City of Long Beach
Working Together to Serve

Memorandum

Date: June 11, 2018

To: Patrick H. West, City Manager

From: Lea Eriksen, Interim Director of Technology and Innovation

For: Mayor and Members of the City Council

Subject: **Update on Critical Technology Infrastructure Needs**

Summary

The City is making great progress in implementing the identified critical technology needs from the presentation to City Council on December 5, 2017. To date, the City Council has approved $13.4 million of critical technology needs this fiscal year. It is estimated that the remaining $53.5 million will be presented for appropriation in the next 12 months. The use of cooperative purchasing agreements is part of the planned spending authority to take advantage of competitive pricing and to address the time constraints of the equipment projects related to the new Civic Center.

The impact of the estimated staffing, maintenance costs, and debt service costs of these critical technology needs was included in both the December 19, 2017 Fiscal Outlook for the General Fund and in the staff's February 6, 2018 presentation on Solving the Preliminary Budget Shortfall for FY 19. This memorandum includes additional details regarding these areas.

Background

At a City Council study session on October 24, 2017, staff presented an overview of unfunded critical technology infrastructure needs totaling $88 million. On December 5, 2017, the City Council approved staff bringing forward, for future City Council consideration, $67 million in proposed purchases and financing for various items encompassing three categories of unfunded critical technology infrastructure needs:

1) Installing a fiber optic system to interconnect City buildings to save on current and future communication costs and to form a basis for a potential future digital inclusion;

2) Replacing outdated technology that is becoming unreliable and will not support new systems or the new Civic Center; and,

3) Furnishing needed systems to meet key critical City needs and prevent malicious system attacks, data loss, and service outages.

The remaining $21 million is in a fourth need category, replacing public safety communications technology, which was not recommended for action at that time as additional information pertaining to extended support was anticipated to become available at a later date. The City Council report from the December 5, 2018 meeting (attached) provides additional background on the categories of critical technology needs.

Timing of Critical Technology Needs

Through May 2018, City Council has approved nine Council letters totaling $13.4 million. City staff are diligently working to bring additional time-sensitive purchase transactions forward in FY 18. Table 1 shows the status of the items. It is anticipated that the remaining items will be brought forward for City Council approval within the next 12 months.

Table 1: Status of Critical Technology Needs

Item ($ in millions)	Implementation Total	Previously Approved Total	Remaining Items to be Approved
Fiber Network			
Fiber Network Project	11.9	0.0	11.9
Outdated Equipment			
Data Center	9.9	1.9	8.1
Network Communications	10.4	3.7	6.6
PC Replacements	1.8	1.2	0.6
Fiber	5.8	0.2	5.6
Wireless	3.6	1.0	2.6
Equipment	9.5	4.2	5.2
Security Cameras	2.1	1.2	0.9
Technology Systems			
Customer Relationship Management (CRM) System	1.0	0.0	1.0
Cyber Security Systems	4.0	0.0	4.1
Electronic Document Management Systems (EDMS)	7.0	0.0	7.0
Grand Total	67.0	13.4	53.5

Regarding time-sensitive initiatives, the Fiber Network Project is in the planning stage using existing FY 18 budgeted funds. The focus for the outdated equipment category is meeting the timelines required for the Civic Center-related equipment, but progress will also be made in other areas. We will also be bringing contract awards to City Council for the Enterprise Document Management System (EDMS) and Customer Relationship Management (CRM) projects in the next few months.

Planned Use of Cooperative Purchasing Agreements

City Charter Section 1802 provides an alternative procurement method by permitting the City to purchase or otherwise obtain services, supplies, materials, equipment, and labor with other governmental agencies by purchasing under their contracts on a voluntary and selective basis when authorized by a Resolution of the City Council. Cooperatives are managed relationships where one entity will act as the lead agency by bidding and awarding contracts, which can then be used by other governmental and non-profit agencies. Cooperative purchasing agreements combine the requirements of two or more public procurement entities to leverage the benefits of volume purchases, delivery and supply chain advantages, best practices, and the reduction of administrative time and expenses. Generally, the originating entity/agency will competitively award a contract that will include language allowing for other entities to utilize the contract with

pre-determined pricing. This concept brings higher levels of efficiency to agencies because it allows one procurement process rather than many. Additionally, under cooperative purchasing agreements, vendors are bidding to provide goods and services to many agencies instead of just one so they can afford to offer steeper discounts to the end users of a contract, which can allow those agencies to benefit from economies of scale that they would otherwise not receive if they competed on their own.

Cooperative purchasing agreements are a highly-effective means for procuring the critical technology equipment. Staff selects specific contracts based on the type of equipment offered and the level of pricing discount provided. These contracts are then reviewed to make sure they meet the City's procurement, as well as legal requirements, and are consistent with the policies and principles of government contracting.

On June 19, 2018, staff will be requesting authority to enter into three cooperative agreements for the acquisition of technology-related equipment and software. Three agreements are proposed because each cooperative provides a different inventory of items available for purchase, some that may be the same (or equivalent) to the other providers, and some that may be exclusive to a particular contract. In those instances where multiple providers offer the same equipment, the City will have the opportunity to choose the lower-priced, or deeper discounted, items and/or select the vendor based on their ability to deliver the equipment within construction timelines and/or logistical constraints. Staff is also proposing to enter into a fourth cooperative agreement to provide highly skilled and specialized project management and installation support that can be deployed rapidly to meet the City's critical project timeline needs. Table 2 shows the planned use of cooperative purchasing agreements for the critical technology needs to help address this large increase in workload over a short-time period.

Table 2: Planned Use of Cooperative Purchasing Agreements for Critical Technology Needs

Item ($ in millions)	Implementation Total	Upcoming Items using Cooperative Purchasing Agreements
Fiber Network		
Fiber Network Project	11.9	0.0
Outdated Equipment		
Data Center	9.9	3.5
Network Communications	10.4	4.5
PC Replacements	1.8	0.2
Fiber	5.8	0.5
Wireless	3.6	1.6
Equipment	9.5	3.7
Security Cameras	2.1	0.6
Technology Systems		
Customer Relationship Management (CRM) System	1.0	0.0
Cyber Security Systems	4.0	4.1
Electronic Document Management Systems (EDMS)	7.0	0.6
Grand Total	67.0	19.3

Ongoing Costs Related to the Critical Technology Needs

To design, implement, operate, and maintain these critical technology infrastructure and systems needs, there are additional staff and maintenance costs that have been included in the estimated costs and in the critical needs previously presented to City Council. These costs include seven additional positions as follows:

A. Fiber Network: Two Communications Specialist III positions to focus on the expansion, enhancement, and management of the City's fiber optic network and network services running across fiber. These positions will oversee citywide construction, operations, and coordination with City departments and with utilities (e.g. Verizon, Spectrum, Frontier) and will help deliver 24x7x365 support for technologies that will depend on the fiber, including LB COAST, EDM Systems, Surveillance Camera Enhancements, Body Worn Cameras, Smart City Initiatives, and the new Civic Center network infrastructure.

B. Security Cameras: A Systems Support Specialist III position and a Systems Support Specialist V position will ensure availability, performance, effectiveness, and security of the citywide surveillance camera system's backend server and storage infrastructure. These positions will focus on installing, customizing, maintaining, optimizing, integrating, and securing the backend server and storage infrastructure that supports the citywide camera system.

C. Equipment and PC Replacements: A Customer Services Officer position will provide critical ongoing support and day-to-day management of department technology support needs, as well as manage the implementation of several key initiatives including planning and execution of Civic Center technology migration projects (PCs/perhiperals/printers, conference rooms setup, City Council audio/visual needs, etc.). In addition, a Systems Support Specialist I position will help the mobile services group and provide support for citywide technology, computer equipment, and mobile support.

D. Customer Relationship Management (CRM) System: A Business Systems Specialist V position will work closely with all departments to ensure the CRM solution is implemented and works effectively. CRM will require a very complex backend database to support the applications.

Staffing costs are estimated to total $0.9 million. In addition to these staffing costs, there are ongoing maintenance and licensing costs related to the critical technology needs estimated at $1.9 million, for a total of $2.8 million in annual operating and maintenance costs. Another category of ongoing costs are the estimated annual debt service and lifecycle replacement costs for acquiring and replacing the equipment and systems, which are estimated at $7.8 million annually. This results in a total ongoing cost of $10.6 million annually. Of this amount, $6.7 million impacts the General Fund budget. Due to the timing of implementing and financing the technology costs, this cost is being phased-in over two years and is shown in Table 3, summarized by critical technology area, and in Table 4 summarized by category of spending. These costs are already accounted for in the latest projection and will not increase the shortfall.

