City Council Memorandum

TO: HONORABLE MAYOR AND CITY COUNCIL   DATE: OCTOBER 17, 2017

FROM: INNOVATION AND TECHNOLOGY   WARDS: ALL

SUBJECT: MEASURE Z TECHNOLOGY SPENDING PLAN: PHASE 1

ISSUE:

Receive and provide input on the Innovation and Technology Department's Measure Z Technology Spending Plan: Phase 1.

RECOMMENDATIONS:

That the City Council receive and provide input on the Innovation and Technology Department's Measure Z Technology Spending Plan: Phase 1.

BACKGROUND:

On April 5, 2016, City Council received a budget update that implemented a more transparent and participatory process for the FY 2016-18 two-year budget, within the context of a five-year financial plan. Each department provided their five-year unfunded operational needs. The Innovation and Technology (IT) Department detailed and presented specific unfunded technology needs on April 19, 2016.

Riverside voters approved Measure Z on November 8, 2016. The measure authorized a one-cent increase in the City's sales tax rate, which began on April 1, 2017. On January 31, 2017, City Council received a report on Proposed Measure Z spending priorities, provided comments and directed staff to work with the Budget Engagement Commission (BEC) to refine the five-year spending plan for Measure Z in time for the May 9, 2016 City Council meeting.

The BEC met five times between February 23, 2017 and April 19, 2017 to develop their own recommendations on Measure Z spending. On May 4, 2017, the BEC finalized their recommendations to the City Council.

On May 16, 2017, the City Council approved a Five-Year Spending Plan for Measure Z, which included $2,000,000 annually for technology improvements for fiscal years 2017-18, 2018-19, 2019-20, and 2020-21, for a total of $8,000,000. City Council directed staff provide detailed spending plans for Measure Z technology improvements in a subsequent report.

The City Manager requested staff to form an internal steering committee to create a list of technology priorities and to consider performance audit recommendations while creating the Measure Z technology spending plan recommendation.

DISCUSSION:

Based on City Council input at the January 31, 2017 meeting, the following information and activities contributed to the development of the Measure Z Technology Spending Plan:

1. The unfunded technology needs identified during the FY 2016-18 two-year budget is used as the baseline for the plan.

2. IT met with other departments to refine the needs and presented those to the Budget Engagement Commission for input and further refinement to develop a Measure Z Technology Spending Plan.

3. Staff has developed a tentative portfolio of 28 projects to pursue with Measure Z Technology Improvements budget over the next four years.

Several projects are interdependent upon each other or in some cases, may be effective to bundle into one solution. Each applicable project will include a Request For Bids/ Proposal/ Qualification for the procurement process and all agreements requiring City Council authorization will be presented in subsequent reports.

Due to this fluid nature of the portfolio of planned projects, staff recommends commencing with 13 projects for years 1 – 4 (FY 2017-21). These projects are known as the Measure Z Technology Spending Plan: Phase 1 (attachment 1).

Non-General Fund Cost Share

Most of the Measure Z Technology Improvements have a Citywide benefit, including benefitting all the non-general fund Departments. In order to provide these technology improvements to non-general funds, there will be a cost sharing methodology and amount developed for each of the Technology Improvement projects. Currently, the projects are estimated to receive 40% of project costs from non-general fund departments. As project plans and costs are further refined, specific cost sharing methodology will be applied based on the unique cost drivers of each project and will be equitable to both the general fund and non-general funds. IT has worked with the Department Heads representing the non-general funds to develop budgetary estimates for the cost sharing of Phase 1 projects.

Measure Z Technology Spending Plan: Phase 1

IT is prepared to begin executing on 13 Measure Z Technology Improvement projects starting this fiscal year. The spending priorities, listed by category are:

Proposed Measure Z Technology Spending Plan: Phase 1 (Years 1-4)	
Major Category	*Proposed Budget*
Cybersecurity	$716,558

Hardware and Infrastructure (servers, storage, and network equipment and licensing)	$2,768,847
System Upgrades	$300,000
Training	$96,000
(Contingency)	$314,707
TOTALS	**$4,196,112**

* The plan has a 7.5% contingency, which is to allow for any circumstances that cannot be estimated with certainty at this time. If there are no unforeseen changes, then contingency funds will not be utilized.

