Website Update	Implemented
		Etnies Website Update	Implemented
		Credit Card Acceptance Software	Rescheduled to SITG 2011-2016

Other Notable Projects

FY 2010-2011 Projects

#	Project Name & Description
1	**Enterprise Workstation Energy Management Application -** The City of Lake Forest has identified several key initiatives as part of their Energy Efficiency and Conservation Block Grant (EECBG) application through the American Recovery and Reinvestment Act. One of the proposed projects is the installation of Faronics Powersave. Powersave is a PC power management tool that accurately determines when computers are inactive so they can be powered down, resulting in reduced energy costs. The purpose of this project is to install and configure Faronics Powersave, including reporting setup and training an end user.
2	**Fund Balance Migration/ Pervasive Upgrade -** The City of Lake Forest's Finance Department was seeing increased errors and issues impacting their financial application, Fund Balance. It was recommended by the IT Division/Synoptek that migrating was the best long-term solution for the problems they were experiencing. Finance agreed to the recommendation to migrate their Fund Balance financial application from the lfappsrvr (Server 2003) to the City's new distributed file system (DFS) on clf400v (Server 2008). In order to successfully stabilize and migrate the system, the project required the assistance of the Fund Balance application vendor, Tyler Technologies. The project impacted 29 Read-Only users and 9 Users/Super Users of the Fund Balance application.

FY 2009-2010 Projects

#	Project Name & Description
1	**Postini SPAM Filter Implementation -** Upgrade the City's SPAM filtering services from AppRiver to Postini. Approximately 150 email addresses were transitioned during this project. User documentation is available on the Intranet.
2	**Toshiba Copier Replacement –** Manage the replacement of the three (3) Toshiba Copiers (650) in the city hall copy rooms with three (3) updated Toshiba Copier models (723T (2) – B&W, 5520C - (1) – Color).
3	**Exchange Install / Migration / Reorganization –** Re-architect the City's exchange service since both lfexchange and dmz-lfexchange have had multiple issues. The project resulted with the implementation of a new exchange server (clf502v).
4	**AutoTask User Portal -** Enable users at CoLF with an additional channel to communicate with Synoptek. The AutoTask User Portal provides additional transparency to the user with online ticket submissions, real-time service ticket status, and historical ticket reports.
5	**Anti-Virus Installation -** Upgrade the CoLF anti-virus to Kasperky's AVG solution. Symantec AV was removed from servers and workstations.
6	**Council Chambers AV Equipment (Marantz Digital Recorder) -** Update the Council Chamber's audio recording system with a solid state digital recording system. The system can be accessed via the CoLF network from the digital recorder's GUI providing capabilities to transfer/backup audio files from any networked workstation. This device replaced the CD-RW and hand-held recording devices.
7	**File Cleanup and Purge Day –** On May 21, 2010, the City of Lake Forest internal staff cleared out their old physical and digital files. The IT Division was asked to provide before and after reporting of user and department file folders storage usage changes to help determine the department with the largest contributions to the cleanup effort.
8	**Skate Park Firewall Upgrade -** Upgraded Firewall at the Etnies Skatepark to a Cisco ASA50510.
9	**Primary Domain Transition Project –** On January 1, 2010, the City changed its domain from ci.lake-forest.ca.us to lakeforestca.gov. This impacted the City's website address and user email address domains. When the domain transition was initially implemented, emails sent to the old domain addresses were automatically forwarded to the new domain address. On June 30 the last remaining tasks were completed for this project where the ci.lake-forest.ca.us domain was disabled from forwarding to users' new email addresses.