Table 3: Ongoing Costs of Critical Technology Needs

Item ($ in millions)	Implementation Total	Operating Impact on FY 19 Budget	Operating Impact on FY 20 Budget	Operating Impact on FY 19 GF Budget	Operating Impact on FY 20 GF Budget
Fiber Network					
Fiber Network Project	11.9	0.1	1.2	0.0	0.6
Outdated Equipment					
Data Center	9.9	2.0	2.3	1.1	1.2
Network Communications	10.4	0.7	1.1	0.5	0.7
PC Replacements	1.8	0.2	0.2	0.2	0.2
Fiber	5.8	0.3	0.7	0.2	0.4
Wireless	3.6	0.5	0.8	0.4	0.6
Equipment	9.5	1.3	1.7	1.0	1.4
Security Cameras	2.1	0.5	0.6	0.4	0.5
Technology Systems					
Customer Relationship Management (CRM) System	1.0	0.5	0.5	0.3	0.3
Cyber Security Systems	4.0	0.7	1.0	0.4	0.5
Electronic Document Management Systems (EDMS)	7.0	0.4	0.5	0.2	0.3
Grand Total	67.0	7.1	10.6	4.6	6.7

Overall Fiscal Impact of Critical Technology Needs

As detailed in the December 5, 2017 presentation to the City Council, the fiscal impact of the technology needs may vary depending on the final structuring of the cash sources, equipment financing, interest rates, and actual equipment costs. The General Fund costs will likely be implemented as an annual charge to the General Fund through a charge-back by the General Services (Technology) Fund and secondary impacts will be implemented by charge-backs from affected internal service funds. For General Fund-related costs, the cash would come from the General Services Funds Available and other sources. The estimated annual costs are already factored into the FY 19 initial budget projections and will be addressed through the balancing actions already discussed with the City Council with the status reports on the FY 19 budget. For other funds, the costs would either be paid by a combination of cash from funds available and an increase in operating costs. These estimated General Fund impacts were already included in the February 6, 2018 General Fund Fiscal Outlook and budget balancing plan. The overall estimated impact on the General Fund and all funds is shown in Table 4.

Table 4: Estimated Fiscal Impact of Critical Technology Needs (in $ millions)

Item ($ in Millions)	General Fund			All Funds		
Total One-time Cost	**FY 18**	**FY 19**	**Total**	**FY 18**	**FY 19**	**Total**
Financing	14.4	16.7	31.0	22.9	26.6	49.5
Cash	7.4	4.3	11.7	11.0	6.3	17.3
Total	**21.8**	**20.9**	**42.7**	**33.9**	**32.9**	**66.8**
Item ($ in Millions)	**General Fund**			**All Funds**		
Ongoing Costs	**FY 18**	**FY 19**	**FY 20**	**FY 18**	**FY 19**	**FY 20**
Staffing	0.2	0.6	0.6	0.3	0.9	0.9
Maintenance	0.2	1.1	1.1	0.4	1.9	1.9
Debt Service/Replacement	0.3	2.8	5.0	0.5	4.3	7.8
Total	**0.7**	**4.6**	**6.7**	**1.1**	**7.1**	**10.6**

An updated status of the critical technology needs projects and their impact on the budget will be provided with the FY 19 proposed budget.

If you have questions regarding any of this information, please feel free to contact Lea Eriksen at (562) 570-5633.

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CITY OF LONG BEACH

TECHNOLOGY AND INNOVATION DEPARTMENT

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November 14, 2017

HONORABLE MAYOR AND CITY COUNCIL
City of Long Beach
California

RECOMMENDATION:

Authorize the City Manager to submit to the City Council purchase transactions for critical technology infrastructure needs. (Citywide)

DISCUSSION

At a special City Council study session on October 24, 2017, staff presented an overview of four categories of unfunded critical technology infrastructure needs totaling $88 million (Exhibit A). Staff advised the City Council that details of these technology infrastructure needs would be provided at its November 14, 2017 meeting. Exhibit B provides the details on these items, including their cost and potential financing/funding.

Staff is seeking City Council approval to bring forward, for future City Council consideration, proposed purchases and financing for various items encompassing three categories of unfunded critical technology infrastructure needs:

1) Installing a fiber optic system to interconnect City buildings to save on current and future communication costs and to form a basis for a potential future digital inclusion (see Exhibit C – Fiber Network Infrastructure memorandum);

2) Replacing outdated technology that is becoming unreliable and will not support new systems or the new Civic Center; and,

3) Furnishing needed systems to meet key critical City needs and prevent malicious system attacks, data loss, or service outages.

The total of these items is $67 million. The remaining $21 million is in a fourth need category, replacing public safety communications technology, which is not being recommended for action at this time as additional information pertaining to extended support is anticipated to become available from in the next few months.

If the recommended action is approved, staff will finalize the specific purchases, secure vendors through existing or new contracts or bids, secure funding and financing in conformance with the mechanism outlined in this letter, and return to the City Council for authorization of individual purchase transactions.

The purchases would be financed and funded primarily through equipment loans, use of reserves, and internal borrowing between City funds. The bulk of the funding would be for debt service that would be incorporated into future budgets. The funding source for the cash portion of the costs would include a draw-down of reserves. Some cash funding would likely also come from a loan between City funds. Staff anticipates returning to the City Council with various revenue options for the purchases prior to the end of the calendar year.

This matter was reviewed by Deputy City Attorney Amy R. Webber and by Finance Director John Gross on October 31, 2017.

TIMING CONSIDERATIONS

City Council action is requested on November 14, 2017, to ensure equipment is available for the new Civic Center, so new systems to be installed can be made fully functional, and to protect the City against cyberattacks.

FISCAL IMPACT

This motion has no fiscal impact as it would only authorize bringing forward purchase transactions in the future for City Council's consideration. The actual fiscal impact may vary depending on the final structuring of the cash sources and equipment financing, the interest rates, and the actual equipment costs. The fiscal impact will have both a one-time cost and an ongoing annual component. One-time funds will be necessary to fund those costs that are not eligible for financing such as implementation and installation costs. Only physical equipment costs can be financed with the type of loan the City will be using. The ongoing costs to the various funds, including the General Fund, would result from debt service payments for equipment financing and new operating costs. These costs will likely be implemented as charges to the various funds by the Technology and Innovation Department via an annual MOU for services. There will also be secondary impacts to the General Fund realized by additional charge-backs from internal service funds that are themselves charged by the General Services Fund. The overall estimated impact to the General Fund is $11.0 million in cash and $6.6 million in annual costs. For all other funds, the cash need is $17.4 million with $10.4 million in annual costs. The costs are summarized in the chart below:

Estimated Fiscal Impact (in $ millions)

Item	General Fund	All Funds
Total Cost	Not Applicable	$67
Financing / Funding Approach	Approx. $11.0 cash plus shared cost in equipment loans	Approx. $17.4 cash plus $50 in equipment loans
Annual Debt Service	$5.0	$7.8
Annual Net Op. Cost	$1.6	$2.6
Total Annual Cost	$6.6	$10.4

If the General Fund or any other fund does not have adequate cash available to pay the upfront cash costs, an internal loan between City funds will be needed and will increase annual debt service. Each $1 million in internal borrowing will add approximately $0.1 to $0.2 million in annual costs, depending on the term of the borrowing.

The annual costs for the General Fund would be absorbed into the budget by reducing other expenditures or with revenue offsets, if available. For other funds, the costs would either be paid by cash from funds available and/or a potential increase to the various funds' budgets.

SUGGESTED ACTION:

Approve recommendation.

Respectfully submitted,

BRYAN M. SASTOKAS
DIRECTOR OF TECHNOLOGY AND INNOVATION

JOHN GROSS
DIRECTOR OF FINANCIAL MANAGEMENT

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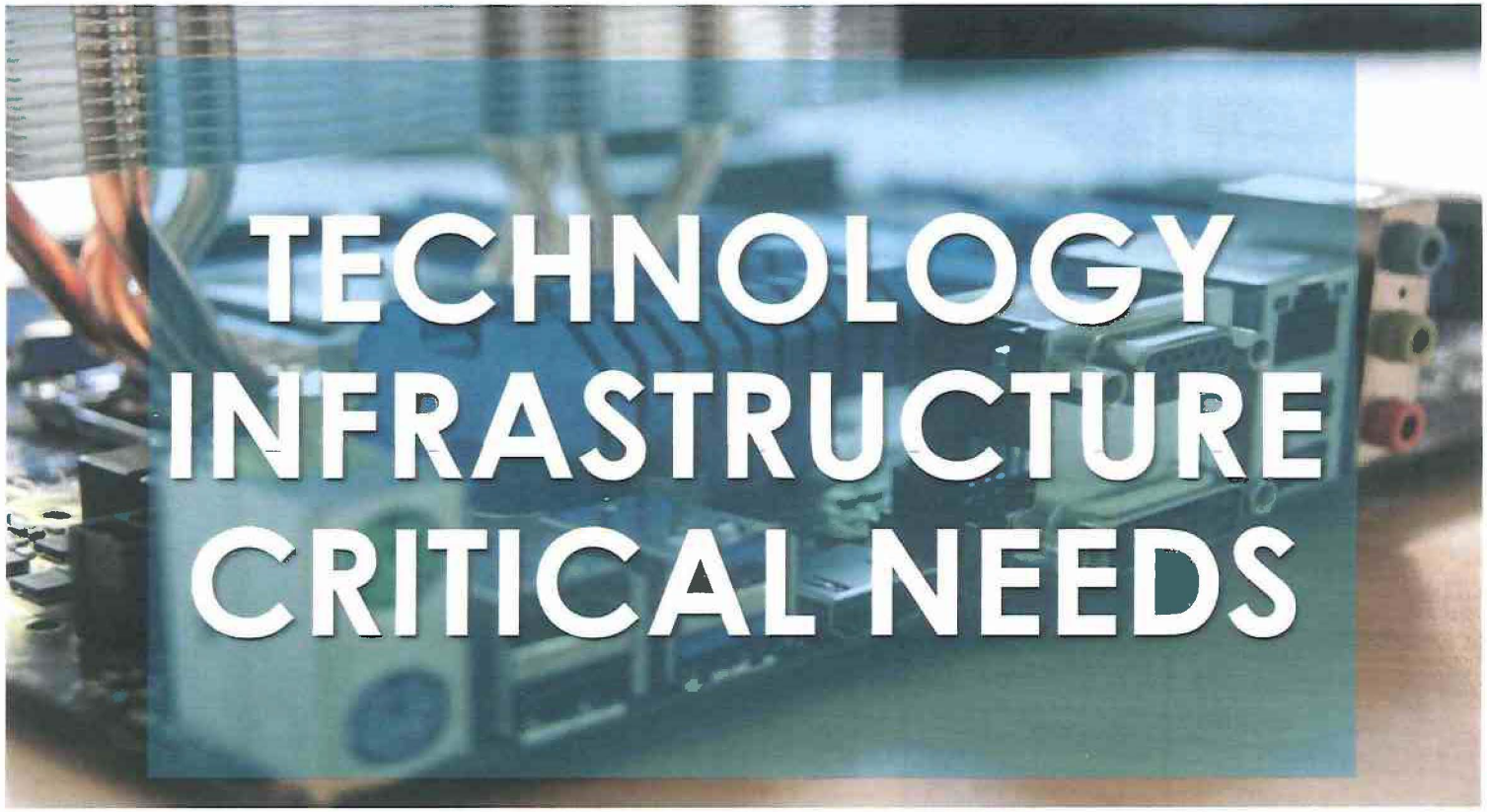
ATTACHMENTS