Cybersecurity:

Phase 1 (Years 1 – 4) Cost: $716,558

IT Department is responsible for securing the enterprise through a layered defense and in depth approach to cybersecurity. IT deploys detection and mitigation tools, chairs the City's cyber security committee, creates and updates security policies and a Cyber Security Strategic Plan. IT provides intrusion protection by managing the network, desktop devices and servers, monitoring the systems and processes that help detect and prevent unauthorized users from compromising and penetrating the City's network.

Based on a review of operations by the City's Information Security Officer, staff are recommending several Network and Datacenter cybersecurity enhancements, which include:

1. *Vendor Secure Remote Access*: Technology vendor remote access currently poses the highest cybersecurity risk to the City because they connect from unknown and unmanaged systems. Vendors often have login credentials with potential access to sensitive enterprise application, services, or protected data. Vendors can currently transfer data across the Virtual Private Network (VPN) to or from our servers without knowledge or visibility of IT or security staff. Secure remote access mitigates these risks significantly. It will create network separation between the vendor's system and the City's network reducing the likelihood of an infection or a breach spreading through a vendor's computer. (Cost: $87,856)

2. *Web Application Firewall*: Several City applications are used by all areas Departments or are mission critical in nature; these are known as Enterprise Applications. Enterprise applications are the second highest cybersecurity risk for the City. The City is relying on vendors for multiple core business applications and services, often housing and processing protected data. The City's vulnerability audits often identify application vulnerabilities, which require a software update from vendors, that unfortunately often takes months to correct. Attackers often attempt to exploit this vulnerability gap, using a technique known as "zero day" exploits. The web application firewall will allow us to enforce communication baselines with our web-based applications to reduce the likelihood of exploitation of a known or an unknown vulnerability. This is a recommended security framework to mitigate known weaknesses in the software vendor industry. (Cost: $72,000)

3. *Network Tools*: Network switches have limited number of connections, which are needed for both network operational troubleshooting and security inspection by security tools. This network equipment allows network monitoring using external hardware to minimize the impact on network equipment and extend the number of available span sessions. ($1,800)

4. *Security Analyst funding (currently approved position)*: Security requires extensive operational knowledge of unique systems. The position for a security operations staff member to focus on areas such as servers, domain, active directory, workstations, and authentication was funded using one-time carryovers. This request would fund this currently approved position through FY 2020-21. (Cost: $279,360)

5. *Data Loss Prevention*: This solution flags the storage of protected data types (e.g. social security numbers, bank account numbers, etc.) that employees have stored in unprotected areas. It then allows staff to remediate the issue by deleting the data or moving it to a secured storage location. Employees access and interact with regulated and protected data to service City customers and employees. This interaction results in the creation and proliferation of duplicate unnecessary copies, for example saved reports, of protected data in unprotected computing locations (e.g. unencrypted laptop hard drives or within the email system). Current regulation asserts that, in event of a breach, all data is assumed to have been stolen and reportable, unless we can prove otherwise. Enterprise wide data loss prevention is necessary to catalog all protected and regulated data on servers, email, desktops, and laptops. Once the data loss prevention system is implemented, IT staff can provide enforcement of preapproved and preconfigured Personally Identifiable Information (PII) storage destinations. (Cost: $219,816)

6. *Security Information and Event Management (SIEM) System*: This system provides pervasive visibility into the City's IT environment, allowing for the detection of complex threats through real-time correlation and analysis of data, resulting in actionable intelligence and real-time alerting. The cost relating to this item will cover maintenance for this system through FY 2020-21. The initial cost was covered by carryover funding. (Cost: $55,726)

Hardware and Infrastructure:

Phase 1 (Years 1 – 4) Cost: $2,768,847

This program is a series of hardware replacement projects including replacing critical components of the City's data network, data center, and related equipment and licensing. This item includes:

1. *Network Refresh (including cybersecurity features)*: This project is a hardware replacement project that includes replacing critical components of the data network and related equipment. Much of the equipment is up to a decade old and out of manufacturer support, which prevents IT from performing routine maintenance, and therefore presents a cybersecurity risk as well as risk for failure. Additionally, the City's network currently lacks redundancy and technology to support much needed business continuity, bandwidth, security threats, and increased automation to lower maintenance expenses. (Cost: $1,964,967)

