

# Memorandum

**TO:** TRANSPORTATION AND  
ENVIRONMENT COMMITTEE

**FROM:** Jim Ortbal

**SUBJECT:** ANNUAL TRANSPORTATION  
SYSTEM SAFETY REPORT

**DATE:** April 18, 2018

Approved



Date

25 APRIL 2018

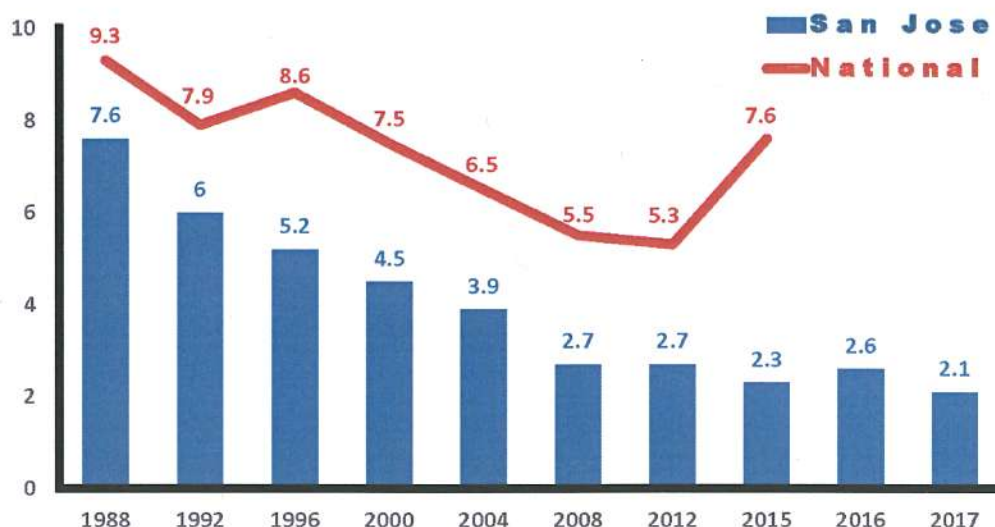
## RECOMMENDATION

Accept the Annual Transportation System Safety Report.

## BACKGROUND

San Jose continues to be one of the safest large cities in the nation for transportation operations with an injury crash rate that is less than one-third of the national average. Over the past 30 years, San Jose's injury crash rate has declined by 72%. Of significance is that the injury crash rate dropped to 2.1 injury crashes per 1,000 residents in 2017. Additionally, crashes involving pedestrians and bicyclists has declined from an average of approximately 600 injury crashes in recent years, to fewer than 450 injury crashes in 2017. Historically, there has been a strategic investment in capital improvement projects that were largely based on analysis of crashes; deployment of enforcement at high crash locations, and the prioritized delivery of traffic safety education to school children and seniors.

**Figure 1 – San Jose Injury Crash Rate (per 1,000 population)**



### **National Traffic Fatality Perspective**

Traffic fatalities across the nation have significantly increased in recent years, with an estimated 40,100 fatalities in 2017. Although this is down from 2016 (40,327 fatalities), it represents a 6% increase over 2015, and a cumulative 14% two-year increase over 2014. This is the most dramatic two-year escalation nationally in over 50 years. Of particular concern is the more significant increase in pedestrian fatalities nationally. Pedestrian fatalities in 2017 are estimated to remain unchanged from 2016, which saw an approximate 11% increase when compared with 2015, and a cumulative increase of 22% over 2014. With the national rise in traffic fatalities, the National Safety Council is calling for life saving measures including the use of automated enforcement techniques and the banning of cell phone use while driving.