APPROVED:

PATRICK H. WEST
CITY MANAGER

Exhibit A



TECHNOLOGY INFRASTRUCTURE CRITICAL NEEDS

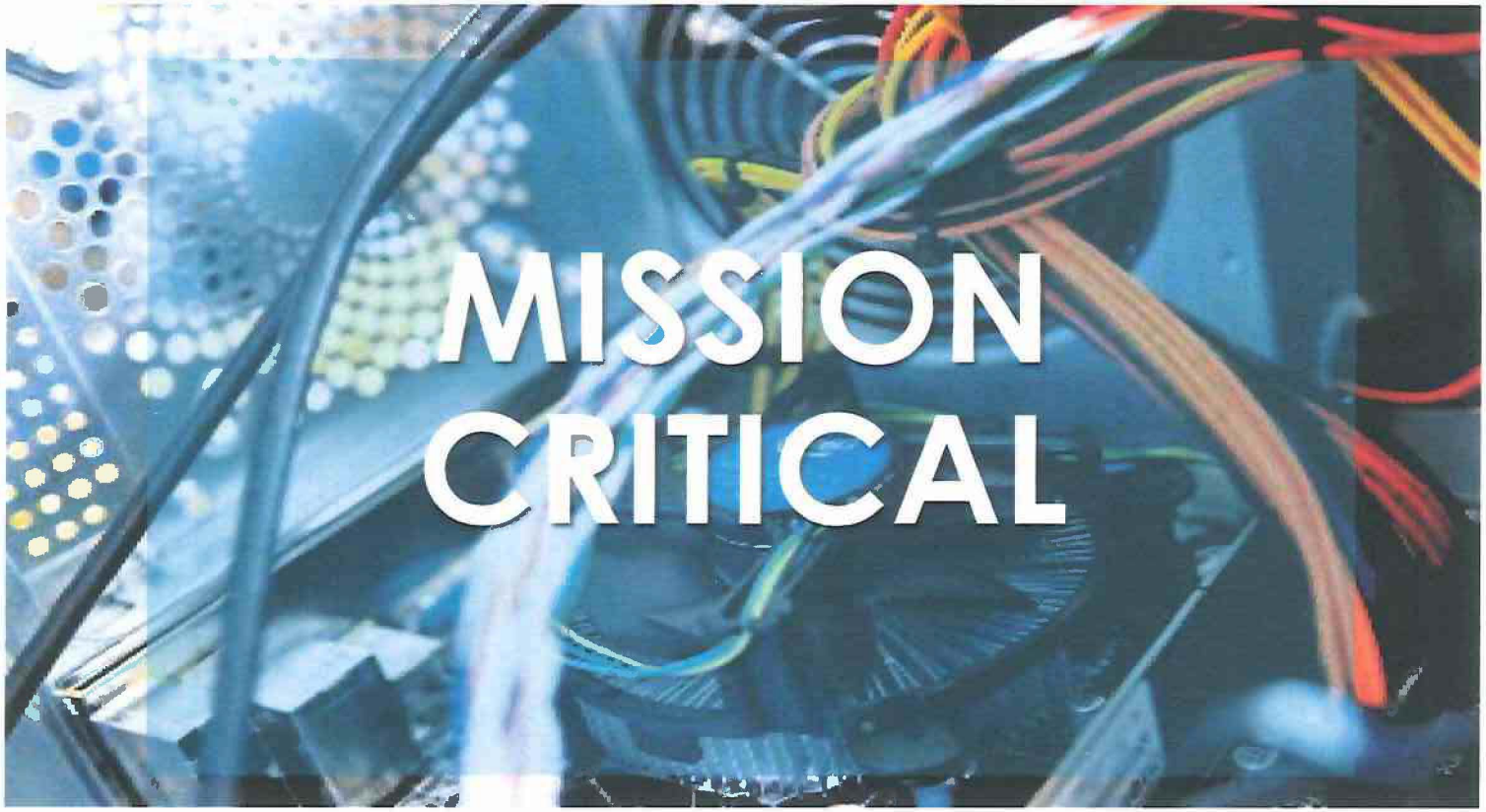
LONG BEACH FINANCIAL MANAGEMENT

Critical Needs in Technology - October 24, 2017

CITY OF LONG BEACH TECHNOLOGY & INNOVATION

Technology for Today and Tomorrow

- Technology is at the core of service delivery
- Technology is critical to maintaining service and efficiency
- Technology requires continued investment


MISSION
CRITICAL

Critical Technology Needs

Fiber Network	Interconnects city buildings
Outdated Equipment	At end-of-life and not capable of supporting City needs
Technology Systems	Supports operations and helps prevent loss of data
Public Safety Communications	Ensures police officers and firefighters can communicate

Fiber Network Need

- Modern City services require access to high speed data communication services
- Provides a foundation for a future "digital inclusion" program
- Cost reduction and cost avoidance

Outdated Equipment Need

- Systems are 10 to 15+ years old
- Parts are increasingly unavailable
- Maintain expected services and support new systems
- Civic Center construction provides an opportunity for cost savings

Technology Systems Need

- Customer Relationship Management (CRM) provides better tracking and response to citizen service requests
- Cyber security initiatives combat attacks that take down systems and destroy data
- Document management reduces paper and improves efficiency

Public Safety Communications Need

- Over 2,500 old public safety mobile radios
- Manufacturer will not support these radios after 2018
- Outdated radios are an increased risk to public safety operations

FINANCING AND FUNDING

All costs are preliminary

Fiber Network

Financing & Funding

Investment (Cost)
$11.9 m

Annual GF Debt Service
$0.7 m

Annual GF Operating Cost
$0.4 m to $2.4 m in savings

Potential Sources of Funding
Cost Offset, Budget, New Revenue

Outdated Equipment

Financing & Funding

Investment (Cost)
$43.1 m

Annual GF Debt Service
$3.4 m and one-time $6.6 m cash

Annual GF Operating Cost
$1.3 m

Potential Sources of Funding
Budget, New Revenue

Technology Systems

Financing & Funding

Investment (Cost)
$12.0 m

Annual GF Debt Service
$0.8 m and one-time $4.4 m cash

Annual GF Operating Cost
$0.6 m

Potential Sources of Funding
Budget, New Revenue

Public Safety Communications

Financing & Funding

Investment (Cost)
$21 m

Annual GF Debt Service
$2.6 m

Annual GF Operating Cost
None

Potential Sources of Funding
Budget, New Revenue, Meas. A

SUMMARY OF GENERAL FUND INVESTMENT

Total Investment (Cost)
$88 m

Annual Budget Impact
$6.4 m Total

One-Time Expenses

Public Safety Communications

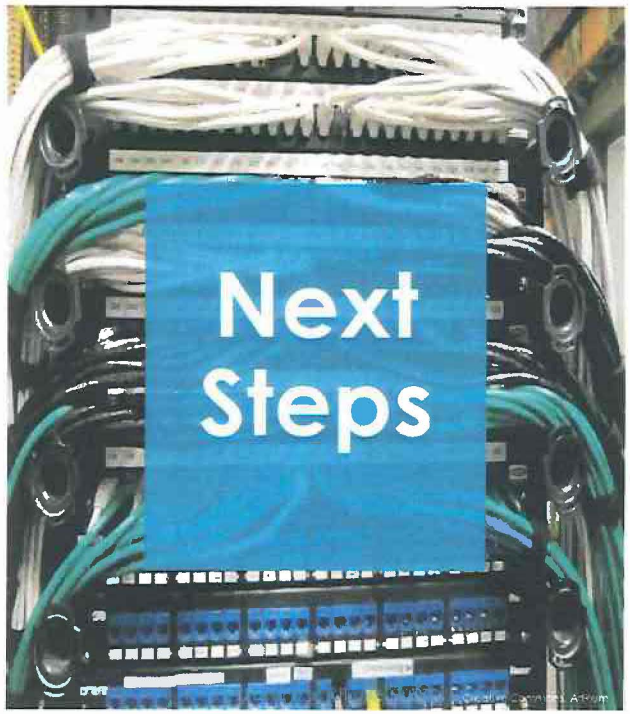
Annual Debt Service
$4.9 m (n/i radios)

Cash or Internal Borrowing
$11 m (n/i radios)