2. *Datacenter and Server Technology Replacement Program*: This project is a hardware replacement project that includes replace critical components of the datacenter and related equipment. This equipment primarily consists of servers to provide computation and storage to retain and backup the data, but also includes required software, licensing, and related equipment (cabling, fiber, network cards, etc.). (Cost: $422,400)

3. *CommVault*: CommVault is the City's enterprise backup software provider. The backup system continues to operate near or at capacity. This project upgrades CommVault licensing in two phases over FY 2017-18 and 2018-19. (Cost: $261,480)

4. *Security Camera Replacement Program*: The City has hundreds of security cameras

used to secure City facilities and public spaces, such as parks. These cameras are often mounted in outdoor enclosures or on outdoor poles. As such, they are exposed to the elements, and occasional vandalism, and experience a failure rate or 2 – 3% per year. This project will fund replacement cameras and related installation services for approximately 2 – 3% of the City's existing security cameras. IT will work closely with Police, Parks, and General Services on this project. (Cost: $120,000)

System Upgrades:

Phase 1 (Years 1 – 4) Cost: $300,000

Performs software system upgrades in order to modernize software systems used by the City.

1. *Microsoft Office 365 Assessment Plan Consulting:* Microsoft Office 365 is Microsoft's "Cloud" services offering and office suite licensing, which will provide the City several valuable additional capabilities and security features. The service offering also includes dozens of bundled software products and add-on services, which may be able to replace and consolidate several third party products and implement several of the cybersecurity technology needs planned in the subsequent Technology Measure Z Spending Plan phases. Therefore, this effort will engage a consultant to advise the IT department upon the most cost effective agreement options and terms with Microsoft and to assist with Office 365 implementation tasks. (Cost: $60,000)

2. *IT Helpdesk System with Inventory Module:* The IT department is currently using a "home grown" helpdesk software system. The system provides Helpdesk staff with the ability to create and assign tickets to IT Technicians and IT Analysts, to allow staff to log time spent and resolution notes, to log routine support activities and project task activities, to conduct end user surveys, and to allow users to request Moves, Adds, and Changes. The current system has several major deficiencies, including lack of customer self-service, lack of real-time management reports, lack of mobile functionality for IT Technicians, and any lack of inventory functionality for IT workstation equipment, which was a recent audit finding. This project will address the deficiencies, which will increase productivity and will address the inventory audit finding. (Cost: $240,000)

Training:

Phase 1 (Years 1 – 4) Cost: $96,000

This request is for technical training required for new technology:

Technical Training Required for New Technology: Staff will be implementing several new technologies to increase productivity and effectiveness of the existing IT operations. This process will require a small training budget to augment the project activities. (Cost: $96,000)

Remaining Recommended Technology Projects

Due to the interrelated and fluid nature of the remaining planned projects, staff is not requesting approval for them during this phase. Staff will be providing regular updates to City Council and will present priorities for any of the additional phases at that time, when applicable. The estimated budget for the Measure Z portion of the remaining technology projects is currently $3,803,888.

Ongoing Costs

Maintaining the technology assets and investments made under this plan will require a level of on-going costs. These are typically in the form of hardware and software maintenance and

licensing agreements or software subscription fees. The ongoing costs of Phase 1 projects are budgeted within the Measure Z Technology Spending Plan and this report, through FY 2020-21. An analysis of overall one-time costs, overall ongoing costs, and overall ongoing costs to Measure Z is included in the attachment. The analysis was performed on the entire portfolio in order to assess the overall ongoing cost impact. The ongoing costs are expected to increase each year, as more projects are implemented, stabilizing in FY 2020-21 at approximately $1,200,000 against Measure Z/General Fund annually.

FISCAL IMPACT:

There is no additional fiscal impact associated with this report. Council approved Measure Z Technology Improvements of $2,000,000 annually, which staff incorporated in the budget during the Mid-Cycle Update on June 13, 2017. Measure Z will provide the funding to address many of the City's unfunded technology needs.

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Attachments:
1. Measure Z Technology Spending Plan: Phase 1
2. Presentation