



CITY OF PACIFIC GROVE
300 Forest Avenue, Pacific Grove, California 93950

Agenda No. 13A
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AGENDA REPORT

TO: Honorable Mayor and Members of the City Council

FROM: Tori Hannah, Administrative Services Director
Dan Gho, Public Works Director

MEETING DATE: January 17, 2018

SUBJECT: Long-Term Forecast and Financial Planning Information

CEQA: Does not constitute a “Project” under California Environmental Quality Act (CEQA) Guidelines

RECOMMENDATION

1. Receive report regarding Long-Term Forecast and Financial Planning
2. Provide direction to staff regarding subsequent next steps

DISCUSSION

On August 16, 2017, the City’s Interim Administrative Services Director, provided a General Fund Financial Forecast to assist in long-term planning. This ten-year forecast included revenues and expenditures that were projected from the Fiscal Year 2016-17 year-end budgetary estimates; and information from the August 2017 CalPERS Actuarial Valuation Report. The baseline scenario indicated that if existing trends and service levels were to continue; and there were no significant increases in appropriations or new revenue sources, that the General Fund’s reserves could be reduced from \$10.5 million to below \$730,000 by the end of FY 2027-28.

This forecast prompted a need to further evaluate long-term fiscal strategies, assess the number of pending capital improvement projects; and review the status of deferred maintenance. The presentation at this Council Meeting will focus on the upcoming fiscal and infrastructure challenges, along with evaluating the appropriate level of General Fund Reserves. Background on some of the key components of this presentation is listed within this report.

Fiscal and Infrastructure Challenges

Capital Projects and Outlay

The five-year Capital Projects and Outlay projection is estimated at \$16.1 million. The costs identified within each fiscal year is broken down as follows:

Fiscal Year	Identified Project Costs
FY 18/19	\$ 3,740,050
FY 19/20	3,163,770
FY 20/21	3,520,770
FY 21/22	3,035,770
FY 22/23	2,675,770
Total 5 Year Projection	\$16,136,130

This five-year projection includes vital projects from the following categories: streets, storm water, public access, and facility projects and equipment purchases. The details are included in Attachment 1.

Streets Projects

The City is comprised of approximately 1,224,676 square yards of streets (approximately 55 linear miles). Annual maintenance and rehabilitation of the City's street network is necessary to ensure safety and repair/prevent rapid pavement deterioration.

In addition to necessary annual street maintenance, 352,228 square yards of the City's streets need significant rehabilitation in the next 10 years. The estimated cost for such repairs is \$13 million. Although the City receives street maintenance funding from Measure X and SB1, there remains a sizeable deficit of approximately \$830,000 per year to complete the projected maintenance and rehabilitation needs.

Estimated Cost Per Year for the next 10 years		
Cost	Maintenance	\$200,000
	Rehabilitation	1,300,000
Total Projected Costs		\$1,500,000
Revenue	Measure X	\$410,000
	SB1	260,000
Total Projected Revenues		\$670,000
Forecasted Additional Support Needed		\$830,000

Projected streets projects include: street maintenance at various locations within the City, and road rebuilding and rehabilitation.

In addition to roadway improvements and rehabilitation, necessary streets projects include sidewalk construction, maintenance and improvements, as well as solar street light replacement in the Candy Cane Lane Neighborhood and annual street light replacement in the downtown corridor.

Storm Water Projects

The Public Works department is responsible for the maintenance of 332 storm drains, 5 continuous deflection separation (CDS) units, 34 outfalls and approximately 8 miles of storm water lines all which flow to our precious coast. Continued maintenance and repair of this infrastructure not only ensures protection of our coastal waters, which includes the Area of Biological Significance (ASBS), and prevents flooding during a storm event, but also supports maintenance and preservation of the roads that overlay these important underground utilities.

A significant portion of the existing storm water infrastructure is aging, comprised of both Redwood, and brick and mortar pipes which are failing. Failure of storm water pipes result in sink holes in the road way and an inability to properly direct runoff. Replacement of the deteriorated pipes with new concrete pipes is necessary.

Storm water projects also include the repair and construction of storm drain inlets and curb and gutter which channel storm water flow to the appropriate areas and help reduce sediment pollutants. Currently, approximately 20% of residential areas in the City lack curb and gutter.

Vital storm water projects projected in the five-year projection include: installation of full capture device to capture runoff from priority land use facilities and sites and repairing various failing storm drain pipes at various locations in the city.

Facility Projects & Equipment Purchases

The Public Works Department is responsible for the maintenance of over 50 facilities, 4 public restrooms, a network of 28 parks, and 121 vehicles and equipment.

Continued maintenance of City facilities ensures safety, efficiency, and continued operation of the City's vital functions and services. Projected routine facility maintenance projects include replacement of the flooring at the Youth Center, painting the interior of the Youth Center and preschool, reflooring the Point Pinos Grill, and upgrading the Youth Center heating system.

Although annual maintenance projects encompass a large part of facility management, the City's aging facilities often require more extensive work to modernize, ensure safety, and enhance efficiency. Larger facility projects proposed in the next five years include: fuel system upgrades, Police Station restroom and locker room remodel, and Public Works Corporate Yard electric barn door openers.

Large equipment purchases are necessary to service the City's facilities, vehicles and equipment; and to allow the City to continue to provide essential services. Some notable proposed future equipment purchases include: animal control vehicle, fire engine, wood chipper, Lovers Point Pool Equipment, police and public works vehicles.

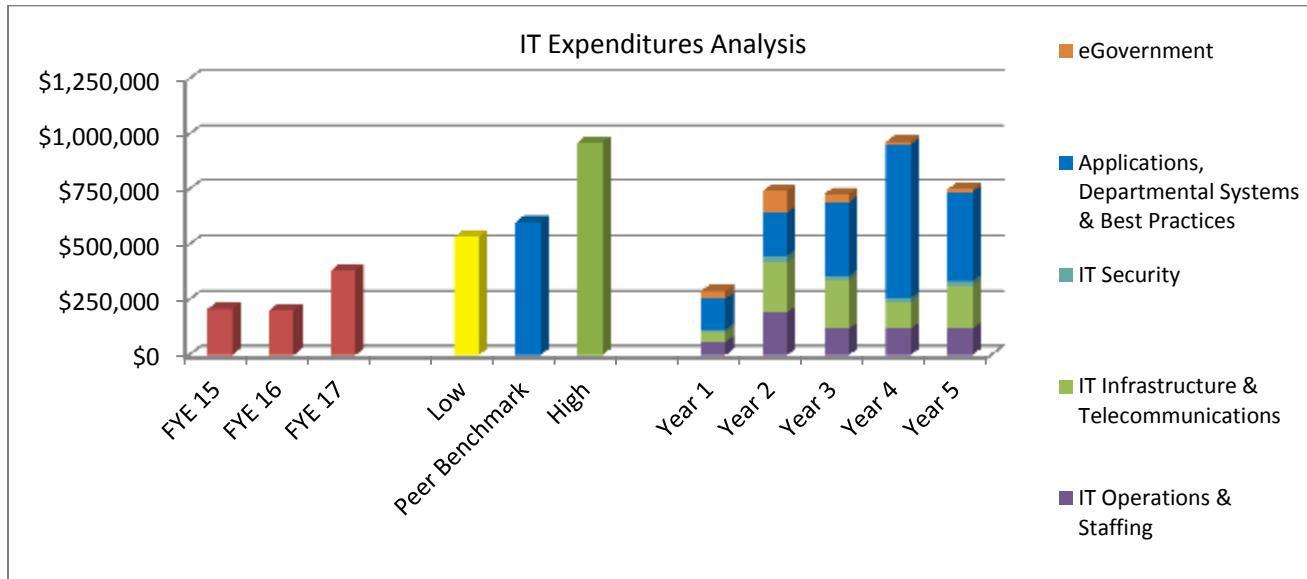
Public Access Projects

Pacific Grove has numerous amenities that attract residents and tourists alike. These amenities include the coastal recreation trail, coastal beaches, sites of historical significance, local restaurants, shops and other attractions. Not only do public access projects enhance access to these amenities, but they also provide economic benefits through increased tourism and traffic to local businesses. Some notable public access projects include: the Lover's Point Coastal Access Phase II (also known as part two of the so-called "Julia Platt Plaza" project), Recreation Trail lighting installation, and the Highway 68 Corridor Improvements.

Information Technology Master Plan

During the economic downturn, the City's investment in information technology (IT) declined. The need for effective technology has grown due to greater emphasis being placed on maintaining a lean, efficient workforce; providing greater citizen services, ensuring data security, and increasing responsiveness to information requests. The City retained a consultant, ClientFirst, to assist in evaluating the current condition of the City's information technology infrastructure and programs. This assessment included an analysis of the City's existing hardware, infrastructure, staffing, funding, applications, projects, processes, telecommunications, and training. The resulting Technology Assessment Report and Plan concluded that the City was operating with a technology deficit (Attachment 2). The Report also identified strategies for developing and implementing technology initiatives, and highlighted the costs and benefits that are associated with pursuing the recommendations. A chart from the consultant's presentation at

the December 15, 2017 Council Meeting, which summarizes key components and estimated cost of the five year plan is listed below. The implementation of Technology Master Plan would increase the City's annual technology investment from approximately \$383,000 in Fiscal Year 16/17 to a five-year annual average of \$700,000. Individual projects and purchases contributing to this increase are included in Attachment 1.



Pension Costs

The City of Pacific Grove, like many municipalities throughout the State, is facing rising CalPERS pension costs. These increased costs are primarily related to changes in the CalPERS actuarial assumptions, which include the discount rate; amortization policies, mortality rates, and risk mitigation strategies. While the California Public Employee's Pension Reform Act of 2013 (PEPRA) mandated changes to benefit formulas for new employees to reduce employer pension costs, the realization of significant savings is not anticipated in the near-term.

The City's required employer contribution is comprised of a normal rate (percentage) and stated dollar amount for the unfunded actuarial liability (UAL). While the normal rate is projected to remain fairly consistent or grow at a manageable rate, CalPERS estimates that the UAL portion of the employer's contribution could double by Fiscal Year 2024-25, if there are no changes to investment returns or revised actuarial assumptions. A table outlining the projected increases in the City's unfunded actuarial liabilities for the CalPERS Classic Miscellaneous and Safety pension plans are included in the table below.

Classic Plans – Unfunded Actuarial Liability ⁽¹⁾							
	Required	Projected Future Employer Contributions (Assumes 7.375% Return for FY 16/17)					
Plan	FY 18/19	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Misc.	\$822,298	\$1,029,000	\$1,179,000	\$1,373,000	\$1,521,000	\$1,632,000	\$1,726,000
Safety	1,333,203	1,629,000	1,836,000	2,099,000	2,325,000	2,482,000	2,616,000
Total	\$2,155,501	\$2,658,000	\$3,015,000	\$3,472,000	\$3,846,000	\$4,114,000	\$4,342,000

(1) CalPERS Actuarial Valuation Reports, Classic Miscellaneous and Safety Plans, dated August 2017

While the local governments are hopeful for additional pension reform, the City has implemented internal measures to assist in mitigating rising costs. In addition to employees paying the employee's share of pension rates, provisions within the current memoranda of understandings state that "Classic" employees will pay between 2 – 5% of the City's (employer's) share of normal contributions, depending on the bargaining unit.

Fund Balance/Reserve Levels

The August fiscal forecast indicated that the City's fund balance could be reduced to approximately \$730,000 at the end of the ten-year period. While this forecast was based on certain assumptions, including current expenditure trends, it does not assume that there would be any other events, such as new revenue sources or significant one-time expenditures. It should be noted that the forecast is primarily a mechanism to assist with long-term planning. The City Council's Budget and Financial Management Policy (400-6) establishes a General Fund Reserve target level of at least 10% of the annual operating budget, unless otherwise approved by City Council for specific purposes. If this criteria were applied to the 2024-25 forecasted fund balance of \$730,000, the City would be more than \$2 million below the existing policy levels. Staff's preliminary analysis indicates that this level of resources would not be sufficient to adequately support cash flow needs.

At the close of Fiscal Year 16/17, the audited financial statements indicated that the City's General Fund balance was \$11.6 million; however when this is netted with carried forward projects, the adjusted fund balance is \$10.8 million. As part of the City's strategic goal of maintaining financial sustainability, a review of reserve policy levels is prudent to determine the appropriate level of reserves to support cash flow and manage risk. The City retained a consultant, Bill Statler, to assist in evaluating the City's current reserve policy. Mr. Statler will be referencing Best Practices identified by the Government Finance Officers Association (GFOA, Attachment 3), comparable City information, as well as financial benchmarks to assist the City in determining the appropriate level of reserves. Mr. Statler will also be using GFOA's structured approach for assessing risk, which includes evaluating the following eight factors:

- Vulnerability to extreme events and public safety concerns
- Revenue source stability
- Expenditure stability
- Leverage, such as pension liabilities, unfunded asset maintenance, and debt
- Liquidity (cash flow)
- Dependence on other funds for the General Fund
- Growth and new development
- High priority, unfunded capital projects

General Fund Fiscal Forecast

The ten-year forecast in the August presentation included assumptions for capital purchases and projects that were consistent with the current and historical funding levels. The forecasted capital purchases included police vehicles of \$60,000 every other year; general equipment of \$50,000 every three years; and \$200,000 annually for streets, sidewalks, parks, etc. This projection did not include anticipated costs for general building improvements. Based on the information included in Attachment 1, there are several pending projects that are in excess of the capital funding levels.

The forecast that will be presented at the Council Meeting references the original model; however rather than assuming the funding levels for capital purchases and projects, it will primarily focus on the difference between revenues and operating costs. This will assist in identifying the amount available for the capital purchases and projects included in Attachment 1, as well as highlight any forecasted structural deficits. The original model will also be updated to reflect any significant changes in performance based on revenues and expenditures included in the Fiscal Year 16/17 audited financial statements, with consideration given to any recommended alternative reserve levels.

CONCLUSION/RECOMMENDATION

Based on the presentation and Council comments, the multi-year forecast may require the City to balance the competing goals of financial sustainability, infrastructure, and operational excellence in the future. Additional consideration at the Mid-Year Budget presentation may be prudent to assist with long-term planning. Topics could include:

- Updating Reserve Policy Levels
- Allocating any funds in excess of reserve levels to Council priorities, which could include capital projects or a budget stabilization fund.
- Continuing to evaluate long-term projections, in conjunction with assessing current and alternate revenue sources.

Separate and distinct from this agenda report, Staff recommends that the Council approve an agreement with a pollster to assist the City in gauging community opinion for a potential revenue measure for the November 2018 general election.

FISCAL IMPACT

There is no fiscal impact. The presentation was informational purposes.

GOAL ALIGNMENT

Financial Sustainability
Infrastructure
Operational Excellence

ATTACHMENTS

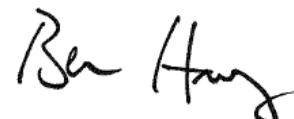
1. List of Five Year General Fund Capital Projects and Major Initiatives
2. Information Technology Assessment Report and Plan
3. Best Practices, GFOA Fund Balance Guidelines for the General Fund

RESPECTFULLY SUBMITTED:



Tori Hannah
Administrative Services Director

REVIEWED BY:



Ben Harvey
City Manager

GENERAL FUND - CAPITAL PROJECTS AND MAJOR INITIATIVES

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Project	Program	Description	Project Evaluation and Analysis	Council strategic initiatives	5-Year Projection	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
CAPITAL PROJECTS - STREETS, BUILDINGS, INFRASTRUCTURE										
Lovers Point Coastal Access Phase II - Beatification on Forrest or Grand	BID / Streets	Widen Sidewalk on Grand Ave and Forest Ave to allow for planters, side by side walking while retaining number of parking spaces. This project will utilize back in parking to alleviate traffic congestion.		Revitalize Downtown / Environment	\$200,000	-	-	-	-	100,000 100,000
Recreation Trail Infrastructure plan and upgrades	Buildings and Grounds	Evaluate recreation trail improvements and begin implementation. Improvements will entail drainage, fence alignments, walking path improvements, signage, both interpretive and safety, and landscaping	This project has been evaluated by the Public Works Department	Infrastructure	50,000	50,000	-	-	-	-
Upgrade 17 Mile Drive Ball Field	Buildings and Grounds	Construct new seating and snack bar area above grandstands. Improve drainage in the left field warning track area and upgrade existing sprinkler system to newer more efficient system.	This project has been evaluated by the Public Works and Recreation Departments. Evaluated by Buildings and Grounds	Neighborhoods Operational Excellence	20,000 30,000	20,000	-	-	-	-
Community Center Ceilings and lighting Community Center Electrical Panel Upgrades	Buildings and Grounds	Remove and replace older ceiling community center. Upgrade electrical panel at the community center	Evaluated by Buildings and Grounds	Operational Excellence	30,000	-	30,000	-	-	-
Proposed Low Impact Development LID Stormwater Improvements	Environmental	Stormwater Bioretention Swales:Year 1, Dewey to Eardley Along Rec Trail, 7th Street Bioswale along recreation trail,Berwick Park Bioretention, Perkins Park Curb Cuts and native gardens. Year 2, Library Bulbouts, Jewell Park bioretention, Central Curb Cuts. Year 3, Fandango and Grove Market Curb Installation with Landscaping and cuts for Stormwater, 12th and 13th Street Bioretention.	These projects have been evaluated as part of the Urban Greening Plan to aid the City in meeting our ASBS compliance Goals	Environment	300,000	150,000	150,000	-	-	-
Police Department Heating System ductwork	Facilities	Upgrade PD Boiler Heating System ducts.	Original Heating System from 1974. Inefficient and requires regular repairs.	Operational Excellence	100,000	100,000	-	-	-	-
Stormwater Del Monte and Companion Way down to Coral Street Repair failing storm drain pipes at various locations	Stormwater	Requires installation of full capture devices in in storm drains that capture runoff from priority land uses/facilities/sites. -Del Mote and companionway down to coral street 150k -List to be compiled with staff 250k total 50k each year each spot is 10-30K	-The water quality objective of the proposed Trash Amendments is for trash to not be present in state waters (or in areas adjacent to state waters) in amounts that would either adversely affect beneficial uses, or cause nuisance. Pacific Grove, as a small municipal separate storm sewer system (MS4) may achieve compliance through one of two "Tracks" as defined by the State Water Board.	Environment	125,000	25,000	25,000	25,000	25,000	25,000
Streetlights for safety, at select locations within Candy Cane Lane and other neighborhoods	Street Lights	Purchase and install solar lights for the Candy Cane Lane neighborhood.	List of specific locations to be provided by staff	Environment	150,000	150,000				
			This project has been evaluated by the Public Works Department. Installation will be at key locations to improve safety for residents and visitors. By the completion of the FY 2015/16 14 lights will be installed in the neighborhood. The budgeted Funds will allow the City to purchase 6 more lights this fiscal year. It is being requested to purchase 6 more beyond FY 2016/17 to install at key locations.	Environment	250,000	50,000	50,000	50,000	50,000	50,000
				Neighborhoods	60,000	30,000	30,000			

GENERAL FUND - CAPITAL PROJECTS AND MAJOR INITIATIVES

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Project	Program	Description	Project Evaluation and Analysis	Council strategic initiatives	5-Year Projection	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Street Maintenance	Streets	Various streets throughout the City based on condition assessment.	This project has been and will continue to be evaluated by our City Traffic Engineer, our City Engineer and our Streets Department. This project will be conducted as part of the continuation of street repairs that the City has been conducting over the last few fiscal years.	Infrastructure	1,000,000	200,000	200,000	200,000	200,000	200,000
Lighthouse Avenue Streetscape	Streets	On Lighthouse Avenue between Cypress and 13th design, engineer and environmental review for the Lighthouse Ave Streetscape project. Replace damaged or aging downtown poles and standard dark green light pole inventory depleted-need restore inventory of approximately 3 poles.	This project has been reviewed by several boards and commissions. Project has been reviewed by Public Works and CEDD. Project should be evaluated by City Engineer.	Revitalize Downtown	685,000	350,000	335,000			
Annual Street Light Pole Inventory Replacement	Streets		This project has been evaluated by the Public Works Department.	Neighborhoods	75,000	15,000	15,000	15,000	15,000	15,000
Annual Fleet/Equipment Replacement	Streets	Supervisor truck times two	This project has been evaluated by the streets department, building and grounds department and mechanical department.	Environment Operational Excellence	300,000	60,000	60,000	60,000	60,000	60,000
Public Works Yard Stormwater Runoff	Streets / Environmental	engineer year one Grade and Pave the back of the Public Works Corporation Yard.	This project has been evaluated by the Public Works Department. Improvements are required BMPs under the City's NPDES MS4 stormwater permit under the requirements for Municipal Operations.	Environment	195,000	40,000	155,000			
Road Rebuilding / Rehabilitation	Streets Rehabilitation	Fountain 2 inch overlay from Lighthouse to Pine totalling 2,910 yd^2	As part of the 5 year work plan	Infrastructure	130,880	130,880 -				
Street Rehabilitation				Infrastructure	3,150,000	630,000	630,000	630,000	630,000	630,000
Point Pinos Trail Construction				Infrastructure	500,000	250,000	250,000 -			
Lovers Point Coastal Access Phase II - Beatification on Forrest or Grand Highway 68 Corridor Construction				Infrastructure	500,000	500,000 -				
Sidewalk Improvements at Various Locations				Infrastructure	2,250,000			750,000	750,000	750,000
Fuel System Upgrade				Infrastructure	375,000	75,000	75,000	75,000	75,000	75,000
Pine Ave Safety Implementation				Infrastructure	50,000	50,000	200,000	100,000	100,000	50,000 -
Development of City Wide Signage Program				Infrastructure	450,000	50,000				
Historic Sites Signage		Interpretive and directional signage at all historical sites		Infrastructure	75,000	75,000 -				15,000 -
Downtown Signage		Interpretive and directional signage downtown		Infrastructure	15,000	-	-	15,000 -		
Coastal Recreation Trail Signage		Labeling turnouts, interpretive signage, directional signage		Infrastructure	15,000	-		15,000 -		
Chautauqua hall deck replacement				Infrastructure	15,000	-	15,000 -			
Chautauqua hall interior and exterior painting				Infrastructure	50,000	-	50,000 -			
PW Corp Yard Electric Barn Door Openers				Infrastructure	50,000	-	-	-	50,000	
PW Corp Yard Warehouse Door				Infrastructure	10,000	10,000 -	-	-	-	
Paint Exterior City Hall and Youth Center				Infrastructure	150,000	-	-	150,000 -		
Youth Center Interior Paint				Infrastructure	40,000	-	40,000	-	-	
Youth Center Flooring				Infrastructure	60,000	-	-	60,000 -		
Youth Center Heating Upgrades				Infrastructure	50,000	-	50,000	-	-	
Fire Station Decking and Stairs				Infrastructure	50,000	-	-	-	50,000	
EMC Upgrades				Infrastructure	10,000	-	-	10,000 -		
Civic Center Parking Lot Resurfacing		Painting, flooring, Curtains		Infrastructure	150,000	-	-	-	-	150,000
Museum Interior Handrail				Infrastructure	25,000	25,000				
Point Pinos Grill Flooring				Infrastructure	60,000	-	60,000			
Police Restroom Remodel (4)				Infrastructure	30,000	-	-	30,000		
Police Men's Locker Room Remodel				Infrastructure	60,000	60,000 -	-	-	-	