2. SITG 2007-2012 Initiatives

Initiative	Department	Result
GIS Infrastructure	Enterprise	Implemented using CityGIS; Began development of City specific GIS in FY 05-06
GIS Integration with Code Enforcement	Enterprise	Will be achieved through Permit Automation System
GIS Integration with Imaging	Enterprise	Ongoing
GIS Web Services	Enterprise	Ongoing
Document Management Systems (Imaging)	Enterprise	Implemented; utilizing Documentum software
City Websites	Enterprise	Implemented using Civica software and in regular maintenance mode
Customer Service Software	Enterprise	Implemented – GovPopulous
Automated Agenda Software	City Clerk	Implemented – SIRE
Code Enforcement Software	Development Services	To be included with the Permit Automation System
Permit Automation System	Development Services	Implemented - EnerGov
Recreation Software	Community Services	Implemented – CLASS
Urban Forest Inventory	Public Works	Implemented – ArborPro
Work Order Tracking Tool	Public Works	To be included with the Permit Automation System
Accounting System	Finance	Needs assessment conducted in FY 08-09
Human Resources/Employee Recruitment and Retention Software	Management Services	Implemented – NeoGov
Data Accessibility/IT Disaster Recovery Planning	Enterprise	Implemented
Emergency Operation Center IT Support	Enterprise	Implemented
Data Integrity/IT Network Security Audit	Enterprise	Implemented
Technology Refreshment	Enterprise	Ongoing

APPENDIX B: Strategic IT Planning Continuum

Strategic Information Technology Guide (SITG) 2001

Prior to 2001, the City acquired and deployed IT resources without a defined long-range plan for IT system implementation and growth. In 2001, the City and ACS (the City's then IT Service Provider) began a citywide planning effort to project the technology needs for the City over a five year planning horizon. After an assessment of the City's technology infrastructure, consultants interviewed staff on a department by department basis to assess the business goals of each department, as well as gauge the technology available to help reach the identified business goals. The resulting document recommended enterprise-wide and departmental initiatives (i.e., hardware and software solutions) to be implemented over five years, along with estimated budgets and project timelines. Some of the initiatives listed in the SITG were proposed during the annual budget cycle and presented individually to the City Council for approval.

Since 2001, a number of high priority initiatives listed in the SITG were launched, including the Document Management System (Imaging), Customer Relationship Management Software, and Geographic Information System (GIS). In addition, procurement of Recreation and Facility Reservation software, another SITG recommendation, was completed in 2005. Other initiatives, such as an automated permitting system and automated agenda processing software, were evaluated and set aside for future consideration. In these cases, staff discovered the software was in its fledgling stages of development, or the city's operations did not have the complexity to warrant the cost of implementing the recommended IT solution. In other cases, changes to city operations no longer necessitated the identified resources, such as the Teleminder system for Police Services.

While the SITG provided various recommendations for the City's IT Program, the document lacked a clear roadmap for integrating the various databases and systems in place in various city departments. For example, Economic Development, Public Works and Code Enforcement each possessed a separate database of Lake Forest businesses for different reasons. However, the IT resources were not available to allow these three departments to easily share information in a common database.

2005 Adoption of Systems Integration Concept/GIS/IT Vision

In 2004, staff embarked on an extensive process to evaluate the City's IT initiatives and formulate new goals for the City's IT program. During this process, staff identified an in-house Geographical Information System (GIS) as the most effective means to integrate the City's stand-alone systems (i.e., Document Imaging and GovPopulous). An in-house GIS can provide the foundation to which other systems, whether currently operational or in planning stages, can link. Not only can an in-house GIS link a Customer Relationship Management System and Document Imaging System, it also presents the opportunity to tie together the thirty-one (31) distinct databases maintained by various departments, thereby reducing duplication of efforts and improving the quality of data. Therefore, in April 2005, the Agreement with ACS, Inc. was expanded to provide the services and expertise to support the "systems integration" concept for the City's IT program. This concept utilizes an in-house GIS to act as an integrator for current and planned IT systems.

In 2005, ACS assisted the City in developing a long-term vision to guide IT strategy, with signifiant involvement of all Department leaders. This IT Vision emphasizing on-line services, E-democracy, E-competiveness, efficient back-office systems and infrastructure still guides the City's IT investments, and is included within each SITG.

