

## Updated Technology Needs and Priorities

**Technology Needs:** A quick review of the national news in the past several months provides ample evidence of the need to improve technology, especially in the field of cybersecurity. The City has many needs for critical technology items, such as cyber security tools, hardware replacements (servers, storage, network, etc.) and a new enterprise resource planning (ERP) system to effectively manage financial and personnel resources.

The following listing of initiatives or major projects is listed in priority order. Some initiatives can be accomplished in phases, whereas others are recommended to be pursued in their entirety. This has been notated in the 5-Year Cost for each item. Efforts that can be accomplished in a phased approach are candidates for potential partial funding.

### 1. Cybersecurity related tools, training, and staff

**Type:** Cybersecurity related

**Description:** Based on a review of operations by the City's Information Security Officer, several Network and Datacenter cybersecurity enhancements are being recommended. They include, but are not limited to monitoring tools (proactive notice of outages), device authentication tools, digital loss prevention tools, advanced end-point protection, user account management, network security, and staffing.

**5-Year Cost:** \$4.5 million (\$2.25 million Cybersecurity tools, \$1.5 million Staffing, \$0.75 million User Account Management and Network Security). This effort can be accomplished in a phased approach.

### 2. Data Network Replacement

**Type:** Hardware replacement

**Description:** This project is a hardware replacement project including replacing critical components of the City's data network and related equipment. Much of the equipment is up to a decade old and out of manufacturer support, which prevents Innovation and Technology from performing routine maintenance, and therefore presents a cybersecurity risk as well as risk for failure. The City's network equipment is critical to all enterprise software systems and communication citywide, including Riverside Public Utilities and Public Safety.

**Justification:** Most, if not all, network equipment is 8 to 10 years old and is at or nearing end-of-life and support from manufacturer (Cisco). Once the product reaches end-of-life the vendor does not provide further security patches for the equipment, should additional cybersecurity flaws be discovered in the devices. 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. Without upgrading and expanding such equipment, network equipment will stop functioning citywide, and outages will take longer to resolve due to the lack of serviceability of outdated equipment. This could result in an impact on mission critical systems such as those used by Riverside Public Utilities and Public Safety.

**5-Year Cost:** \$4.8 million. This effort can be accomplished in a phased approach.

### **3. Datacenter Capital Improvements**

**Type:** Hardware replacement

**Description:** The City's datacenters are responsible for remote store, processing and the distribution of large amounts of citywide data (e.g. databases, virtual environment, servers, etc.). The City currently maintains a primary datacenter, a secondary datacenter, and disaster recovery site. This request is to fund a hardware replacement project.

**Justification:** In order to replace and update aging equipment in all locations to meet the City's growing technology demands, five year cost estimates have been created. The amount of data processed and stored within the City is continually expanding, which requires upgrades to data center equipment transfer speeds and increases in storage capacity. Some of the expenses in this item are contractually obligated (e.g. CommVault \$210,000) to handle the City's expanding storage requirements (15%-20% a year.). Without upgrading and expanding such equipment, data storage limits will prevent systems from functioning citywide, which could result in an impact on mission critical systems such as those used by Riverside Public Utilities and Public Safety.

**5-Year Cost:** \$2.75 million. This effort can be accomplished in a phased approach.

#### 4. Email Retention: 3-Year Option

**Type:** Hardware replacement

**Description:** To move the City's policy of email retention from 30-day retention to a 3-year retention cycle as recommended by outside law firms, it will require additional licensing, professional services, storage capacity, and server hardware requirements. New State of California legal rulings such as the recent Supreme Court Case No. 109CV150427 have introduced requirements that require additional retention and storage. The completion of this capital project will introduce annually recurring operations and maintenance costs starting at \$60,000 annually.

**Justification:** Such an expansion of storage capacity would allow the City to retain email communications for 3-years rather than the current 30-day retention schedule, which would allow more emails to be produced during discovery and California Public Records Requests, and promote the City's transparency efforts. A significant amount of data is generated and stored with the email system and it is one of the City's core technology services.

**5-Year Cost:** \$1.2 million. It is recommended to pursue this effort in its entirety, not a phased approach.

#### 5. Video Retention: 1-Year Option

**Type:** Hardware replacement

**Description:** To move the City's policy of security camera video retention from 30-days to the 1-year state mandatory retention, this project will require additional licensing, professional services, storage capacity, and server hardware requirements.

**Justification:** The City hosts over 800 security cameras for public safety, staff safety, and asset security. The recorded video streams generated by these camera systems and video files are resource intensive in the area of storage capacity. Currently, the City is not in compliance with State law, which requires 1-year retention. Also, the Innovation and Technology Department has no spare cameras or funding to maintain these security cameras; therefore, they often fail and cannot be replaced due to lack of funding. If the city cannot maintain the cameras and meet the legal retention requirements of such security cameras, the city could face legal ramifications.

**5-Year Cost:** \$0.9 million. It is recommended to pursue this effort in its entirety, not a phased approach.

## 6. Work-Order/Asset Management System Upgrade

**Type:** System upgrades

**Description:** This project seeks to upgrade the City's Work-Order/Asset Management system. This system is currently the Oracle Work and Asset Management (WAM) System, which provides asset management, timecards, purchasing, service request and work order assignment, time and materials capture, and inventory functions citywide. This system has approximately 1,800 users. WAM is integrated extensively with dozens of other systems, most closely with the City's Financial, Human Resources, and Payroll (IFAS) system. The vendor is in the process of a complete re-write of the application, using their Oracle Utilities Application Foundation (OUAF) platform, this is planned for completion in Q2 2017. OUAF includes an entirely new user interface and database schema, therefore the scope of this effort should be considered the equivalent that of a new system implementation.