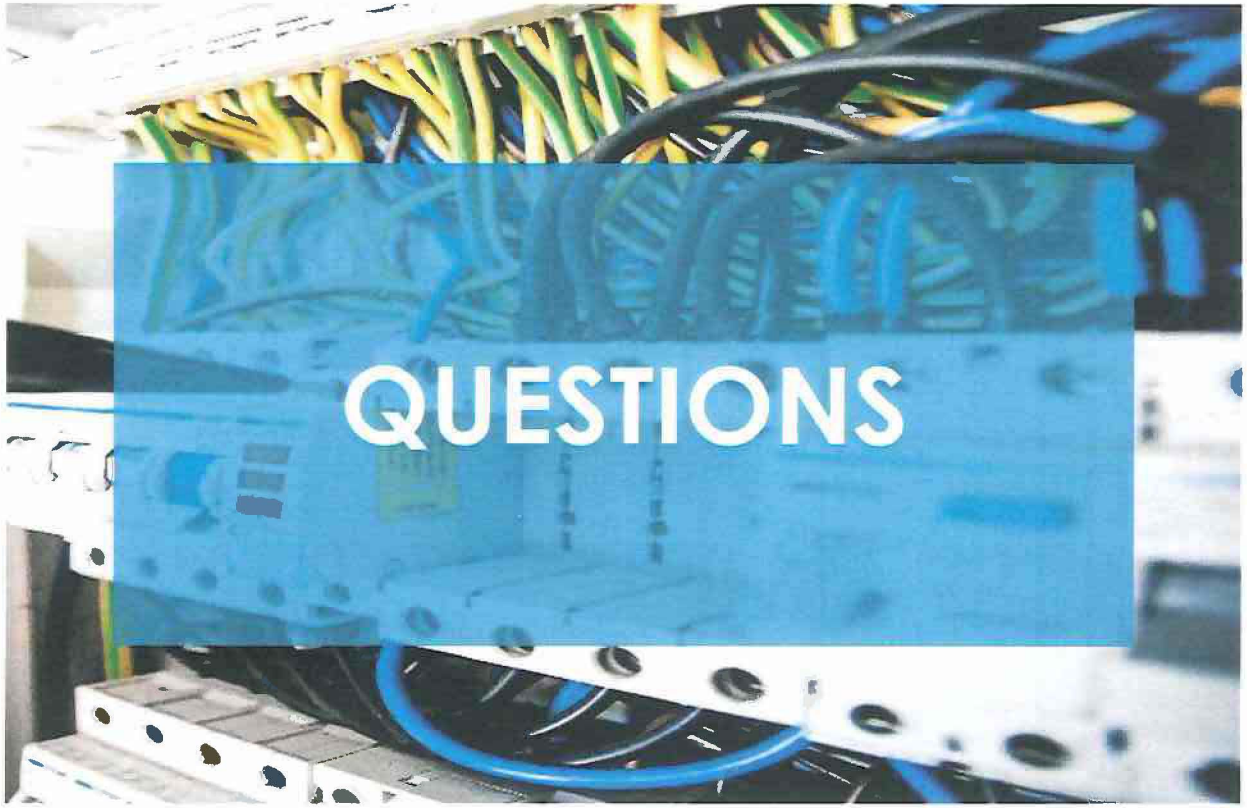
Debt Service or Cash
$2.6 m annual or
$21 m Measure A

Annual Operating Cost
$1.5 m (n/i radios)

Potential Sources of Funding
Budget, New Revenue, Measure A



- November 14, 2017: Consideration to authorize purchase of critical technology
- December/January: Consideration to move forward with specific funding sources
- First half of 2018: Updates to City Council on critical technology and infrastructure needs
- FY 19 budget process: Includes listing and discussion of overall unfunded needs


QUESTIONS

CRITICAL TECHNOLOGY INFRASTRUCTURE NEEDS
DETAILS ON PROPOSED PURCHASES, FINANCING AND FUNDING

This attachment is a supplement to the November 14, 2017 Council Letter on Critical Technology Infrastructure Needs. It is in two sections. The first section provides details on the proposed purchases and costs. The second section provides additional details on the financing and funding.

NEEDS AND COSTS

Fiber Network ($11.9 million)

As part of this critical technology infrastructure needs funding request, the Technology and Innovation Department (TI) is requesting $11.9 million to expand the City's fiber network to connect City buildings. Approval of this request will almost double the City fiber capacity by adding approximately over 60 miles of additional fiber.

In order to provide additional details about this request, a memorandum titled "City of Long Beach Fiber Network Infrastructure" was provided to the Mayor and City Council on November 6, 2017 (see Exhibit C). This memorandum provides information about the City's current fiber network, a listing of new construction projects that will expand the City's fiber network, and background information about the assessment that TI and The Broadband Group completed to develop the three proposed fiber expansion scenarios. These three scenarios include:

- Scenario #1: This scenario establishes a fiber Backbone (19 miles) and Lateral (41 miles) Network. This scenario connects City buildings, as well as brings the fiber Backbone path within two (2) miles of any location within the City. The estimated cost for this scenario is $17 million.
- Scenario #2: This scenario builds upon Scenario #1 by selectively investing and expanding fiber services to business enterprises for an estimated total cost of $33 million.
- Scenario #3: This scenario builds upon Scenario #2 by further expanding fiber services to residential communities at a total cost of approximately $183 million.

Also, included in the memorandum is information on the "dig once" policy, which requires the installation of communications infrastructure in public rights-of-way, and a description of other fiber municipal deployment models.

TI recommends proceeding with Scenario #1 and, if approved, the City will solicit proposals to strategically move forward with the goal of deploying and benefitting from the envisioned fiber network. These proposals may consist of a Public-Private-Partnership between the City and a fiber infrastructure provider, or any other partnership model, and may serve as a foundational starting point for an extensive fiber network that could address the "digital inclusion" issue.

If the City proceeds with this recommendation, the $11.9 million Fiber Network Project will be combined with the fiber investments listed in "Outdated Equipment" to fully build out the fiber network infrastructure. If the City does not proceed with the recommended Fiber Network Project of $11.9 million, the $5.8 million fiber purchase associated with "Outdated Equipment" is recommended as an alternative to take advantage of the large cost savings associated with the "dig once" policy for installing fiber.

Outdated Equipment ($43.1 million)

At the October 24, 2017 Study Session, staff identified $43.1 million in the outdated equipment category. This category focuses on the foundational infrastructure that is end-of-life and not capable of supporting the new Civic Center and the City's business needs. During the development of the FY 17 budget, TI initiated a multi-year effort to evaluate, improve, and rebuild the City's technology infrastructure to ensure the City has a strong foundation in place to support the level of services expected of a modern technology-forward City. In addition, TI has been actively engaged in the design and construction of the new Civic Center consisting of the new City Hall, Main Library, Port Administration building, and new public spaces.

A comprehensive assessment of citywide technology infrastructure was undertaken. This assessment encompassed a wide array of technology infrastructure and systems that support department operations, including those of the Police and Fire Departments. This assessment was conducted over the course of the past year and included TI, Public Works, and an extensive team of construction, engineering, design, and technology consultants. The team worked collaboratively on developing a modern technology plan for the City with appropriate components installed in the new Civic Center. Provided below is a partial list of companies with which TI and Public Works collaborated.

- ARUP Group
- AVI-SPL
- Berry Dunn
- CDW Direct, LLC
- CelPlan Technologies
- Clark Construction Group
- Johnson Controls International Plc
- Mark G. Anderson Consultants (MGAC)
- Morrow Meadows Corporation
- Pacific Services, Inc.
- Plenary-Edgemoor Civic Partners (PECP)
- Skidmore-Owings & Merrill LLP (SOM)
- Syska Hennessy Group

The technology infrastructure review included, but was not limited to data center needs, servers, networks, cameras, wireless connectivity, communication needs, radio antennas, and, specifically at the Civic Center, the Council Chamber, Civic Center building management and security systems, and microwave technology.

A breakdown of total of $43.1 million in equipment located citywide is shown in the table below. Public Safety radios are not included and will be discussed separately.

Summary of "Outdated Equipment Costs" (in $ millions)

Item ($ in millions)	**Description**	**Total**
Data Center	This category builds a redundant and scalable data center to support all of the City's technology operations, including hosting of finance, human resources, utility billing, billing and collections, GIS and internal/external websites. Equipment in this category includes battery backup systems, power distribution systems, heating/air conditioning, cabling, racks, servers, storage, networking, monitoring, and backup systems.	9.9
Network Communications	This category delivers data and voice networking, and modernizes Citywide end-of-life networking equipment that supports all technology system communications. Outdated equipment in this category create availability risks to City operations, and limit the performance of data throughput. Also included are fees to cover a temporary uplift of telecommunication service contracts to support increased bandwidth needs at City facilities until the Citywide fiber system is operational, and fees to cover a one-time migration of services from the existing City Hall and Main Library to their new buildings.	10.4
PC Replacements	One-time PC hardware costs to bring funding in line to a five-year replacement schedule	1.8
Fiber	This category allocates $4.8 million towards "dig once" opportunities, which will be combined with the $11.9 million Fiber Network Project, if the city proceeds with the citywide fiber network infrastructure recommendation. This category also installs fiber between Civic Center buildings, and installs temporary cabling to facilitate the one-time migration of servers and applications.	5.8
Wireless	This category allocates $1 million towards public citywide Wi-Fi enhancement and expansion that can support the digital inclusion programs, in coordination with city construction, innovation and fiber projects. This category also provides enhanced Wi-Fi access enabling new innovative and effective ways to engage and work throughout the campus. Additionally, this category will enable the City to implement needed technologies to ensure cellular services are available and reliable within the new campus buildings.	3.6
Equipment	This category supports the purchase of technology racks and power in IT/AV/telephone closets, radio broadcasting antennas, and microwave antennas. Additionally, it supports the new Civic Center Council Chamber audio/visual systems, lobby display systems, public and staff conference rooms, badge access throughout the building.	9.5
Security Cameras	This category delivers video surveillance and investigative capabilities throughout the Civic Center's public areas, stairwells, lobbies, parking garages, and youth areas of the main library. This will also support integration of Civic Center cameras with the Citywide Network Camera System.	2.1
	Total Costs	**43.1**

As previously stated, the City's technology infrastructure is at end-of-life and is not capable of supporting the new systems to meet the City's business needs. In addition, with the new Civic Center soon to be completed, this technology infrastructure cannot be transitioned to the new building and function as expected. This technology infrastructure will be required for occupancy.