GENERAL FUND - CAPITAL PROJECTS AND MAJOR INITIATIVES

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Project	Program	Description	Project Evaluation and Analysis	Council strategic initiatives	5-Year Projection	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
Access Control System Expansion				Operational Excellence	10,000	-	10,000	-	-	-
Secure Police Station Parking Lot				Infrastructure	20,000	-	20,000	-	-	-
Preschool Interior Upgrades				Infrastructure	15,000	15,000	-	-	-	-
Street Sign Inventory				Infrastructure	30,000	-	30,000	-	-	-
Rec Trail Lighting Installation				Infrastructure	100,000	50,000	50,000	-	-	-
					\$12,080,880	\$3,110,880	\$2,545,000	\$2,170,000	\$2,200,000	\$2,055,000
CAPITAL OUTLAY										
Replacement Wood Chipper	Buildings and Grounds	Replace and upsize current chipper. Retire Engine 6424 due to 22 years of service and 80,000 miles of wear and tear. Place Engine 6414 in reserve status after 10 years of service and 74,000 miles. Purchase a new Type 1 engine that meets all the new safety and emission standards we have today.	Evaluated by the Public Works Supervisors and The City Arborist.	Infrastructure	\$40,000	\$40,000	-	-	-	-
New Fire Engine (2)	Fire	Purchase new animal control vehicle.	Replace animal control vehicle.	Operational Excellence	\$550,000	-	\$550,000	-	-	-
Animal Control Vehicle	Fleet			Operational Excellence	\$60,000	\$60,000	-	-	-	-
Lovers Point Pool Equipment				Infrastructure	\$10,000	-	-	-	\$10,000	-
Police Patrol Cars	Fleet			Operational Excellence	\$120,000	-	\$60,000	\$60,000	-	\$60,000
Purchase Bucket for Loader				Infrastructure	\$30,000	\$30,000	-	-	-	\$0
					\$810,000	\$130,000	\$60,000	\$550,000	\$70,000	\$0
TECHNOLOGY MASTER PLAN AND TECHNOLOGY IMPROVEMENTS (1)										
City Wide Phone System Upgrade	Technology	Includes removal of outdated phones and incorporating cellular devices	IT Assessment Plan	Operational Excellence	\$90,000	\$90,000	\$ -	\$ -	\$ -	\$ -
Wireless Network	Technology	Expansion at Public Works	IT Assessment Plan	Infrastructure	45,000	25,000	5,000	5,000	5,000	5,000
Internet Bandwidth	Technology	Required for cloud computing	IT Assessment Plan	Infrastructure	83,000	23,000	15,000	15,000	15,000	15,000
Metropolitan Area Network (MAN)	Technology	Connect Library	IT Assessment Plan	Infrastructure	40,500	4,500	9,000	9,000	9,000	9,000
Network Management Tools	Technology		IT Assessment Plan	Infrastructure	14,400	14,400	-	-	-	-
Computer Equipment Replacement Plan	Technology	The IT Assessment Plan identified a city-wide technology replacement schedule. The following costs are consistent with the replacement schedule.	IT Assessment Plan	Operational Excellence	107,500	17,500	48,000	14,000	14,000	14,000
Financial Enterprise Resource Software	Technology	The current financial software package may not be supported in future years.	IT Assessment Plan	Operational Excellence	815,000	-	65,000	500,000	250,000	-
Human Resource System Improvements	Technology		IT Assessment Plan	Operational Excellence	50,000	15,000	35,000	-	-	-
Recreation System Software	Technology	Cloud-based	IT Assessment Plan	Operational Excellence	115,000	15,000	25,000	25,000	25,000	25,000
Computer Room/Teledata Closet Improvements	Technology	Need in-room monitoring, power distribution improvements	IT Assessment Plan	Operational Excellence	79,000	5,000	74,000	-	-	-
Geographical Information System Improvements	Technology	Integrate with iWorQ, then with the Electronic Content Management Systems (ECMS)	IT Assessment Plan	Operational Excellence	80,000	10,000	20,000	25,000	25,000	-
Agenda Management Software	Technology	Includes implementation and training costs	IT Assessment Plan	Operational Excellence	20,000	20,000	-	-	-	-
Office 365	Technology	Amount represents annual costs offset by Google Docs and email costs; Reflects complete package with storage, staff to evaluate different options	IT Assessment Plan	Operational Excellence	188,850	37,770	37,770	37,770	37,770	37,770
Electronic Content Management Systems	Technology	Citywide records management system	IT Assessment Plan	Operational Excellence	85,000	-	25,000	50,000	10,000	-
Work Orders/Maintenance and Asset Management System	Technology		IT Assessment Plan	Operational Excellence	12,500	12,500	-	-	-	-
Land Management System Improvements	Technology	Add to existing software package	IT Assessment Plan	Operational Excellence	80,000	25,000	25,000	10,000	10,000	10,000
Citizen Request Management (CRM)	Technology	Initial implementation and software costs	IT Assessment Plan	Operational Excellence	14,500	14,500	-	-	-	-
Electronic Plan Reviews	Technology	Add to existing software package	IT Assessment Plan	Operational Excellence	25,000	-	15,000	5,000	5,000	-
Website Improvements or Redesign	Technology	Challenges may exist in supporting the existing website	IT Assessment Plan	Operational Excellence	60,000	-	30,000	10,000	10,000	10,000
Design and Set-up of an IT Training Room	Technology		IT Assessment Plan	Operational Excellence	10,000	-	10,000	-	-	-
Video Camera and Surveillance System	Technology	Citywide standard	IT Assessment Plan	Operational Excellence	125,000	-	-	-	25,000	100,000

GENERAL FUND - CAPITAL PROJECTS AND MAJOR INITIATIVES

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GENERAL FUND - CAPITAL PROJECTS AND MAJOR INITIATIVES										Agenda No. 13A, Attachment 1 Page 4 of 4					
Project	Program	Description	Project Evaluation and Analysis	Council strategic initiatives	5-Year Projection	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23					
Technology Support for the Emergency Operations Center	Technology		IT Assessment Plan	Infrastructure / Operational Excellence	60,000		10,000	50,000	-	-					
Radio Replacement	Technology	Police Department		Operational Excellence	250,000	-	-	-	-	250,000	-				
Windows Storage (Server)	Technology			Excellence	20,000				20,000	-					
Police Records Management/Incident Management System	Technology	Current system may no longer be supported; would like to move to a cloud-based product		Operational Excellence	300,000	-	-	-	-	300,000	-				
Police In-Car Cameras	Technology			Excellence	40,000	-		20,000	-	20,000	-				20,000
Police Body Worn Cameras	Technology	Includes hardware, software, and maintenance; replaces the three-year purchase and repair of equipment		Operational Excellence	75,000	\$2,885,250	\$339,170	\$508,770	\$750,770	\$715,770	\$570,770				

CAPITAL PROGRAMS

Program		Description	Project Manager	Category	Budget	Spent	Remaining	Spent	Remaining	Spent	Remaining	Spent	Remaining
Facade Improvement Program.	Economic Dev.	Seed grant of \$50k per year to partially fund up to 5 facades in the downtown with the applicant being reimbursed for 50% of costs of work.	This project has been supported by the Economic Development Commission	Revitalize Downtown	\$250,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	
Ghost Sign Program	Economic Dev.	Seed grant of \$50k per year to partially fund up to 5 ghost signs in the downtown with the owner reimbursed for 50% of cost.	This project is supported by the Economic Development Commission and the City Manager	Revitalize Downtown	50,000	50,000	-	-	-	-	-	-	
Bikeshare Program	Economic Dev.	Purchase bikes from a bikeshare outfit	Needs evaluation and Analysis.	Recreation	60,000	60,000	-	-	-	-	-	-	

COMBINED TOTALS

(1) Does not include purchase of current software annual maintenance costs. The amounts reflect costs of new or upgraded software and infrastructure. Routine operating costs excluded.

Report

Technology Assessment and Plan

December 11, 2017



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Optimal Technology Guidance

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Engagement Purpose and Background

Technology Assessment and Plan Objective

The objective of the Technology Assessment included developing and articulating a vision for the effective use of technology to support the work of The City of Pacific Grove, identifying strategies for developing and implementing technology initiatives, and highlighting the cost benefits of doing so.

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

- Existing hardware and network infrastructure, staffing, funding, applications, projects, processes, telecommunications, training, and other investments and resources currently in use by the City
- Interviews and workshops involving the City's Information Technology Department, including the Chief Technology Officer and technology/GIS staff.
- Identification and prioritization of projects that the Information Technology staff should undertake over the next five years
- Identification of needs to accommodate current and future technology requirements, such as data storage and management, legal requirements, and security requirements.

Deliverables

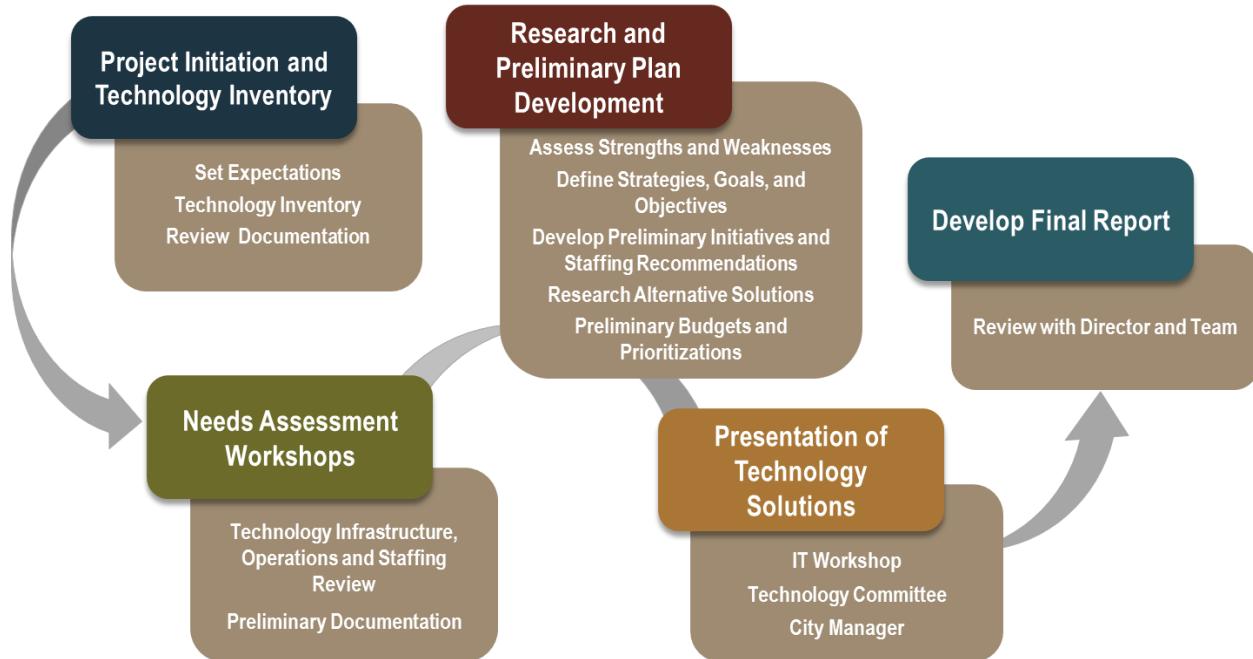
The Technology Assessment and Plan includes:

- Engagement Purpose and Background
- Methodology and Approach
- Current Technology Environment Summary
- Technology Initiatives
- Key Initiatives
- Moving Forward
- Technology Assessment and Plan
- Appendix – Technology Assessment Initiatives



Methodology and Approach

We utilized a five-phase methodology on which we base our Technology Assessment projects. This served as the cornerstone of the project, allowing the collaborative process to shape and develop our recommendations and approach, enabling us to tailor each step to fit the City's unique specifications. We worked in partnership with the City to improve the technology environment so it can better meet the needs of staff and citizens.



Current Technology Environment Summary

Current Technology Environment Summary

In its Technology Assessment, *CLIENTFIRST* found that the City of Pacific Grove Information Technology applications are doing an adequate job of supporting departmental users. Overall, departmental application integration, especially with GIS, would be a helpful next step in increasing the effectiveness of Information Technology at the City.

Desktop and IT infrastructure support are hindered by limited assistance and knowledge of the IT Support vendor and lack of best-practice methodologies.

- The Technology Committee functions well and provides an excellent building block for the implementation of Best Practices IT Governance.
- Staff is dissatisfied with the service levels provided by the current IT support firm.
- Interbuilding connectivity is limited, reducing the City's ability to consolidate services and reduce costs.
- Application training has been limited, reducing the ability of staff to leverage applications and gain efficiencies.
- GIS usage and integration has been limited. GIS mapping and integration with land management systems can be a critical component of increased local government transparency and data availability.



The spirit of the observations and recommendations in this report are to begin a process of improvement in the Information Technology function. Providing the proper levels of service and support will assist in creating an environment that allows for increased application utilization and ongoing gains in efficiency and capabilities. The recommendations below represent leading industry approaches to the following areas:

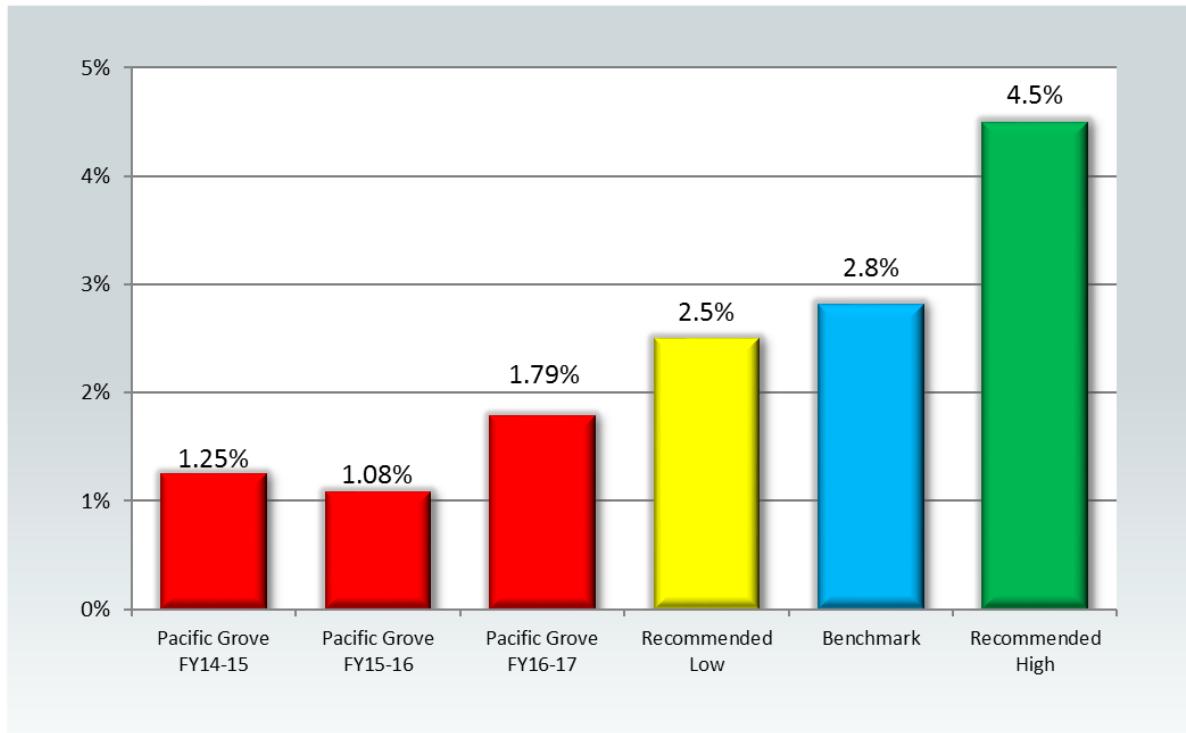
- Best Practices
- Technology Infrastructure
- Technology Operations
- Technology Security
- Telecommunications
- Technology Staffing

We at *CLIENTFIRST* look forward to the continued progress that the City of Pacific Grove and Information Technology function will make as a result of feedback from these recommendations.

IT Spending versus Operating Fund Budgets

The following table depicts Pacific Grove's IT spending versus recommended best practices and a municipal benchmark of 39 agencies.

Pacific Grove FY 14-15	Pacific Grove FY 15-16	Pacific Grove FY 16-17	Recommended Low	Municipal Benchmark	Recommended High
1.25%	1.08%	1.79%	2.5%	2.8%	4.5%





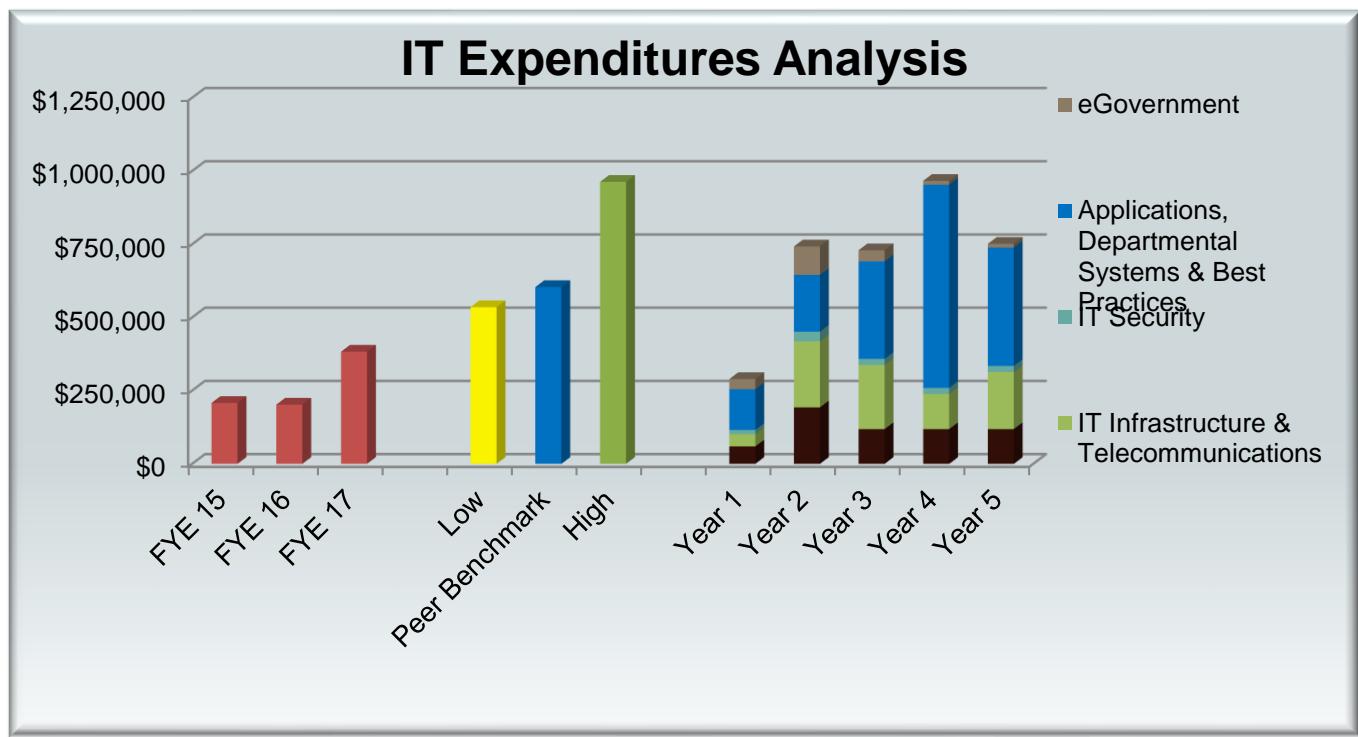
The municipal spending benchmark range from our survey was between 1% and 8%, with an average of 2.8%. The percentage of IT expenditures versus operations budgets at Pacific Grove is significantly below the recommended low and other municipalities.

Overall, this represents significant underspending versus industry standards for IT infrastructure and overall information technology solutions and support. The result of this underspend has been an IT infrastructure that is obsolete and does not meet best-practice standards, and a portfolio of application systems that includes aging and underutilized departmental applications. Greater funding should also result in increased productivity at the department level, and greater citizen transactions and interactions through the City's website.

Recommended Budget Levels

To overcome the large technical deficit created by past underspending, the report recommends increased IT spending. Recommended spending in Year 2 increases dramatically, due to the need for improved IT infrastructure, operations, resiliency, and security. Spending in IT infrastructure and operations falls in Years 3 and 4 of the plan and is superseded by increased spending on application systems and systems integration, including GIS. Spending in Year 5 of the Plan includes a forecast replacement of the City's core Financial system, which dramatically increases funding requirements.

The following table depicts Pacific Grove's past IT spending versus the municipal benchmark of 39 agencies and spending levels recommended in the Assessment and Plan.



IT Strategies, Goals and Objectives

The strategies for leveraging and maximizing information system utilization in delivering City services are listed below. Within each strategy, we have listed initial goals and objectives for the City. We have translated those goals and objectives into specific initiatives in the *Appendix* of the report.

EXPAND CLOUD-BASED INFORMATION TECHNOLOGY

Goals and Objectives

- Over time, move all remaining premise-based, non-public-safety applications to the cloud.
- Implement cloud-based IT security and operations capabilities.
- Improve resiliency and uptime of infrastructure to better support cloud services.
 - ◆ Design infrastructure to include cost-effective redundancies to reduce downtime.
 - ◆ Expand wide-area network to include all major facilities.
 - ◆ Utilize existing fiber, and partner with other agencies to provide resilient Internet connectivity.

IT SUPPORT SERVICES IMPROVEMENTS

Goals and Objectives

- Increase IT Support for Police.
- Improve citywide IT Support services through competitive bid process.
 - ◆ Consider Managed Services or Internal IT Support for non-public-safety IT support.
- Expand and increase emphasis on IT as a tool to assist staff.

IMPROVE IT CUSTOMER SERVICE

Goals and Objectives

- Create an IT Help Desk and implement Help Desk Support and Tracking software tools.
- Document service levels for incident response and enhancements.
- Develop customer service performance metrics and exceed those expectations, using Help Desk tracking and productivity tool.
- Develop Mobile Device Management capabilities.



MAXIMIZE UTILIZATION OF APPLICATION SYSTEMS

Goals and Objectives

- Utilize software selection best practices for all new application procurements.
- Follow implementation project management best practices.
- Maintain a complete Application and User License Inventory.
- Plan for and fund adequate user training and support.
- Create a culture of departmental enterprise application ownership for core applications.
- Encourage management and staff to focus on adapting and improving processes and integration with core application software applications.
- Develop an IT Application Services Portfolio so that all stakeholders understand the roles and responsibilities of Technology Services in servicing specific departmental business application users.
- Utilize industry subject-matter experts (SMEs) for large, complex projects

IMPLEMENT DISASTER RECOVERY CAPABILITIES

Goals and Objectives

- Develop a plan to implement disaster recovery capabilities.
 - ◆ Over several years, develop the capability to recover IT applications in the event of a major incident.
- Develop business continuity plans for each department.

EXPAND CITIZEN COMMUNICATION AND ONLINE CUSTOMER SERVICE

Goals and Objectives

- Increase online transaction capabilities.
- Implement Online Citizen Request Management (CRM).
- Implement Online Permit Inspection Requests.
- Implement Online Code Enforcement Complaints.
- Implement Online Business Certificate Renewals.
- Implement Online Park and Recreation Program Registration and Payment.
- Expand GIS-based inquiry capability related to permits, citizen requests, and work orders.



MOVE TOWARDS A CITYWIDE GIS/GEOSPATIAL APPLICATION PERSPECTIVE

Goals and Objectives

- Create a GIS Master Plan, and identify GIS priorities and resource requirements.
 - ◆ Incorporate GIS prioritization into the Technology Committee.
- Move to a cloud-based GIS environment.
 - ◆ Provide a GIS/Mapping presentation to the public on the City's website.
 - ◆ Include geospatial requirements as specifications for all future software application acquisitions.
- Integrate GIS with Land Management (permits), Citizen Request Management, and Work Orders.



Technology Initiatives

Introduction

Technology Assessment is a process to assess, research, prioritize, budget, and plan future information technology initiatives. Some of the following initiatives are ready for approval and implementation, while others require further assessment and research before the City can make a final determination as to priority, resource requirements, and cost-benefit.

Citizen Services – Many of the following initiatives will have a direct or indirect impact on the delivery and availability of citizen services. Opportunities to improve service delivery include increased availability of information and transparency, increased use of the City website to provide 24/7 services, and productivity improvements that increase timeliness.



Productivity and Operational Improvement – Many of the following initiatives will have a direct impact on overall productivity within the organization. Some of these initiatives will significantly impact specific processes, reducing staff time required to complete a certain process, while others will ease or speed delivery of services to City residents.

Modernization and Risk Reduction – Several initiatives focus on improvements, updates, and modernization to existing computer software and network infrastructure. This modernization, and other efforts described in the initiatives, reduce risk and the potential pain resulting from failures or breaks in service.

Cost Savings – Many of the initiatives outlined herein will have direct or indirect cost savings when implemented. Extensive return-on-investment (ROI) calculations are not within the scope of this report. However, ROI was considered when recommending several the initiatives.

Technology Initiative Categories

The assessment process resulted in 61 initiatives. Combined, there are hundreds of findings and recommendations. *CLIENTFIRST* classified the major findings and recommendations into six categories, including:

BEST PRACTICES

TECHNOLOGY SECURITY

TECHNOLOGY INFRASTRUCTURE

TELECOMMUNICATIONS

TECHNOLOGY OPERATIONS

TECHNOLOGY STAFFING

Key Initiatives

This section identifies a list of Key Initiatives that have been determined from the comprehensive list of all Technology Initiatives. The City has made note of these as the initiatives from this plan that should be kept at the forefront during the implementation of this Technology Plan.

Criteria for Identifying Key Initiatives

The criteria for identifying these Key Initiatives are as follows:

Managing Risk – This criterion focuses on initiatives that eliminate current risks or potential failures. It also includes initiatives that are a prerequisite or must be implemented because the other Key Initiatives are dependent on them.

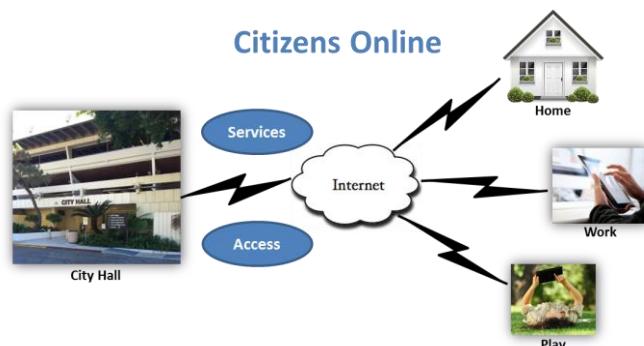
These include, but are not limited to, the following:

- System platforms, hardware or network initiatives that are at high, immediate risk of failure due to fragility and age
- End-of-life or near end-of-life system platforms, hardware, or network initiatives that other Key Initiatives require (interdependency)
- Prerequisite platforms, hardware, or network initiatives that are a prerequisite to another Key Initiative, which may include a required sequence ("a" must come before "b", and "b" must be complete before "c")



Citizen Access and Service Improvement – The criteria include applications or infrastructure initiatives necessary to provide online citizen access to services and information. Some examples (not a complete list) for citizen access and online services include:

- Online planning and permit applications (available today)
- Online access to status and progress on planning applications
- Online permit issuance and payment
- Online inspection requests and access to inspections results
- Citizen online access to Council, Board, and Commission videos and audio with integration to agenda and minutes, for quick, easy access (available today)
- Citizen Request Management (CRM) to submit issues/questions, etc., and have them automatically routed for departments to resolve and access by citizens to see the final resolution to their request
- New business access to zoning, requirements, and costs to ease business licensing and registration process
- Online payment capabilities across all City departments for all City services
- Vendor purchasing and accounts payable portal
- Vendor access to bid management (limited to bid postings)





Productivity and Operational Improvement – The criterion includes applications and infrastructure that will improve productivity or have a high return on investment (ROI). These productivity and operational improvements include, but are not limited to:

- Process streamlining and improvements allowing activity to be done more quickly and efficiently
- Elimination of dual entry into multiple systems due to the introduction of integration between systems through the introduction of more integration between applications
- Reduction or elimination of reconciliation and balancing activities through the introduction of more integration between applications
- Reduction or elimination of shadow systems (databases, spreadsheets, etc.) and workarounds that are required due to lack of capability in existing systems
- Quicker and better query/online access to information to complete tasks and better serve citizens
- Ability to perform more work in the field using mobile devices with access to critical applications including mobile inspections, mobile code enforcement, and field-based work orders and maintenance tracking, etc.
- Improved reporting to make better day-to-day operational and managerial decisions and for better planning capabilities.
- More reliability of networks, PC workstations, and up-to-date software, so that time is not lost due to downtime or the need for numerous calls for support

Productive Anywhere / Anytime



It should be noted that these “Key Initiatives” are not ranked in any particular order.