**Justification:** The vendor is shortly releasing a new major version of the software and will stop supporting current system in three years. Costs included in this request include software, and professional services and will take approximately 2 to 3 years. While expensive, a replacement solution may cost the City \$5+ million initially and implementation would take one-year longer due to the integrations needed (e.g. IFAS, Computronix, enQuesta, etc.). Oracle WAM 2.x is on RPU's Technology Road Map. If this system is not upgraded and retained on an active maintenance contract with Oracle, software fixes and cybersecurity-related updates will no longer become available. System failure would have a negative impact, citywide.

**5-Year Cost:** \$4.1 million. It is recommended to pursue this effort in its entirety, not a phased approach.

## 7. Additional Staffing

**Type:** Additional staffing

**Description:** IT has experienced staffing shortages within most divisions of the department, including administration, cybersecurity, software engineering, networking, client services, mobile app development, and project management. In total this additional staffing would include the addition of nine

positions, six of which are identified as highest priority and three which are identified as high priority.

**Justification:** As the City looks toward the future, major trends in IT such as automation, security, mobile solutions, and big data and analytics will continue to drive productivity gains throughout the organization. As the industry evolves and if the City continues to expand the breadth and depth of technology solutions additional staffing will be required to provide high quality services and meet the demands of the solutions deployed. Also, new industry-wide risks are being discovered, for example in the area of cybersecurity. Outside of a small number of outliers, IT has a strong record of managing projects within budget and scope. One area of weakness is delivering projects in a timely manner, which is primarily due to staffing shortages in key areas, which increases the time projects are queued and awaiting analysis, design, implementation, and deployment.

**5 Year-Cost:** \$4.0 million. This effort can be accomplished in a phased approach.

## **8. Voice over IP (VoIP) Telecommunications System Upgrades**

**Type:** Hardware replacement

**Description:** This project adds phone call encryption, system upgrades, and replaces the call center manager core that is near end of life.

**Justification:** The City began implementation of VoIP phones approximately 5 years ago. The purchase did not include plans to replace legacy equipment, therefore, many phone system components are from the old PBX system (voicemail, etc.). The items included in the 5 year plan, include building in redundancy at key locations (e.g. public safety, Power Resources, etc.). If the city does not make plans to upgrade the VoIP system, it will become unsupported by the vendor, which could result in an outage whereby citizens cannot make critical phone contact with the City.

**5-Year Cost:** \$2.4 million. This effort can be accomplished in a phased approach.

## **9. Enterprise Resource Planning (ERP) System Replacement**

**Type:** System upgrades

**Description:** The City's enterprise resource planning system is a core enterprise application currently providing general ledger, job ledger, accounts payable, accounts receivable, budgeting, purchasing, human resources management,

benefits management, timecard, and payroll functions citywide. It supports all funds within the City, including the general fund, enterprise funds, and capital projects funds. This system is integrated with several other systems such as cashiering, utilities billing, budgeting, and most significantly with the Oracle Work and Asset Management (WAM) System. This project will completely replace the existing system with a system chosen through a detailed needs analysis and assessment project. Costs included in this request include software, professional services, and staff members and will take approximately 5 years. The total expected cost of this project is expected to be \$20,000,000.

**Justification:** The current vendor continues to enhance the product as the technology landscape changes, but current implementation lacks some advanced features. The City has not performed a comprehensive business requirements analysis or market survey or Request For Proposal for nearly 20 years. The intermediary planned approach is to upgrade IFAS to the latest version of Vista's offering, which is called OneSolution. This will stabilize the current financial, payroll, and human resource system and get it onto a fully vendor supported version. Software licenses for Onesolution are covered under the City's current contract with Vista. This system, once upgraded, is expected to last for at least five years. However, the decision to either continue with the OneSolution system or replace it in its entirety, should be made in approximately one year, because a complex enterprise system replacement project is expected to take approximately five years to complete from start to finish. A similar-sized city within Southern California recently budgeted \$25 million for their replacement enterprise system. The City of Riverside believes such a replacement system can be implemented for approximately \$20 million.

**5-Year Cost:** \$20 million. It is recommended to pursue this effort in its entirety, not a phased approach.

## 10. Citywide Computer Replacement

**Type:** Citywide computer replacement

**Description:** Currently, the City does not have a coordinated PC replacement program. Based on 2,350 full-time employees, the estimated cost to replace a PC/Laptop/tablet, including monitors, and peripherals (e.g. docking stations, etc.) will cost approximately \$2,500. The estimated provided here take into consideration 5% annual increases in cost and assumes technology will be replaced every 5 years (e.g. 20% replacements per year). This estimate should be sufficient to cover all computer labs (e.g. Finance and RPU-Orange Square) and assumes that part-time employees will be provided with older devices. In order to streamline this process, the IT would issue a bid for a 3 to 5 year contract with a vendor to supply the City with a menu of devices at a set price, level of

warranty, and standard delivery times. This would allow for a coordinated effort to be handled by Client Services and departments chartered for their use on an as-needed basis.

**Justification:** PC workstations are currently replaced in an ad-hoc fashion, and only when departments have funding based on end-of-year savings. While the system for requesting, ordering, and installing equipment is efficient, it is possible to reduce the administrative overhead of these programs by implementing a structured replacement program. This will also provide a more equitable and well-planned replacement of aging equipment throughout all departments. Equipment orders could then be performed in large batches which will streamline IT operational processes, such as PC imaging and deployment.

**5-Year Cost:** \$6.5 million. This effort can be accomplished in a phased approach.

**Grand Total 5-Year Cost:** \$51.15 million or \$10.23 million / year