2008 Management Reorganization of IT Program

As the result of a competitive proposal process, the City selected Synoptek as the City's IT Services Provider in 2008. The transition from ACS, the former service provider, was complete in May 2008. Synoptek provides strategic planning and oversight of the City's IT program, helpdesk management, GIS management, and IT project management. Key personnel provided by Synoptek include a Chief Technology Officer (CTO), a fully staffed help desk for phone and as-needed on-site support, a remote network operations center (NOC), and a full-time project manager. In addition to leading the Synoptek team, the CTO identifies trends in the use of IT for municipal service delivery and identifies IT solutions to support the City's strategic goals and objectives.

2009-2010 IT Infrastructure Improvements

Virtualization, SAN, and Thin Clients

Prior to 2009, the city's IT infrastructure was designed along a traditional architecture with applications and databases hosted on individual, single-purpose servers, users with personal computers, and a tape backup device. Although standard IT practice at one time, this was a costly and resource-intensive method of supplying IT services to an enterprise. Computing resources (communication, processing speed, and memory) were either under or over-utilized, and systems needed to be frequently upgraded requiring extensive downtime. The City was experiencing a rapid growth in data storage needs, but storage and corresponding backup capabilities were localized to application-specific servers and so were not flexible or easily scalable. Overall, it was also an energy-intensive environment.

Seeking a solution to these disadvantages, in the 2009-2014 SITG, the IT Division recommended significant changes in the City's IT infrastructure, taking advantage of emerging technologies to provide enhanced capabilities and greater efficiency. These changes entailed:

- Server Virtualization: In a virtual server environment, multiple application or database servers run on a small number of host servers, allowing IT to efficiently manage resource allocation. The host servers are configured for redundancy so a single hardware failure will not cause a significant disruption to services.
- Storage Area network (SAN): Implement a storage area network solution to improve the City's ability to expand its capacity to accommodate new electronic data requirements at a reduced cost by eliminating the need to buy separate, more expensive disks, storage drives, and servers.
- Utilize Thin Clients Technologies: Thin Client technologies reduce desktop footprints and improve the lifespan of existing desktop equipment, reducing the need to purchase new and larger desktop PCs and minimizing the City's e-waste. Hosted thin clients can dynamically allocate resources to systems as needed.
- Eliminate disk-to-tape backups: Replace a tape backup system with a disk-to-disk solution, improving recovery times, reducing tape media failures, and eliminating the ongoing cost and e-waste associated with tape media.

Disaster Recovery Planning

IT also sought to emphasize Disaster Recovery (DR) planning and make a system effort to assess a nd improve the City's DR capability. The first stage in this process was a DR Assessment completed in September 2009 that focused on the identification of single points of failure in the City's network. Once identified, IT began a process of adding redundant and higher capacity systems at critical points of failure. This process has ensured the City's IT services have a robust delivery capacity.

IT Security Program

In conjunction with this major effort to modernize the City's IT infrastructure, the IT Division began a systematic security planning process, including bi-annual independent security assessments. These assessments caused IT to make concrete improvements in the security status of the City, as well as launching the IT Security Awareness Program for Staff.

2009-2010 Business System Needs Assessment & Implementation

In 2009 – 2010, the IT Division focused a significant portion of its project resources and effort to enable business process automation through business system needs assessments and implementations. The strategic goals for these projects were to 1) Select, implement, and support business systems that would improve the efficiency and productivity of the City staff to allow them to better serve the City's constituents, 2) Provide a congruent architecture of applications that enhance business processes, and 3) Share and integrate data sources to eliminate redundant and unilateral systems. The descriptions below highlight these projects:

Finance Accounting System Needs Assessment and Gap Analysis - This project was to provide the Finance Department an analysis of its business practices. It provides a thorough understanding of the current business process, identifies the extent to which modules of the system have been implemented and are being used, and determines the alignment between business process and the technology solution. The analysis was concluded with an accounting system design, development and implementation recommendations that provided a high level design and implementation plan based on the final needs assessment, identify and scope development of functionality to fulfill current business needs, and identify implementation options as per findings of the assessment and present recommendations.