Key Initiatives and Discussion

The following is a list of the Key Initiatives with recommendations. It must be reiterated that these Key Initiatives are not ranked in any particular order. The Initiative Number is simply a means to reference the initiative from the index of Technology Initiatives found in the *Appendix*.

IT Governance

Traditionally, key IT decisions are made by IT professionals and a select few organization managers. This does not always ensure the most effective benefit to all stakeholders (all departments and constituents). *IT governance* can provide a collaborative forum for major decisions, planning, internal communication, and department/staff training regarding such matters. IT governance is committed to the stewardship of IT resources on behalf of the stakeholders who demand a benefit and/or return on the investment.

Findings and Observations

- The City Technology Committee meets regularly and provides a great base for improved IT governance.
- The Technology Committee has members from every department and has been tasked with various, citywide technology improvements.

Recommendations

Revise the Technology Committee Charter to discuss review and assist IT-related priorities, assist in policy development, communicate with department staff, and manage, as well as oversee, the implementation of the Technology Plan.

Utilize the Technology Committee as the initial forum for the IT and GIS functions and for departments to propose/present new technology-related projects to ensure best practices are followed and applied to the review, selection, approval, procurement, implementation project management, and ongoing maintenance of the City's technology.

As part of the IT governance strategy, the Technology Committee can be an effective forum for departments to become more knowledgeable about technology and how technology can be used effectively to enhance customer service and create efficiencies throughout the City's business-process environments.

Next Steps

- Enhance the Technology Committee Charter to focus on:
 - ◆ Assisting with priorities, based on limited IT resources
 - ◆ Annual IT budget review and prioritization
 - ◆ IT policy reviews
 - ◆ New project reviews and feedback
 - ◆ Lessons learned from ongoing projects
- Determine representation of all departments on the Technology Committee for regular IT communication, ongoing education, and continued collaboration.
- Assign a lead and/or sub-committee for all Technology Plan initiatives.
- Monitor and discuss active Technology Plan initiatives at each Committee meeting.
- Form sub-committees, as appropriate.



User Training and Support

Software systems are tools we utilize to conduct business operations more efficiently. Like other tools, sufficient training is key to significant increases in productivity and greater efficiency. In many areas, improved software utilization and ongoing efforts to improve processes can achieve significant cost savings.



Findings and Observations

- Software applications that are underutilized will gain significant increases in staff productivity if more training were provided.
- A complete Application and User License Inventory of all applications and/or modules by department and user does not currently exist. This list can be helpful in understanding and confirming licensing compliance, over/under seat license requirements, and identifying training needs and user-responsibility roles.

Return-on-Investment (ROI) Consideration

- In a study conducted by Nucleus Research, an organization realized increased productivity gains of up to 50% through ongoing, effective user training¹.

Recommendations

- Identify all current user license holders, as well as those that need additional licenses.
 - ◆ Conduct a survey, by user, to determine what training would be helpful and to determine actual need and planned attendees. This should be driven by department managers to elicit participation when training is made available.
- Identify approximately 500 square feet of space for use as a Training Room (See **Error! Reference source not found.** Training Room initiative).
- Determine strategies for accomplishing training needs:
 - ◆ Self-learning aids
 - ◆ Internal classes (internal or external trainers)
 - ◆ On-site vendor training
 - ◆ Lunch-and-learns
 - ◆ Go-To, Application Champions
 - ◆ Training opportunities at software vendor annual user conferences
- Create a repository of basic “how to” training aids and other training information (e.g., videos, past class information, etc.)
- Consider procuring a screen capture video solution to assist with developing internal video training aids.
- Current and future needs can be evaluated and prioritized through a combination of mechanisms, including the IT governance function.



¹ Nucleus Research, 2010.

- Consider class attendance as a factor in performance evaluations. This can be accomplished by having department management involved, agreeing to class offerings each employee would benefit from.
- Consider efforts to reduce and/or limit the total number of software vendors and databases whenever possible. This will reduce and limit overall cost of ownership, support requirements, training and reporting needs, and improve overall integration capabilities.

Cloud Computing

Cloud computing can be described as IT services or equipment that are not internal, but available through the Internet. This can range from having a server hosted in an organization or facility other than the local organization, accessing information from a portable device, procession requests from the field, subscribing to an Internet-based software solution per a subscription model, etc. The benefits of cloud computing allow individuals to collaborate and remain centralized, regardless of location.

Cloud computing is one the most prominent discussions among current trends in IT. Significant benefits can be achieved, including security, disaster recovery, and cost savings. However, cloud-computing options for many systems are still not cost-effective or the most secure approach.

Findings and Observations

- The organization has already utilized some forms of cloud computing.
 - ◆ City Financial, Library Information System, Public Works, and Applicant Tracking systems are all cloud-based.
 - ◆ Email and shared drive storage are cloud-based (through Google).
- Active Directory services are in place for the Police Department; all other departments log onto applications individually.
 - ◆ User devices have access to network-based resources (printers and the Internet) without authentication.
- Several infrastructure improvements will be required for the organization to be able to fully utilize cloud-based systems.

Recommendations

- Improved Internet bandwidth availability and resiliency will be required to take full advantage of cloud-based services:
 - ◆ Geographically separate Internet provider services, through separate providers, are recommended.
- The City should consider a full cloud model.
 - ◆ All applications and data (outside of PD) should be cloud-based.
 - ◆ Infrastructure support services and IT operations tools should also be cloud-based.
 - ◆ Authentication (user log on) should be required to access the network and any network services.
- Cost-benefit should be the overriding factor for most final decisions.

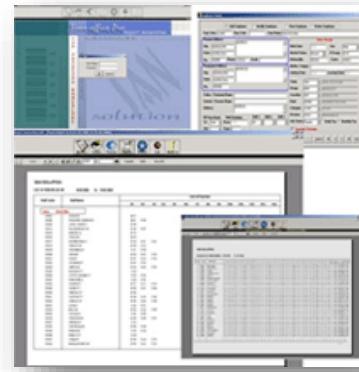


Time Entry System

Findings and Observations

The tracking, recording, and storing of employee time and attendance information is a significant undertaking. A manual system with repeated entry and review steps often leads to inaccurate reporting, payroll discrepancies, and lost data. Automated time management systems can provide:

- Single-occurrence data entry
- Standardized employment rules and implementation
- Centralized database for electronic review of records
- Consistent enforcement of vacation and sick policies, FLSA requirements, and union rules
- Web- and server-based options
- Integration with other functions, such as accounting and/or payroll
- Automated calculations based on user parameters



Such systems:

- Reduce duplicate efforts, thereby saving valuable time and resources
- Decrease inaccuracies and human error
- Improve management of vacations, sick leave, and other absences

The City is currently processing all time entry through multi-step, duplicate-entry manual processes.

Return-on-Investment (ROI) Consideration

- In a software selection study conducted by Nucleus Research, an organization that transitioned to an automated time-entry system saw a return on investment within six months and an overall return of 225% of their initial investment.²

Recommendations

- Conduct a comprehensive process review and develop feature/function requirements for all time, attendance, and reporting.
- Follow best practices per the *Software Selection Best Practices* initiative.
 - ◆ If Pentamation meets the City's time and attendance needs, then proceed with implementation of that module.

² "ROI Case Study: Kronos Workforce Timekeeper Anonymous Healthcare Organization", Nucleus Research 2003.

Work Orders/Maintenance and Asset Management System

The City utilizes iWorq for work orders and maintenance management, but does not have a Citizen Request Management (CRM) system. City management tasks are not all fully computerized.

A fully featured *Computerized Maintenance Management System (CMMS)* can include the following capabilities operating in a single, integrated fashion:

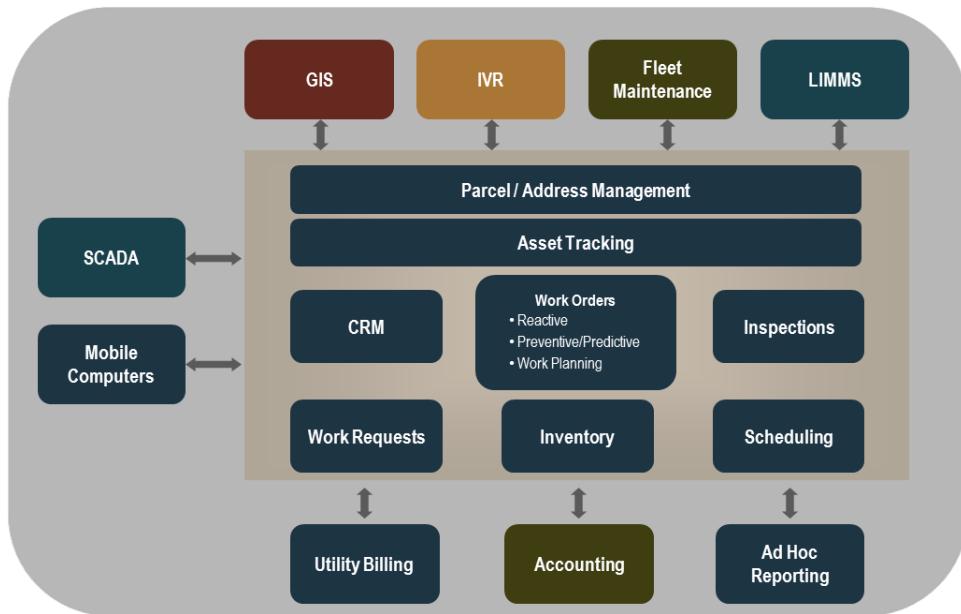
- Comprehensive Work Order Tracking
- Preventative and Predictive Maintenance
- Facilities Maintenance
- Condition Assessment
- Asset Management
- Asset Tracking
- Built-In Maintenance Procedure Libraries
- Maintenance Scheduling
- Warehouse/Stores Inventory
- Costing and Budget Forecasting
- Report Writing
- Integration to CRM/Service Requests, Purchasing, and GIS



Maintenance and Asset Management Functionalities

The following illustration shows typical modules available in typical Work Order/Maintenance and Asset Management software system.

Example Maintenance and Asset Management System





Recommendations

- Document requirements for an online, citizen-facing CRM system.
 - ◆ If iWorQ meets these requirements, procure the system and proceed with implementation
 - ◆ Implementation of a CRM system requires significant participation from all Departments to develop work flows and assure proper responses to submitted requests.
- Review applicable manual processes and shadow systems, such as spreadsheets, to determine automation improvements that will result in labor efficiencies.
- Determine potential improvement in automation and work order and maintenance processing.
 - ◆ Purchase additional iWorQ modules to expand system utilization as warranted.

Benefits

- Significantly greater workflow efficiencies within Maintenance Management, Work Orders, and Infrastructure Asset Tracking
- Reduced time and effort to provision services
- Improved tracking of asset condition
- Increased staff and citizen satisfaction
- Improved performance tracking, reporting, and measurement
- Reduced stressors and workload due to improved automation and reduction in manual processes
- Reduced risk of institutional knowledge reliant on highly manual processes leaving the organization due to staff turnover or retirement
- Improved project management and reporting



GIS Improvements

GIS systems are becoming integral components in the business of managing a municipality's assets and activities. In addition to tracking all parcels within the community, many municipalities inventory land management planning hazards, infrastructure assets, (e.g., street signs, street lights, storm sewers, fire hydrants, trees, and other fixed items) through the GIS system. GIS systems are often integrated with work order systems to improve the accuracy of work order location information and reduce the amount of time spent locating these assets. Additional benefits of a GIS system include reduced field observations, more informed decision-making, improved parcel management, centrally managed information, and better analysis of infrastructure.



Findings and Observations

- The City utilizes a contractor to maintain GIS layers.
 - ◆ GIS improvements are sponsored by CEDD and Public Works.
 - ◆ Police has some GIS needs.
 - ◆ The GIS contract has expired, and the City would like to negotiate a contract extension.
- The City utilizes ERSI ARC Cloud solution for GIS.
- GIS is not integrated with iWorQ or any other systems at the City.

Recommendations

- Coordinate citywide GIS activities through the Technology Committee.
 - ◆ Develop a list of requirements and additional layers as a scope of work for a contract extension.
- Integrate GIS with City applications.
 - ◆ Immediately integrate with iWorQ.
 - ◆ Integrate the document management system and GIS when the document management system is procured.

NOTE: The existing contractor may not have the skills to complete these tasks.
- The City should consider conducting GIS Assessment. The City will benefit from a plan that will help leverage its investment in GIS. The GIS Assessment should include:
 - ◆ Identification of City data maintenance update processes
 - ◆ GIS applications and hardware needs and cloud-based services
 - ◆ Esri software licensing consolidation and standardization
 - ◆ Personnel organization and structure
 - ◆ Integration with key software applications in Community Development, Recreation, Utility District, etc.
 - ◆ GIS views for City personnel and for the public on the City's website
 - ◆ GIS as the master address/parcel data source for all other address- or parcel-centric software systems
 - ◆ Five-year budget, with prioritized initiatives



- Consider assistance from an independent, third-party, subject-matter expert (SME) to develop the GIS Strategic Plan.
- Make GIS integration a requirement for all new geo-based software application procurements.

Agenda Creation and Management Software

Automated Agenda Management Systems provide access to information for all departments involved in the agenda process and are sometimes offered as a stand-alone module, or as part of an Enterprise Content Management System (ECMS), (see previous *ECMS Improvements* initiative). Staff submits proposed agenda items online (and supporting documentation or packets can be attached), where they can be automatically routed for approval through pre-configured workflows. Approvers receive email notifications with links to items awaiting review. City Clerk or other responsible parties add items to meetings, then prepare agendas, finalize packets, and publish them. Agenda content is available online throughout the process and is easily accessible to those with a role in the process.

In many instances, Agenda Management is also integrated with media management systems to stream and record video and audio information, time-stamp it, and tie it to the correlating meeting agenda. There is then the ability to push/publish agendas, minutes, and media to the City's website.

Additionally, some Agenda Management vendors have modules for creating and tracking committee and commission vacancies and applications.

Finding and Observations

- Preparing City Council and all Boards, Commissions, and Committees meeting agendas are done manually and use large amounts of paper and time to copy and assemble. These include:
 - ◆ Administrative Enforcement Hearing Officer Panel
 - ◆ Architectural Review Board
 - ◆ Beautification and Natural Resources Commission
 - ◆ Downtown Business Improvement District
 - ◆ Economic Development Commission
 - ◆ Golf Links Advisory Committee
 - ◆ Historic Resources Committee
 - ◆ Hospitality Improvement District
 - ◆ Library Board
 - ◆ Museum Board
 - ◆ Planning Commission
 - ◆ Recreation Board
 - ◆ Site Plan Review Committee
 - ◆ Traffic Safety Commission
 - ◆ Zoning Inspector
- Staff time is required to prepare packets for each meeting and to coordinate communications from members of the various Boards and Commissions.

Recommendations

- Consider budgeting for and implementing an automated agenda management solution.
- Select agenda management software following the approach described in the *Software Selection Best Practices* initiative.



- All vendor options should be considered.
- Consider an agenda management system that integrates with the City's preferred electronic document management system.
- Consider an agenda management solution that is also integrated with media management systems to stream and record video.



Internet Bandwidth

Increased Internet bandwidth and high availability are becoming increasingly important to organizations for daily functionality. This allows for additional resources to become available during peak Internet usage and provide for resiliency when disasters occur that may affect primary Internet connections that are no longer accessible.

Findings and Observations

- Internet bandwidth will be increasing at the Library for public use through the CENIC consortium.
- All other city facilities rely on Comcast Business Class service, using coaxial cable.
- City Hall and Public Works Internet bandwidth is adequate.
- Police Internet bandwidth is extremely limited due to issues in the Comcast infrastructure.
 - ◆ Police Internet bandwidth needs will increase with the introduction of body-worn cameras.
- As the City increases use of cloud services, Internet bandwidth needs will increase.

Recommendations

- Establish two distinct Internet connections from separate providers, based on the City's reliance on cloud-based applications.
- The School District and the City of Monterey have both expressed willingness to provide connectivity alternatives, if fiber connectivity can be established.
 - ◆ City and School District fiber share the same pathway and junction box at Public Works.
- Study alternate methods of providing a minimum of two high-speed Internet connections. Alternatives include:
 - ◆ Fiber-based Internet service directly to City facilities from AT&T, Comcast, or another carrier
 - ◆ Fiber-based Internet service from a colocation facility, potentially at the City of Monterey or the School District
- Increased Internet costs have been included in *Five-Year Budget*.

Help Desk Ticketing System

Help Desk systems provide an easy way for users to submit requests. Technology Solutions staff can assign tickets. The automated electronic, mail-based communications included in Help Desk systems can allow users to track the progress of their tickets as Technology Solutions staff updates the status. Help Desk systems prevent items from “falling through the cracks” by logging all requests. Another key benefit of Help Desk ticketing systems is metrics related to the number of requests submitted, resolved, and remaining open.

Findings and Observations

- Utilization of the vendor-supplied Help Desk system is limited.
 - ◆ The benefits of such a system have not been thoroughly explained to staff.

Recommendations

- A Help Desk ticketing system should be utilized to track IT productivity and service.



- Metrics related to meeting Help Desk service levels should be developed and tracked on a weekly and monthly basis.
- Each month, summaries of Help Desk tickets opened and closed should be presented to the Technology Committee.
 - ◆ Technology Committee members should be prepared to discuss any Help Desk issues during the monthly meeting.



Disaster Recovery Planning

Findings and Observations

- A Disaster Recovery Plan is not currently implemented.
- Service-Level Agreements (SLAs) are not in place for applications recovery in the event of a disaster.
- When utilizing a cloud-based IT services model, traditional key disaster recovery components become:
 - ◆ Internet and network resiliency
 - ◆ Business continuity planning

Recommendations

- As stated above, develop a highly resilient Internet and network capability.
- In conjunction with Emergency Operations Planning, develop contingency plans for:
 - ◆ Loss of the Village Hall (Finance) and Police Department computer rooms
 - ◆ Major disaster eliminating all area communications, the Administrative Offices, and IT infrastructure
- For Police RMS and other on-premise systems, consider:
 - ◆ Cloud-based CJIS-compliant disaster recovery for Police RMS system.
 - ◆ Alternatively, work with another city that uses RIMS CAD/RMS, and potentially enter into an agreement for mutual disaster recovery.
- Evaluate applications portfolio and determine the SLA for each application for restoration.
- Develop strategies for access to cloud-based applications from other City facilities in the event of an outage.
 - ◆ Test portions of plan each year.





IT Security

Findings and Observations

- The City has very few IT-related policies or procedures.
- Users logon to applications, but do not initially logon to the network.
 - Network resources are available from an individual workstation without authentication.
- Passwords are administered locally, at each workstation.
 - Most staff cannot move between workstations.
- IT security best practices for password management have not been implemented.

Recommendations

- Develop and expand IT security policies that addresses issues, including:
 - Password management
 - Personal identifying information identification and storage
 - Payment Card Industry (PCI) Data Security Standard compliance
 - Incident response
 - Third-party relationships and data confidentiality
- Implement complex passwords and periodic password changes (recommend every 90 days).
- Implement initial network authentication in conjunction with the logon process.
 - Force staff to authenticate before utilizing any network resources.
 - Allow staff to move between workstations and gain access to applications.
- Develop and implement an IT password security procedure based on best practices.
- Redesign and implement IT security as a part the move to Office 365 and OneDrive.
- Implement virtual VLANs; tag and assign based on usage.
- Implement ACL schema that is more secure (between subnets).
- Conduct a Security Assessment utilizing a third-party after the above security improvements have been achieved.



IT Support

Findings and Observations

- The City utilizes a third party under a temporary IT Support contract
- The IT Support firm is onsite two days per week and provide adequate day to day support.
- No service-level agreements (SLAs) exist between the City's outsourced IT support firm and City departments.
 - ◆ SLAs will define what applications and equipment are owned/maintained by departments or by the Technology Services Department.
 - ◆ SLAs will include IT prioritization of Help Desk tickets and expectations for ticket completion.
- Three alternatives have been developed for ongoing IT Support
 - ◆ Share services with Monterey
 - ◆ Expanding the existing third-party relationship to include Managed Services
 - ◆ Hiring staff for IT Support
- Pros and cons of the various options are summarized in the December 20th Council Presentation.
 - ◆ Council's recommendation will be solicited at the December 20th meeting.

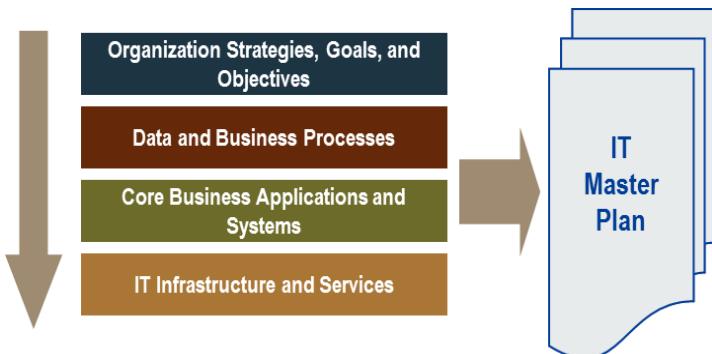
Recommendations

- Define and implement SLAs with user departments that incorporate user support ticket priorities and application support responsibilities.
 - ◆ Shift responsibility for printer maintenance and other low-level tasks to users.
 - ◆ Departments need to take responsibility for some technology.
- Review and analyze Help Desk tickets on a monthly, quarterly, and annual basis.
 - ◆ Look for opportunities to reduce potential issues by making changes to configurations.
 - ◆ Review results and long-term outstanding items with Technology Committee.
- Review current staff allocations, considering the increased time commitments required to implement the Technology Plan.
- Continue to utilize a third-party expert to advise in the implementation of an IT Support model and provide assistance moving forward.

Conclusion

Moving Forward

Moving forward, over the next 18 to 24 months, we recommend the City focus on infrastructure and operational and security improvements, while collaborating to implement additional constituent-facing application improvements. The City is well positioned to utilize the Technology Committee to foster ongoing collaboration within the City departments regarding technology effectiveness.



We believe the highest-priority application project is the implementation of a Citizen Request Management system to provide for online and mobile citizen input on basic public works issues. Also key are an improved GIS capability and application integration. GIS has tremendous potential to improve the way information is analyzed by staff and presented to the public. Conducting a GIS Master Plan study will pinpoint areas where GIS can best help departments improve their service delivery to the public.

While pursuing these outward-facing initiatives, the IT function will pursue improvements to improve risk management as outlined above.

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

Third-party subject-matter experts (SMEs) will be helpful for projects that are either (1) high priorities, (2) beyond the scope of City skill sets, or (3) lack internal resource availability.

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

Benefits

The completed plan should not be viewed as static, but rather as a dynamic tool that is revised and updated as business conditions and requirements change. If the planning function is not an ongoing process, certain objectives and benefits will not be realized, because the objectives themselves may change as the organization and its environment evolves.

Major benefits that are (or should be) realized through the implementation of this Technology Assessment and Plan include:

- Increased collaboration and communication between the departments and the Technology Solutions Department
- Transformation of the organization's overall understanding, knowledge, and stewardship of technology
- Clear direction for technology operations and projects for the next five years, focused on meeting the organization's needs



- Citywide department consensus and understanding of all Technology Initiatives and their priorities
- Foundational process and methodology for evaluation of project investments and analyzing business-case justification

Immediate Next Steps

It is recommended that the Technology Committee review the Technology Assessment and Plan. The Technology Committee should participate in final ranking and sequencing of the Top-Priority Initiatives.

Next, staff should assign lead and participatory resources to these Key Initiatives and to all other high-priority Technology Initiatives. This should include the finalization of target due dates for immediate next steps of those initiatives. Initiative leaders should then report status updates for active initiatives to the team. Major issues for each initiative should be discussed among the Committee and/or sub-committees for general feedback, collaboration, and lessons learned.

The following section presents the *Technology Assessment and Plan Initiatives* documentation in its entirety



Appendix: Technology Assessment and Plan Initiatives

Technology Assessment and Plan

Appendix 1: Initiatives

December 11, 2017



Client Locations
Coast-to-Coast

Practice Locations
California
Illinois
Minnesota
North Carolina

800.806.3080
www.clientfirstcg.com



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Best Practices are methods that consistently provide results greater than those achieved with other methods. We believe that the following best practices will enhance the City's ability to select, procure, and maintain solutions that are more effective in the future, as well as improve overall productivity of staff.