In San Jose, the total number of fatalities, and the number of pedestrian fatalities have declined over 20% in the past few years. San Jose traffic fatalities by year and type are shown below:

**Table 1: San Jose Traffic Fatalities**

Year	Pedestrian	Bicyclist	Total
2015	23	4	60
2016	19	4	50
2017	17	6	46

### **San Jose's Vision Zero Initiative**

In May 2015, San Jose became the 4th city in the nation to formally adopt a Vision Zero transportation safety initiative, which aims to eliminate fatalities and reduce severe injuries caused by traffic collisions. There are currently 35 cities nationwide that have adopted a Vision Zero policy or program with many other cities considering the initiative. Awareness of Vision Zero goals and the effectiveness of its safety measures will increase as the initiative spreads across the state and the nation.



Although San Jose has a relatively safe transportation system, some traffic collisions have tragically resulted in a fatality. In 2016, 46 people died in San Jose as the result of a traffic collision. While there has been incremental reductions from the 60 fatalities that occurred in 2015, we all recognize that one traffic death is one too many. Key conclusions of the 44 crashes that resulted in the 46 fatalities in 2017 are highlighted in Attachment A.

Many of the fatal crashes in San Jose involve drivers, motorcyclists, pedestrians and bicyclists exhibiting poor judgment and illegal behaviors while traveling within the public right-of-way. It is important to understand that people will continue to make errors and the overall transportation system needs to be designed to compensate to some level for human error so that the consequence of a traffic collision is not severe injury or death. Education and enforcement efforts must also support safer roadway designs in order to establish a comprehensive Vision Zero program that improves traffic safety conditions including the elimination of fatalities and reduction of severe injuries.



This fiscal year, an updated [Two-Year Action Plan](#) was developed to expand actions to improve safety for active transportation through physical changes, as well as through community education, enforcement, technology, and supporting policies.

This report is presented annually to the Transportation and Environment (T&E) Committee, and includes information on various transportation safety programs and activities.

## **ANALYSIS**

The analysis section of the report includes the following subsections:

- A. Building the Foundation to Achieve Vision Zero
  - 1. Evaluation – Enhanced Data Analytics and Safety Audits
  - 2. Engineering – Design Guides and Projects that Improve Safety
  - 3. Education/Engagement – Build Awareness through Information and Outreach
  - 4. Enforcement – Change Poor Behavior through Targeted Deployment and Technology
  - 5. Technology – Innovation will have the Largest Impact on Traffic Safety
- B. Ongoing Transportation Safety Programs and Projects

### **A. Building the Foundation to Achieve Vision Zero**

San Jose's Vision Zero plan did not set a particular timeline for achieving Vision Zero as a practical matter, as cities do not have enough of the necessary regulatory authority and tools available to them to largely control transportation safety outcomes. A significant level of foundational work is still needed to set an ambitious, yet feasible timeline for achieving Vision Zero. Further, state and federal policies are not fully aligned with the safety-first focus of Vision Zero, and it is estimated that the most significant improvement in safer streets will come through the deployment of automated crash avoidance technologies in new vehicles. Funding sources must also be dedicated at all levels of government to work towards implementation of Vision Zero. In light of these conditions, the path forward to zero traffic fatalities will take a long-term commitment. It is a path that must be taken, with rigorous focus and incremental improvement, recognizing that even one traffic fatality on our roadways is one death too many.

The core principles that guide San Jose's Vision Zero initiative include:

- Traffic deaths are preventable and unacceptable
- Safety of all roadway users takes precedence over fast vehicle mobility
- Design and operation of the transportation system should account for human error
- Speed is a fundamental predictor of crash survival
- Safe behaviors, education and enforcement are essential for a safe roadway system
- Policy alignment is needed at all levels of government to make safety the highest priority

In 2017, a Vision Zero Advisory Committee with representatives from the City's Police Department, CA Walks, Silicon Valley Bicycle Coalition, SPUR, Transform, the County Health Department, and a senior citizen was formed. The Committee meets quarterly and provides valuable input in support of our Vision Zero goals.