GIS Enterprise Server Implementation – The City's GIS system serves as the authoritative source for much City data and is intended to function as a central database repository by integrating data with other business applications. A GIS Needs Assessment conducted in 2008 identified requirements that departments expected from the GIS System. In 2009, a GIS Server Functional Specifications document was completed to gather functional and technical information, department and enterprise requirements, and identify capabilities based on the City's current GIS program. This document describes the requested behavior of the City's GIS program and needs of the user, which internal functions is necessary, as well as, requested properties of the system's inputs and outputs.

Based upon findings identified in the GIS Needs Assessment and Functional Specifications document, it was recommended that the City implement an ESRI's GIS Enterprise Server and suite of products to build on its investment in geospatial technology by publishing its digital infrastructure to the web. This new technology provided a central point of administration for data access and application updates. The recommended web-based GIS provided the ability to utilize a replicated database for security and provide departmental access via an intranet address on the City's network. Most importantly, the GIS Server implementation provided the foundation for online maps that will be accessible via the internet by City staff and constituents.

EnerGov Permit Automation System – Since the City incorporated in 1991, the City's permit application process had been a paper based system conducted over the counter. While this process was appropriate for the City's formative period, the procedures and recording systems used to process permit applications were mutually exclusive. The database systems used by the City's Planning, Building, and Code Enforcement divisions were not linked. A needs assessment was completed by Kerry Consulting Group (KCG) in 2008. KCG recommended that the City proceed with a software solution to automate permit activity prior to the anticipated peak in permit activity resulting from City Opportunity Study projects. The findings also concluded that it would be advantageous to create a permanent computerized record of the permit history for the anticipated residential development. It was also evident from the analysis of the City's current permit processes that there is opportunity to improve the submission and review process.

In 2008, EnerGov was selected as the technology solutions vendor to automate various processes such as permitting, planning, and code enforcement. EnerGov was selected for its ability to integrate into one database which makes it easier for users to reference all records (i.e., building permit history, code enforcement violations, pending inspections, plan checks) assigned to an address or parcel. The database also links to the GIS database, allowing changes in the GIS database to be reflected in the permitting database, and vice versa. The software also met the City's goal of integrating its systems to

GIS while avoiding the potential of implementing software that may need to be transitioned to be web-based at a future date. EnerGov's software also provided a public access portal and IVR Automation will allow further efficiencies during the sign off and inspections process which provide on results to be instantly available to the public.

In 2009 – 2010, the EnerGov core suite (Permitting, Planning, Code Enforcement, Inspections, GIS) along with MobileGov and IVR were successfully implemented. The automation of the planning, permitting, and inspections process through EnerGov has reduced the need for manual file delivery and paper work and has created visibility into inter-department/division workflow and resource task tracking. The implementation of the IVR system allows constituents 24/7 access to inspection scheduling over a touch-tone phone. This creates resource efficiencies by automatically creating an inspection request record within EnerGov and reduces the need to track inspection requests and updates manually. The The following are key metrics captured by the EnerGov reporting system since implementation.

EnerGov Key Metrics
(Feb 22, 2010 – Apr 14, 2011)

Metric	Count
# of Permits Issued	3,008
# of Plans Checked	583
# of Inspections Completed	3,928
# of Code Cases Closed	1,127
# of IVR Calls	491

Future enhancements will include core suite upgrades, public access portal (buildlakeforest.com), business contact management module, water quality data integration, work order tracking, online payment processing, and online plan checks (eReviews).

SIRE Agendas, Minutes, and Workflow – In 2008, the City selected SIRE Technologies as the technology vendor to automate the agenda and minutes creation process. The solution was to address the needs for the City Clerk's Office, Planning Commission, and Parks and Recreations Committee to enable them to create, compile, image, and print agendas and minutes. In 2009, the first phase of the project was completed, which provided the ability for users to upload agenda items and administrators to compile agendas. It also provided administrators to centrally manage templates, meeting details, and post agendas to the City website with one click. Since March 2009, there have been over 22,000 page views on the City website's online agenda page. Monthly agenda page visits have grown by over 94% since the implementation of SIRE (465 page visits in March 2009 to 903 page visits in March 2011).