1. Return-on-Investment Considerations
2. IT Governance
3. Applications and User Licensing Inventory
4. User Training and Support
5. Training Room
6. Software Selection Best Practices
7. Project Planning and Implementation Best Practices
8. Maintaining Software Updates
9. Structured Connectivity System
10. Computer Equipment Replacement Plan
11. Cloud Computing
12. Centralized Land and Parcel Management





1. Return-on-Investment Considerations

IT Infrastructure, Operations, and Support

Limiting the number of software and technology vendors supporting City functions will decrease IT infrastructure, operational costs, and support costs in the medium-to-long term. The following is a list of technology areas impacted when determining the number of applications necessary to support and maintain an organization's core business solutions:

- **Hardware** – Servers required to house the applications
- Software – Additional software, such as key operational software applications, and the number of different database tools required to support core applications
- **Licensing** – Increased licensing due to an increased number of vendor applications and various associated database tools
- **Business Continuity** – Increased Disaster Recovery Planning effort, testing, and recovery complexity to support multiple-vendor applications
- **Support Costs** – IT support costs for hardware and software as vendor application volumes increase
- **Operation Costs** – Increased training for employees to meet expertise requirements as more vendor applications and different database tools are introduced

Further analysis outside of the scope of this project would be required to determine specific potential cost savings.

Departmental Labor Costs

Many organizations do not adequately understand the impact that improved automation—and the resulting reduction in manual processes and shadow systems—will have when considering implementation of new systems or conducting process improvement analysis. Most productivity analyses show that, over time, labor cost savings far exceed the cost of reasonable automation efforts. The savings associated with the avoidance of one new hire or the elimination of a position due to natural attrition may be \$40,000 to \$70,000 or more per year (including total payroll, taxes, benefits, and other costs). The life of some new systems should be over ten years, making the savings from the avoidance of just one new hire and/or elimination of vacant positions the equivalent of \$400,000 to \$700,000 over ten years. Ten years should be the minimum expected life cycle for major/large applications systems.

Return-on-Investment (ROI) for Applications Systems

Improved utilization of applications systems can result in immediate and sustained savings in time spent performing specific tasks or processes. These individual improvements do not always equate to immediate “hard” savings. They may result in intangible benefits to the City, the population that the City serves, or cumulative savings from reduced long-term personnel needs.

User Training and Support

Applications software is continually evolving. Improvements and enhancements are made yearly. Maintaining staff efficiency and improving productivity over time requires ongoing training of all staff. Users are typically not trained on all aspects or capabilities of particular software applications or other technology-based tools during initial implementation. Therefore, it is important for the organization to develop methodologies to carry out functionality use, reporting, and training requirements in order to utilize the City's important technological assets to their fullest potential over time.



Calculation Examples

Whenever possible, we recommend that staff calculate tangible and intangible benefits when requesting approval for a project. The following calculations can be utilized in those efforts. We believe in being conservative and practical. Exhaustive ROI studies should not be necessary. Focusing on a limited number of reasonable examples, as outlined here, should normally be sufficient to provide adequate justification for strategic projects.

$$\text{Labor Efficiency Savings} = \text{Labor Hours Saved} \times \text{Gross Hourly Rate}$$

$$\text{Tangible Labor Cost Savings} = \begin{aligned} &\text{New hire avoidance, elimination of position} \\ &\text{through attrition, consolidation of work load and} \\ &\text{positions, etc.} \end{aligned}$$

Hard Cost Savings

- Hardware
- Software
- Maintenance
- Inventory Reductions



Intangible Benefits

- Increasing Levels of Service
- Improved Service to Public Users
- Safety
- Transparency
- Improved Public Communication
- Improved Employee Communication and Satisfaction
- IT Planning and Improvements



Return-on-Investment (ROI) Considerations

A study conducted by Macquarie University¹ discovered the following:

- Overall ROI in IT projects is around 30%.
- The projects that deliver at least some benefits should be about 52.5%.
- Successful IT projects can have an ROI of around 400%.

¹ Macquarie University, 2006.



2. IT Governance

IT Governance

Traditionally, key IT decisions are made by IT professionals and a select few organization managers. This does not always ensure the most effective benefit to all stakeholders (all departments and constituents). IT governance can provide a collaborative forum for major decisions, planning, internal communication, and department/staff training regarding such matters. IT governance is committed to the stewardship of IT resources on behalf of the stakeholders who demand a benefit and/or return on the investment.

Findings and Observations

- The City Technology Committee meets regularly.
- The Technology Committee has members from every Department and has been tasked with various, citywide technology improvements.

Technology Committee

The Technology Committee is a group of employees and managers from a variety of departments and disciplines that provide long-term direction and oversight for an organization's IT resources. This committee can provide a stabilizing influence and focus for development of organizational concepts and planning. Some of the responsibilities the group may carry out include:

- Identifying and developing of technology initiatives
- Assisting in the prioritization of initiatives
- Monitoring and reviewing initiatives
- Assistance with project management of Technology Plan implementation
- Providing a forum for lessons learned during implementation of technology projects
- Providing an initial review process of technology-related projects requested by individual departments
- Reviewing and providing feedback on long-term unresolved Help Desk issues
- Coordinating and prioritizing GIS tasks
- Reviewing and discussing standards and policies
- Updating standards and policies as changes occur in the organization and technology
- Helping to achieve support across the organization
- Reviewing Help Desk statistics, issues, and long-term unresolved needs
- Acting as a sounding board for management and staff



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



Recommendations

Utilize the Technology Committee structure as the City's Technology Committee. Revise the Technology Committee Charter to discuss review and assist with IT-related priorities, assist in policy development, communicate with department staff, and manage, as well as oversee, the implementation of the IT Plan.

Utilize the Technology Committee as the initial forum for the IT function and other Departments to propose/present new technology-related projects to ensure best practices are followed and applied to the review, selection, approval, procurement, implementation (project management), and ongoing technology maintenance.

The IT Governance strategy utilizing the Technology Committee can be an effective forum for departments to become more knowledgeable about technology and how technology can be used effectively to enhance customer service and create efficiencies throughout the City's business-process environments.

Benefits

- More transparency, responsibility, and accountability
- Prioritization of initiatives
- Improved compliance and consistency
- Enhanced communication and collaboration
- Higher degree of business and technology alignment
- Widespread personal and professional growth

Next Steps

- Enhance the Technology Committee Charter to focus on:
 - ◆ Assisting with priorities, based on limited IT resources
 - ◆ Annual IT budget review and prioritization
 - ◆ IT policy reviews
 - ◆ New project reviews and feedback
 - ◆ Lessons learned from ongoing projects
- Determine representation of all departments on the Steering Committee for regular IT communication, ongoing education, and continued collaboration.
- Assign a lead and/or sub-committee for all Technology Plan initiatives.
- Monitor and discuss active/in-process Technology Plan initiatives at each Committee meeting.
- Form sub-committees, as appropriate.



3. Applications and User Licensing Inventory

Findings and Observations

A citywide applications and user inventory can be helpful in understanding/confirming licensing compliance, over/under seat license needs, and identifying training and user roles.

Recommendations

- Create an inventory of all organization software applications/modules currently in use, as needed. This is necessary for multiple initiatives/projects and developing and budgeting a multi-year, user-training budget.
- Identify all current user license holders, as well as those that need additional licenses.
- Determine which users don't have a valid need for a license and determine if these licenses can be transferred to other users.
- Identify user's roles as "F" (Full), "I" (Inquiry), or "R" (Reporting Only).
- Differentiate between current/licensed and non-current/non-licensed users, so that budgeting can be addressed for additional user-license requirements.
- Determine software applications that can be run centrally from a server or shared computer for infrequent users.
- Obtain ongoing sustainability cost estimates.
- Consider development of an IT Applications Support Portfolio to document departmental ownership and IT Division service-level agreements (SLAs).

# & Full User (Read Write/Only)		Financial Management						Land Management						Web Sites & Infrastructure Asset							
		General		Budgeting		Purchasing and Requisitions		Accounts Payable		Accounts Receivable		Financial Reporting		Land		Site		Infrastructure		Asset	
First Name		4	2	6	7	5	6	6	5	7	6	5	7	6	5	7	6	5	7		
If # is Full User																					
Business Resources																					
Theresa	as																				
John	as																				
Colleen	as																				
James	as																				
Address	as																				
Chop	as																				
Buck	as																				
Steve	as																				
Randal	as																				

Benefits

- Assurance that investment in licenses are matched to users truly in need
- Assurance that investment of licenses match the organization's software needs
- Better ability to identify potential integration requirements
- Ability to obtain proper support and reference information for licensed software
- Ability to better schedule and conduct training for staff, based on software usage
- Better, well-informed decisionmaking for applications acquisitions or maintenance cancellations
- Potential reduction in applications license and maintenance fees by cancelling applications no longer in use
- Mitigation of legal risk from use of non-licensed software



4. User Training and Support

Software systems are tools we utilize to conduct business operations more efficiently. Like other tools, sufficient training is key to significant increases in productivity and greater efficiency. In many areas, improved software utilization and ongoing efforts to improve processes can achieve significant cost savings.



Findings and Observations

- Significant increases in staff productivity can be realized for software applications if additional training is provided.
- A complete inventory of all applications and/or modules by department and user does not currently exist. This list can be helpful in understanding and confirming licensing compliance, and identifying training needs and user-responsibility roles, as discussed in the *Applications and User Licensing Inventory* initiative.
- Examples of requested training are included below.

Return-on-Investment (ROI) Considerations

- In a study conducted by Nucleus Research, an organization drove productivity gains of up to 50% through ongoing, successful user trainings².

Recommendations

- Complete the Applications/User Matrices by department and user.
- Identify all current user license holders, as well as those that need additional licenses.
 - ◆ Conduct a survey, by user, to determine what training would be helpful and to determine actual need and planned attendees. This should be driven by department managers to elicit participation when training is made available.
- Identify approximately 500 square feet of space for use as a Training Room (See *Training Room* initiative).
 - ◆ Optimum configuration would be twelve PCs and two printers for hands-on training.
- Determine strategies for accomplishing training needs:
 - ◆ Self-learning aids
 - ◆ Internal classes (internal or external trainers)
 - ◆ On-site vendor training
 - ◆ Lunch-and-learns
 - ◆ Go-to Application Champions
 - ◆ Training opportunities at software vendor annual user conferences
- Create a repository of basic “how to” training aids and other training information (e.g., videos, past class information, etc.)
- Consider procuring a screen capture video solution to assist with developing internal video training aids.



² Nucleus Research, 2010.



- Current and future needs can be evaluated and prioritized through a combination of mechanisms, including the IT governance function.
- Consider class attendance as a factor in performance evaluations. This can be accomplished by having department management involved and agreeing to which classes each employee would benefit from.
- Consider efforts to reduce and/or limit the total number of software vendors and databases whenever possible. This will reduce and limit overall cost-of-ownership, support requirements, training and reporting needs, and improve overall integration capabilities.

Benefits

- Improved operations management
- Improved utilization and efficiency of software applications
- Activation and use of existing functionality that is currently unknown, but important to the City
- Review and activation of new functionality provided in future applications software releases
- Increased information sharing
- Better identification of training needs
- Increase training alternatives
- Improved software administration (fewer staff required to service user community)



5. Training Room

A Training Room serves as a great opportunity for staff to become familiar with applications or expand on their current skills. It serves as a best practice to promote professional growth and continued improvement through increased utilization of existing or future organization applications to be released to staff. A dedicated Training Room is also a requirement for all major software implementation projects.



Findings and Observations

- The City has limited conference and meeting rooms space.
- The City will benefit from a full-time Training Room in order to successfully complete the projects outlined in this plan.
- With improvements, the EOC could be used for technology training.

Recommendations

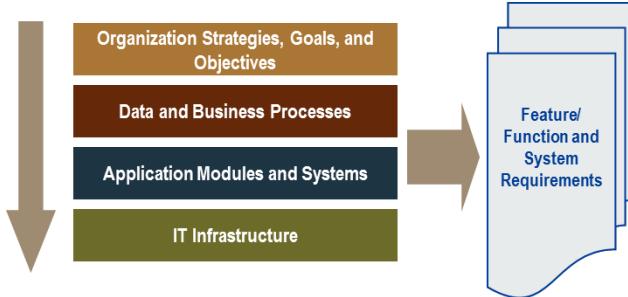
- The organization should maintain a Training Room for testing applications that are being implemented or for staff to improve upon existing competencies.
- Identify approximately 500 square feet of space for use as a Training Room.
- With so many applications in use, a permanent Training Room will be needed if the organization implements ongoing user training, refresher training, and meet other training needs, as well as support applications management best practices.
- A minimum of twelve computers/workstations should be maintained in a room that provides adequate individual space for each workstation.
 - ◆ In conjunction with cloud computing, desktop computer resource requirements will be limited.
- Consider utilizing the EOC as a training room for all City staff.



6. Software Selection Best Practices

Findings and Observations

Selecting the right system and technology is more critical today than ever before, because the efficiency and effectiveness of the organization is directly dependent on its use of technology and information systems. Organizations are realizing they must take greater advantage of automation and technology to ensure a better position to meet growing constituent and public demands. Additionally, many agencies must provide better service to their constituents, users, and the general public, while coping with greater budget constraints.



Return-on-Investment Considerations

While new software solutions can transform certain operations, processes, and constituent services, consider these facts:

- Without proper preparation, planning, and a methodology for selection and implementation, organizations face many problems and risks, including:
 - ◆ Spending hundreds of thousands—and, potentially, millions—of dollars more than necessary in total cost of ownership
 - ◆ Failed or prolonged implementation
 - ◆ Implementation of systems that still do not meet the organization's functional needs
 - ◆ Low productivity
 - ◆ Poor contract negotiation position
 - ◆ Lack of and/or reduced integration between other software systems
- Organizations typically fall short of their implementation goals due to one or more of the following factors:
 - ◆ Insufficiently defining system objectives and requirements
 - ◆ Failing to adequately involve both management and users
 - ◆ Underestimating the costs and effort required
 - ◆ Failing to adequately plan for expansion
 - ◆ Failing to properly evaluate software



STARTLING STATISTICS:

- Only 32% of projects are on time, within budget, deliver all required features and functions, and achieve measurable business and stakeholder benefits.
- Approximately 44% of projects are “challenged” (late, over budget, and/or have less than the required features and functions).
- 69% of project failures are due to a lack of and/or improper implementation of project management methodologies.
- Nearly 40% of those surveyed said that a “lack of employee buy-in and executive support” was the biggest challenge facing a successful implementation.
- A recent customer survey shows that enterprise implementation projects:
 - Have only a 7% chance of on-time implementation.
 - Will likely cost more than estimated.
 - Will likely deliver unsatisfying results (only 21% will realize half or more of expected benefits).
- In a past study of local government enterprise implementations published in *Government Finance Review*, it was found that the average project was 176% over budget and 243% beyond the planned implementation timeline.



- In order for key software systems to be implemented properly and for the organization to reap the full benefits, the organization should utilize a structured analysis and selection methodology. A structured approach to selection and implementation results in significant benefits, including:
 - ◆ Reduced risk of a failed or prolonged implementation
 - ◆ Lower total cost of ownership
 - ◆ Independent and objective analysis of potential alternatives
 - ◆ Well-defined objectives and requirements
 - ◆ An education process for the organization
 - ◆ Selection of technology that meets the organization's short- and long-term objectives and requirements
 - ◆ Effective contract negotiation through well-prepared and documented needs
 - ◆ Overall project time savings
 - ◆ Improved implementation readiness

Recommendations

- Utilize best practice selection methodology when evaluating new software solutions (see example work plan below).
- Consider third-party consults when selecting or improving complex or highly specialized solutions.
- Ensure process reviews are completed and detailed feature/function specifications are documented as part of the RFP (see example below).
- Ensure detailed feature/function specifications are utilized with test scripts before going live on new applications implementations.
- Include all stakeholders in each software evaluation and implementation project.
- Ensure detailed feature/function specifications are utilized in post-implementation reviews and ongoing training (see example work plan pages below).

Benefits

- Reduction in hardware/software requirements
- Reduction in preparation time for deployments
- Better identification of integration requirements
- Reduced license fees
- Increased utilization of applications systems
- More effective due diligence
- Increased staff buy-in, consensus, and morale
- Improved decision making (selecting software that is the best fit for your needs)
- Improved implementation results (time, costs, and results)



Feature Number	Feature / Function / Capability	Standard - Current	Standard - Next	Report Writer	3rd-Party Application	Custom Modification	Not Available	No Response	Comments
Requisitions / Purchasing									
4.000	VENDOR MAINTENANCE GENERAL FEATURES								
4.020	VENDOR – ADDRESSES - Provide formultiple addresses pervendor (must support non-USA addresses) with a minimum of four addresses and five lines each.					1			
4.028	VENDOR APPROVAL - Ability for departments to setup a temporary vendor with only purchasing to approve new vendors.					1			
4.035	ON-LINE REQUISITION/PO APPROVAL - Provide functionality online to route requisitions or purchase orders to appropriate users (or their backup user) with notifications for their approval or disapproval. Allow entry of disapproval notes and ability to restart the approval process if required.	1							
4.038	ON-LINE TRACKING OF APPROVED REQUISITIONS - Ability to use online query for all purchase requisitions that are awaiting the user's approval.	1							
4.041	ENCUMBRANCE ACCOUNTING								
4.042	ENCUMBRANCE ACCOUNTING - Provide all procedural functions of an encumbrance system including verification of budget availability before accepting invoice, requisition and purchase order transactions.	1							
4.046	PURCHASE REQUISITIONS								
4.047	FORMAL BID FUNCTIONALLY - Provide formal bidding functionality and process, which ties with both purchased requisitions and purchase order functions.		1						Future release
4.050	BUDGET / PURCHASE LIMIT CONTROLS - Provide security controls to either allow or disallow amounts to be entered that exceed budget amounts.	1							System either start workflow process, or not route items that exceed budget amount
4.052	RECURRING REQUISITIONS - Allow recording, reporting, retrieval, and editing of recurring requisitions.					1			
4.054	ELECTRONIC REQUISITIONING - Provide the ability to generate electronic requisitions by multiple end-users.	1							
4.099	DEPRECIABLE ASSET - Ability to code items as depreciable assets.	1							This is available at the PO level
4.107	PURCHASE ORDER PROCESSING								
4.109	PURCHASE ORDER GENERATION - Allow items to be split from requisitions to multiple purchase orders.					1			
4.140	PURCHASE ORDER – THRESHOLD AMOUNT - Ability to set a limit (cumulative) for a single vendor in a year for purchases.	1							yearly limit tracked via misc user defined field
4.158	CONTRACT EXPIRATION ALERT - The system should provide a warning or block payments if a contracts insurance has expired.	1							Information is available via drill down
4.160	APPROVALS - Ability for an approval to be routed to multiple approvers, via workflow rules, where either approver, but not both, is not required.	1							
4.194	PURCHASE ORDER COMMITMENT REPORTING - Generate a purchase order commitment report reflecting the dollar amount of anticipated deliveries by vendor.	1							
4.196	INTEGRATION								
4.198	INTEGRATION - ACCOUNTS PAYABLE - Provide for automatic transfer of purchasing information to Accounts Payable (e.g., vendor, address, amount, purchase order number, etc.)	1							
4.199	INTEGRATION - BUDGET - Provide capability to validate funds availability for Requisition and Purchase Order transactions. Allow override capability.	1							
4.202	INTEGRATION - GENERAL LEDGER - Ability to download purchasing card transaction file (.txt) to post transaction detail to General Ledger by general ledger account code. Note: each transaction is associated with a specific general ledger account number in the text file.								standard P-Card integration is available via import into Accounts Payable
4.203	INTEGRATION - PROJECT ACCOUNTING - Purchase Order transactions coded to Projects must integrate with Project Accounting and/or Work Order Management systems.								

Step	Software System Selection Work Plan
Phase 1 – Needs Assessment and Recommendations	
1	Kick-Off and Project Team Development – Hold a formal Kick-Off Meeting, and then work with the Project Manager to finalize the makeup of the selection Project Team and document required roles and responsibilities. Include representatives from all key stakeholder groups.
IT Infrastructure and Staffing Readiness Review	
2	IT Information Meetings and Interviews – Conduct information-gathering activities focused on the ability of the existing IT staff and infrastructure to support the needs of the organization and to review the readiness to implement and support the platform that will be required for the new software system, including: IT Network and Infrastructure Storage and Backups Servers, Server Applications, and Management IT Security Disaster Recovery Desktop Environment Printers
3	Documentation – Document information and summarize the required preparation initiatives, findings, and recommendations.
4	IT Assessment Memo – Prepare a memo assessing gap and readiness of IT infrastructure to support the organization's general needs and to support the introduction of the new software system. The memo is to include the following: General readiness of IT to support the organization's needs and support the introduction of a new software Technology Initiatives with findings and recommendations, including the following scope: IT Environment and Infrastructure IT Applications Support Staffing Structure
Business Department Needs Assessment Interviews	
5	Business Process Review and Feature/Function Analysis – Meet with the identified personnel by functional area and software modules to review existing manual and automated systems and operations, including any custom-developed work-around systems/processes. Include a cross-section of all user types in each needs assessment workshop.
6	System Requirements Documentation – Document information gathered during interview process and develop feature/function requirement specifications specific to your organization.
Phase 2 – RFP Development	
7	Preliminary Vendor Research, Communication, and Coordination – Research vendor community to identify qualified vendors meeting the organization's system and services requirements, and communicate with potential vendors. Vendors do not respond to all RFP's, so pre-communication is helpful to obtain proposals that are in the organization's best interest to consider.

Step	Software System Selection Work Plan
8	Develop Request for Proposals (RFP) with Electronic Response Forms – Prepare a Request for Proposals (RFP) document and work with the organization to make adjustments and revisions, as well as ensure it complies with the organization's purchasing guidelines and is distributed per policy (assumes development of a single RFP document). RFP should include, but will not necessarily be limited to, the following: <ul style="list-style-type: none"> Comprehensive list of functions/requirements with prioritization Cost, including purchase or other financial payment plan options Required technical specifications Installation costs Migration from existing to new system (cost and timeline) Training cost and training schedule New system hardware/network/system software requirements
Phase 3 – Vendor Evaluation and Demonstration Management	
9	Facilitate RFP Response Activities – Facilitate pre-proposal activities, including: <ul style="list-style-type: none"> Manage vendor questions and answers during established proposal response timelines.
10	Proposal Evaluation – Analyze and evaluate proposal responses. Provide an initial Summary Vendor Comparison Worksheet that provides side-by-side comparison of key system evaluation requirements, including feature/function compliance statistics.
11	Analysis Results Workshop to Determine Vendor Finalists (Short List) – Conduct a collaborative review workshop with a key stakeholder committee and determine which vendors are to be short listed.
12	Develop Demonstration Documents – Prepare an agenda and sample demonstration scripts for vendor demonstrations to be sent to vendor finalists for their advance preparation. Also, prepare vendor demonstration evaluation forms for use by selection committee members during demonstration sessions.
13	Reference Check Form Preparation – Prepare form to be used by project team members during finalist reference checks/calls.
14	Schedule and Facilitate Vendor Demonstrations – Schedule demonstration dates and facilitate initial vendor demonstrations to ensure that pertinent requirements are addressed (estimate three vendors at X days each).
15	Develop Site-Visit Documents – Prepare an agenda for each vendor site visit and a site visit evaluation form for organization selection committee members to complete during each visit.
16	Post Demonstration/Visit/Reference Check Due Diligence and Follow-Up – Track follow-up issues and conduct comprehensive due diligence. This may include additional demonstrations, Q&A facilitation, reference checking, site-visit assistance, etc.
17	Finalist Selection – Conduct a meeting with the organization selection committee to facilitate discussion and finalize the vendor selection.
18	Review Selected Vendor's IT Requirements – Review the IT (server, workstation, network, etc.) requirements provided in the selected vendor's proposal, and prepare a memo outlining observations and recommendations for IT.

Step	Software System Selection Work Plan
Phase 4 – Contract Review and Negotiation Assistance	
19	Implementation Plan Review – Review implementation plans, project management office, resource requirements, and timelines.
20	Implementation Team Organization – Establish Implementation Project Team based upon PMI and COBIT Project Management Office (PMO) principles and applications management best practices.
21	Contract Review and Negotiation Assistance – Conduct contract reviews and negotiations with an SME and legal representation.

7. Project Planning and Implementation Best Practices

Findings and Observations

A best practices approach should be followed for all significant implementation projects. The complexity and risk determine the actual level of due diligence that should be performed. The following is an outline of project planning and implementation best practices:

Determine Scope of Work – Work with all stakeholders to determine what needs to be accomplished.

Design – For larger, more complex projects, the design effort may become a separate project. For smaller projects, design is integrated into budgeting.

Specifications – Make sure an appropriate level of vendor-agnostic specifications are included with procurement requests that reduces ambiguity and provides better comparisons between vendors.

Collaborate – Include input and requirements of all stakeholder groups to ensure all requirements are included in specifications and all stakeholders buy-in to the final solution. Technology Committee should review as part of the Committee's role and responsibilities.

Develop Budget – Project budgets include hardware, software, and consulting/SME costs. Consulting costs are estimated by outlining the various work steps and estimating the hours required to complete them.

Gain Sign-Off – Once the budget is complete, review the scope of work and costs with the project sponsor and gain their approval before continuing, including consent by the Technology Committee.

Create Project Plan – Based on all stakeholder needs, delivery dates, and the tasks to be completed, develop a project plan and estimated implementation date.

Outline Communication Plan – Outline the process for communicating implementation dates, improvements, and training to appropriate staff members.

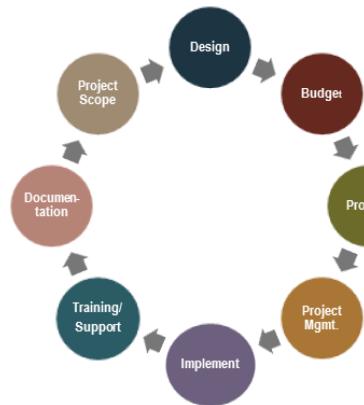
Document Other Plans – Other plans may include training, testing, contingency, and back-out. These plans are developed on an as-needed basis.