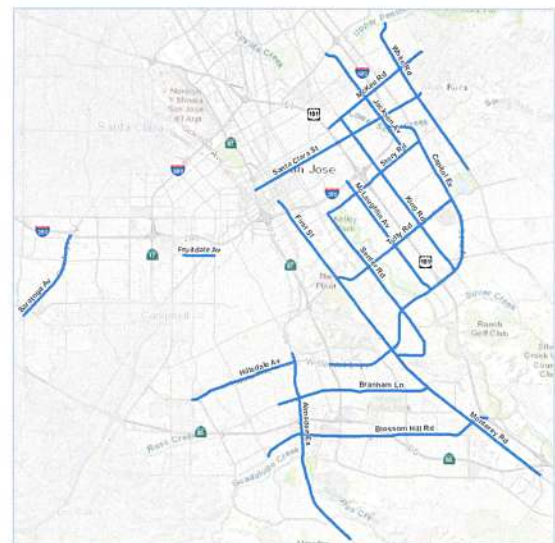
The strategies outlined in this report describe the ongoing and planned efforts to align available resources in the Department of Transportation (DOT) and the Police Department to support Vision Zero strategies. To make substantive progress towards Vision Zero, additional resources will be required to provide for more rigorous and systematic data analytics, delivery of more and substantial corridor based safety projects, engagement and education of the community to move towards a "Safety First" culture, and sustained enforcement focused on the top violations that result in fatalities and severe injuries.

### **1. Evaluation – Data Analytics and Safety Audits**

A focus of San Jose's Vision Zero initiative is on the streets experiencing a higher incidence of fatalities and severe injuries due to traffic collisions. Based on a prior review of crash data in 2015 and an updated review in 2017, 17 major streets have been identified and established as "Priority Safety Corridors". These corridors include segments of Almaden Ex, Alum Rock Av/Santa Clara St, Blossom Hill Rd, Branham Ln, Capitol Ex, Fruitdale Av, Hillsdale Av, Jackson Av, King Rd, McKee Rd, McLaughlin Av, Monterey Rd/First St/Market St, Saratoga Rd, Senter Rd, Story Rd, Tully Rd, and White Rd.

The Priority Safety Corridors highlighted on Figure 2 represent 3% of San Jose's approximate 2,400-mile roadway system. In 2017, about 33% of traffic fatalities and 27% of severe injuries occurred on these corridors.

**Figure 2 – Priority Safety Corridors**



- **Priority Safety Corridor Audits** – Field safety assessments and a comprehensive review of the crash data and associated police reports have been conducted on all 17 corridors to identify trends, find patterns, and to pinpoint high collision locations. Safety assessment reports were developed with recommendations focused on engineering measures that would help reduce vehicle speeds, minimize conflicts between vehicles, pedestrians and bicyclists, and create safer and more accessible pedestrian and bike facilities. The safety assessments also include targeted recommendations for enforcement and traffic safety education.

The safety reports along with the corridors' concept improvement plans have assisted DOT with being awarded nearly \$28 million in grant funds for safety projects on many of the Priority Safety Corridors. DOT has also been awarded another \$17 million for safety



projects and programs in other areas of the City. A summary description of improvements funded by these grants is provided in Attachment B.

- TSCN Resources – DOT staff continues to work with, and share information with the Traffic Safe Communities Network (TSCN) of the County's Health Department. This includes sharing collision data and trends, safety educational videos and materials, and coordinating educational seminars.
- OTS/SafeTREC/CA Walks – In 2017, DOT completed work with CA Walks and UC Berkeley Safe Transportation Research & Education Center (SafeTREC) on data analysis, walk/bike audits, community education and engagement for selected Priority Safety Corridors. This effort was funded by the Office of Traffic Safety for targeted technical assistance to Pedestrian/Bicyclist Focus Cities identified by the Federal Highway Administration.