Technology Systems ($12 million)

In addition to the critically needed infrastructure detailed in the previous section, the City needs to invest in three key technology systems: Customer Relationship Management, Cyber Security, and Electronic Document Management.

Customer Relationship Management (CRM) System ($1 million)

Today's connected/customer-centric world, customers have come to expect that their needs will be met quickly without friction. In 2010, the City implemented Go Long Beach, a mobile application that allows residents and City staff to submit service requests. In FY 2017, the City received over 42,000 service requests, an increase of 20 percent as compared to FY 2016. As Go Long Beach becomes more and more popular, manual processes need to be automated to keep up with demand. Even with the success of Go Long Beach, it is evident that a true a Customer Relationship Management (CRM) system is needed; one that allows City staff to focus their time engaging customers, rather than spending their time retrieving old documents and researching past interactions/service requests.

With an integrated CRM system, the City will have the ability to receive and track inquiries/resolutions of complaints in a centralized location, instead of having to manage information in various departmental specific work order systems. The deployment of CRM will not resolve all the customer service issues the City is facing as staffing to provide the services will not increase. However, it will help address the following sample City-oriented use cases:

- Reduce call waiting times and increase the efficiency and effectiveness of its current call intake operations;
- Provide the community easy access to City services;
- Provide tracking and monitoring capabilities that can serve as a tool to help improve City service delivery;
- Improve the community engagement;
- Improve openness, transparency and accountability;
- Improve alignment of resources with service demands; and,
- Implement a community service delivery platform that integrates people, process, and technology.

To support this effort, the City hired Stern Consulting (Stern) in February 2016 to assess the City's organizational readiness, capabilities, and resource capacity as well as provide a roadmap to implement a CRM system. As part of the assessment, Stern engaged staff

from various departments to inventory existing CRM related systems, inventory existing planned CRM related initiatives, and aggregate/analyze/validate different data points such as call volume activity, average talk time, and the number of redirected calls.
This assessment allowed Stern to make informed recommendations associated with a CRM implementation, including estimated CRM software costs, required CRM staffing levels and the composition of a CRM project management team. Informal pricing was requested from 25 CRM vendors and system implementation firms, of which 16 vendors responded for both a Software-as-a-Service (SaaS) and an on-premises models.

In late 2016, Stern completed its report and assisted the City with the development of a draft RFP. The Stern report provided the City with a detailed road map for implementation, vendor evaluation and selection. The report also recommended a three-year, phased-in implementation and integration with other City systems.

Cyber Security ($4 million)

The City needs to put in place a modern proactive cyber security initiative to address the rapidly changing and increasingly malicious internet environment to protect confidential data against operational failures and loss of key information and data. This is exemplified by recent high-profile events where cyber criminals have been able to infiltrate highly secured technology environments such as Sony, Yahoo, Equifax, and the San Francisco Municipal Transportation Agency. Cyber criminals are also getting more sophisticated in their approach as evidenced by a recent hack of the Iowa Public Employees' Retirement System where participant addresses were changes to locations controlled by the hackers.

As more and more City systems come online, the City needs to improve its cyber security levels, including conducting an elevated annual security audits for Health Insurance Portability and Accountability Act of 1996 (HIPPA) and Payment Card Industry (PCI) Data Security Standard compliance. This funding will also be used to remediate audit findings, implement improvements to our cyber security environment and address standardization of Mobile Device Security, Cloud Security, Critical Infrastructure Protection Security, and Network Access Control.

Electronic Document Management System (EDMS) ($7 million)

The City needs a modern and sustainable EDMS solution allowing for the digitization of approximately 67 million documents while also integrating existing digital files. Paper documents degrade over time, are not searchable, require costly storage space, and can be easily destroyed, lost or stolen. With an EDMS solution, staff will have seamless access to documents creating the ability for online collaboration and allowing for digital workflows. This will also ensure compatibility with the design of our new Civic Center, which will assume less space and will not have ability to store large amounts of paper documents.

The Civic Center, like all modern buildings, is meant to be open with creative spaces. This will allow employees to flow from one workstation to another and collaborate. This requires greater accessibility to information, which can only be delivered if documents are always at hand and can be easily updated. As a result, TI recommends the implementation of an Electronic Document Management System (EDMS), a sustainable solution that will address the City's modern technology needs.

In 2016, the City engaged a consultant, ThirdWave, to provide a roadmap for converting hardcopy documents in advance of the move to the new City Hall, and, if appropriate, implementing a new EDMS to support the long-term needs of the City. To arrive at a successful roadmap strategy, ThirdWave conducted a comprehensive physical inventory of paper documents stored across all departments in the City, held interviews and online surveys with staff, and conducted a gap analysis of our current EDMS system, along with budget estimates.

The results of the road map report identified that the City has 67 million paper documents citywide and proposed a phased-in implementation timeline that coincides with the move to the new Civic Center. It is estimated that Phase One, will take approximately 16 months, and Phase Two, approximately 12 months, with a slight overlap in the project schedule. The project schedule includes the design and configuration of the enterprise EDMS system first, followed by the implementation of eForms, eSignatures, and automated workflows for all departments.

ThirdWave assisted the City with the preparation of the RFP, which was released earlier this summer. The City is currently in the process of evaluating and selecting a vendor. The selection process is anticipated to be completed by early Q1 of 2018, at which time we would begin implementation.

A breakdown of the $12 million requested for technology systems is provided below.

Estimated Costs for Technology Systems (in $ millions)

Item (in $ millions)	**Description**	**Cost**
CRM	Implementation and hardware	1.0
Cyber Security	PCI Data Security Standard assessment/remediation, pen testing, cyber tool installations, data loss protection, endpoint security tools, network intrusion detection, and event monitoring/ correlation.	4.0
EDMS	Conversion, Implementation, and software license	7.0
	Total Costs	**12.0**

FINANCING AND FUNDING

The technology infrastructure critical needs will be financed and funded primarily through equipment loans (or bonds), use of reserves, internal borrowing between City funds and incorporating the debt service on the loans into future budgets. Some cash or internal borrowing must be used to pay for implementation and installation costs because only physical equipment can be financed with the type of bank loan the City is using.

The costs for the financing and funding would be spread across most City funds through annual charges by the General Services (Technology) Fund. For most funds, other than the General Fund, the cost of these purchases is not expected to be a major problem, whether cash is used or the debt service is absorbed into the respective fund's budget.

For the General Fund, as much cash funding as is available would be taken from the remaining spendable reserves (not emergency or operating reserves which would remain unused). However, spendable reserves are not likely to be sufficient and some "cash" would likely also come from a loan between City funds. Each $1 million in interfund loans would add between $100,000 to $200,000 per year to the annual General Fund costs, depending on the term of the loan. Any interfund loan costs are not included in the charts below since it is uncertain what the loan amount would be, and it is not likely that an interfund loan would have a large impact.

The Critical Technology Infrastructure Needs purchases would increase the City's total outstanding General Fund debt and would likely use the last currently available spendable reserves. For a variety of reasons, the City had significant spendable reserves over the last few years – but with this use, they will have all been used. While the City's emergency reserves and operating reserves have not been used, total reserves, which include the spendable reserves, have declined significantly.

The overall estimated impact to the General Fund is $10.9 million in cash, the equivalent of $31.4 million in loans that result in $6.6 million in annual costs. This includes the estimated secondary impacts to the General Fund that occur from charge-backs from various internal service funds. The charge-backs occur when the internal services funds are themselves charged by the General Services Fund for Needs purchases. For all funds, the cash need is a total of $17.4 million and total borrowing of $49.6 million, resulting in $10.4 million in annual costs.

The costs and funding needs are summarized in the table below.

Total Estimated Fiscal Impact (in $ millions)

Item ($ in millions)	**General Fund**	**All Funds**
Cost	*42.3*	*67.0*
Loan / Cash Funding	31.4 / 10.9	9.6 / 17.4
Debt Service	5.0	7.8
Operating Costs	1.6	2.6
Total Annual Impact	6.6	10.4

The annual costs for the General Fund would be absorbed by reducing other expenditures or with revenue offsets, if available. The City Council could consider new revenue sources to offset some, or all, of these costs. For other funds, the costs would either be paid by cash from funds available and/or a potential increase to the various funds' budgets. The costs and funding by critical need category are detailed below.

Fiber Network ($11.9 million)

The cost of the fiber network completion is $11.9 million. The General Fund debt service on the equipment loan would be approximately $800,000 a year. While there is a small new operating cost, it would be offset by savings in current costs for a net General Fund savings of approximately $300,000. The net operating impact (debt service less operating savings) from the completion of the fiber network is estimated to be

approximately $500,000 per year. When the City installs new systems such as LB COAST and EDMS, the fiber network will allow the City to avoid what would otherwise be increased communication costs of up to another $2 million (approximately $1.25 million would be saved for the General Fund). No cash funding is expected to be required.

