CITY OF
SAN JOSE
CAPITAL OF SILICON VALLEY

Memorandum

TO: PUBLIC SAFETY, FINANCE AND STRATEGIC SUPPORT COMMITTEE

FROM: Edgardo Garcia, Robert Sapien, and Raymond Riordan

SUBJECT: SEE BELOW

DATE: March 7, 2018

Approved _KHtᴌm_

Date 8 MARCH 2018

SUBJECT: INNOVATION ROADMAP: SAFE CITY STRATEGY STATUS REPORT

RECOMMENDATION

Accept the status report on the Innovation Roadmap: Safe City Strategy regarding the applied use of technology and technology improvement opportunities within the Police Department, Fire Department, and the Office of Emergency Management.

BACKGROUND

On March 29, 2016, the City Council adopted the Smart City Vision with the aspiration of making San José the most innovative city in the United States by 2020. A key goal of the Smart City Vision is to leverage technology to make San Jose the safest big city in America. This includes both broadening the use of data analytics to improve safety, and utilizeing "Smart Infrastructure" and digital platforms in emergency and disaster response. A core value of the Smart City Vision is to do this work in a way that protects the individual privacy of our residents and provides secure IT platforms.

In January 2017, the City Council approved the Innovation Roadmap intended to focus the execution of the Smart City Vision on a first set of key projects and strategies. The roadmap identified as a priority the development and implementation of a Safe City Strategy. The emerging Safe City Strategy include significant investments in Data Analytics, Business Intelligence, Emergency Vehicle Preemption, Fire Alerting System, and Mass Notification. The status of these projects are detailed below.

Data Analytics - (Police Department)

In late 2014, the Police Department released a request for proposal (RFP) for a cloud-based, single software analytical suite that would meet the growing needs of the Department and disseminate information to the various audiences: Command Staff, patrol, the Department's Crime Analysis Unit, and the general public. The Crime and Mobile Predictive Analytics Software Suite RFP solicited a solution that would gather and analyze crime statistics, produce reports, develop intelligence, identify criminal trends (including emerging problems), and include crime mapping technology, and a module that patrol officers would use to predict and or forecast criminal activity.

Several submissions were evaluated, and in October 2015, an agreement was signed with Advanced Public Safety (APS), Incorporated. In June 2016, APS was acquired by Aptean, a provider of mission-critical enterprise software solutions. The acquisition was designed to bring together an experienced enterprise software corporation with a company focused on the public safety marketplace. For San José, transitions related to the acquisition impacted implementation timing with the overall project. At this point, staff and the vendor are focused on completing the project plan.

It should be noted that the agreement with APS includes a detailed scope of services, a project plan, and a compensation schedule with payments for implementation tied to the successful completion of key project milestones:

- Updating the data source of the Department's existing CrimeView Dashboard solution; and
- Creating four analytical modules: Crimemapping.com, CrimeView Advanced Reporting Module, Predictive Missions, and CrimeView NEARme.

Project Summary and Timeline:

1. Data Source – develop and remap data source to transfer Computer Aided Dispatch (CAD) data to the new analytical solution and the CrimeView Dashboard. *Completed in April 2016.*

2. Crimemapping.com – this module provides residents the ability to access and view crime activity within their neighborhoods. The Crimemapping.com module replaced the Departments previous solution myneighborhood.net. *Implemented in June 2016.*

3. CrimeView Advanced Reporting Module (ARM) – provides department members the ability to conduct searches of Computer Aided Dispatch (CAD) calls for service data. The ARM module replaced a previous solution known as CADmine. *Completed July 2016.*

4. Predictive Missions – a crime forecasting engine to be used by Command Staff and field patrol officers. The Predictive Missions HunchLab module is a machine learning module where the system uses specific data points to learn how to forecast crime. For San José, the system analyzes data points which are weighted to make the forecast: Crime type and occurrence (five years of San José CAD data), Department priorities (aggravated assault, burglary – residential and commercial, motor vehicle thefts, and robbery), temporal cycles (time of year, day of week, time of day), crime reoccurrence, weather, and if school in session. The forecasts are also randomized to ensure one particular area is not repetitively recommended; therefore, ensuring fair and equal consideration throughout the City.

Within the Predictive Missions module, patrol officers will have access to a secondary Analyst module. The module allows officers the ability to query existing crime data, schedule reports and set alerts from users defined crimes types, map results, analyze preset dashboards and report near-real-time crime-related data to optimize periods of Proactive Patrol Time (PPT).