Configure and Implement – Utilizing planning methodologies and technical expertise, configure the necessary system components, and implement the solution with the least possible impact to staff and productivity. The Technology Committee should receive status reports on the progress of the implementation, including whether the project is on time and on budget, whether user needs are being met, and that vendors are following through with their contractual obligations.

Post-Implementation Review – Complete a post-implementation review with successes, lessons learned, and any loose ends requiring vendor assistance. Report the results of the Technology Committee.

Post-Implementation Support – All implementations that affect multiple users require on-site, post-implementation support to eliminate remote response times.

Documentation – Develop any necessary procedures and update documentation as part of the project.





Recommendations

- Develop a project portfolio for all IT- and software-related projects.
- Follow planning and implementation best practices.
- Review all major active and upcoming projects during Technology Committee meetings.
- Obtain services of third-party project managers/subject-matter experts, as appropriate and/or cost beneficial.

Benefits

- Prioritization of projects
- Reduced periods between transitions
- Increased information-sharing capabilities
- Enhanced communication and consensus
- Increased anticipation and management of technology upgrades
- Improved analysis and planning
- Increased departmental collaboration
- Measurement and tracking of results/outcomes



8. Maintaining Software Updates

Findings and Observations

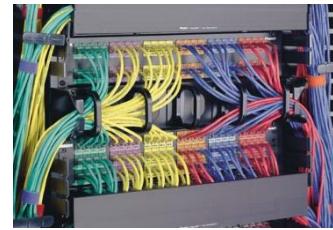
- Best practice for the maintenance of applications software is to maintain a minimum of N-1 (current major release or the one prior).
 - ◆ Software vendors often only support the current release and the one prior.
 - ◆ Falling further behind often creates upgrade scenarios with several intermediate steps, risking additional problems, and potentially makes upgrades more expensive and time-consuming.
- Many versions of Microsoft Office and Adobe are in use across the City.
- Cloud-based applications require customers to keep up with software upgrades.

Recommendations

- The City's normal practice should be to maintain software updates as recommended.
- Maintain consistent updates across all users.
 - ◆ Utilize the inventory created in the *Applications and User Licensing Inventory* initiative to understand version issues.
 - ◆ Complete implementation of previously purchased patch management software to provide software updates across the City for desktop software updates to provide consistency and automation. Includes software updates in sustainability and replacement planning.
- Provide appropriate user training with each release.

9. Structured Connectivity System

A *Structured Connectivity System* is a complete set of cabling and connectivity products that integrate voice, data, video, and other technology systems into a comprehensive infrastructure.



Findings and Observations

- Some communications system patch panels, wiring blocks, and faceplates are not labeled in a reliable manner, and/or in some cases, are not labeled at all.
- At Public Works:
 - ◆ A patch panel is not in use and labeling is limited.
 - ◆ Cable distances exceed industry standards, which may result in poor performance.
- The quantity of data/voice jacks deployed at work area locations is not consistent.
- The copper horizontal cabling system is comprised of different cable types with varying bandwidth capabilities, such as Category 5 (100 Mbps), Category 5e (1 GB), and Category 6 (1 GB *Recommended).
 - ◆ Cabling at City Hall appears to be Category 5e and capable of supporting necessary desktop speeds.
 - ◆ Cabling at the Police Department and Public Works is Category 5 and must be upgraded to support current applications.
 - ◆ Library cabling will be upgraded as a part of the Library Renovation Project.
- The fiber-optic backbone system varies throughout the buildings and, in some cases, has bandwidth limitations at 1 GB.
- Equipment racks and cabinets are not sized properly for current and future growth. Additionally, appropriate patch-cord management is deficient.
- Equipment racks and cabinets are not properly fastened to floors and walls.
- Equipment racks and cabinets are not grounded.
- Communications wiring rooms do not have sufficient cooling, power, and/or emergency backup equipment.
 - ◆ Additional air conditioning HVAC will be added to the Police wiring room in the current budget year.
- As-built record documentation related to the horizontal and backbone communications system does not exist.

Recommendations

- The City should develop and implement a Structured Cabling System (SCS) Standards Document. This document will be used to support the ongoing needs of the City as it relates to maintaining the existing SCS, and can also be provided to architects and/or contractors as part of the construction specification for future projects. The SCS Standards Document should have the following as its goals:
 - ◆ Implement a non-proprietary cable infrastructure system supporting multi-vendor equipment and services
 - ◆ Provide reduced cost for future cable installation, support, and management
 - ◆ Maintain consistency providing reduced training requirements for employees
 - ◆ Improved troubleshooting and support for ongoing management/maintenance
 - ◆ System based on recognized industry standards (ANSI, TIA/EIA, IEEE and BICSI)



- Develop and implement a unified labeling system
- Provide suitable patch cord management system at equipment racks and/or cabinets
- Develop and issue an RFP to upgrade deficient structured cabling systems at Police and Public Works

10. Computer Equipment Replacement Plan

Findings and Observations

- A computer equipment refresh plan is not currently in place.
 - ◆ Some new computers were purchased in the prior budget year. Additional replacements are scheduled for the current budget year.
- The City has many old servers, switches, and other computer equipment that are past their expected end-of-life.
- The City IT-service provider does not maintain a complete inventory of computer equipment, including when purchased and expected end-of-life.

Recommendations

- Develop a five-year, rolling computer equipment replacement plan, and budget accordingly.
- Allow customized length of time for replacement of any technology that may have a unique end-of-life.
- Purchase discounted extended warranties at the time of purchase that will cover the equipment throughout its useful life (e.g., five years for computers and servers, etc.)
- As a result of the project preliminary recommendations, the City has initiated a network upgrade project to eliminate end-of-life equipment.
- The City should provide capital replacement information for use at the start of each budget cycle.

Return-on-Investment (ROI) Considerations

- A study conducted by Express Matrix for quantifying ROI, as it relates to IT and software asset management, describes the following ROI benefits of Replacement Planning within an organization³:
 - ◆ Reducing cost of ownership related to IT assets by determining licenses for which an organization is overspending and reducing Help Desk costs
 - ◆ Managing technology change by developing software procurement models that map current and future needs with technology migration and upgrade planning
 - ◆ Minimizing security risks by preventing unauthorized use, enforcing desktop standards, and identifying PCs with unlicensed applications

IT Equipment	Recommended Replacement Cycle (Years)
Network Switches	7
Phone System Upgrade	5
Phone System Replacement	10
Audiovisual Equipment	5
Servers	5
Disk Storage	5
PCs	5
Laptops	4
Mobile Devices	2
Wireless Devices:	
Point-to-Point	5
Wireless LAN	4
Windows Software	+/- 5
MS Office	+/- 5
Printers, Scanners	5
Plotters	5

³ Express Matrix.



In a study conducted by the Aberdeen Group, the following were the cost savings that occurred after incorporating a Sustainability Plan⁴:

- System automations reduced paper costs by up to 11%
- Efficiencies reduced facility costs by up to 10%
- Waste and disposal costs were reduced by up 8%
- Transportation and logistics costs were reduced by up to 5%.\\

Benefits

- Better forecasting of purchases
- Managed process that flattens capital expenditures over time
- Improved computer performance
- Improved available features
- Reduction in trouble tickets to support failing or faulty hardware
- Ability to keep spare equipment around to be reissued – eliminate employee downtime
- Increased employee performance by eliminating the use of old, slow, and post lifecycle technology
- Reduction in total cost of ownership

⁴ Aberdeen Group, 2009.



11. Cloud Computing

Cloud computing can be described as IT services or equipment that are not internal, but available through the Internet. This can range from having a server hosted in an organization or facility other than the local organization, accessing information from a portable device, processing requests from the field, subscribing to an Internet-based software solution per a subscription model, etc. The benefits of cloud computing allow individuals to collaborate and remain centralized, regardless of location.

Cloud computing is one of the most prominent discussions among current trends in IT. Significant benefits can be achieved, including security, disaster recovery, and cost savings. However, cloud-computing options for many systems are still not cost-effective or the most secure approach.

Findings and Observations

- The organization has already utilized some forms of cloud computing.
 - ◆ City Financial, Library Information System, Public Works, and Applicant Tracking systems are all cloud-based.
 - ◆ Electronic Mail and shared drive storage are cloud-based (through Google).
- Active Directory services are in place for the Police Department; all other departments log onto applications individually.
 - ◆ User devices have access to network-based resources (printers and the Internet) without authentication.
- Several infrastructure improvements will be required for the organization to be able to fully utilize cloud-based systems.

Recommendations

- Improved Internet bandwidth availability and resiliency will be required in order to take full advantage of cloud-based services.
 - ◆ Geographically separate Internet provider services, through separate providers, are recommended.
- The City should consider a full-cloud model.
 - ◆ All applications and data (outside of PD) should be cloud-based.
 - ◆ Infrastructure support services and IT operations tools should also be cloud-based.
 - ◆ Authentication (user log on) should be required to access the network and any network services.
- Cost-benefit should be the overriding factor for most final decisions.



12. Centralized Land and Parcel Management

Centralized Parcel data is important for consistent organization-wide parcel and address data for all departments to utilize. The updating and sharing of a central database is essential in allowing departments to operate more efficiently moving forward and in retrieving historical records.

Findings and Observations

- The City uses multiple geo-based applications, such as Work Orders, Permits, Code Enforcement, Planning (future), Business Licenses, GIS, etc.
 - ◆ Inspections are outsourced to the City of Monterey; currently, inspection information is recorded in the Monterey Permitting product.
 - ◆ Integration of all geo-based data, using GIS, can provide additional opportunities to present geo-based data to City constituents, reducing inquiries and improving service.
- The address/parcel information is not synchronized; no formal process is in place to update parcel and address information from the County.
- The City could realize significant productivity gains and improved accuracy by using a common, centralized parcel/address database to populate any new or changed information.
- GIS parcel information is published through PGPARCEL.NET, allowing constituents to access parcel and permit information.
- Although City staff have access to GIS software (Esri ArcGIS for Desktop), and sometimes access to basic GIS layers, the City does not utilize ERSI as a citywide GIS system that provides a base level of functionality to support the land and parcel management process.

Recommendations

- Utilize the GIS database for master address/parcel.
- Integrate iWorQ with GIS for Land Management activities.
 - ◆ Planning, Permitting, Inspections
 - ◆ Public Works work orders, inventory
- Consider expanding the iWorq work order system to include online Citizen Request Management (CRM) when it becomes available later this year.
- When appropriate, move contracted inspections data to City of Pacific Grove systems and integrate with City of Pacific Grove Land Management and GIS.
- All updates of information from external and internal sources should first be done through the GIS. Then, updates to other systems would be done using the GIS master information.
- Strict control of who is authorized to make updates of this information should be enforced, and typically limited only to GIS data editors.
- Geo-based applications should be configured so that users select valid addresses, not type in free-form addresses, for each transaction.

Benefits

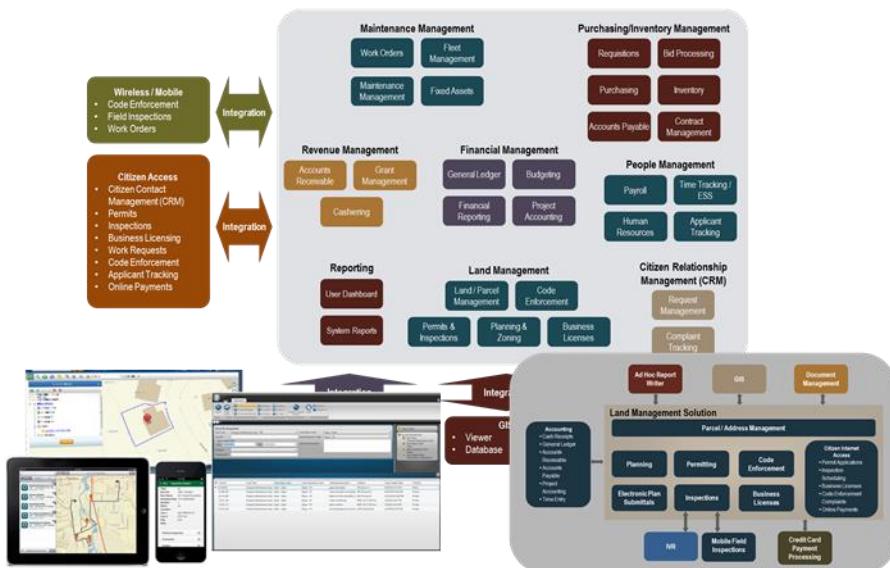
- Improved data integrity (i.e., consistent organization-wide parcel and address data)
- Connectivity with City/County parcel systems
- Improved review and planning
- Better GIS layer reporting
- Increased staff efficiency by reducing data entry into multiple land-based systems
- Ability to allow access to this information, via the Web to the public
 - ◆ Reduced public inquiries for Land Management information
 - ◆ Improved transparency and constituent service

Departmental Applications and Systems

The *Departmental Applications and Systems* category includes Technology Initiatives that are primarily department business applications-related and were identified during the needs assessment process. Many of these initiatives and recommendations can have a significant impact on overall productivity, enhanced communications and information sharing, improved constituent service, improved transparency, and in some cases, cost savings.

13. Enterprise Resource Planning (ERP) Replacement
14. Human Resources System Improvements
15. Time Entry Systems
16. Recreation System Improvements
17. Land Management System Improvements
18. Electronic Plan Reviews
19. Work Orders/Maintenance and Asset Management
20. GIS Improvements
21. Mobile Computing
22. Electronic Content Management System (ECMS)
23. Agenda Creation and Management Software
24. Publishing Software Consolidation

Example Enterprise Applications Overview



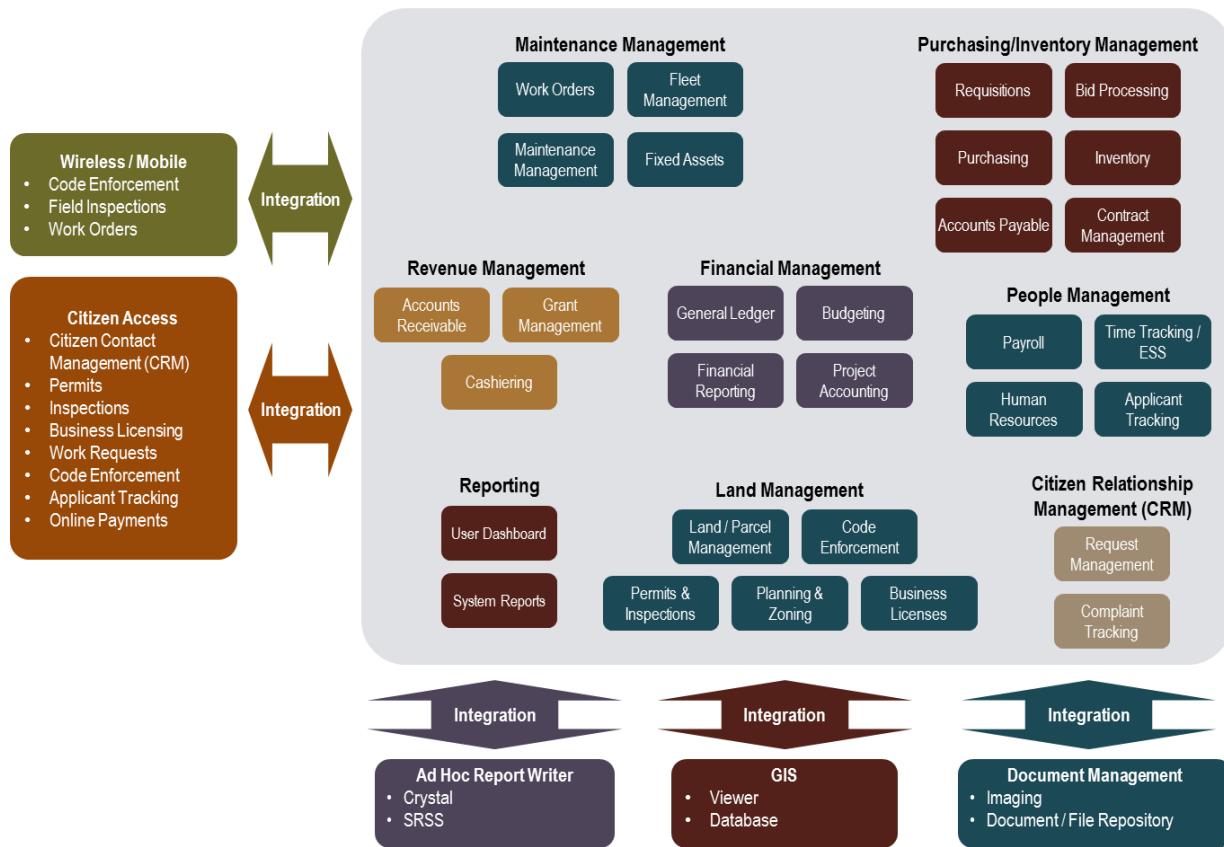


13. Enterprise Resource Planning (ERP) Replacement

Enterprise Resource Planning (ERP) is an organization-wide software solution that allows integration among various departments and their respective functions. The result is a centralized system of communication, data storage, and operations management.

Improvements to ERP solutions bring about processes that multiple departments can benefit from. Common municipal-related ERP application modules include accounting, financial reporting, payroll, human resources, planning and permitting, and work orders. The following graphic shows a typical municipal ERP environment.

Example Enterprise Applications Overview





Findings and Observations

Currently, the City utilizes multiple software vendors to support its enterprise application requirements. SunGard Pentamation is used for finance and accounting and iWorq for Land Management (planning, permitting, inspections, and code enforcement). However, the City does not have a system to manage maintenance and asset management.

Departments maintain their own spreadsheets to track items (available budget, purchasing, invoices) that are available through the financial system.

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

 A screenshot of the SunGard Pentamation software interface. The main window displays a grid of financial data with columns for account number, description, amount, and other financial details. To the right, there are several smaller windows or tabs showing different reports, such as a budget comparison report and a detailed financial summary. The overall layout is typical of enterprise resource planning software.

Recommendations

- We expect that SunGard Pentamation (the City's Financial System) will require replacement toward the end of the planning horizon.
- In the interim, continue to improve Financial System utilization.
 - ◆ Improve financial reporting (currently underway)
 - ◆ Provide additional staff training
 - ◆ Integrate Budgeting process into financial system
 - ◆ Move to electronic timesheets
 - ◆ Implement employee self-service
 - ◆ Increase departmental online access to financial information
- Select new ERP software vendor according to the *Software Selection Best Practices* initiative.
- Consider implementing project accounting to eliminate manual cost tracking processes in CEDD and Public Works.
 - ◆ This could also increase transparency.
- Follow implementation project management best practices according to the *Project Planning and Implementation Best Practices* initiative.

Benefits

- Increase staff efficiency
- Improved application integration
- Improved operational consistency, efficiency, and accuracy
- Improved online access to information
- Improved financial reporting
- Improved utilization and realization of ERP investment
- Potential reduction in ERP annual maintenance and support fees



14. Human Resources System Improvements

A Human Resources Information System (HRIS) contains numerous Human Resources-related functions within a single solution, while also providing accurate and secure access to employee information. A Human Resource system typically includes the following capabilities:

- Employee internal/external training
- Professional development
- Certifications and licenses
- EEO reporting
- OSHA reporting
- HIPAA reporting
- Insurance & COBRA reporting\
- Affordable Care Act reporting
- Emergency medical information
- Workers' Compensation
- FMLA benefit payments
- Benefits administration
- Seniority tracking
- Retiree tracking
- Terminations
- Employee grievance tracking
- Position control
- Applicant tracking
- Organizational chart generation
- Wage/promotion/ disciplinary history
- State Compensation Reporting
- Performance evaluations
- Leave requests
- Compensation reporting
- "What If" Scenarios
- Labor negotiation tools
- Merit/step increases
- Tuition reimbursement
- Travel management
- Employee surveys

These solutions also have integration with payroll processing and Employee Self-Service (ESS) portals to provide employees the ability to retrieve their information in real time 24/7.

The City has limited personnel functions as part of the SunGard Pentamation financial system and Negov application trackingl system.

Recommendations

- Conduct a comprehensive process review and develop feature/function requirements for a new HRIS system.
- Follow best practices according to the *Software Selection Best Practices* initiative.
- Coordinate the purchase and selection of an HRIS with the *Time Entry System* initiative.





15. Time Entry System

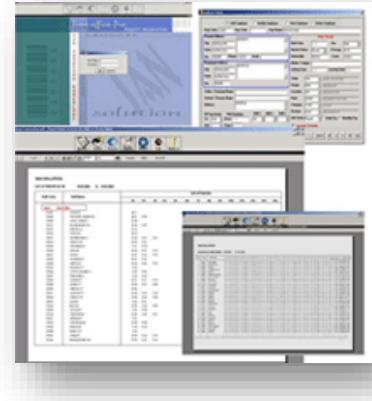
Findings and Observations

The tracking, recording, and storing of employee time and attendance information is a significant undertaking. A manual system with repeated entry and review steps often leads to inaccurate reporting, payroll discrepancies, and lost data. Automated time management systems can provide:

- Single-occurrence data entry
- Standardized employment rules and implementation
- Centralized database for electronic review of records
- Consistent enforcement of vacation and sick policies, FLSA requirements, and union rules
- Web- and server-based options
- Integration with other functions, such as accounting and/or payroll
- Automated calculations based on user parameters

Such systems:

- Reduce duplicate efforts, thereby saving valuable time and resources
- Decrease inaccuracies and human error
- Improve management of vacations, sick leave, and other absences



The City is currently processing all time entry through multi-step, duplicate-entry manual processes.

Return-on-Investment (ROI) Considerations

- In a software selection study conducted by Nucleus Research, an organization that transitioned to an automated time-entry system saw a return on investment within six months and an overall return of 225% of their initial investment.⁵

Recommendations

- Conduct a comprehensive process review and develop feature/function requirements for all time, attendance, and reporting.
- Follow best practices according to the *Software Selection Best Practices* initiative.
 - ◆ If Pentamation meets the City's time and attendance needs, then proceed with implementation of that module.

Benefits

- Consistent and standardized organization-wide time-sheet system
- Reduced manual processes
- Increased processing volume
- Reduced data entry errors
- Reduced payroll processing time (from improved processes, policies, and practices)
- Single, automated interface to the ERP system

⁵ "ROI Case Study: Kronos Workforce Timekeeper Anonymous Healthcare Organization", Nucleus Research 2003.



16. Recreation System Improvements

Findings and Observations

The City does not have an automated recreation system.

Typical Recreation System functionality and modules include:

- Membership Management
- Activity Registrations
- Facility Scheduling
- League Management
- Swim Team Management
- Point-of-Sale
- Equipment and Locker Rental
- Fundraising and Donation Management
- Child Care Management
- Marketing
- Website Content Management
- Reporting
- Online Customer Access
 - Registration Software
 - Facility Scheduling Software
 - Equipment and Locker Rentals
 - Customer Relationship Management



Recommendations

- Conduct a comprehensive process review and develop feature/function requirements for all time, attendance, and reporting.
- Follow best practices according to the *Software Selection Best Practices* initiative.

Benefits

- Improved training
- Improved software application utilization
- Improved reporting, resulting in better management decisionmaking



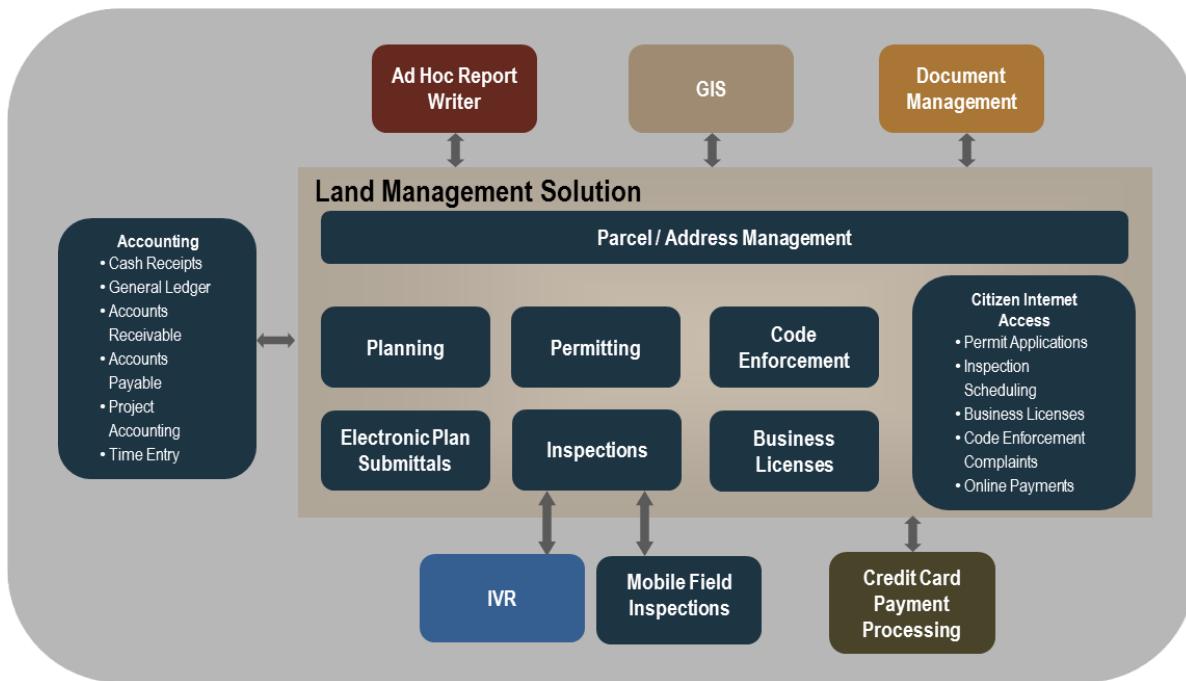
17. Land Management System Improvements

Findings and Observations

A typical Land Management suite of applications includes Project Planning and Zoning, Permits, Inspections, Code Enforcement, Licensing and Business Registration, and Land Parcel/Address Management. The City uses iWorQ for some of these functions, but expansion of the system's overall capabilities would prove beneficial to City staff and citizens/customers.