## **2. Engineering – Design Guides and Projects that Improve Safety**

The 17 Priority Safety Corridors comprise about 73 miles of roadway. To the extent possible, DOT is aligning the delivery of the Traffic Capital Program to safety projects on these corridors, especially on projects that will improve pedestrian and bicyclist safety and mobility. As part of the development review process, DOT staff from multi-disciplines are ensuring that safety, operational and design improvements are being implemented on affected corridors.

- Complete Street Design Standards and Guidelines – DOT is finalizing the Complete Streets Design Standards and Guidelines that incorporate progressive standards to serve as a comprehensive set of street designs for how San Jose builds and retrofits streets. Complete Streets principles provide guidelines for the design and implementation of streets safe for all modes of travel, in support of Vision Zero strategies and the City's Envision 2040 General Plan mobility goals. DOT will present the Complete Streets Design Standards and Guidelines to City Council in May 2018 for adoption.

In recent years, DOT has been coordinating the implementation of complete street measures, such as reduced vehicle lane widths to reduce speeds, and installation of bike lanes and enhanced crosswalks with our Annual Pavement Maintenance Program. As an example of the positive safety impacts of Complete Streets measures – when Branham Ln, between Almaden Ex and Vistapark Dr was restriped in 2016, the roadway was modified from six vehicle lanes to four vehicle lanes and buffered bike lanes. Preliminary results indicate traffic safety has improved on this segment of Branham Ln, with approximately 40% fewer crashes occurring in 2017 when compared to the three years prior to the restriping. Additionally, there were no crashes involving bicyclists in 2017.

**Figure 3: Branham Ln and Glenmont Dr**



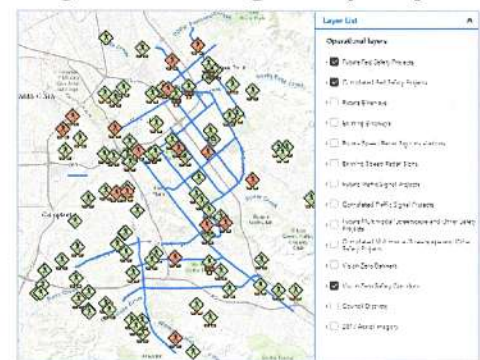


### 3. Education/Engagement – Build Awareness through Information and Outreach

Public education and engagement can support improvements in traffic safety through changing behavior. To have sustained impact on building awareness of the need for a culture of “Safety First”, and ultimately achieving results with changed behaviors will require significant ongoing education and engagement efforts. Although the City is not currently resourced to implement a campaign at the level that would be necessary to affect significant behavior change, as described below, staff has initiated efforts to build awareness of Vision Zero safety goals, and the need for all roadway users to prioritize street safety.

- VZSJ Website – The Vision Zero website ([www.visionzerosj.org](http://www.visionzerosj.org)) provides interactive maps featuring a variety of completed and planned safety projects, and maps of fatalities and severe injuries for collisions reported during the period of 2010 through 2017. The website also provides information about *Vision Zero San Jose* including the Priority Safety Corridors, the Four E’s (Evaluation, Engineering, Education, and Enforcement), resources including annual safety reports and links to related programs, partner organizations, and how the community can be more involved. DOT is also producing safety education videos, customized for young children, high school students, seniors, adults, and City employees.

Figure 4. Web Page Safety Projects



- Vision Zero Informational Brochure – To raise awareness of Vision Zero within the community, an informational brochure highlighting Vision Zero principles and traffic safety tips for motorists, bicyclists, and pedestrians reinforces that developing a culture of “Safety First” will take “All of Us”. The brochures are available at community centers and libraries in English, Spanish, Vietnamese, and this past year, also in Mandarin. The Traffic Enforcement Unit is using the brochures as an educational tool to complement enforcement activities, especially on the Priority Safety Corridors.



- Vision Zero Banners & Yard Signs – To further expand awareness of Vision Zero, street banners are being installed on some of the Priority Safety Corridors established in 2017. To help reduce speed and other unsafe behaviors on neighborhood streets, yard signs with safety messages have been developed and supplied to interested residents citywide. Additionally, large safety banners have been produced and are being supplied to schools.