The Predictive Missions solution was a collaboration between the main vendor and a subcontractor which delivered the San José configuration in April 2017. Department staff worked closely with the vendor to configure the application to align with the Department's patrol shifts, resolve technical issues, and address internal workflow issues. From September 2017 through November 2017, Command Staff, Captains, and Lieutenants were provided training on the module. At the same time, Department staff continued to work with the vendor and subcontractor to resolve technical limitations of the application. For example, testing revealed issues for officers using the system from their patrol cars as well as for staff providing support to these end users. February of 2018, the vendor released a fix to the reported issues. Full training and deployment for the Department, including patrol officers, is scheduled to start April of 2018.

The deployment of the Predictive Missions struggled during various phases of the project due to lack of continuity, the vendor's acquisition, and the coordination between the vendor and subcontractor.

Business Intelligence - (Police and Fire Departments)

The San José Police and Fire Departments were directed in the Mayor's March Budget Message for Fiscal Year 2015-2016 to purchase and implement a Business Intelligence Enterprise Solution to increase efficiency and accuracy in response time data reporting. Public safety data has been stored in systems with data-mining and reporting tools that either were inadequate for present needs and/or difficult to use. The solution will allow the consolidation of data from four mission-critical public safety applications into a single data warehouse which presents the data in an easy-to-read, highly interactive format via dashboards for users to uncover business issues,

develop strategies, streamline business processes, and/or perform ad-hoc analysis. In May of 2016, the Business Intelligence Enterprise Solution RFP was released; two vendors' proposals were evaluated. The RFP was awarded to AgreeYa, and a signed agreement was in place in January 2017. The agreement included a detailed scope of services, a project plan, and a compensation schedule with payments for implementation tied to the successful completion of key project milestones.

Department staff worked closely with Police and Fire end-users to gather requirements and to understand their business uses. In addition, the Business Intelligence project is a new technology platform which required a significant amount of effort to configure high-speed data connections, license the Microsoft Azure Data Warehouse (government cloud), Azure Data factory (commercial cloud), and Power BI Pro. AgreeYa has completed the following milestones:

> Phase 1 - Deploy a data warehouse that accepts data from the Computer Aided Dispatch (CAD) and Records Management Systems (RMS). *Completed August 2017.*

> Phase 2 - Implement an ETL (Extract, Transform, and Load) Engine. *Completed September 2017.*

> Phase 3 – Develop ERP (Enterprise Resource Planning) and ETL interfaces. *Completed CAD, Fire RMS, and Fire staffing software - December 2017.* Staff will work with AgreeYa to incorporate the PD RMS data once the RMS upgrade is complete.

As of February 2018, AgreeYa is working with Departments respective Information Technology groups to schedule training on Microsoft Azure, Data warehouse, ETL's, Power BI Pro, and reviewing datasets in the new system. Once complete, department staff will develop a roll-out plan for end-users.

Emergency Vehicle Preemption Services at Signalized Intersections – (Fire Department)

As directed in the City Council approved Mayor's March Budget Message for Fiscal Year 2016 2017, one-time funding of $1.2 million was included in the 2016-2017 Adopted Budget to provide emergency vehicle preemption service at all signalized intersections to help improve response times to fire and medical emergencies.

Existing Signal Preemption System

Presently, emergency vehicle preemption (EVP) is enabled at approximately one-third (or 336) of the city's signalized intersections to facilitate fire response vehicles to reach incidents quickly and safely. All Fire Department emergency response vehicles are equipped with an optical signal emitting device that are activated when fire vehicle emergency lights are turned on.

Centralized Emergency Vehicle Preemption System (CEVP)

The Fire and Police Departments centrally manage emergency response resources through a Hexagon/Intergraph Computer Aided Dispatch (I/CAD) System. The Department of Transportation (DOT) centrally manages traffic signal operations at over 900 intersections through its TransCore/TransSuite Traffic Control System (TCS). The Fire Department has both

a central computer-aided dispatch system and an automated vehicle location system. CEVP will enhance and integrate the existing systems in order to provide EVP service citywide.

Traffic Signal Management System is proprietary software; only TransCore can develop the required software interface. A purchase order was approved by council on April 11, 2017, to have TransCore provide software changes to TCS. The City has a Master Service Agreement with Hexagon/Intergraph to provide updates to I/CAD software.

The Fire, Police, and DOT are collaboratively working with TransCore and Hexagon to reach the following milestones:

- Changes on the I/CAD to send messages to TCS on Incidents and Apparatus information. *Completed December 2017.*
- Changes on Mobile Digital Communicator (MDC) to track and communicate the location of apparatus. *In the testing phase, estimated completion end of March 2018.*
- Development of the Traffic Control Systems. *In progress, estimated completion end of March 2018.*
- Test locations identified for the CEVP. *Completed January 2018.*
- CEVP enable on pilot at selected locations. *End of April 2018.*
- Go live – *July 2018.*

Fire Station Alerting System - (Fire Department)

Funding in the amount of $1.3 million was allocated in 2016-2017 to support the implementation of an upgraded fire station alerting system. The system will automate some dispatching steps, resulting in reduced call processing times.