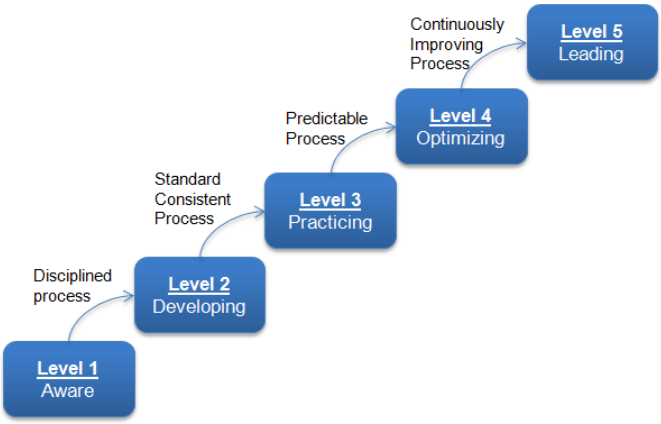
In 2010, the second phase of the project was completed, which integrated the agenda item approval process within the SIRE system through automated workflows. Two separate workflows were created: 1) City Council Agenda Workflow and 2) Planning Commission Workflow. The workflows streamlined the agenda item approval process by eliminating manual file delivery and centralizing the editing and tracking of agenda reports. It also reduced the need to print multiple versions of physical agenda reports through the system's ability to track changes, versioning, and adding comments. Deadlines and email notifications were also defined to further improve the workflow process. Since the implementation of SIRE, there have been over 180 meeting agendas created, compiled, and posted from the SIRE application.

APPENDIX C: Maturity Model Assessment

During the analysis phase of the 2011-16 SITG project, a capability maturity assessment was documented focusing on the three IT Division objectives identified in this guide. The framework and the general definitions are based on IT and organizational process models created by Gartner Inc. The purpose of the model is to provide an effective approach to compare industry benchmarks against the City's IT capabilities. The data below is organized from levels of 1 – 5 (defined below), where Level 5 is defined as an ideal state where processes and capabilities would be systematically managed by incremental process improvements and innovative technology. Examples of the City's current capabilities are listed accordingly at each level.

The following are definitions of each level (defined by Gartner Inc.):

Maturity Model Framework



- **Level 1 - Aware**
  It is characteristic of processes at this level that they are (typically) undocumented and in a state of dynamic change, tending to be driven in an ad hoc, uncontrolled and reactive manner by users or events. This provides a chaotic or unstable environment for the processes.
- **Level 2 - Developing**
  It is characteristic of processes at this level that some processes are repeatable, possibly with consistent results. Process discipline is unlikely to be rigorous, but where it exists it may help to ensure that existing processes are maintained during times of stress.
- **Level 3 - Practicing**
  It is characteristic of processes at this level that there are sets of defined and documented standard processes established and subject to some degree of improvement over time. These standard processes are in place (i.e., they are the AS-IS processes) and used to establish consistency of process performance across the organization.
- **Level 4 - Optimizing**
  It is characteristic of processes at this level that, using process metrics, management can effectively control the AS-IS process (e.g., for software development). In particular, management can identify ways to adjust and adapt the process to particular projects without measurable losses of quality or deviations from specifications. Process Capability is established from this level.
- **Level 5 - Leading**
  It is a characteristic of processes at this level that the focus is on continually improving process performance through both incremental and innovative technological changes/improvements.