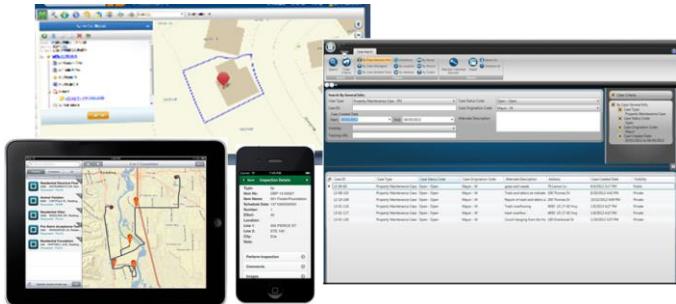
Additional software modules and training will need to be purchased and implemented if the City is to fully implement the system that is needed.

The following table illustrates typical modules available in Land Management systems, including iWorQ.



Recommendations

- In order to avoid spending thousands of dollars on unfocused application training that can leave processes un-automated and/or un-optimized, we recommend conducting needs assessment(s) and developing an improvement plan. The needs assessment process inventories current and future functionality requirements by application and department. The software vendor is then asked to respond as to its capabilities and compliance with the organization's specific requirements. The GAP between the vendor's capabilities and the organization's current usage is then used to develop a customized, focused training and application implementation or re-implementation plan.
- Review applicable manual processes and shadow systems, such as spreadsheets, to determine automation improvements that will result in labor efficiencies.





- Conduct a needs assessment of all unmet needs, additional functionality requirements, additional modules needed, and additional user-training requirements.
- The requirements that the vendor is not capable of providing can then be dealt with by other means, such as efficient work-arounds, third-party applications, modifications, change in processes and procedures, etc. This process can also be used to inventory all reporting, as well as integration/interface.
- Work with vendor to develop a customized project implementation and training plan.
- Acquire new software modules and contract for vendor training and implementation services.
- Implement and/or re-implement applications and provide customized, focused training.
- Manage improvements similar to new system implementation, following best practices for project planning and implementation.
- Renegotiate the City of Monterrey outsourced inspection contract to utilize City of Pacific Grove Land Management system upon implementation of Inspection module(s).
- If feasible, expand the use of iWorQ to include additional constituent self-service features.
- Integrate iWorQ with GIS for parcel information and improved access to parcel-related information, including permits and inspection information.

Benefits

- Significantly greater workflow efficiencies within planning, permitting, and inspections, as well as integration with Code Enforcement
- Reduced stressors and workload due to improved automation and reduction in manual processes
- Reduced risk of institutional knowledge reliant on highly manual processes leaving the organization due to staff turnover or retirement
- Improved project and permit tracking and reporting
- Potential for mobile laptop or tablet field units for inspectors and code enforcement officers
- Automated time tracking and workload tracking of billable and non-billable hours
- Online citizen access capabilities:
 - ◆ Improve community relations through 24-hour citizen access
 - ◆ Ability to automate inspection scheduling online
 - ◆ Eliminate time-consuming "status check" phone calls
 - ◆ Ability to apply and pay for permits online
 - ◆ Instant inspection result retrievals by contractors and applicants

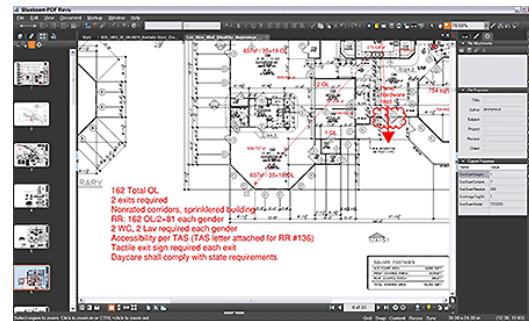


18. Electronic Plan Reviews

Electronic plan reviews for development and architectural plans related to City permitting and planning processes can be submitted, reviewed, and marked-up electronically. Electronic plans can result in a reduction of lost plans and physical storage requirements while enhancing sharing, collecting, storing, and retrieving of plans during the process and through retention periods.

Findings and Observations

- The City has a portal for electronic plan submittals, but the portal is rarely used.
- Additional functionality allowing tracking of submittal status has not been implemented.



Recommendations

- Explore expansion of iWorQ's solution and consider cost-benefits.
- Follow *Project Planning and Implementation Best Practices* initiative.

19. Work Orders/Maintenance and Asset Management System

The City utilizes iWorq for work orders and maintenance management, but does not have a Citizen Request Management (CRM) system. City management tasks are not all fully computerized.

A fully featured CMMS (Computerized Maintenance Management System) can include the following capabilities operating in a single, integrated fashion:

- Comprehensive Work Order Tracking
- Preventative and Predictive Maintenance
- Facilities Maintenance
- Condition Assessment
- Asset Management
- Asset Tracking
- Built-In Maintenance Procedure Libraries
- Maintenance Scheduling
- Warehouse/Stores Inventory
- Costing and Budget Forecasting
- Report Writing
- Integration to CRM/Service Requests, Purchasing, and GIS

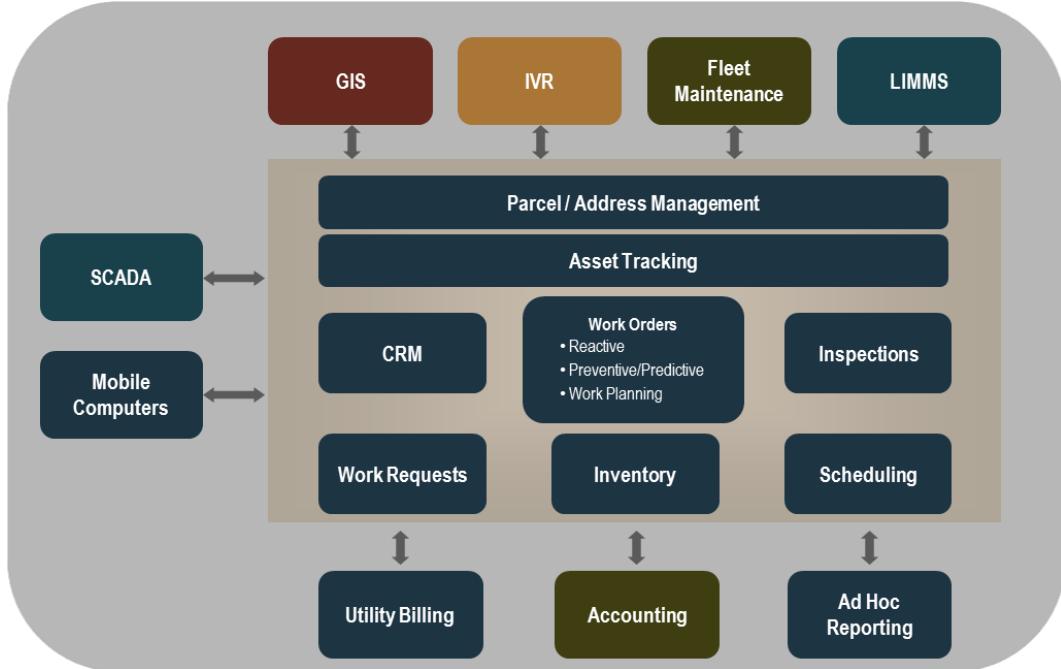




Maintenance and Asset Management Functionalities

The following illustration shows typical modules available in typical Work Order/Maintenance and Asset Management software system.

Example Maintenance and Asset Management System



Recommendations

- Document requirements for an online, citizen-facing CRM system.
 - ◆ If iWorQ meets these requirements, procure the system and proceed with implementation.
 - ◆ Implementation of a CRM system requires significant participation from all Departments in order to develop work flows and assure proper responses to submitted requests.
- Review applicable manual processes and shadow systems, such as spreadsheets, to determine automation improvements that will result in labor efficiencies.
- Determine potential improvement in automation and work order and maintenance processing.
 - ◆ Purchase additional iWorq modules to expand system utilization as warranted.



Benefits

- Significantly greater workflow efficiencies within Maintenance Management, Work Orders, and Infrastructure Asset Tracking
- Reduced time and effort to provision services
- Improved tracking of asset condition
- Increased staff and citizen satisfaction
- Improved performance tracking, reporting, and measurement
- Reduced stressors and workload due to improved automation and reduction in manual processes
- Reduced risk of institutional knowledge reliant on highly manual processes leaving the organization due to staff turnover or retirement
- Improved project management and reporting

20. GIS Improvements

GIS systems are becoming integral components in the business of managing a municipality's assets and activities. In addition to tracking all parcels within the community, many municipalities inventory land management planning hazards, infrastructure assets, (e.g., street signs, street lights, storm sewers, fire hydrants, trees, and other fixed items) through the GIS system. GIS systems are often integrated with work order systems to improve the accuracy of work order location information and reduce the amount of time spent locating these assets. Additional benefits of a GIS system include reduced field observations, more informed decisionmaking, improved parcel management, centrally managed information, and better analysis of infrastructure.



Findings and Observations

- The City utilizes a contractor to maintain GIS layers.
 - ◆ GIS improvements are sponsored by CEDD and Public Works.
 - ◆ Police has some GIS needs.
 - ◆ The GIS contract has expired and the City would like to negotiate a contract extension.
- The City utilizes ERSI ARC Cloud solution for GIS.
- GIS is not integrated with iWorQ or any other systems at the City.

Recommendations

- Coordinate citywide GIS activities through the Tech Committee.
 - ◆ Develop a list of requirements and additional layers as a scope of work for a contract extension.
- Integrate GIS with City applications.
 - ◆ Immediately integrate with iWorQ
 - ◆ Integrate the document management system and GIS when the document management system is procured
 - ◆ *NOTE: The existing contractor may not have the skills to complete these tasks.*



- The City should consider conducting GIS Assessment. The City will benefit from a plan that will help leverage its investment in GIS. The GIS Assessment should include:
 - ◆ Identification of City data maintenance update processes
 - ◆ GIS applications and hardware needs and cloud-based services
 - ◆ ESRI software licensing consolidation and standardization
 - ◆ Personnel organization and structure
 - ◆ Integration with key software applications in Community Development, Recreation, Utility District, etc.
 - ◆ GIS views for City personnel and for the public on the City's website
 - ◆ GIS as the master address/parcel data source for all other address- or parcel-centric software systems
 - ◆ Five-year budget, with prioritized initiatives
- Consider assistance from an independent, third-party, subject-matter expert (SME) to develop the GIS Strategic Plan.
- Make GIS integration a requirement for all new geo-based software application procurements.

Benefits

- Centrally managed GIS data and information
- Improved continuity and consistency
- Improved accuracy of GIS information
- Easier creation and storage of digital maps
- Better analysis of infrastructure
- Improved parcel/address management
- Improved customer service through the ability to publish GIS information for public access
- Improved cost management



21. Mobile Computing

Findings and Observations

The 21st Century has brought an increasing demand for time and resources. Because of the need for maintenance supervisors, building and planning inspectors, and other employees to work off-site, bottlenecks in obtaining the information and producing reports necessary for building safety, code enforcement, permitting, and project management can occur. By providing field workers with the necessary equipment and software, they are able to:

- Interact with necessary applications and databases in real time
- View, change, or request inspection and maintenance scheduling
- Create new cases “on the go”
- Remotely submit inspection and maintenance reports
- Respond quickly to requests and questions from the public
- Reduce carbon emissions and transportation costs

Such off-site capabilities offer:

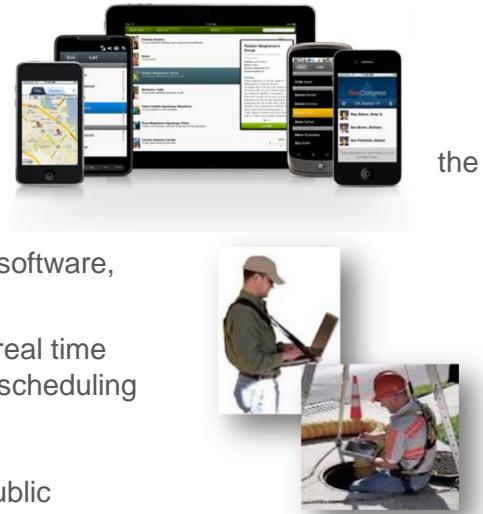
- Increased productivity and improved time management
- Centralized data that can be monitored in real time
- Improved accuracy and reporting
- Reduced paperwork

This is primarily a hardware and secure wireless networking issue, as software applications that use browser technology require no additional software. Software programs that are not browser-based may require a remote access software solution, such as Microsoft Remote Desktop or Terminal Services with Secured VPN remote connectivity.

- Demand for remote access will continue to grow as staff becomes more portable.
 - ◆ Access to mobile applications for smart phones and tablets will be a portion of remote-access demand.
 - ◆ The other major demand segment will continue to be remote access from laptops and desktops.
 - ◆ Demand for remote access will continue to grow as staff becomes more portable.

Some software solutions that are designed for specific field operations, such as maintenance work, code enforcement, and building inspections, may have smart applications that can be downloaded from a Play or app store or natively written mobile-device modules. These software modules generally have less functionality than the full applications that are accessible from laptops or Toughbooks in the field. One major advantage of these type modules is store-n-go technology, which allows a user to continue working on a record even if they are disconnected from a cellular or Wi-Fi connection.

Additionally, it is important to note that expansion of more mobile technology also increases hardware and IT support requirements throughout the organization.





Return-on-Investment (ROI) Considerations

- The Center for Digital Government (CDG) reports that one city's wireless laptop-based inspection solution helped its Code Enforcement Division increase the number of daily inspections. Another municipality used laptops and electronic ticketing to increase building inspector efficiency by 30 percent, saving the agency approximately \$500,000.
- A pilot mobility program in San Diego County helped the Land Use and Environment Group (LUEG) save \$130,000. Inspectors that participated in the project used mobile devices connected via a mobile VPN and were 31 percent more productive than before. They completed more inspections each day, and the agency was able to use less office space and fewer landlines.

Recommendations

- Determine and inventory mobile/field computer needs by specific staff, departments, and applications needed based upon productivity and customer service.
- Follow recommendations for mobile hardware recommended and supported by core business department applications, such as Building Inspections, Code Enforcement, and Work Orders/Maintenance Management.
- Expand City wireless at the Public Works Yard to accommodate device synchronization.

Benefits

- Improved operations management
- Secure sharing of information
- Enhanced communication
- A more mobile and productive workforce
- Faster well-informed decisionmaking
- Real-time access to information from the field
- Increased ability for team members to communicate/collaborate from separate locations





22. Electronic Content Management System (ECMS)

ECMS, also referred to as Electronic Document Management Systems (EDMS), can be utilized for much more than document scanning, document storage, and records retention management.

Additional uses include:

- Enterprise records management, including retention management
- Integrated document/process workflow management, including internal request management, and routing and distribution (Accounts Payable, Accounts Receivable, HR, Project Tracking, etc.)
- Forms management
- Project/process collaboration
- Minutes management
- Agenda management
- Media management, including synchronized meeting video streaming
- Web publication/posting for all above items, if desired



Findings and Observations

- The City does not utilize an Agenda Management System or an enterprise ECMS solution.
- These systems can provide the following benefits:
 - ◆ **Compliance** – Improved and more efficient ability to comply with increasing volume and complexity of regulations and retention requirements
 - ◆ **Security** – Improved physical abilities and accessibility security
 - ◆ **Workflow Capabilities** – Electronic capture, routing, and approvals of manual paper processes
 - ◆ **Improved Efficiency** – Increased productivity through automation of manual processes and time reduction in retrieving and sharing information
 - ◆ **Reduced Costs** – Reduced costs of printing, paper, storage space, and labor
 - ◆ **Reduced Carbon Footprint** – Minimized paper waste
 - ◆ **Improved Transparency** – Increased accessibility to information via the Web, including fully automating some types of documents immediately upon creation without additional processing or labor
 - ◆ **Disaster Recovery** – Protection of vital records through storage redundancy

Return-on-Investment (ROI) Considerations

- A study conducted by Coopers and Lybrand found the following:
 - ◆ The average document gets copied 19 times in its life.
 - ◆ 90% of documents that are handled in an office are merely passed along or shuffled through.
 - ◆ The costs to manage a single document are below:
 - \$20 to file a document
 - \$120 to find a misplaced document
 - \$220 to replace a lost document



- ◆ 7.5% of all documents get lost.
 - An office that generates 200 documents a week will lose 15 of them, costing a total \$3,300.
- ◆ 3% of all documents get misfiled.
 - An office generating 200 documents a week will misfile six of them, costing the company \$720.
- A feasibility study by the North Dakota Information Technology Department regarding ECMS technology found the following:
 - ◆ An organization that scans 600 documents per day can have the following benefits upon implementing an ECMS:
 - An ROI payback period of 15 months
 - Gained productivity of almost \$114,375
 - Subsequent annual savings of \$110,295
 - An overall three-year benefit impact of \$531,990
 - Save \$36,556 in annual costs when compared to manually storing and managing documents
- A study conducted by Prescient Digital Media found that an ECMS saves employees between 50-60% of time searching for documents.

Recommendations

- Conduct a needs assessment and process review with *all* departments to gain an understanding of how the ECMS system should work and what configurations, training, etc., would improve staff's ability to utilize an ECMS system to its fullest, provide more transparency to citizens, and what other departmental application integration would help improve the departments' business processes.
- Follow *Software Selection Best Practices* approach to build an RFP, applying the needs assessment results, and determine a vendor to meet the citywide needs.
- ECMS implementations on an organization-wide basis are commonly under scoped and underfunded, leaving municipalities with limited benefits.
- ECMS implementations, on a citywide basis, are commonly spread over several fiscal years.
 - ◆ Initially, agencies focus on agenda management and document scanning and retrieval.
 - ◆ In future fiscal years, agencies implement automated work flows, which are prioritized based on return-on-investment considerations.
- Review ECMS implementation in other local/regional municipalities that use it in a similar manner as intended by the City.

Benefits

- Automated workflow and routing
- Reduction in paperwork and related costs
- Online document retention and archiving
- Improved version and authorization control
- Improved public records access
- Increased information-sharing capabilities
- Ability to provide Web posting and public access to residents
- Integration with Agenda Management/Media Management



23. Agenda Creation and Management Software

Automated Agenda and Management Systems provide access to information for all departments involved in the agenda process and are sometimes offered as a stand-alone module, or as part of an Enterprise Content Management System (ECMS), (see *Electronic Content Management System (ECMS)* initiative). Staff submits proposed agenda items online (and supporting documentation or packets can be attached), where they can be automatically routed for approval through pre-configured workflows. Approvers receive email notifications with links to items awaiting review. City Clerk or other responsible parties add items to meetings, then prepare agendas, finalize packets, and publish them. Agenda content is available online throughout the process and is easily accessible to those with a role in the process.

In many instances, Agenda Management is also integrated with media management systems to stream and record video and audio information, time-stamp it, and tie it to the correlating meeting agenda. There is the ability to push/publish agendas, minutes, and media to the City's website.

Additionally, some Agenda Management vendors have modules for creating and tracking committee and commission vacancies and applications.

Finding and Observations

- Preparing City Council and all Boards, Commissions, and Committees meeting agendas are done manually and use large amounts of paper and time to copy and assemble. These include:
 - ◆ Administrative Enforcement Hearing Officer Panel
 - ◆ Architectural Review Board
 - ◆ Beautification and Natural Resources Commission
 - ◆ Downtown Business Improvement District
 - ◆ Economic Development Commission
 - ◆ Golf Links Advisory Committee
 - ◆ Historic Resources Committee
 - ◆ Hospitality Improvement District
 - ◆ Library Board
 - ◆ Museum Board
 - ◆ Planning Commission
 - ◆ Recreation Board
 - ◆ Site Plan Review Committee
 - ◆ Traffic Safety Commission
 - ◆ Zoning Inspector
- Staff time is required to prepare packets for each meeting and to coordinate communications from members of the various Boards and Commissions.

Recommendations

- Consider budgeting for and implementing an automated agenda management solution.
- Select agenda management software following the approach described in the *Software Selection Best Practices* initiative.
- All vendor options should be considered.
- Consider an agenda management system that integrates with the City's preferred electronic document management system.



- Consider an agenda management solution that is also integrated with media management systems to stream and record video (see *Council Chambers Audiovisual Systems* initiative).

Benefits

- Time savings in manually disseminating and routing documents for review
- Paper-costs savings by disseminating and routing electronically
- Easily archived and retrievable
- View agenda items and related materials in real-time
- Provides public online access to agendas, minutes, and potentially online audio-video synchronization

24. Publishing Software Consolidation

Findings and Observations

The Technology Committee has identified 49 users who require Adobe Professional.

Recommendations

- Purchase current generation licenses of Adobe, before Adobe completely moves to a subscription model.
- When purchasing under the subscription model, costs will increase significantly.
 - ◆ A study of individual users' needs will be required to determine most cost-beneficial solution.

Benefits

- More consistency in application utilization
- Improved institutional knowledge by sharing training and internal application support

With the advent of computer technologies, the world is experiencing an unprecedented explosion in communications options. Gov 2.0 is the concept of using those new technologies in combination with creativity, information sharing, and the collaborative process to better serve and interact with the public.

25. Citizen Request Management (CRM)
26. Online Payments, Transactions, and Services
27. Website Improvements and Ongoing Support
28. Mass Outbound Communications
29. Council Chambers Audiovisual Systems





The principles of Gov 2.0 include:

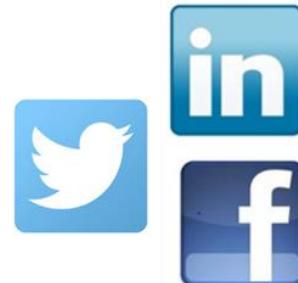
Principle 1 – Serve as the primary source of reliable, accurate, and timely organization information delivered to the customer on their platform of choice.

Principle 2 – Maintain a real-time, interactive, and user-centered website that offers easy access to public information and online services.

Principle 3 – Offer opportunities for online civic engagement and social collaboration.

Some examples of Gov 2.0 technologies include:

- **Online Transactions and Services** – Applications, registrations, requests, and payment processing are some of the 24/7 examples being employed.
- **Online Information Requests and Queries** – More transparency is being demanded, and FOIA requests increase. Making common types of documents readily available through query or menu on the website creates efficiencies for organization staff and constituents.
- **311** – 311 is available in some communities around the country as a non-emergency general information number to a citizen service center. These centers typically centralize the inquiry and response of general and/or routine questions from citizens and customers.
- **CRM (Citizen Request Management)** – Online citizen request tracking includes automated internal routing, status reporting, etc.
- **Blogging** – This is a Web-based process (Web logging) that allows regular posting of commentary, news, events, and other materials in a more casual and interactive manner. Visitors may leave comments or communicate with each other through the blog.
- **Podcasting** – Digital media files utilizing audio, Web protocols, and a media player are released on a regular schedule and often downloaded through a Web-based subscription.
- **RSS (Really Simple Syndication)** – This is a group of formats used to publish works, such as blog entries, news headlines, and media files, in a standardized format. This allows publishers to automatically "feed" their entries to a syndicated audience, often used with podcasting.
- **Social Media** – Ranging from blogs (WordPress, LiveJournal, Twitter, Facebook) and social and/or professional networking (MySpace, Facebook, LinkedIn) to virtual worlds where people can interact in real time (Second Life), social media is, by far, the fastest-growing form of interactive communication. Andreas Kaplan and Michael Haenlein define social media as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content."⁶
- **Wikis** – A "wiki" is a website that allows collaborative creation and editing of Web pages to produce a simplified exchange of information.



The possible benefits of developing such communication methods go beyond simple release of information. Advantages can include:

- Increased efficiency and cost reduction for public services offered electronically
- Allowance of greater government transparency
- Better-informed and more involved public
- More collaborative efforts between the organization and the public
- Faster and more convenient access, which promotes public approval

⁶ Kaplan, Andreas M., Michael Haenlein (2010). "Users of the World, Unite! The Challenges and Opportunities of Social Media". *Business Horizons* 53 (1): 59-68. doi:10.1016/j.bushor.2009.09.003. ISSN 0007-6813. Retrieved 2010-09-15.



25. Citizen Request Management (CRM)

Findings and Observations

Citizen request management (CRM) solutions are used to receive, track, and manage all types of requests and complaints. These solutions can categorize requests, prompt for typical information required, assign and route information to specific staff or departments, track the status, and fulfill overall reporting requirements for more effective handling. Ideal CRM functionality includes:

- Citizen responsiveness (requests captured, completed, responses to citizens, when and how resolved)
- Prompt request routing (departments and/or persons)
- History (complaints, requests, timeliness of responses, who completed, how resolved, cost analysis)
- Interdepartmental resource linking
- Managing resources
- Benchmarking and performance-based measurements
- Planning and budgeting
- GIS integration
- Public records requests
- Online customer surveys



Recommendations

- Consider budgeting for and implementing a full CRM solution.
- To eliminate the requirement to integrate other applications, consider utilizing the iWorq module when it becomes available later in 2016.

Benefits

- Increased resident satisfaction
- Centrally managed information
- Less time manually managing and monitoring
- Improved access to information



26. Online Payments, Transactions, and Services

A variety of online payments can be accepted through numerous alternatives, one being the City's website. The result will be increased efficiencies due to reduced labor and easy, digital retrieval of information for both customers and staff. Online payments also provide citizens with 24/7 transaction capabilities and the convenience of not having to involve staff or go to City Hall.