On October 24, 2017, Council adopted resolution 78389, authorizing the City Manager to:

(1) Negotiate and execute an agreement with US Digital Designs, Inc., (Tempe, AZ) to purchase and replace the existing Fire Station Alerting System, including hardware, software, related professional services, support and maintenance, and applicable taxes, under the pricing and terms obtained through the National Purchasing Partners and its Government Division (doing business as NPPGov) cooperative agreement, for an initial five-year term commencing on or about October 24, 2017, and ending on or about April 30, 2024, with a maximum compensation not-to-exceed amount of $1,282,165, subject to the appropriation of funds;

(2) Negotiate and execute amendments and change orders to the Agreement to cover unanticipated changes in requirements, additions, deletions or relocations of fire stations as may be required, or for future enhancements for a not-to-exceed amount of $120,000, subject to the appropriation of funds; and

(3) Execute one-year options to extend the term of the Agreement for ongoing technical support, maintenance, and related professional services as may be required, subject to the appropriation of funds.

The system hardware was delivered on February 1, 2018. Public Works electricians, who will be responsible for installing and supporting the hardware, have received training from the vendor and are currently developing an installation schedule. Simultaneously, Information Technology Department is developing a proposal for the redundant network connectivity required to ensure 24/7 operation. The recommendation is expected to include cellular connectivity leveraging FirstNet, which currently offers priority service for public safety agencies on AT&T's existing consumer network. The implementation timeline will be dependent on these elements.

Mass Notification System – (Office of Emergency Management)

At the time of the 2017 Coyote Creek Flood the city had limited capacity to conduct mass notifications. Since the flood we have significantly increased our capacity to provide mass notifications. Through the Everbridge system we are able to use both the Alert Santa Clara County (Alert SCC) and the Wireless Emergency Alert (WEA). Fifty staff in Police and Fire Dispatch and the Office of Emergency Management (OEM) has been trained on the system. The capabilities of these two delivery methods are:

Alert SCC – This method requires the public to register. To date 28,000 San Jose residents have registered. The Alert SCC can send notifications that can deliver e-mail, text, and voice notification in any language. It is an opt-in system because a resident or employee needs to log into a computer system and provide contact information and select a preference of language. Public education campaigns by the SCC OES and all presentations by OEM inform the public of the service and need to register.

WEA - The Wireless Emergency Alert (WEA), commonly referred to the Amber Alert, is a system that works automatically on most modern mobile phones. It is an opt-out system because the user must enter the settings application of their smartphone and de-select receiving emergency messages. The WEA is activated when a trained operator identifies an area that needs to warned of an incident on a map, and the Everbridge system then pushes a text message to any and all mobile devices connected to a cellular site that covers the area identified on the map. 13 of the 50 trained staff are authorized to activate this system. Currently, the system is limited to 90 characters, with future growth to 360 characters in 2019.

The WEA was activated in July 2017 for the heat wave that overcame our region. The Everbridge reports indicated successful contact with 3 million devices.

The City of San José coordinates Alert, Notification, and Warning with the Santa Clara County Office of Emergency Services (SCC OES) who sponsors the Alert Santa Clara County (Alert SCC) notification system.

LOOKING FORWARD

The City's investments in Data Analytics, Business Intelligence, Emergency Vehicle Preemption, Fire Alerting System, and Mass Notification represent significant progress on our journey to a smarter and safer city. However, reaching our ambition to be the safest big city in America will require that these efforts be orchestrated into a clear and focused strategy that cuts across department lines, builds our capacity to learn from data, and prioritizes technology and process improvements with the biggest return at scale. This strategy will focus on delivering the promise of safer city and adhere to the core value of protecting individual privacy of our residents and providing a secure IT platform.

Building on the lessons learned from these initial investments Police, Fire and Emergency Management will work collaboratively with key stakeholders in the development of this strategic approach. A report on the draft strategy will be brought back to this committee for their acceptance next fiscal year.

COORDINATION

This memorandum was coordinated with the Office of Civic Innovation.

/s/	/s/	/s/
Edgardo Garcia,	Robert Sapien ,	Raymond Riordan ,
Chief of Police	Acting Fire Chief	Director of Emergency Management

For questions, please contact Judith Torrico, Police Department Deputy Director - Bureau of Technical Services, at (408) 277-5176.