The costs and funding needs are summarized in the table below, which does not include the avoided costs identified above.

Financing and Funding of the Fiber Network Completion (in $ millions)

Item ($ in millions)	**General Fund**	**All Funds**
Cost	*7.5*	*11.9*
Loan / Cash Funding	7.5 / 0	11.9 / 0
Debt Service	0.8	1.2
Operating Costs (Savings)	(0.3)	(0.4)
Total Annual Impact	0.5	0.8

It is important to note that the total cost of the fiber network is estimated at $17.7 million. This is because there is an additional $5.8 million included as initial funding in the "Outdated Equipment" category (below). If the City Council approves both categories of funding, the construction of the fiber network would likely be combined into a single contract.

Outdated Equipment ($43.1 million)

The cost for the Outdated Equipment is $43.1 million. The General Fund debt service on the equipment loan would be approximately $3.5 million a year. The General Fund operating cost would be an estimated $1.3 million. The operating impact (debt service plus operating costs) is estimated to be approximately $4.8 million a year.

In addition, approximately $6.6 million in General Fund cash is needed to pay for implementation/installation costs. This includes $2.5 million in temporary additional General Fund communications costs until the fiber network can be up and operating. The costs and funding needs are summarized in the table below.

Financing and Funding of Outdated Equipment (in $ millions)

Item ($ in millions)	**General Fund**	**All Funds**
Cost	*27.2*	*43.1*
Loan / Cash Funding	20.6 / 6.6	32.6 / 10.5
Debt Service	3.5	5.5
Operating Costs	1.3	2.0
Total Annual Impact	4.8	7.5

Technology Systems ($12 million)

The cost of the three critical systems is $12.0 million. The costs of the individual systems are estimated at: $1.0 million for the Customer Relations Management system, $7.0 million for EMDS and $4.0 million for Cyber Security systems. The General Fund debt service on the equipment loan would be approximately $700,000 a year. The General Fund operating cost would be an estimated $600,000. The operating impact (debt service plus operating costs) is estimated to be approximately $1.3 million a year. In addition, approximately $4.3 million in General Fund cash is needed to pay for implementation/ installation costs.

The costs and funding needs are summarized in the table below.

Financing and Funding of Technology Systems (in $ millions)

Item ($ in millions)	**General Fund**	**All Funds**
Cost	*7.6*	*12.0*
Loan / Cash Funding	3.3 / 4.3	5.1 / 6.9
Debt Service	0.7	1.1
Operating Costs	0.6	1.0
Total Annual Impact	1.3	2.1

City of Long Beach
Working Together to Serve

Memorandum

Attachment C

Date: November 6, 2017

To: Patrick H. West, City Manager

From: Bryan Sastokas, Director, Technology & Innovation Department

For: Mayor and Members of the City Council

Subject: **City of Long Beach Fiber Network Infrastructure**

In October 2015, the City announced five new innovation and economic development initiatives that will be implemented by the City and community partners. One of these initiatives was the development of a "High Tech Infrastructure Plan" to maximize existing City assets, resulting in increased investment and quality Internet access for businesses and residents. As part of this initiative, the Technology and Innovation (TI) Department recently completed an assessment of the City's fiber network infrastructure and its high-speed data communication needs. TI, working with The Broadband Group (Consultant), a leading consultant in municipal and utility fiber infrastructure planning, developed several high-level fiber network infrastructure investment scenarios. This effort included direct coordination with other City departments and the i-team.

Based on the assessment findings, TI is proposing the implementation of a citywide fiber network to interconnect City buildings to meet advanced connectivity requirements. This fiber network will save on both current as well as future communication costs, and will create a foundation to support digital inclusion services and applications. Further, this investment positions the City to pursue, in the future, Public-Private Partnerships to close the "digital divide" for those living and working in Long Beach.

This memorandum provides an overview of this initiative.

Background

Over the past several years, the City has launched several significant transformative technology projects slated to become operational by 2019. These include:

- Construction of a new Civic Center (City Hall, Main Library, and Port Headquarters),
- Implementation of LB COAST (an Enterprise Resource Planning System replacing a 30-year old legacy application),
- Implementing city-wide network cameras,
- Launching new electronic documentation systems, and
- Increasing the bandwidth in the City's 12 libraries by 1,000 percent.

These modern technologies have significantly greater data communication demands than what is currently available. In some cases, TI is estimating a three-fold increase in data throughput needs at many of the City's facilities. In addition to increased data communication demands at City facilities, interest in network cameras, public Wi-Fi, body-worn cameras, and smart city applications continue to grow. These demands emphasize the need for a high-speed fiber communications network.

At the beginning of 2017, through ongoing investment, the City's fiber network infrastructure was approximately 50 miles in length, providing high-speed connectivity between select City buildings, network cameras, public Wi-Fi, and traffic signals. Information on the existing fiber infrastructure locations (including a map) is provided in Attachment A. During 2017, TI collaborated with Public Works on developing and launching several construction projects that will result in an approximate 13-mile expansion of the City's fiber network, including:

- Long Beach Blue Line Signal Prioritization Project (over 6 miles),
- Crown Castle Wireless Telecommunications Expansion (over 6 miles),
- Belmont Shore Median Landscape Project (approximately 0.7 miles), and
- Civic Center Fiber Loop Conduits (approximately 0.7 miles).

Additional information on these fiber infrastructure locations is provided in Attachment B.

Analysis and Recommendations

To develop options (scenarios) appropriate for the City, the Consultant considered the metrics specific to Long Beach, as well as best practices and lessons learned from other municipal initiatives (see Attachment C). Three scenarios were developed:

Scenario #1: This scenario establishes a fiber Backbone (19 miles) and Lateral (41 miles) Network. This scenario connects City buildings, as well as brings the fiber Backbone path within two miles of any location in the City. The estimated cost for this scenario is $17 million. Additional information on the fiber expansion locations is provided by Attachment D.

Scenario #2: This scenario builds upon Scenario #1 by selectively investing and expanding fiber services to business enterprises for an estimated total cost of $33 million. This scenario leverages the Scenario #1 infrastructure by expanding fiber from the City's unused fiber capacity to business enterprise customers on a case-by-case basis, either directly or through a third party, while not affecting the City connectivity needs. This service would require additional resources to manage sales, marketing and support for non-city customers, but could generate additional revenues to help recover capital costs.

Scenario #3: This scenario builds upon Scenario #2 by further expanding fiber services to residential communities at a total cost of approximately $183 million. This scenario leverages the Scenario #2 infrastructure by expanding fiber from the City's unused fiber capacity to residential communities, which will then be leased to an Anchor

Tenant (such as Google Fiber) who would then deliver services to the households. Leasing services to an Anchor Tenant would still require additional resources to manage sales, marketing and support for the fiber network, but would minimize the amount of additional City staff needed as the Anchor Tenant focuses on last mile service delivery to individual businesses and residents.

Recognizing the larger investment, sales and support challenges of Scenarios #2 and #3, TI and the Consultant recommend the City pursue the Scenario #1 as a foundational project that meets immediate City operational needs and reduces operating costs while enabling future Public-Private Partnership (an arrangement where a third-party network facility designer and operator, in exchange for the City's fiber assets, rights of ways, and/or data opportunities), manages the infrastructure, sales and support of Dark or Lit fiber for businesses, residents and/or the City. Factors which support Scenario #1 include:

- The City would be in better position to negotiate future partnerships if the City shares in the financial commitment as it would under this scenario;

- The City would be in better position to ensure that the fiber network infrastructure is optimally designed to connect City facilities, assets and future needs; and

- Privately-funded fiber infrastructure projects, on their own, may not meet the timing, usage, and implementation priorities of the City.

Based on the Consultant's experience with other cities, it is necessary that Scenario #1 be implemented to then potentially attract a future Public-Private Partnership to connect businesses, residents, and "community anchor institutions" in Long Beach. The Consultant recommends that the City take the initial leadership position in defining and building its "fiber future."

Proceeding with Scenario #1

The following is a summary of considerations associated with Scenario #1:

<u>Opportunities for Cost Savings</u>

Currently, the City's data communication fees are approximately $1 million a year. Without a new fiber network, this yearly fee is anticipated to increase to $3 million a year, as upgrades are ordered to provide the speed necessary to serve department requirements. Not only will Scenario #1 enable the City to secure increased bandwidth, it will significantly reduce the fees the City currently pays to telecommunications companies (e.g., Verizon, AT&T). Scenario #1 is expected to save or avoid a combined $2.4 million a year in recurring communication expenses, which should pay off the $17 million investment in about seven years once the fiber network infrastructure is fully operational.

Dig Once Policy

An important factor in the decision whether to proceed with Scenario #1 is the proposed "Dig Once" policy. In 2004, the City Council adopted an Ordinance amending the Long Beach Municipal Code (Section 14.08.060) to establish an excavation moratorium for all streets that had undergone reconstruction within the previous five years. The Ordinance only allows for excavation to occur on moratorium streets when the need is immediate for the general health, safety and welfare of the City; and, the City Council takes action to grant the excavation permit. This important action on the part of the City Council has served to protect recently repaired streets from damage and pavement patching.