The City currently provides a limited number of online services. The City accepts credit card payments, including a \$2 processing fee, regardless of transaction size.

Other types of Municipal Online Payments, transactions, and services include:

- Permit applications and fees
- Inspection scheduling
- Licenses (business licenses and others)
- Donations
- Police reports
- Code enforcement complaints
- Alarm billing
- Official online records (e.g., agendas, minutes, documents, etc.)
- Event registrations
- Facilities reservations
- Parking tickets



Business Licenses

Number	Type	Tax Year	Classification	Status
CBL_05833-2015	Commercial Business License	2014	General	Active
CBL_05835-2013	Commercial Business License	2013	General	Active
CBL_05834-2013	Commercial Business License	2013	General	Active

Findings and Observations

- The City charges a fee for credit card transactions, regardless of the size of the transaction.

Recommendations

- To eliminate requirement to integrate other applications, consider utilizing modules of existing software systems to provider solution options before new third-party payment solutions.
- Conduct a citywide needs assessment to determine all useful payment types that could be implemented to improve constituent service.
- Conduct cost-benefit and prioritization analysis.
- Select other software payment vendors according to the *Software Selection Best Practices* initiative.
- Consider existing core business application options (e.g., ERP, Recreation software, Land Management, among others) before new third-party solutions, in order to eliminate requirements to integrate new solutions with backend operational systems.
- Manage improvements according to the *Project Planning and Implementation Best Practices* initiative.
- If the desire is to increase the use of online services and reduce counter visits, reconsider transaction fees.



Benefits

- More accurate and consistent information
- Timely and reduced reconciliation
- Increased awareness of citizen self-service
- Increased processing volume
- Reduced over-the-counter time for transactions
- Increased staff and citizen satisfaction

27. Website Improvements and Ongoing Support

Findings and Observations

Municipal websites have become informational portals, so that citizens can quickly access information and conduct transactions without having to call City staff or go to City Hall. Additionally, interactive functionality is available 24/7.

- The City website was recently revised and has been greatly improved.
- A part-time Web developer and retired Librarian maintains the website.
 - ◆ The Web developer does not have a trained backup capable of maintaining the website.
- Staff members praise the responsiveness of the Web developer; new content is posted in a timely manner.
- Some departments post their own content, others rely on the Web developer.
- The website has not been reviewed for ADA compliance.
- Some third-party application links appear to link in a default state and do not provide a customized “City of Pacific Grove” experience.
- The website is not well documented.

Return-on-Investment (ROI) Considerations

A study conducted by Aaron Marcus and Associates, Inc., discovered the following⁷:

- More than 83% of Internet users are likely to leave a website if they feel they have to make too many clicks to find what they are looking for.
- Once a system is in development, correcting a problem costs ten times as much as fixing the same problem in design.
- The average user interface has some 40 flaws. Correcting the easiest 20 of these yields an average improvement usability of 50%.

Recommendations

- Conduct an ADA assessment of the website.
- Create analytics for the website and present to Technology Committee and other interested parties.
 - ◆ Many times, Council members are interested in website analytics.
- Document the website so that moving responsibility to another organization would be simplified.
- Train an individual or firm to provide backup website services, if necessary.
- Provide more staff training to encourage all departments to post their own content.
- Customize third-party interfaces to improve integration with City website.

⁷ Aaron Marcus and Associates, 2004.



- Implement standard practices and make website maintenance a component of Technology Committee responsibilities to ensure that the site is maintained regularly and remains relevant and up-to-date for the public.

Benefits

- Improved resident-user experiences
- Increased information-sharing capabilities
- Easy access to organization information
- 24/7 availability
- Improved public records access
- Reduced resident in-person visits
- Resident interaction and transaction capabilities
- Promotion of City services, including promotion of revenue center departments, such as Recreation

28. Mass Outbound Communications

Findings and Observations

Outbound communication systems, such as Reverse 911, have gone through a significant transformation in the last five years. There are many more system providers, and pricing has come down significantly. Enhanced emergency notification systems can also integrate with severe weather warning systems, emails, texts, RSS feeds, etc. These systems can be used for non-emergency mass notifications as well. Examples include: street closures, interruptions in water service, major organization events, etc.

- The County has a reverse 911 system called Alert Monterey County. The City utilizes the County system.
- Alert Monterey has been in use by the City for approximately one year.
- The Police Department coordinates use of Alert Monterey.

Recommendations

- Develop a protocol for approved messages and use of Alert Monterey.
- Continue to market Alert Monterey to citizens.
- Expand use of Alert Monterey to cover communications beyond Public Safety.
- Consider including emails, texts, and RSS feeds for more than just mass emergency notifications (e.g., street closures, street cleaning, special events, etc.)
- Consider utilizing various methods to collect citizens' communication preferences (e.g., mail, email, text, website, opt-in or -out for specific types of communications such as public safety, emergency, community events, general info, etc.)
- Consider integration with Severe Weather Warning System and automating certain emergency notifications.

Benefits

- Increased community outreach
- Improved public relations
- Increased citizen engagement



29. Council Chambers Audiovisual Systems

Findings and Observations

- Council chambers audiovisual (AV) and lighting are older, but still functional.
- A not-for-profit is responsible for Council meeting AV production and cable TV feeds.
- IT staff supports and monitors Council meeting start to validate that systems are working appropriately.
- Agenda management software, which may also include a separate module for developing meeting minutes, is not currently utilized.
- Audio recordings are used for all other Boards, Commissions, and Committees.
 - ◆ These recordings are posted on the website following each meeting.
 - ◆ Live audio feeds or video of these meetings is not available.

Recommendations

- Consider procuring the Council Chambers Audiovisual System and EOC audiovisual at the same time.
 - ◆ The City may receive better pricing on a larger purchase.
- Design and develop an RFP for replacement of audiovisual equipment and lighting systems in Council chambers.
- Utilize PEG-fund balance and PEG fees over time to keep improvements budget-neutral, if possible.
- Integrate audiovisual and Council meeting minutes using a third-party agenda management product.
 - ◆ Utilize an agenda management/ECMS selection process.

Benefits

- Improved production quality of City Council meetings and other public meetings held in the Council chambers
- Increased availability of IT staff for core technology projects and staff support
- Improved government transparency

The *IT Infrastructure* section addresses networks, servers, equipment, inside/outside cable plant, and other communications infrastructure.

30. Computer Room/Teledata Closet Improvements
31. Wireless Network
32. Internet Bandwidth
33. Network Redesign
34. Metropolitan Area Network (MAN)
35. Technology Support for the EOC
36. Office Software Upgrades
37. Dual Monitors and Ergonomics
38. Video Camera and Surveillance System (Citywide Standard)
39. Audiovisual Systems
40. Radio Operations





30. Computer Room/Teledata Closet Improvements

Findings and Observations

- Library computer networking equipment is collocated with the boiler.
- City Hall computer network equipment is in a shared closet/storage room.
 - The room is not properly secured.
- Police Department computer room has limited space and lacks sufficient HVAC.
 - HVAC improvements are included in the current budget year.
- Some power is connected to UPS systems; other power outlets are connected to directly to generator power.
- There are no environmental monitors in the computer room.
- Grounding is not available.

Recommendations

- When remodeling the Library space, consider decommissioning the main boiler and improving network equipment rack and cable management
- Add a second HVAC unit in the Police Department computer room.
- Add additional UPS and Power Distribution Units to better manage electricity.
- Increase the use of best practices cable management techniques to decrease intercabinet cabling.
- Add environmental monitors for temperature, humidity, and water alarm capabilities.
- Add building ground and ground bar to the computer rooms.

Benefits

- Improved productivity for IT Staff as a result of more space and better organization
- Increased environmental monitoring of temperature conditions
- Reduced application and network crashes
- Improved service assurance (uptime and reduced risk)



31. Wireless Network

Findings and Observations

- City utilizes WatchGuard Wireless for wireless LAN (in-building wireless).
 - ◆ Watchguard Wireless devices utilize in-building firewalls as their controllers.
- Wireless networks are not segmented utilizing best practices.
- Public Works has begun work on an expansion of wireless to cover the Corp Yard.
- Demand for public Wi-Fi in open spaces will continue to increase.
 - ◆ Several smaller City facilities do not have wireless or Internet access.
- The City does not currently utilize a wireless “splash page” outlining terms of use.



Recommendations

- Implement wireless improvements in segmentation.
- When refreshing the wireless infrastructure, develop an open RFP, and evaluate cloud strategies from multiple vendors.
- At the Corp Yard, implement a wireless mesh topology to cover the entire yard.
- Over time, add wireless and Internet access to smaller City facilities where demand warrants.
- Add a “splash page” to the guest wireless sign-on process.

Benefits

- Improved wireless speeds
- Reduced complexity
- Increased security
- Expanded coverage



32. Internet Bandwidth

Increased Internet bandwidth and high availability are becoming increasingly important to organizations for daily functionality. This allows for additional resources to become available during peak Internet usage and provide for resiliency when disasters occur that may affect primary Internet connections that are no longer accessible.

Findings and Observations

- Internet bandwidth will be increasing at the Library for public use through the CENIC consortium.
- All other City facilities rely on Comcast Business Class service, using coaxial cable.
- City Hall and Public Works Internet bandwidth is adequate.
- Police Internet bandwidth is extremely limited due to issues in the Comcast infrastructure.
 - ◆ Police Internet bandwidth needs will increase with the introduction of body-worn cameras.
- As the City increases use of cloud services, Internet bandwidth needs will increase.

Recommendations

- We recommend two distinct Internet connections from separate providers based on the City's reliance on cloud-based applications.
- The School District and the City of Monterey have both expressed willingness to provide connectivity alternatives if fiber connectivity can be established.
 - ◆ City and School District fiber share the same pathway and junction box at Public Works.
- Study alternate methods of providing a minimum of two high-speed Internet connections. Alternatives, include:
 - ◆ Fiber-based Internet service directly to City facilities from AT&T, Comcast, or another carrier.
 - ◆ Fiber-based Internet service from a colocation facility, potentially at the City of Monterey or the School District.
- Increased Internet costs has been included in recommended Five-Year Budget.

Benefits

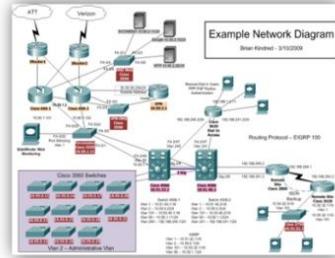
- Improved performance
- Increased Internet uptime
- Increased resiliency, providing increased cloud-based applications and services uptime
- Reduced risk and liability
- Disaster Recovery safeguard



33. Network Redesign

Findings and Observations

- Current network topology contains single points of failure for core connectivity.
- Bottlenecks exist in the network, resulting in poor performance and reliability.
- Network was not built with future growth in mind, and currently provides limited bandwidth.
- The network devices do not support Power over Ethernet, which will be a requirement for a replacement VoIP phone system.
- Network IP addressing and segmentation improvements could further increase security and performance.
- The Police Department is segmented from the City administrative network.



Recommendations

- Redesign the core network to increase speeds a minimum of ten times.
 - ◆ Create a resilient core network that eliminates single points of failure.
- Review virtual LAN (VLAN) network segmentation and revise per current best practices.
- Monitor and collect performance metrics on network availability and viability.
- Replace network devices in conjunction with the recommended phone system replacement.

Benefits

- Improved network performance speed and reliability
- Reduced support costs
- Full redundancy across sites
- Increased security

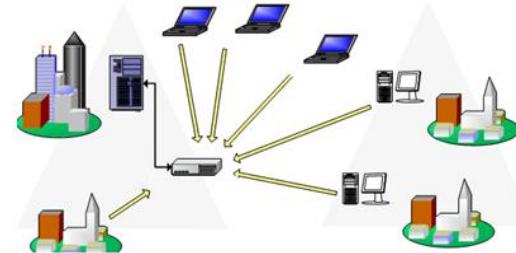


34. Metropolitan Area Network (MAN)

A metropolitan area network (MAN) is a network that typically spans multiple city facilities. Normal MANs interconnect multiple local area networks (LANs) to allow for better communication among organizations where a physical presence cannot be accommodated.

Findings and Observations

- City Hall and Police Department are interconnected using private fiber.
- At one time, the Community Center and Public Works were also interconnected using private fiber.
 - ◆ We have been told that the fiber-optic cable to these locations exists, but for some unknown reason the connections are not functioning.
- The Library and other small sites are connected to the City through Internet-based point-to-point virtual private network (VPN).
 - ◆ The City Attorney's office is connected to the City using a City Attorney owned VPN.
- Current network limits staff productivity by:
 - ◆ Reducing the ability to upload or download files between sites
 - ◆ Increasing application response times from City Hall to the Library and Public Works for financial and other applications



Recommendations

- Assess existing fiber-optic network connections and repair, as necessary.
- Assess connectivity alternatives to add the Library to the City MAN, and procure using best practices.
- Leverage increased MAN speeds to consolidate servers to the data center.
 - ◆ Library CENIC connectivity for patron Internet access should remain at the Library.
- Replace the City Attorney's VPN connection with a City-owned VPN to provide improved control over external security.



35. Technology Support for the EOC

Findings and Observations

- City's Emergency Operations Center (EOC) does not have sufficient technology to function optimally in a large-scale emergency. The EOC lacks:
 - ◆ Flexible telephones
 - ◆ Cable TV
 - ◆ Multiple display monitors to track events and display multiple feeds
 - ◆ High speed, high-capacity resilient wireless network
 - ◆ Available backup Internet
 - ◆ ePrint for mobile devices

Recommendations

- Consider procuring EOC-enhanced audiovisual systems at the same time as Council Chamber audiovisual.
- Add additional wireless capabilities to provide high-speed support for up to 20 individuals or 60 total devices.
- Audiovisual improvements:
 - ◆ Multiple monitors and monitor control systems
 - ◆ Workstation display systems
 - GIS mapping capabilities housed within the room
 - Ability to switch traffic displays onto monitors in EOC
- Consider adding Smart Board display technology.

Benefits

- Alignment with Disaster Recovery Plan
- Support for Incident Command System
- Event information tracking
- Coordinated support for emergency responders
- Basis for communication to the public during local incidents and for recovery activity



36. Office Software Upgrades

Findings and Observations

- Current desktop and laptop computers utilize various versions of Microsoft Office and Adobe products.
 - Many staff members utilize Google Apps and save data on Google Drive.
 - Others continue to utilize Microsoft Office and save data locally.
 - Staff consensus is that Google Apps can provide basic functionality. The additional functionality included in Microsoft Office is necessary 20% of the time.
- Electronic mail is Google Mail (Gmail).
- Office 2016 will be released this coming year.
- We often recommend skipping generations of Office software.

Recommendations

- Move to Office 365 and OneDrive.
- Move to a subscription-based Adobe licensing policy, using Adobe cloud-based software.
- Budget for classroom training as a part of the Office 365 implementation.

37. Dual Monitors and Ergonomics

Findings and Observations

Utilizing dual monitors for many users can significantly increase the speed of completion for certain computer tasks, thereby increasing overall employee productivity. Some studies have shown increased overall productivity of 20-30% for office staff and up to 50% and 74% for certain computer tasks. These studies demonstrate a return-on-investment multiple times the cost of the additional monitor when calculating the efficiency savings with gross hourly labor costs.

Each individual has different ergonomic needs. Best practices communities provide ergonomic reviews of desktop configurations by certified professionals.

- The majority of staff members use single-monitor systems.
- Studies show dual monitor systems are approximately 20% more productive.
- Our experience has been that staff requires 30 days to understand how to use the technology for productivity improvement.
- CEDD staff state that they utilize paper drawings because their monitors are not large enough to properly display the images.
- Some staff have requested standing computer desks.
- Keyboards, mice, and monitor placement should be an individuals choice, with advice from a certified ergonomics professional.

Return-on-Investment (ROI) Considerations

- A Microsoft productivity study concluded that adding an extra monitor can boost productivity by 9% to 50%.⁸

⁸ "4 Studies which Show that Using a Second Monitor Can Boost Productivity", Core Communication 11 Dec. 2010, 4 Apr. 2013, <<http://www.corecommunication.ca/4-studies-which-show-that-using-a-second-monitor-can-boost-productivity/>>.



- A study conducted by the University of Utah found that dual monitors helped users complete tasks as much as 52% faster.⁹

Recommendations

- Tech Committee to prioritize potential dual-monitor implementations.
- Tech Committee to oversee monitor-size decisions based on need.
- Implement standing desks if staff request them are shown to improve ergonomics significantly.
- Implement as PCs are replaced, or more quickly, if demand requires.

Benefits

- Improved staff productivity return on investment (multitasking)
- Enhanced ability to compare work
- More efficient sharing of data between applications
- Compatibility with both laptops and computers

38. Video Camera and Surveillance System (Citywide Standard)

Findings and Observations

Actively monitored security camera surveillance systems can be an effective security tool and criminal deterrent. One study by the Urban Institute determined that the savings and benefits of fewer incidents and crimes outweighed the cost of video surveillance systems. The study also found that Police, Parks and Recreation, Code Enforcement, policymakers, and others involved in facility/property oversight, largely viewed security/surveillance/monitoring cameras as a useful tool for managing behavior, preventing crimes, aiding in response, assisting in arrests, and supporting investigations and prosecutions. Video monitoring has also been found to have significant value in large, open spaces that are difficult to cover with existing personnel but can be more easily covered and monitored with video technology.

Video Monitoring can be applied, but not limited to:

- Graffiti abatement
- Monitoring specific public areas, facilities, buildings, parking lots, parks, etc.
- Monitoring access or gated sites for in/out traffic, including license plate reader technology
- Use as evidence in criminal prosecutions or potential claims and litigation

Note: California Local Government Records Management guidelines require retention of public safety surveillance video images for a minimum of the current year, plus an additional 13 months.

The City has two camera systems and types of various ages. The desire is to standardize across the City for both Police and other City departments' needs, including the centralization of citywide video system management.

- The City currently utilizes multiple video surveillance systems.
 - ◆ Due to the proprietary nature of these systems, they cannot be monitored or managed from a single console.
- There are requests for additional video surveillance cameras from multiple departments, in addition to the Police Department.

⁹ Core Communication, 11 Dec. 2010.



Recommendations

- Fiber connectivity will allow the City to centralize all video surveillance storage.
- A video surveillance design RFP process should be considered to select a video surveillance vendor for the City to upgrade this critical equipment.
- Eventual selection, purchase, and implementation of an IP-based network video recording (NVR) system should be considered that allows for storage and retention of video images that meets the needs of all departments, but also meets California Local Government Records Management guidelines for the Police Department.
- Management systems such as Avigilon and ONSSI ("open" management platforms that can support multiple camera vendors) should be considered in order to reduce potential interoperability issues.
 - ◆ Remote, browser-based access is a standard feature of these management platforms, allowing staff to review authorized video surveillance when necessary.
- Video monitoring should be considered as a multi-year project. A multi-year project and timeline would allow for proper planning and a rollout of the technology in a prioritized fashion over several fiscal years.

39. Audiovisual Systems

Findings and Observations

- Audiovisual systems (with the exception of the EOC) are older, but still functional.
- Conference rooms have limited audiovisual capabilities.
 - ◆ Collaboration increases when conference room audiovisual systems are leveraged for meetings and presentations.

Recommendations

- Budget for upgrades to audiovisual systems, improving one or two conference rooms each year.

Benefits

- Improved production quality of City meetings and other public meetings held in the Council chambers
- Increased availability of IT staff for core technology projects and staff support
- Improved government transparency



40. Radio Operations

Findings and Observations

- The City is responsible for a subset of the County-wide radio system, including local repeaters and antenna.
 - ◆ The County system is a current generation digital system.
- While the radio system provides good coverage throughout the City, there are some trouble spots close to the ocean.
- In-car, hand held and Public Works radios are leased. This five-year lease agreement terminates June 30, 2017.
- Existing handheld radios are large and heavy.
 - ◆ Newer generation radios can be much smaller and lighter. Newer generation radios also have many software features that can be activated remotely, if necessary.

Recommendations

- Assess current trouble spots to determine if additional repeaters/antennas are required.
- Assess and identify all features that other radio user departments would like to see incorporated, and develop an improvement schedule.
- For Police, procure radios that can easily have features added.

Benefits

- Improved public safety
 - ◆ Reduce size and weight of Officer equipment
- Improved confidence in the radio system when near the ocean
- Ability to easily add radio features as necessary

The *IT Operations* section addresses the daily support and maintenance of all IT infrastructure and user support.

41. Help Desk Ticketing System
42. IT Support Metrics
43. Mobile Device Management
44. Asset Management Automation
45. Network Management Tools (Alerts/Alarms)
46. Desktop Management and Imaging
47. Printer / Copier Consolidation
48. IT Policies and Procedures
49. IT Procurement Practices
50. IT Cost Recovery (IT Budget Allocations)





41. Help Desk Ticketing System

Help Desk systems provide an easy way for users to submit requests. IT staff can assign tickets. The automated, electronic, mail-based communications included in Help Desk systems can allow users to track the progress of their tickets as IT Staff updates the status. Help Desk systems prevent items from “falling through the cracks” by logging all requests. Another key benefit of Help Desk ticketing systems is metrics related to the number of requests submitted, resolved, and remaining open.

Findings and Observations

- Utilization of the vendor-supplied Help Desk system is limited.
 - ◆ The benefits of such a system have not been thoroughly explained to staff.

Recommendations

- A Help Desk ticketing system should be utilized to track IT productivity and service.
- Metrics related to meeting Help Desk service levels should be developed and tracked on a weekly and monthly basis.
- Each month, summaries of Help Desk tickets opened and closed should be presented to the Technology Committee.
 - ◆ Technology Committee members should be prepared to discuss any Help Desk issues or festering problems during the monthly meeting.

Benefits

- Central ticketing system
- Availability to many users
- Increased resolution rates
- Support for all devices
- Improved user communication, experiences, and satisfaction
- Better diagnostics and problem identification

42. IT Support Metrics

Findings and Observations

- City IT is outsourced
- Metrics related to Help Desk ticket response or resolution times are not generated.
- Help Desk ticket response-time or resolution-time goals do not exist.
 - ◆ These goals can be proposed by the Technology Committee for adoption by the City.
 - ◆ Response-time and resolution-time goals are very helpful in measuring third-party performance.

Recommendations

- Develop an improved marketing campaign to expand utilization of the Help Desk.
- Develop Help Desk ticket response-time and resolution-time goals based on urgency.
 - ◆ Track and report on these goals during Technology Committee meetings.
- When selecting the next IT support firm, include Help Desk ticket response and resolution time goals in the contract.

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

- Track number of tickets assigned, priority, response time, and resolution time by team member.



43. Mobile Device Management

Mobile Device Management (MDM) is software that allows management, distribution, usage, and maintenance of laptops, tablets, and smart phones. Additional features allow configurations to be done on devices to discourage wrong use and reduce individual device maintenance.

Findings and Observations

- MDM provides the ability to see and control all mobile devices entering the enterprise.
- The IT function currently supports approximately 30 mobile devices, including laptops, smart phones, and tablets.



Recommendations

- Research, pilot, and select Mobile Device Management software.
- Consider using Meraki's free product in the interim.

Benefits

- Improved staff efficiency and mobility
- Support for all devices
- Less time manually managing and monitoring
- Increased use of remote access
- Easier distribution of software

44. Asset Management Automation

Asset management automation is a system for maintenance and asset management functionalities, which includes asset management, inventory, deployment, and security-patch management. The automation features allow reduced manual processes, allowing more efficient processing and monitoring of activities.

Finding and Observations

- Staff utilizes Spiceworks on a limited basis for inventory creation.
 - Asset management (the tracking of purchase date, maintenance contracts, and inventory information) is not currently implemented.

Recommendations

- When selecting the IT outsourcing firm, include asset management as a requirement.
 - ◆ Require the outsourcing firm to produce updated inventory data on a quarterly basis.





45. Network Management Tools (Alerts/Alarms)

Network management is the general term used for the activities, procedures, and tools that relate to the operation, administration, provisioning, and maintenance of computer network systems, effectively keeping the network up and running smoothly, while also monitoring the system to quickly identify potential problems.

Findings and Observations

- The City does not utilize a network management tool.
 - ◆ Network management can be very helpful in moving the IT function from reactive to proactive.
- The City does not currently maintain a baseline of bandwidth utilization.
 - ◆ This baseline is very valuable in justifying bandwidth upgrades.
 - ◆ Bandwidth utilization is also a critical component in troubleshooting slow response times.
- IT does not use a comprehensive tool for monitoring alerts and analysis of performance data from routers, switches, servers, and other SNMP-enabled devices.
 - ◆ Some alerts and alarms are precursors to failure.
 - ◆ Others provide IT with early notification of failures.
 - ◆ Monitoring can provide IT 24-hour notification to problems, even if users are not present.
- Network management software can also provide availability metrics for IT applications.
- In many cases, it will notify IT of problems before user community notices.
 - ◆ Moves IT from reactive to a more proactive posture.

Recommendations

- Requires the City's third-party IT firm to provide a network management system that includes alerts and alarms across the enterprise.
 - ◆ Requires a monthly baseline reports of bandwidth.
- Creates alerts and alarms to notify staff before a failure.
- Works with the third-party to develop a matrix of triggers for various devices (e.g., server disk space, bandwidth utilization percentage, etc.)
- Develops uptime and availability metrics for applications and systems.