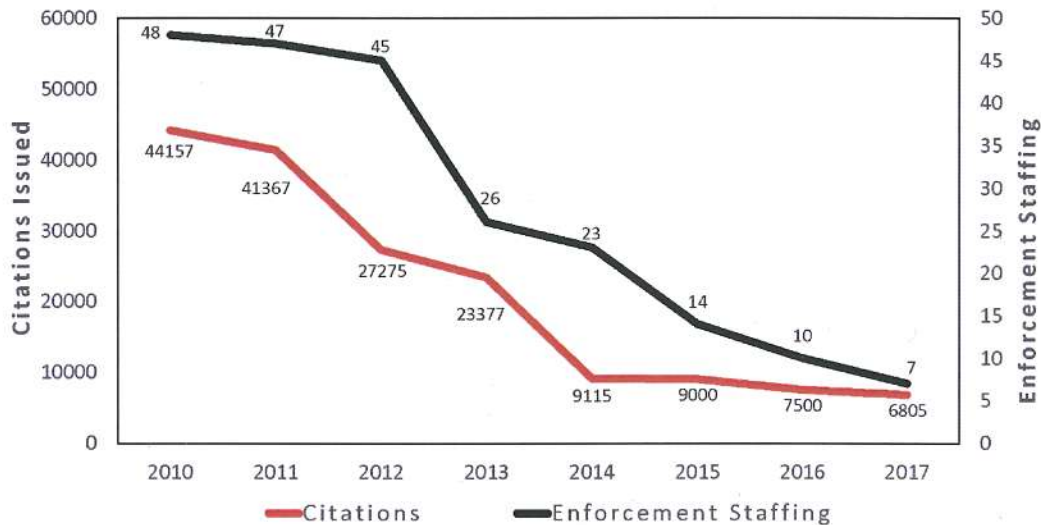


In collaboration with VTA, an annual safety campaign using transit facilities has also been established, providing for the display of safety messages at light rail stations, bus stops, inside bus and light rail vehicles, and on bus tails.

#### 4. Enforcement – Change Poor Behavior through Targeted Enforcement and Technology

- Deployment of Limited Traffic Enforcement Resources – As shown on Figure 4, active staffing in the Police Department Traffic Enforcement Unit (TEU) has declined by 85% over the past seven years, with a corresponding decrease in moving violations issued citywide over this time period. Based on DOT's discussions with staff from other large cities in California, declines in traffic enforcement resources is being experienced across the state. To optimize the impact of the limited TEU resources, the unit focuses on a data driven approach by deploying officers to the highest crash locations in the City; including intersections and road segments on the Priority Safety Corridors. The Police Department also makes efforts to increase the presence of traffic enforcement by deploying patrol officers on an overtime basis.

**Figure 5. Decrease in Enforcement Staffing and Citation Issuance**



- Automated Speed Enforcement Legislation – There are over 140 communities across the nation with an Automated Speed Enforcement (ASE) program to deter speeding and improve safety for all road users. Studies show that deployment of ASE resulted in significant reductions in speeding, as well as the number of fatalities and injuries as shown on Figure 5. In recognition of the effectiveness of ASE, the National Transportation Safety Board (NTSB) in a 2017 safety study on *Reducing Speeding – Related Crashes Involving Passenger Vehicles*, issued strong recommendations in support of authorizing the use of ASE across the nation.

**Figure 6. ASE Programs in the U.S.**



In 2017, Assemblymember David Chiu introduced AB 342, a five-year pilot for San Jose and San Francisco to utilize proven speed enforcement technology. The bill included significant equity and privacy provisions and was



passed by the Assembly Privacy and Consumer Protection Committee, the first time an ASE bill has made it out of any legislative committee. Unfortunately, due to strong opposition from the California Association of Highway Patrolmen, the union for the CHP, the bill died in the Assembly Transportation Committee. DOT and the Police Department remain committed to advancing automated speed enforcement technology to support our Vision Zero goals to reduce speeding, and fatalities and injuries caused by traffic collisions, and are collaborating with San Francisco and Assemblymember Chiu's office on future steps.