In 2016, the City Council requested the City Attorney, in coordination with TI and Public Works, to draft an ordinance amending the Long Beach Municipal Code to require the installation of communications infrastructure in excavation projects in the public right-of-way. The joint use of trenches is often a practical solution to expedite the deployment of fiber along main corridors and to ensure providers of broadband services, including utility companies, install their infrastructure at the same time, in the same trench or conduit, and on a shared-cost basis. Coordinating large-scale capital projects with the installation of conduits and/or fiber optic cables also saves money by reducing costs incurred for repeated excavation in an area or part of the city where the entire street or corridor may have been recently (re-)paved or developed. The "Dig Once" policy (an amendment to Section 14.08.060) will include a Fiber Master Plan (FMP), which will facilitate the installation of fiber optic infrastructures when other utility work is being performed. An update on the progress of City Council's request was provided on February 27, 2017 (see Attachment E).

Financial Impacts

As noted in the Technology Infrastructure Critical Needs presentation on October 24, 2017, the budget request for fiber network infrastructure is separated into two sections:

1. $5.8 million is identified under "Outdated Equipment" and consists of $1 million for Civic Center Fiber Loop Cabling (needed regardless of the three presented scenarios), and $4.8 million for "Dig Once" opportunities as they arise.

2. $11.9 million is identified under "Fiber Network" and is the incremental investment to the "Dig Once" opportunities to complete the Scenario #1 fiber network infrastructure.

In summary, $1 million will be needed for the Civic Center Fiber Loop Cabling, $4.8 million will be needed for "Dig Once" opportunities, and if the City proceeds with Scenario #1, $11.9 million will be needed to complete the Scenario #1 fiber network infrastructure.

Implementation

To implement Scenario #1, several tracks of work will be launched or continued:

- TI and City departments will continue to consolidate and manage the fiber optic inventory into the GIS database.

- TI will continue to coordinate "Dig Once" construction activities with Public Works at locations already in-progress, see Attachment B. (Smaller construction locations not mentioned include Houghton Park, Harvey Milk Park, and Broadway & Promenade.)

- TI and the Consultant to plan the implementation of the Scenario #1, inclusive of detailed engineering design, coordination with Public Works, and development of an equipment and materials Request for Proposal (RFP).

- TI and the Consultant will assess the opportunities for future Public-Private Partnerships, including development of a Request for Information (RFI), and leading discussions with interested partners (e.g. Crown Castle, Verizon, Charter, Frontier, Edison, Civic Connect, Leidos). The Consultant will also provide the City consultative support regarding small cell and wireless agreements in Long Beach (e.g. Crown Castle, Mobilitie, Verizon, T-Mobile).

- TI will hire additional staffing to manage the fiber design, construction, provision, and on-going technology coordination and operations. These costs are included in the estimates provided on October 24, 2017.

Next Steps

The proposed Scenario #1 to connect City buildings will be further discussed on November 14, 2017, with an agenda item authorizing the City Manager to prepare and bring to City Council items for purchase and financing of critical technology infrastructure needs.

Should you have any questions, please contact Cason Lee, Manager of Infrastructure Services Bureau, at (562) 570-5553.

Attachments A-E

cc: Charles Parkin, City Attorney
Laura Doud, City Auditor
Tom Modica, Assistant City Manager
Kevin Jackson, Deputy City Manager
Rebecca Garner, Assistant to City Manager
Craig Beck, Director, Public Works
John Gross, Director, Financial Management

Attachment A – Current Fiber Network Infrastructure

Facility Connections

City Hall	DP-Emergency Operations Center (EOC)	FD-Fire Headquarters
FD-Fire Station 1	FM-Fleet Services	FM-Towing Operations
GO- Gas and Oil Headquarter	Long Beach Airport	PD-Police Headquarters
PD-Patrol Field Support	PD-Port Joint Command & Control Center	PL-Burnett
PL-Main	PL-Mark Twain	PL-Michelle Obama
PL-Ruth Bach	PW-Environmental Services	PW-Public Service Yard
PW-Traffic Operations	TI-Video Communications	WD-Water Headquarter
WD-Water Treatment Plant		

Attachment B – Current Fiber Network Infrastructure with Fiber Under Construction

Potential Facility Connections (additional assessments needed)

Belmont-Bay Shore Library	Belmont-Fire Station 8	Blue Line-Fire Station 7
Blue Line-Nurse Home Visit Program	Blue Line-WIC St Mary	Blue Line-Veterans Park
Civic Center-New Main Library	Civic Center-New City Hall	Civic Center-New Port Headquarter
Crown-Downtown Marina	Crown-Orizaba Park Community Center	Crown-Reservoir Hill (Public Safety Radio Backend)
Houghton-Houghton Park Community Center	Houghton-North Health Facility Center	

Attachment C – Description of Other Municipal Deployment Models

A number of municipal broadband investment, deployment, and operational models have been pursued, with a mixed degree of success. The Broadband Group has defined a scalable and incremental network investment approach for Long Beach that incorporates best practices and lessons learned from a wide spectrum of municipal investment and deployment models.

Chattanooga, Tennessee: Full Service Model

Chattanooga is currently operating a network that is often recognized as a model which other city leaders seek to replicate. In this model, the City-owned Electric Utility competes with Incumbent Service Providers and delivers broadband services to residents and businesses. While successful in Chattanooga, the "Full Service Model" requires significant capital and operational commitments by way of the City. It is relevant to note that it is not the city of Chattanooga, but the City-owned Electric Utility that invested in and manages the fiber network. This is important, as the Utility benefits from operational protocols that were already established (e.g. Billing Department, Customer Service), as well as significant existing infrastructure. Chattanooga's broadband initiative grew out of the Utility's development of a smart grid that uses the fiber optic network to increase the electric grid's reliability and responsiveness. The network deployment costs were approximately $390 million, funded by local revenue bonds, and (notably) a $111 million Federal Grant (U.S. Department of Energy as part of the ARRA Stimulus Program). Other relevant cities that have pursued this "Full Service Model" include Wilson, NC; Bristol, VA; Leverett, MA; Lafayette, LA. Cities exploring this level of investment and operational commitment should anticipate *significant competitive response* and *legal push-back* from Incumbent Service Providers.

San Francisco, California: Infrastructure Only Model

In October 2017, the City of San Francisco published a report suggesting the City invest in fiber infrastructure that would provide fiber connectivity to every home and business in the City. The City would then seek to identify Service Providers to lease access on the network and provide broadband services to customers. This "Infrastructure Only" approach would reduce ongoing operational requirements by the City, however, the projected price for this network buildout is $1.5 to $1.9 billion. The City of Ontario, CA is currently deploying fiber infrastructure using a similar approach, albeit on a materially smaller scale.

Huntsville, Alabama (Huntsville Utilities): Utility Lease Model

Sharing characteristics of both Chattanooga and the proposed San Francisco model, Huntsville Utilities (a city-owned utility in Huntsville, AL) is building out a citywide fiber network to increase the electric grid's reliability and responsiveness. However, unlike Chattanooga, the Utility secured Google Fiber as an Anchor Tenant (20-year lease) to provide Gigabit fiber broadband services to residents and businesses prior to investing in and commencing construction. The Broadband Group planned the network, negotiated the contract, and is now leading project management for the 966-mile fiber build for the Utility and Google Fiber.

Santa Monica, California: City Incremental Build Model

Perhaps most similar to the approach suggested for Long Beach is Santa Monica, CA. The City of Santa Monica has built a fiber network that has lowered its own costs for telecommunications, helped to retain businesses, and attracted new businesses to the community. Santa Monica's "CityNet" was initially launched in 2000, when the City invested in fiber to connect City buildings, Santa Monica College, and the School District.

The first goal of the network was to save public dollars by eliminating leased lines from private Service Providers. The initial $530,000 investment in fiber infrastructure ultimately resulted in an ongoing savings of $700,000 per year. The network has incrementally expanded to offer dark fiber and services of 100 Mbps to 10 Gbps to area businesses, support for over 550 video cameras for public safety, over 55 cameras for traffic management, as well as free Wi-Fi to the public in many areas.

Santa Monica does not have a municipal power provider – CityNet is run out of the Information Systems Department.

Recommendation

The Broadband Group emphasizes that Scenario #1 (City deploys fiber infrastructure to select City buildings, departments, and corridors) positions Long Beach to take control of its immediate connectivity requirements, while setting a foundation for future Public-Private-Partnership opportunities, strengthening the potential for equitable citywide fiber broadband connectivity.

