



Memorandum

TO: TRANSPORTATION AND
ENVIRONMENT COMMITTEE

FROM: John Ristow

SUBJECT: ANNUAL TRANSPORTATION
SYSTEM SAFETY REPORT AND
VISION ZERO UPDATE

DATE: April 17, 2019

Approved

Date

4-17-19

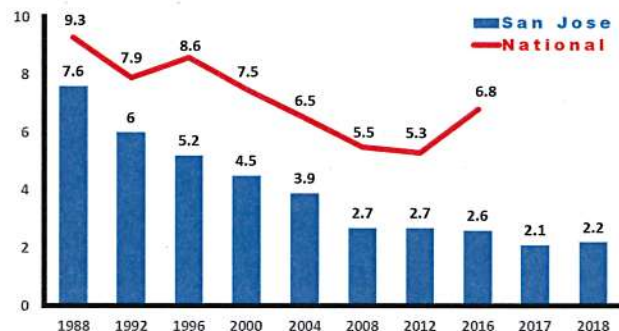
RECOMMENDATION

Accept the Annual Transportation System Safety Report and update on the Vision Zero initiative.

BACKGROUND

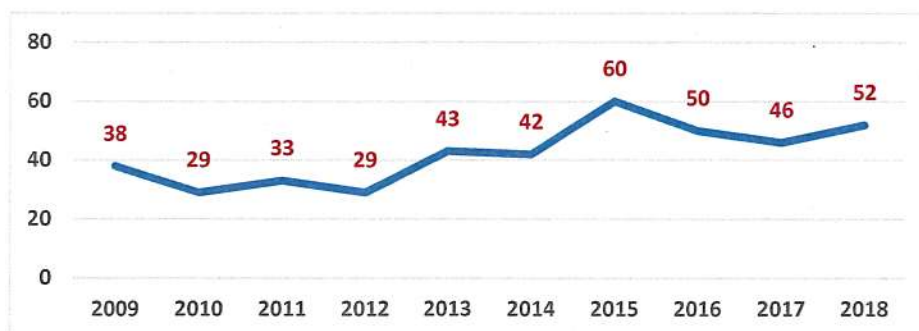
Over the last 30 years San José's injury crash rate has declined to 2.2 injury crashes per 1,000 population in 2018, which is less than one-third of the national average. Crashes involving pedestrians and bicyclists in 2018 increased to 487 from a low of 451 in 2017; and remains below the average of 600 in recent years.

**Figure 1 – San José Injury Crash Rate
(per 1,000 population) (1988-2018)**



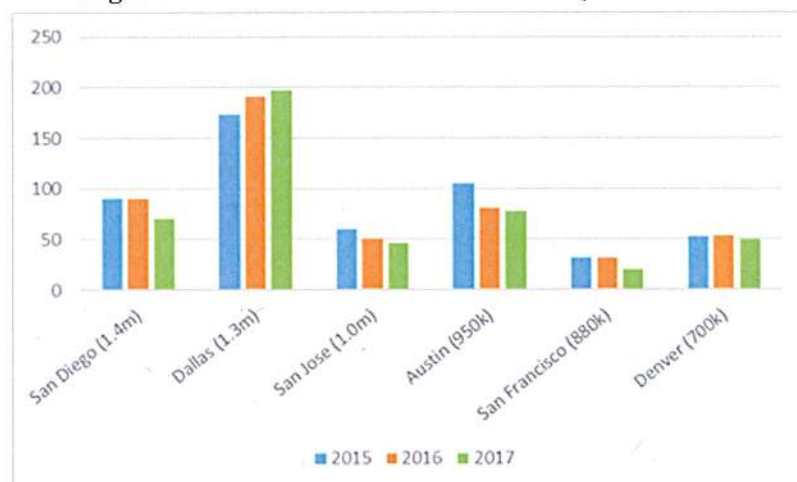
While the injury crash rate has declined, traffic fatalities have risen. Over the last 10 years, San José's traffic fatalities declined to a low of 29 in 2010, reached a peak of 60 in 2015, and have plateaued around 50 per year in recent years. While the city's population grew less than 10% during this period, traffic fatalities have increased 37%. In 2018, 52 people died in San José as the result of a traffic collision.

Figure 2 – San José Traffic Fatalities (2009-2018)



National Traffic Fatality Perspective

Figure 3 – Traffic Fatalities in US Cities, 500k-1.5m



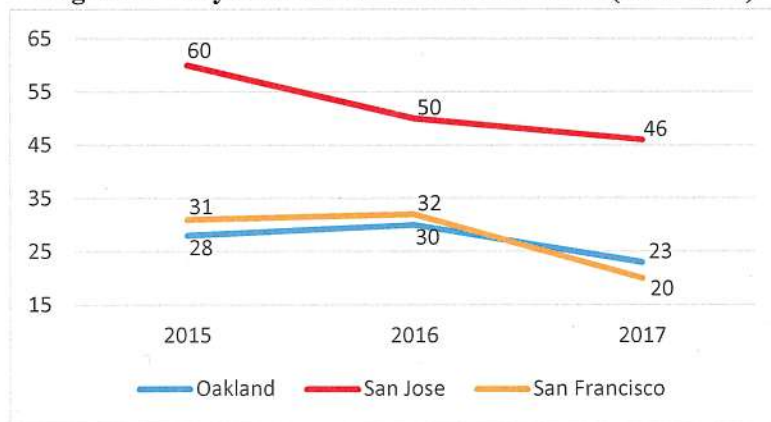
Over the past 10 years, traffic fatalities nationally declined from about 40,000 in 2008 to 35,000 in 2010, and have increased back to about 40,000 in recent years.¹ Preliminary data for 2018 anticipate a 2% decrease in traffic fatalities across the nation. In comparison to US cities of 500k-1.5m population, the City of San José has had relatively few traffic fatalities in recent years.