## **5. Technology – Innovation will have the Largest Impact on Traffic Safety**

Research shows that over 90% of crashes are caused by human error. Current advancements in vehicle technology have the greatest potential to significantly reduce traffic injuries and fatalities. Advanced technologies, such as front crash prevention, lane departure warning, pedestrian and blind spot detection, and electronic stability control can assist drivers with warnings or automatic braking to help avoid or mitigate a crash. Connected vehicle technologies can also benefit transit services and increase ridership, such as through Transit Signal Priority to reduce travel time.

The City has been an active partner with national, state, and local jurisdictions to help shape the implementation and policies surrounding Autonomous Vehicle (VA) technology. In June 2017, the City issued a formal Request for Information to further understand and potentially pilot AV technology solutions under the City's Demonstration Policy. Through this effort, the City will be obtaining new data tools for safety utilizing AV technology which has the potential to assist with our Vision Zero goals to eliminate traffic fatalities and reduce severe injuries.

### **B. Ongoing Safety Programs and Projects**

Highlighted below are a variety of traffic safety programs and projects managed by DOT and/or the Police Department, with a focus on safety and mobility of school children, seniors, and improved pedestrian safety on major roadways. To maximize the delivery of traffic safety measures, both departments actively pursue grant funds to implement projects and programs that focus on improving traffic safety and enhancing pedestrian and bicyclist mobility.

Walk n' Roll San Jose – The Walk n' Roll program is currently working with 45 elementary and middle schools to encourage walking and biking, which has increased the number of children





who walk or bike to school by an average of 22%. Many of these schools have monthly or weekly walk to school events, with a total of about 20,000 students participating. The Walk n' Roll team ensures that children are aware of the social, health and environmental impacts and benefits of their travel choices, which helps foster a generation that puts a priority on sustainable and safe transportation mode choices. The Walk n' Roll program has been very successful over the years, which is illustrated by the low collision and fatality rates involving elementary and middle school age children.

**Traffic Safety Education** – This school year, an estimated 32,000 school children will have received traffic safety education via assemblies, special events, and bike rodeos. This includes an expansion of DOT's education efforts to high school students (5,000). Approximately 1,500 children received and were fitted with bike helmets. Additionally an estimated 19,500 adults will receive traffic safety education, which includes 7,500 seniors and 2,000 homeless members of the community. The Traffic Enforcement Unit also participates in school safety programs at schools, including *Every 15 Minutes* where high school students learn about the serious impacts of driving under the influence of alcohol or drugs.



**Parking Compliance** – DOT Parking and Traffic Control Officers (PTCOs) support safety school drop-off and pick-up activities through the issuance of warnings, and citations if necessary to gain compliance. PTCOs visit schools throughout the City based on requests from the school community and levels of on-compliance.

**Adult School Crossing Guard (ACG)** – The Police Department's School Safety and Education Unit manages the ACG program, and currently staffs 122 intersections in San Jose that are used by school children with an allocation of 295 part-time Crossing Guards.

**Crosswalk Enhancements** – Enhancing crosswalks improves mobility and safety conditions for pedestrians and supports walking as a transportation mode. Attachment C highlights the crosswalk locations that have been, or are programmed to be enhanced in FY 2017-18 through Traffic CIP funding and a variety of received grant funds. Selected projects were coordinated with Council Offices and based on pedestrian activity, proximity to pedestrian traffic generators, crash activity, and unique roadway geometry.