Attachment D – Proposed Fiber Network Infrastructure

Potential Facility Connections (additional assessment and engineering needed)

Type	Count of Facilities
Parks	53
Libraries	7
LBPD	8
LBFD	33
Health	14
Council District Field Offices	6
Miscellaneous	14
TOTAL	**135**

(53) Parks

- ADMIRAL KIDD PARK COMMUNITY CENTER
- ALAMITOS BAY MARINA
- ANIMAL CARE SERVICES
- BEACH MAINTENANCE YARD
- BELMONT POOL
- BIXBY KNOLLS PARK COMMUNITY CENTER
- BIXBY PARK COMMUNITY CENTER
- CALIFORNIA RECREATION COMMUNITY CENTER
- CESAR E CHAVEZ PARK COMMUNITY CENTER
- CHERRY PARK COMMUNITY CENTER
- COLLEGE ESTATES PARK COMMUNITY CENTER

- COOLIDGE PARK COMMUNITY CENTER
- DE FOREST PARK COMMUNITY CENTER
- DRAKE PARK COMMUNITY CENTER
- EL DORADO NATURE CENTER (VISITOR CENTER)
- EL DORADO PARK RANGER STATION
- EL DORADO PARK WEST COMMUNITY CENTER
- FREEMAN COMMUNITY CENTER
- HEARTWELL JUNIOR GOLF ACADEMY
- HEARTWELL PARK COMMUNITY CENTER
- HOMELAND CULTURAL CENTER AT MACARTHUR PARK
- HOUGHTON PARK COMMUNITY CENTER
- LEEWAY SAILING AND AQUATICS CENTER
- LONG BEACH SENIOR CENTER
- MARINE MAINTENANCE YARD
- MARINE STADIUM MAINTENANCE YARD
- ERNEST S McBRIDE SR TEEN CENTER
- MARTIN LUTHER KING JR PARK COMMUNITY CENTER
- MARTIN LUTHER KING JR PARK POOL
- ORIZABA PARK COMMUNITY CENTER
- PAN AMERICAN PARK - OFFICE
- PAN AMERICAN PARK GYMNASIUM
- PARK MAINTENANCE
- PARKS RECREATION AND MARINE - ADMINISTRATION
- PETE ARCHER ROWING CENTER
- QUEENSWAY BAY MAINTENANCE YARD
- RAINBOW HARBOR/MARINA
- RAMONA PARK COMMUNITY CENTER
- RANCHO LOS ALAMITOS RANCH HOUSE
- RANCHO LOS CERRITOS RANCH HOUSE
- RECREATION PARK COMMUNITY CENTER
- RECREATION SPORTS OFFICE
- SCHERER PARK COMMUNITY CENTER
- SHORELINE MARINA
- SILVERADO PARK COMMUNITY CENTER
- SILVERADO PARK GYMNASIUM
- SILVERADO PARK POOL
- SOMERSET PARK COMMUNITY CENTER
- STEARNS CHAMPIONS PARK COMMUNITY CENTER
- VETERANS PARK COMMUNITY CENTER
- WARDLOW PARK COMMUNITY CENTER
- COLORADO LAGOON WETLAND & MARINE SCIENCE EDUCATION CENTER
- WHALEY PARK COMMUNITY CENTER

(7) Libraries

- ALAMITOS LIBRARY
- BAY SHORE LIBRARY
- BRET HARTE LIBRARY
- BREWITT LIBRARY

- DANA LIBRARY
- EL DORADO LIBRARY
- LOS ALTOS LIBRARY

(8) Long Beach Police Department Facilities

- FORENSIC SCIENCE SERVICES
- JAIL
- EAST DIVISION SUBSTATION
- NORTH DIVISION SUBSTATION
- WEST DIVISION SUBSTATION
- MARINE PATROL (ALAMITOS BAY)
- POLICE ACADEMY
- PROPERTY AND EVIDENCE WAREHOUSE

(33) Long Beach Fire Department Facilities

- BEACH/LIFEGUARD OPERATIONS
- BOAT OPERATIONS
- FIRE STATION 10
- FIRE STATION 11
- FIRE STATION 12
- FIRE STATION 13
- FIRE STATION 14
- FIRE STATION 15
- FIRE STATION 16
- FIRE STATION 17
- FIRE STATION 18
- FIRE STATION 19
- FIRE STATION 2
- FIRE STATION 20
- FIRE STATION 21
- FIRE STATION 22
- FIRE STATION 24
- FIRE STATION 3
- FIRE STATION 4
- FIRE STATION 5
- FIRE STATION 6
- FIRE STATION 7
- FIRE STATION 8
- FIRE STATION 9
- LIFEGUARD RESCUE BOAT
- LIFEGUARD SUBSTATION
- LIFEGUARD SUBSTATION
- LIFEGUARD SUBSTATION
- LIFEGUARD SUBSTATION
- LIFEGUARD SUBSTATION
- MARINE SAFETY DIVISION
- FIRE TRAINING CENTER
- FIRE WAREHOUSE/MUSEUM

(14) Health Department Facilities

- CENTER FOR FAMILIES AND YOUTH/FAMILY PRESERVATION
- CENTRAL FACILITIES CENTER
- HEALTH AND HUMAN SERVICES DEPARTMENT
- HOUSING AUTHORITY
- MILLER FAMILY HEALTH EDUCATION CENTER
- MULTI-SERVICE CENTER FOR THE HOMELESS
- NORTH FACILITIES CENTER
- WEST FACILITIES CENTER
- WOMEN, INFANTS & CHILDREN - CENTRAL OFFICE
- WOMEN, INFANTS & CHILDREN - HEALTH DEPARTMENT
- WOMEN, INFANTS & CHILDREN - NORTH OFFICE
- WOMEN, INFANTS & CHILDREN - ST MARY MEDICAL CENTER
- WOMEN, INFANTS & CHILDREN - ST MARY MEDICAL CENTER
- WOMEN, INFANTS & CHILDREN - WEST OFFICE

(6) Council District Field Offices

- COUNCIL DISTRICT 3 FIELD OFFICE
- COUNCIL DISTRICT 5 FIELD OFFICE
- COUNCIL DISTRICT 6 FIELD OFFICE
- COUNCIL DISTRICT 7 FIELD OFFICE
- COUNCIL DISTRICT 8 FIELD OFFICE
- COUNCIL DISTRICT 9 FIELD OFFICE

(14) Miscellaneous City Department Offices

- AIRPORT MAINTENANCE YARD
- SPECIAL EVENTS AND FILMING
- CODE ENFORCEMENT
- NEIGHBORHOOD RESOURCE CENTER
- NEIGHBORHOOD SERVICES/NEIGHBORHOOD IMPROVEMENT DIVISION
- WIRELESS COMMUNICATIONS
- CAREER TRANSITION CENTER
- CAREER TRANSITION CENTER
- PACIFIC GATEWAY WORKFORCE INVESTMENT NETWORK
- YOUTH OPPORTUNITY CENTER
- HARBOR DEPARTMENT
- EMPLOYEE ASSISTANCE PROGRAM
- OCCUPATIONAL HEALTH
- SOUTHEAST RESOURCE RECOVERY FACILITY

Attachment E – Dig Once Policy Update

City of Long Beach
Working Together to Serve

Memorandum

Date: February 27, 2017

To: Patrick H. West, City Manager PW

From: Craig A. Beck, Director of Public Works
Bryan Sastokas, Director of Technology and Innovation /s/

For: Mayor and Members of the City Council

Subject: **Dig Once Policy Update**

The City Council requested the City Attorney, in coordination with the Technology and Innovation and Public Works Departments, to draft an ordinance amending the Long Beach Municipal Code to require the installation of communications infrastructure in excavation projects in the public right-of-way where the City has determined that it is both financially feasible and consistent with the City's long-term goals of furthering economic opportunity through connectivity. This memorandum provides an update on this request.

Background

In 2004, the City Council adopted an Ordinance amending the Long Beach Municipal Code (*Section 14.08.060*) to establish an excavation moratorium for all streets that had undergone reconstruction within the previous five years. The Ordinance only allows for excavation to occur on moratorium streets when the need is immediate for the general health, safety and welfare of the City; and, the City Council takes action to grant the excavation permit.

The excavation moratorium has helped protect recently repaired streets from damage, but it did not address the need for better coordination between City departments and outside agencies who typically perform street work. In the past, many of the capital planning efforts in the City were conducted with a singular focus, installing gas and water pipelines, and deploying network fiber. Moving forward, staff is supportive of the implementation of a "dig once" policy to improve coordination within the City organization and make it easier to engage outside organizations as well.

The dig once policy will include a Fiber Master Plan (FMP). Fiber optic infrastructures enable high-speed data communications needed to improve or deliver citywide technology services, including traffic control systems, utility systems, public safety systems, city operations, and smart city initiatives. Cities that have fiber optic infrastructures are better positioned to support economic development programs, to improve city services to businesses and customers, and to enable innovation in a constantly evolving community and economy.

Staff from the lead departments (Public Works, Technology and Innovation, Gas and Oil, and Water) are meeting monthly to discuss and coordinate upcoming projects. Additionally, staff is in the process of reviewing proposals for a Project Performance Management software system. This new tool will help provide a more robust oversight and coordination between various construction projects citywide. The goal is to bring a recommendation for the software system before the City Council the second quarter of 2017.

Next Steps

The next steps in the development of the dig once policy and FMP include:

- Completing selection and contract process for a vendor to implement a Project Performance Management (PPM) software system. *Anticipated completion Second Quarter of 2017.*

- Technology and Innovation worked with Public Works to create an inventory of existing City fiber optic assets and are now in the process of entering it into the GIS database. *Anticipated completion Third Quarter of 2017.*

- Completing development of the FMP, which will identify locations where there are opportunities to align various street work with adding fiber network. *Anticipated completion Third Quarter of 2017.*

- Working with the City Attorney to amend the Long Beach Municipal Code (*Section 14*) to include a new requirement that the annual Capital Improvement Plan adopted by City Council include a description of the coordination efforts associated with planned work in the City's right-of-way (streets, alleys, sidewalks). This should include alignment between the departments of Gas and Oil, Public Works, Technology and Innovation, Water, and other outside utilities when feasible. *To be finalized after City Council adoption of the PPM and FMP.*

If you have any questions regarding this matter, please call Craig Beck, Director of Public Works, at (562) 570-6771.

CB:JC

CC: CHARLES PARKIN, CITY ATTORNEY
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ANITRA DEMPSEY, INTERIM DEPUTY CITY MANAGER
REBECCA JIMENEZ, ASSISTANT TO THE CITY MANAGER
BOB DOWELL, DIRECTOR OF GAS AND OIL DEPARTMENT
CHRIS GARNER, GENERAL MANAGER OF WATER DEPARTMENT
CITY CLERK (REF. FILE # 16-0393)