Constituent Transactions Maturity Model

Scale	Description	General Definition	Lake Forest Examples	Next Steps/What to Do
5	Leading	Enterprise has differentiated itself based on constituent-centric capabilities; Has simultaneously redefined those capabilities. An industry-leader.	**Lake Forest Current Level (May 2011): 2.5**	
4	Optimizing	Enterprise has developed constituent-centric capabilities; Integrated constituent transactions into daily operations.		
3	Practicing	Enterprise has implemented basic, non-integrated constituent-centric capabilities; Basic CRM capabilities, planning integrated e-government solutions.	Community Services use of Social Media; Hosted Recreation registration/payment; IVR portion of Energov Planning integration of ALF,	Develop constituent-oriented mindset enterprise-wide (IT as a core competency); Mobile versions of current capabilities (reach people on smartphones, iPads, tablets); Integration of distinct e-government systems (shared data sources)
2	Developing	Rudimentary constituent-centric capabilities. Enterprise is considering and planning e-government initiatives.	ALF CRM; Dynamic website; Focused websites (LFTeens, etc); E-government marketing efforts; Online Agendas;	Planning for integration of disparate systems; Needs assessment for CRM, other e-government requirements. Develop interactive GIS Maps; Credit card transactions for building permits.
1	Aware	Enterprise has taken no action on e-government initiatives.	Information-only website. No CRM in place.	Begin planning e-government initiatives.

Resource Efficiency Maturity Model

Scale	Description	General Definition	Lake Forest Examples	Next Steps/What to Do
5	Leading	Proactively promoting new technologies and impact to business. Real-time infrastructure.	Automatically allocate server resources based on client demand; Automatic device failover. Multiple site replication. Cloud/hosted solutions fully utilized.	
4	Optimizing	Formal IT management process/tools and architecture; Shared services; Aggregating capacity management;	Manual client/server capacity planning using SAN; Thin Client Begin moving applications to the Cloud/hosted services. Paperless City imitative	
3	Practicing	Formal infrastructure standards and policies; Process and domain-centric management tools; Virtualization foundation in place.	VMware software; SAN purchase and architecture design. DSF in place. Legacy systems still exist, limiting integration capabilities (e.g. Fund Balance ERP).	Investigate Cloud computing options; Remove and replace remaining legacy systems such as Finance system
2	Developing	IT Support and project-related management tools; Desktop hardware/software standards defined. Begin infrastructure standardization/rationalization. Basic management tools.	IT Policies development Server standardization Workstation standardization; Printer/Copier use analysis. Reducing infrastructure costs (e.g. data storage, printing).	Group policy standardization; Distributed File System
1	Aware	Little or no basic management tools. No formal infrastructure or hardware standards. No formal strategy or execution on technology investments.		Identify needs and requirements. Develop resource efficency policies and plan.

Lake Forest Current Level (May 2011): 3.0

Knowledge Management Maturity Model

Scale	Description	General Definition	Lake Forest Examples	Next Steps/What to Do
5	Leading	Use of knowledge management is extended to suppliers and customers. KM is inserted and around the business processes. All Information is trusted across the enterprise.	**Lake Forest Current Level (May 2011): 3.0**	
4	Optimizing	Establish a balanced portfolio of standards (e.g. Policies around the process) Business objectives driving performance. Deploy enterprise metrics framework. Governance policies defined and enforced. Key Information is trusted across the enterprise.		
3	Practicing	Funding from business units on project by project basis. Specific set of users realizing value. (move from IT champion to business unit champion/stakeholder). Successful focus on specific business need. User groups, committees in place. Some Information is trusted across the enterprise.	GIS system ArcGIS Server completion; Energov Address/Parcel data solidly linked to GIS Parcel/Ownership data. GIS Committee established.	Complete Energov CAP project (unified interface and back-end data linkages between CRM, Permitting, Code Enforcement, Landscape, etc.). Business List integration. Develop database maintenance process to ensure City is the steward iof authoritative data. Expand the user base.
2	Developing	Awareness of requirement for change. No business sponsor, IT executive in charge (IT driven, not business driven). Data inconsistency, data silos.	Permitting needs assessment; GIS Program initiated; CRM (GovPopulous) and Code Enforcement achieve some integration.	Develop GIS user/groups committees. GIS Integration to other business Apps. Permitting Needs Assessment revisited.
1	Aware	Spreadsheet information based. One-off report requests No need for better solution, or lack of awareness of better solutions.	Manual permitting process; MS Access Code Enforcement database.	Need to identify business drivers. Obtain commitment and resources. Understand data sources, data quality, architecture, and systems.