**Figure 7: Tenth St near Spartan Stadium**





On-Street Bikeway Enhancements – Bikeways provide dedicated space for people who bike, increasing their safety and visibility, and improving safety for all roadway users; protected bikeways can reduce injury collisions for all roadway users by 40 to 50 percent.<sup>1</sup>

In 2017, DOT installed 35 miles of new on-street bikeways and enhanced 20 miles of existing bikeways with buffers, vertical separation, and/or green paint in “conflict zones” (areas where bicycles and motor vehicle cross). Attachment C highlights these new and enhanced bikeways.

DOT also began work with the Knight Foundation and the National Association of City Transportation Officials (NACTO) on “Better BikewaySJ” – a network of high-quality bikeway facilities in central San Jose. Better BikewaySJ will use a toolkit already available for streets: separating bikes and traffic using inexpensive, traffic-tested materials, switching the position of parking lanes and bike lanes during paving projects to let parked cars do the work of protecting the bikeway. By coordinating with planned pavement maintenance work, DOT has the potential to build more than a dozen miles of protected bike lanes, extended by a network of low-stress neighborhood streets, in less time than a typical capital project for one street would take.



Additionally, DOT is beginning work to update its Bike Plan, and will incorporate learnings from Better BikewaySJ and other communities to increase bicycling as a safe, convenient and enjoyable option for residents, employees and visitors throughout San Jose.

Traffic Calming – DOT coordinates priority traffic calming projects with Council Offices where speeding or safety is a concern. Attachment C identifies projects that are being completed in FY 2017-18. Included is the installation of the City’s first road lumps on both Lanai Av and Huran Dr. Road lumps are similar to road humps in that they can both be used to address adverse speeding conditions on residential two-lane roadways, with a maximum posted speed limit of 30 mph. While road humps span across the entire roadway width, road lumps have gaps for emergency vehicles, and can be considered for streets with adverse speeding conditions where road humps would adversely impact emergency vehicle response times.

Radar Speed Display Signs – Radar signs can be effective in slowing auto traffic by making drivers aware when they are driving faster than the posted speed limit. Attachment C identifies the roadways that have been enhanced, along with additional locations scheduled to receive radar speed signs by the end of this fiscal year.



<sup>1</sup> Silicon Valley Bike Vision, Joint Venture Silicon Valley and the Silicon Valley Bicycle Coalition, 2017 (<https://jointventure.org/images/stories/pdf/2017-02-bike-vision.pdf>).



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Traffic Signal Installations/Modifications – The 2018-22 Traffic CIP includes \$1.0 million annually to enhance pedestrian crossings on major roadways. Some of the CIP signal budget has been used to augment funding for various grant projects that are installing new or modifying existing traffic signals. This is in addition to funding secured through development projects with traffic impacts, and a variety of received grant funds. Several new signals have been installed and various signal modifications have been completed to provide left-turn phasing, and to improve pedestrian mobility. Attachment C identifies the signalized intersections that are being improved in FY 2017-18. This includes the installation of the City's first bike signal on Story Rd, a pedestrian signal at the Airport, and an additional High Intensity Activated Crosswalk (HAWK) on Alum Rock Av implemented with the VTA Bus Rapid Transit project. In addition, approximately 190 signals along coordinated corridors are programmed to be retimed this fiscal year.

**Figure 8: Story Rd/Hopkins Dr**



LED "Smart" Streetlights – To date, over 26,000 of San Jose's streetlights have been retrofitted with a "smart" LED streetlight monitoring and control system. A majority of the LED retrofits have occurred on the major roadway network, including a majority of the Priority Safety Corridors; providing a brighter, white light and improving visibility on these higher volume streets during evening hours. DOT is presently working with the City Manager's Office of Civic Innovation to chart a path to retrofit the approximately 38,000 remaining streetlights to "smart" LED technology.

## COORDINATION

This report has been coordinated with the Policy Department and the City Attorney's Office.

/s/

JIM ORTBAL  
Director of Transportation

For questions please contact Laura Wells, Deputy Director for Transportation Safety, Operations and Parking, at 408-975-3725.

Attachments