Benefits

- Less time manually managing and monitoring
- Increased utilization
- Increased resource access
- Centralized access to multiple applications and platforms
- Early warning capability, allowing for intervention and incident avoidance

Network Management

- Network Device Monitoring
- Performance Monitoring
- Bandwidth Monitoring
- Firewall Management
- Router/Switch Management
- Proactive Monitoring
- Threshold Customizations
- Altering
- Network Interface Stats



46. Desktop Management and Imaging

The concept of *desktop management* refers to the comprehensive approach of managing all computers within an organization, including laptops and other devices. Tasks include installing and maintaining hardware and software, setting up spam filters, and providing user permissions. As security-related tasks have increased over the years, desktop management is also providing more patch management (code changes), corrections against viruses and spyware, and controlling greynet applications (programs installed without permission).

A *desktop management (DM) interface* is a framework for managing and keeping track of the hardware and software components of an organization's computers.

Findings and Observations

- A desktop management system is not currently being utilized.
- A desktop management system's primary function would include:
 - ◆ Patching and updating desktops
 - ◆ Remote control
 - ◆ Developing packets for new software deployments (and removing old software)
 - ◆ Monitoring desktop health
- Imaging software is not in use, reducing desktop standardization and limiting troubleshooting choices.
- Centralized patch management and distribution is not implemented.
- Staff members are utilizing manual and redundant processes to maintain the desktop environment, which is very time-consuming and inefficient.

Recommendations

- As a part of the selection of a third-party IT support firm, request proposals for cloud-based desktop management or managed services.
- Standardizing hardware and software platforms provides the following:
 - ◆ Reduced spyware infections
 - ◆ Reports summarizing PCs at risk
 - ◆ Increased distribution of antivirus updates
 - ◆ Reduced time spent managing virus protection
 - ◆ Increased automation of desktop software deployment
 - ◆ Reduced visits to individual desktops
- With the IT Support firm, implement desktop standardization and imaging.

47. Printer / Copier Consolidation

Great benefits can be obtained by consolidating printers and copiers into multifunction printers, which can meet the needs of multiple individuals while reducing the number of printers in an environment.

Findings and Observations

- The Technology Committee studied multifunction printer/copier/fax solutions and developed a recommendation.
- Standalone printers are ten to twenty-five times more expensive to operate than large multifunction devices.
- The best practice ratio of PCs to printers is 7 to 1.
- Printers typically make up between 10% and 20% Help Desk tickets.

A consolidation of the number of printers allows for lower one-time and ongoing expenditures, centralized management of printers, and less time required for IT staff to manage printers.

Recommendations

- Inventory all PCs and printers.
- Procure multifunction printer/copier/fax machines based on the Technology Committee recommendation.
- Work towards optimal ratio of PCs to printers by eliminating printers where possible.
 - ◆ Exceptions can be made for the few departments that require personal printers (e.g., Human Resources printing sensitive staff information).
- Reduce/consolidate network printers and eliminate individual printers.

Benefits

- Reduced one-time costs
- Reduced cost for printer supplies
- Availability to many users
- Reduce unnecessary software or hardware purchases
- Multifunctional for printing, copying, and scanning (scanning capabilities will be synchronized with the *Electronic Content Management System (ECMS)* initiative described earlier)
- Reduced time required for IT Support staff assistance

48. IT Policies and Procedures

Findings and Observations

- The City IT function lacks policies and procedures. The relevant sections of the Employee Handbook were last modified in October of 2012.
- The City Social Media policy was last modified in May of 2016.

Recommendations

- Update the Employee Handbook to include the following topics:
 - ◆ Computer Awareness and Security
 - Responsibility for reporting potential virus or malicious activity
 - ◆ Responsibility for Personal Identifying Information
- Review the Cell Phone section and revise to include mobile devices and tablets.
- Revise and create a limited number of IT policies and procedures, including, but not limited to, the following:
 - ◆ Encryption Policy
 - ◆ Data Usage
 - ◆ Security Awareness Training Policy
 - ◆ Web Filter Exceptions
 - ◆ Password Policy
 - ◆ Electronic Information and Email Retention Policy
 - ◆ Computer Security Incident Response Policy
- Utilize the Technology Committee to review policies and procedures and facilitate communication throughout the organization.



49. IT Procurement Practices

Findings and Observations

The City has a small degree of technology-oriented procurement practices in place. These procurement practices should be expanded to include more detail and address different procurement types, including:

- Commodity Systems
- Complex Systems
- Highly Complex or Expensive Systems

Oversight of the procurement process by IT and the Steering Committee should also be included as a practice.

Recommendations

- For commodity systems where several vendors provide very similar products, if three quotes are required by City policy, the City should consider creating an open RFP that does not specify a product manufacturer, but provides vendors with specifications that must be met.
 - ◆ Encourages increased vendor participation
 - ◆ Increases vendor participation, which often results in lower pricing and better products
- For complex systems, the City should consider procuring installation services from the vendor supplying hardware and software, or other third-party implementers.
 - ◆ “Complex systems” are defined as those costing more than \$50,000 or requiring more than 80 hours of third-party implementation assistance.
 - ◆ Reduces chance of finger-pointing for poor design, damaged product, or poor installation.
- For highly complex or expensive systems, the City should consider including all components in the RFP: final design, installation, construction, testing, conversion, post-implementation support, and knowledge transfer.
 - ◆ Includes procurement of complex systems that may cross budget years because of cost considerations.
 - ◆ All components should be practically considered and integrated.
- For oversight, before approval of purchase of a complex system or a system requiring three bids, the Technology Committee should review any complex or highly complex system procurement and Finance/Purchasing should require the following of the IT Division:
 - ◆ A diagram of the system
 - ◆ High-level implementation plan (can be one page of bullet points)
 - ◆ A bill of material that includes all components, list price, quantity, discounted price, and ongoing maintenance
 - ◆ Costs associated with final design, installation, any construction, testing, conversion, post-implementation support, and knowledge transfer
 - ◆ A vendor cost matrix and assurances that all responses are truly comparable
 - ◆ A written recommendation

In general, the City should follow best practices for IT hardware and software replacement and procurements.

50. IT Cost Recovery (IT Budget Allocations)

The IT function's role and execution of operational best practice is that of an internal support function to all departments and City system users and, in some instances, the City's constituents and the public. The departments, users, constituents, and the public are the customers of the IT Division.

IT Cost Recovery is the concept of funding the IT budget from all other departments based upon various metrics utilization and services provided. Examples could include number of users, computers, servers, network devices, phones, and time estimates for supporting specialized systems and applications.

In this way, IT costs can be spread equitably among departments, and the organization can gain a true understanding of the costs required to support the technology infrastructure and support services in order to make better management decisions.

Findings and Observations

- Some IT software costs, including maintenance and support costs, are in departmental budgets, not the IT budget.
- As the City transitions from individual department application usage to integrated application usage, assigning costs to specific departments will become more difficult.

Recommendations

- Consider moving all IT-related costs to the IT budget to allow reporting and comparisons to peers related to IT spending.
- A draft IT Cost Recovery model:
 - ◆ Conduct a holistic review
 - ◆ Focus on creating a simple and transparent cost recovery mechanism
 - ◆ Assure that departments using services are charged proportionately
 - ◆ Assure that all project costs are attributed to the projects
 - ◆ Explore potential ways to track actual time spent at some levels
 - ◆ Communicate the cost recovery method and results to the departments during the next budget cycle
- Determine if the administrative burden of cost recovery provides a return in proper cost allocation and transparency.

The *IT Security* initiatives address all security systems and practices, including disaster recovery, to protect systems and data.

51. Disaster Recovery Planning
52. Backups
53. Firewall Filtering and Consolidation
54. Virus Updates
55. IT Security - General
56. Two-Factor Authentication
57. Logging and Audit Trails



51. Disaster Recovery Planning

Findings and Observations

- A Disaster Recovery plan is not currently implemented.
- Service-Level Agreements (SLAs) are not in place for applications recovery in the event of a disaster.
- When utilizing a cloud-based IT services model, traditional key Disaster Recovery components become:
 - ◆ Internet and network resiliency
 - ◆ Business Continuity Planning

Recommendations

- As stated above, develop a highly resilient Internet and network capability.
- In conjunction with Emergency Operations Planning, develop contingency plans for:
 - ◆ Loss of the City Hall (Finance) and Police Department computer rooms
 - ◆ Major disaster eliminating all area communications, the Administrative Offices, and IT infrastructure
- For Police RMS and other on-premise systems, consider:
 - ◆ Cloud-based CJIS compliant disaster recovery for Police RMS system
 - ◆ Alternatively, work with another city that uses RIMS CAD/RMS, and potentially enter into an agreement for mutual disaster recovery
- Evaluate applications portfolio and determine the SLA for each application for restoration.
- Develop strategies for access to cloud-based applications from other City facilities in the event of an outage.
 - ◆ Test portions of plan each year.



Benefits

- Emergency preparedness compliance
- Improved communication
- Awareness of procedures
- Better diagnostics and problem identification
- Reduced risk and liability
- Faster, well-informed decisionmaking
- Identification of business critical functions
- Decreased recovery times and exposure to system failures
- Awareness of immediate actions



52. Backups

Findings and Observations

- Most City applications are cloud-based.
 - ◆ Google Drive is the primary storage location for documents and shared files.
- Police Department RMS backups are stored locally.
- Some staff utilize their hard drives to store documents.
 - ◆ Use of Google Drive synchronization is limited.
- The City does not have sufficient equipment to test a full system restoration.

Recommendations

- Utilize a CJIS compliant cloud-based storage solution to backup Police RMS and other critical Police data.
- Alternatively, for Police RMS data, investigate sister-community or state-secure backup locations.
- Test full system restoration from on-site and off-site backups periodically.



53. Firewall Filtering and Consolidation

Findings and Observations

- Currently, the City utilizes Watchguard and NetGear firewalls.
 - ◆ A Watchguard replacement for the NetGear firewall at the Library has been purchased and is awaiting implementation with the CENIC project.
- The City currently utilizes the Watchguard firewalls as Web content filters at City Hall, which includes PD and the Library.
 - ◆ Web-content filtering is disabled at Public Works.
 - ◆ Small, ancillary sites do not utilize a Web-content filtering application.
- When all sites are interconnected via a Metropolitan-Area Network, the City will require four firewalls:
 - ◆ One at City Hall (existing)
 - ◆ One for public Internet access at the Library (Purchased but not installed)
 - ◆ One to separate PD (CJIS requirement)
 - ◆ One for a second Internet connection (to be determined)

Recommendations

- Procure and install the WebBlocker and advanced threat package for the Public Work firewall.
- Procure a Watchguard firewall to replace the NetGear at Police.
- Procure and install a WatchGuard Management Software so all four firewalls can be centrally managed.
 - ◆ In addition, utilize WatchGuard Management Software to centralize firewall log management.



Benefits

- Improved security and reduced risk of viruses
 - ◆ If the City does get an infection, an antivirus engine on Exchange could prevent its spread
- Reduced risks related to inappropriate staff use of the Internet
- Reduced staff time spent managing firewalls, through centralized security logs and management

54. Virus Updates

Findings and Observations

- The Library uses Webroot for virus protection.
- Antivirus software is not enabled on all desktops throughout the City.
 - ◆ CJIS requires antivirus software.
- Centrally managed antivirus software for computer systems is a security best practice.

Recommendations

- Immediately expand WebRoot to all City facilities and computers.

55. IT Security

Findings and Observations

- The City has very few IT-related policies or procedures.
- Users log on to applications, but do not initially log on to the network.
 - Network resources are available from an individual workstation without authentication.
- Passwords are administered locally at each workstation.
 - Most staff cannot move between workstations and work.
- IT security best practices for password management have not been followed.

Recommendations

- Develop and expand IT Security policies that addresses issues, including:
 - Password management
 - Personal identifying information identification and storage
 - Payment Card Industry (PCI) Data Security Standard compliance
 - Incident response
 - Third-party relationships and data confidentiality
- Implement complex passwords and periodic password changes (recommend every 90 days)
- Implement initial network authentication in conjunction with the log-on process
 - Force staff to authenticate before utilizing any network resources.
 - Allow staff to move between workstations and gain access to applications.
- Develop and implement an IT password security procedure based on ClientFirst recommendations.
- Redesign and implement IT security as a part the move to Office 365 and OneDrive.
- Implement virtual VLANs; tag and assign based on usage.
- Implement ACL schema that is more secure (between subnets).
- Conduct a Security Assessment utilizing a third-party after the above security improvements have been achieved.

Benefits

- Improved security measurements
- Increased security awareness for staff



56. Two-Factor Authentication

The need for both increased information sharing and access to government data networks creates new requirements to certify confidence in the identity of the individuals accessing information. To meet these new requirements, many agencies at all levels of government are using a strategy known as advanced authentication, or two-factor authentication. This approach supplements traditional username and password authentication with alternative forms of verification based on a user's physical characteristics (such as a fingerprint) or an object in the user's possession (such as a smart card or a token).

Findings and Observations

- Two-factor authentication is a network protection strategy based on the principle of defense-in-depth.
- Two-factor authentication is not currently implemented.
- FBI Systems Criminal Justice Information Services (CJIS) Security Policy (Version 5.2) requires advanced authentication methods for remote access to all systems that contain Criminal Justice Information (CJI), effective September 30, 2014.
- The CJIS mandate includes access to data from City police vehicles or any location that cannot be determined physically.

Recommendations

- Budget for and implement two-factor authentication for access to mobile computers that have access to CJIS data and for IT staff remote-network access.

Benefits

- Enhanced security and compliance

57. Logging and Audit Trails

Audit trails and logging transactions have become an important part of computer forensics. In many cases, client audit trail or system log information has been utilized to determine individuals responsible for specific activities. The ability to determine responsibility for actions is an important part of maintaining the environment.

Findings and Observations

- Firewall logs are captured locally.
- Server and switch logs are not collected.
- Audit trail of authentication attempts or attempted access of files does not exist.

Recommendations

- Utilize WatchGuard Management Software to centralize firewall logs and firewall log management.
- Ensure that cloud-based authentication software has audit and SYSLOG capabilities.
- Implement a SYSLOG server and collect all logs from network devices.
 - ◆ Determine if logs can be appended to the WatchGuard Management Software log.
 - ◆ Create a log-retention policy.
 - ◆ Logs should be reviewed for anomalies weekly, at a minimum.

Benefits

- Improved functionality and security
- Meet industry compliance standards

Telecommunication is an important tool for local government entities. It enables the ability to communicate effectively with constituents and deliver high standards of service.

Telecommunication is also a key element in teamwork, allowing employees to collaborate easily from wherever they are located.

58. VoIP Phone Replacement

59. Cellular Phone Coverage





58. VoIP Phone Replacement

Voice-over-IP (VoIP) technology uses an Internet connection to accommodate calls. It is highly reliable and fast when compared to conventional telephone systems, and is an accepted communication standard. Benefits include reduced costs, ability to easily change numbers as needed, and increased features and support. VoIP hardware upgrades can occur automatically and seamlessly.

Findings and Observations

- The existing Avaya telephone system is obsolete and no longer supported.
 - ◆ Parts for the existing system may only be procured through eBay.
- Annual maintenance costs for the existing system continue to increase at a rapid rate.
- In order to upgrade to VoIP, the data network switches must be replaced (see *Network Redesign* initiative).
- Based on our initial review of telecommunications expenses, ROI on a VoIP phone system should be in the four- to six-year range.

Recommendations

- Select a new VoIP system according to the *Software Selection Best Practices* initiative, utilizing an independent telecommunications consultant/subject-matter expert (SME).
- It is prudent to compare multiple vendors to get best price and value.
- Conduct an RFP for a replacement telephone system.
 - ◆ Include in the process development of ROI to justify the project.
- Implement with the assistance of the selected vendor.

Benefits

- Reduced implementation, support, and maintenance costs
- Increased long-term ROI
- Enhanced communications
- Increased use of features
- Improved user experiences
- Reduction in total cost of ownership

59. Cellular Phone Coverage

Findings and Observations

- Although Verizon generally has good coverage throughout the City, there are some no-signal areas that prevent Public Safety and other staff from conducting mobile communications.
- Cell phone signal boosters may be available from Verizon, the City's cell phone provider, to improve cell phone coverage.
- The Cemetery and Chapel have poor cell phone coverage.

Recommendations

- Work with Verizon to identify and remediate poor coverage areas within the City.

IT Staffing addresses one of the most important and critical areas of business management, especially in view of the impact IT decisions can have on the organization's productivity, budget, morale, and overall success.

60. IT Support

61. Police IT Staffing



60. IT Support

Findings and Observations

- The City utilizes a third party under a temporary IT Support contract
- The IT Support firm is onsite two days per week and provide adequate day to day support.
- No service-level agreements (SLAs) exist between the City's outsourced IT support firm and City departments.
 - ◆ SLAs will define what applications and equipment are owned/maintained by departments or by the Technology Services Department.
 - ◆ SLAs will include IT prioritization of Help Desk tickets and expectations for ticket completion.
- Three alternatives have been developed for ongoing IT Support
 - ◆ Share services with Monterey
 - ◆ Expanding the existing third party relationship to include Managed Services
 - ◆ Hiring staff for IT Support
- Pros and cons of the various options are summarized in the December 20th Council Presentation.
 - ◆ Council's recommendation will be solicited at the December 20th meeting.

Recommendations

- Define and implement SLAs with user departments that incorporate user support ticket priorities and application support responsibilities.
 - ◆ Shift responsibility for printer maintenance and other low-level tasks to users.
 - ◆ Departments need to take responsibility for some technology.
- Review and analyze Help Desk tickets on a monthly, quarterly, and annual basis.
 - ◆ Look for opportunities to reduce potential issues by making changes to configurations.
 - ◆ Review results and long-term outstanding items with Technology Committee.
- Review current staff allocations, considering the increased time commitments required to implement the Technology Plan.
- Continue to utilize a third party expert to advise in the implementation of an IT Support model and provide assistance moving forward.

Benefits

- Increased departmental participation in technology
- Proper separation of duties
- Improved utilization of resources



61. Police IT Staffing

Finding and Observations

- Current Police IT Support is very limited.
- A sworn Officer handles the majority of PC and police car IT-related needs.
- The Police Administrative Services Manager handles many other IT responsibilities.
- Police have many high-priority IT projects, but few staff hours available to complete the projects.
- Initial improvements in Police systems has resulted in a significant reduction in IT Support needs.

Recommendations

- Consider future major Public Safety IT projects and initiatives, as well as day-to-day IT support needs, when determining the Public Safety IT staffing needs.
- Consider utilizing external IT consulting subject matter experts for significant key projects



BEST PRACTICE

Fund Balance Guidelines for the General Fund

BACKGROUND:

In the context of financial reporting, the term *fund balance* is used to describe the net position of governmental funds calculated in accordance with generally accepted accounting principles (GAAP). Budget professionals commonly use this same term to describe the net position of governmental funds calculated on a government's budgetary basis.¹ While in both cases *fund balance* is intended to serve as a measure of the financial resources available in a governmental fund; it is essential that differences between GAAP *fund balance* and budgetary *fund balance* be fully appreciated.

1. GAAP financial statements report up to five separate categories of fund balance based on the type and source of constraints placed on how resources can be spent (presented in descending order from most constraining to least constraining): *nonspendable fund balance*, *restricted fund balance*, *committed fund balance*, *assigned fund balance*, and *unassigned fund balance*.² The total of the amounts in these last three categories (where the only constraint on spending, if any, is imposed by the government itself) is termed *unrestricted fund balance*. In contrast, budgetary fund balance, while it is subject to the same constraints on spending as GAAP fund balance, typically represents simply the total amount accumulated from prior years at a point in time.
2. The calculation of GAAP fund balance and budgetary fund balance sometimes is complicated by the use of sub-funds within the general fund. In such cases, GAAP fund balance includes amounts from all of the subfunds, whereas budgetary fund balance typically does not.
3. Often the timing of the recognition of revenues and expenditures is different for purposes of GAAP financial reporting and budgeting. For example, encumbrances arising from purchase orders often are recognized as expenditures for budgetary purposes, but never for the preparation of GAAP financial statements.

The effect of these and other differences on the amounts reported as *GAAP fund balance* and *budgetary fund balance* in the general fund should be clarified, understood, and documented.

It is essential that governments maintain adequate levels of fund balance to mitigate current and future risks (e.g., revenue shortfalls and unanticipated expenditures) and to ensure stable tax rates. In most cases, discussions of fund balance will properly focus on a government's general fund. Nonetheless, financial resources available in other funds should also be considered in assessing the adequacy of unrestricted fund balance in the general fund.

RECOMMENDATION:

GFOA recommends that governments establish a formal policy on the level of unrestricted fund balance that should be maintained in the general fund for GAAP and budgetary purposes.³ Such a

guideline should be set by the appropriate policy body and articulate a framework and process for how the government would increase or decrease the level of unrestricted fund balance over a specific time period.⁴ In particular, governments should provide broad guidance in the policy for how resources will be directed to replenish fund balance should the balance fall below the level prescribed.

Appropriate Level. The adequacy of unrestricted fund balance in the general fund should take into account each government's own unique circumstances. For example, governments that may be vulnerable to natural disasters, more dependent on a volatile revenue source, or potentially subject to cuts in state aid and/or federal grants may need to maintain a higher level in the unrestricted fund balance. Articulating these risks in a fund balance policy makes it easier to explain to stakeholders the rationale for a seemingly higher than normal level of fund balance that protects taxpayers and employees from unexpected changes in financial condition. Nevertheless, GFOA recommends, at a minimum, that general-purpose governments, regardless of size, maintain unrestricted budgetary fund balance in their general fund of no less than two months of regular general fund operating revenues or regular general fund operating expenditures.⁵ The choice of revenues or expenditures as a basis of comparison may be dictated by what is more predictable in a government's particular circumstances.⁶ Furthermore, a government's particular situation often may require a level of unrestricted fund balance in the general fund significantly in excess of this recommended minimum level. In any case, such measures should be applied within the context of long-term forecasting, thereby avoiding the risk of placing too much emphasis upon the level of unrestricted fund balance in the general fund at any one time. In establishing a policy governing the level of unrestricted fund balance in the general fund, a government should consider a variety of factors, including:

1. The predictability of its revenues and the volatility of its expenditures (i.e., higher levels of unrestricted fund balance may be needed if significant revenue sources are subject to unpredictable fluctuations or if operating expenditures are highly volatile);
2. Its perceived exposure to significant one-time outlays (e.g., disasters, immediate capital needs, state budget cuts);
3. The potential drain upon general fund resources from other funds, as well as, the availability of resources in other funds;
4. The potential impact on the entity's bond ratings and the corresponding increased cost of borrowed funds;
5. Commitments and assignments (i.e., governments may wish to maintain higher levels of unrestricted fund balance to compensate for any portion of unrestricted fund balance already committed or assigned by the government for a specific purpose). Governments may deem it appropriate to exclude from consideration resources that have been committed or assigned to some other purpose and focus on unassigned fund balance, rather than on unrestricted fund balance.

Use and Replenishment.

The fund balance policy should define conditions warranting its use, and if a fund balance falls below the government's policy level, a solid plan to replenish it. In that context, the fund balance policy should:

1. Define the time period within which and contingencies for which fund balances will be used;
2. Describe how the government's expenditure and/or revenue levels will be adjusted to match any new economic realities that are behind the use of fund balance as a financing bridge;
3. Describe the time period over which the components of fund balance will be replenished and the means by which they will be replenished.

Generally, governments should seek to replenish their fund balances within one to three years of use. Specifically, factors influencing the replenishment time horizon include:

1. The budgetary reasons behind the fund balance targets;
2. Recovering from an extreme event;
3. Political continuity;
4. Financial planning time horizons;
5. Long-term forecasts and economic conditions;
6. External financing expectations.

Revenue sources that would typically be looked to for replenishment of a fund balance include nonrecurring revenues, budget surpluses, and excess resources in other funds (if legally permissible and there is a defensible rationale). Year-end surpluses are an appropriate source for replenishing fund balance.

Unrestricted Fund Balance Above Formal Policy Requirement. In some cases, governments can find themselves in a position with an amount of unrestricted fund balance in the general fund over their formal policy reserve requirement even after taking into account potential financial risks in the foreseeable future. Amounts over the formal policy may reflect a structural trend, in which case governments should consider a policy as to how this would be addressed. Additionally, an education or communication strategy, or at a minimum, explanation of large changes in fund balance is encouraged. In all cases, use of those funds should be prohibited as a funding source for ongoing recurring expenditures.

Notes:

1. For the sake of clarity, this recommended practice uses the terms GAAP fund balance and budgetary fund balance to distinguish these two different uses of the same term.
2. These categories are set forth in Governmental Accounting Standards Board (GASB) Statement No. 54, *Fund Balance Reporting and Governmental Fund Type Definitions*.
3. Sometimes restricted fund balance includes resources available to finance items that typically would require the use of unrestricted fund balance (e.g., a contingency reserve). In that case, such amounts should be included as part of unrestricted fund balance for purposes of analysis.
4. See Recommended Practice 4.1 of the National Advisory Council on State and Local Budgeting governments on the need to "maintain a prudent level of financial resources to protect against reducing service levels or raising taxes and fees because of temporary revenue shortfalls or unpredicted one-time expenditures" (Recommended Practice 4.1).
5. In practice, a level of unrestricted fund balance significantly lower than the recommended minimum may be appropriate for states and America's largest governments (e.g., cities, counties, and school districts) because they often are in a better position to predict contingencies (for the same reason that an insurance company can more readily predict the number of accidents for a pool of 500,000 drivers than for a pool of fifty), and because their revenues and expenditures often are more diversified and thus potentially less subject to volatility.
6. In either case, unusual items that would distort trends (e.g., one-time revenues and expenditures) should be excluded, whereas recurring transfers should be included. Once the decision has been made to compare unrestricted fund balance to either revenues and/or expenditures, that decision should be followed consistently from period to period.

This best practice was previously titled Appropriate Level of Unrestricted Fund Balance in the General Fund.

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