Nationally, pedestrian traffic fatalities are an area of notable increase since 2009. Possible factors include economic growth, lower fuel prices, growing popularity of light trucks and SUVs, speeding, and distraction from smartphone use.² In San José, pedestrian fatalities account for 46% of traffic fatalities in 2018, while representing less than 2% of its mode share.³

Regional Perspective

San José (pop. 1.035m) has about twice as many traffic fatalities as San Francisco (pop. 855k) or Oakland (pop. 425k), the Bay Area's other major cities.

Figure 4 – Bay Area Cities: Traffic Fatalities (2015-2017)



¹ National Safety Council: Motor Vehicle. <https://injuryfacts.nsc.org/motor-vehicle/overview/preliminary-estimates/>

² Governors Highway Safety Association: Pedestrian Traffic Fatalities by State: 2018 Preliminary Data. <https://www.ghsa.org/resources/Pedestrians19>

³ 2013-2017 American Community Survey 5 Year Estimates: Community Characteristics by Sex. San José, CA. https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_S0801&prodType=table

San José's Vision Zero Initiative

In May 2015, San José became the fourth city in the nation to formally adopt a Vision Zero transportation safety initiative. Over 40 cities nationwide have adopted a Vision Zero policy and are part of the Vision Zero Network as of 2019.



Vision Zero cities strive to lower and ultimately eliminate traffic fatalities. Vision Zero projects transform high injury streets—usually those with high pedestrian exposure—into more pedestrian friendly places. In this way, Vision Zero is a central goal of San José's General Plan 2040 to greatly increase sustainable mode share, and is closely linked to the Downtown Transportation Plan, Better Bikeways, Urban Villages, and Climate Smart San José.

Vision Zero's focus on traffic fatality reduction brings to light that the City will need to develop diversified and quickly implementable strategies to build awareness of the issue and deliver traffic fatality reduction results. Towards this effort, San José collaborates with other California cities on Vision Zero through the National Association of City Transportation Officials' (NACTO), California City Transportation Initiative's (CaCTI) Vision Zero Committee, and the Metropolitan Transportation Commission's (MTC) Vision Zero Committee.

DOT is working to improve its data analytics and mapping analysis capabilities for the City's traffic injuries, with a focus on identifying over-represented types of fatalities and severe injuries relative to the City's population and transportation mode split. Key findings of the 49 crashes that resulted in the 52 fatalities in 2018 are highlighted in the Analysis section of this report.

This report is presented annually to the Transportation and Environment (T&E) Committee, and includes information on various transportation safety programs and activities. DOT plans to return in Fall 2019 with an updated [Vision Zero Two-Year Action Plan](#), which will identify strategies that focus on reducing the overrepresented traffic fatalities and severe injuries. Staff anticipates that a strategic measure in the updated action plan will be the creation of a multi-department Vision Zero Task Force.

ANALYSIS

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; and
- Policy alignment is needed at all levels of government to make safety the highest priority.

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. Investments in Safety

A. Building the Foundation to Achieve Vision Zero

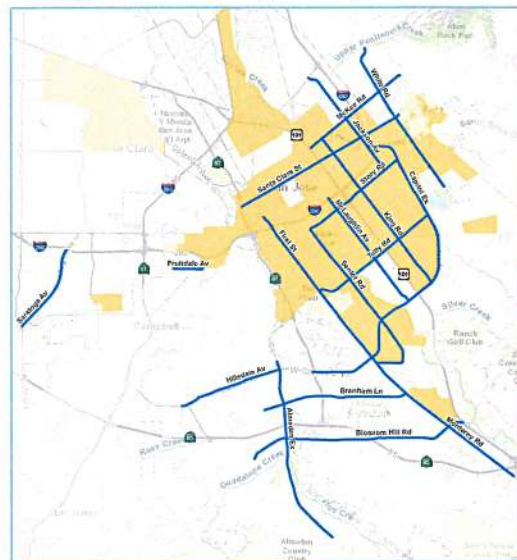
The strategies outlined in this report describe the ongoing and planned efforts to align available resources in the Department of Transportation (DOT) and the Police Department to support Vision Zero strategies. To make substantive progress towards Vision Zero, additional resources would be required 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 and locations that result in fatalities and severe injuries.

1. Evaluation – Data Analytics and Safety Audits

San José's Vision Zero initiative focuses on the streets experiencing a higher incidence of fatalities and severe injuries due to traffic collisions. Based on a review of crash data in 2015 and an updated review in 2017, 17 major streets have been designated as Priority Safety Corridors including 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. These corridors overlap in great part with San José's communities of concern.⁴

The Priority Safety Corridors highlighted on Figure 5 represent 3% of San José's 2,400-miles of roadway. In 2018, about 55% of traffic fatalities and 38% of severe injuries occurred on these corridors.

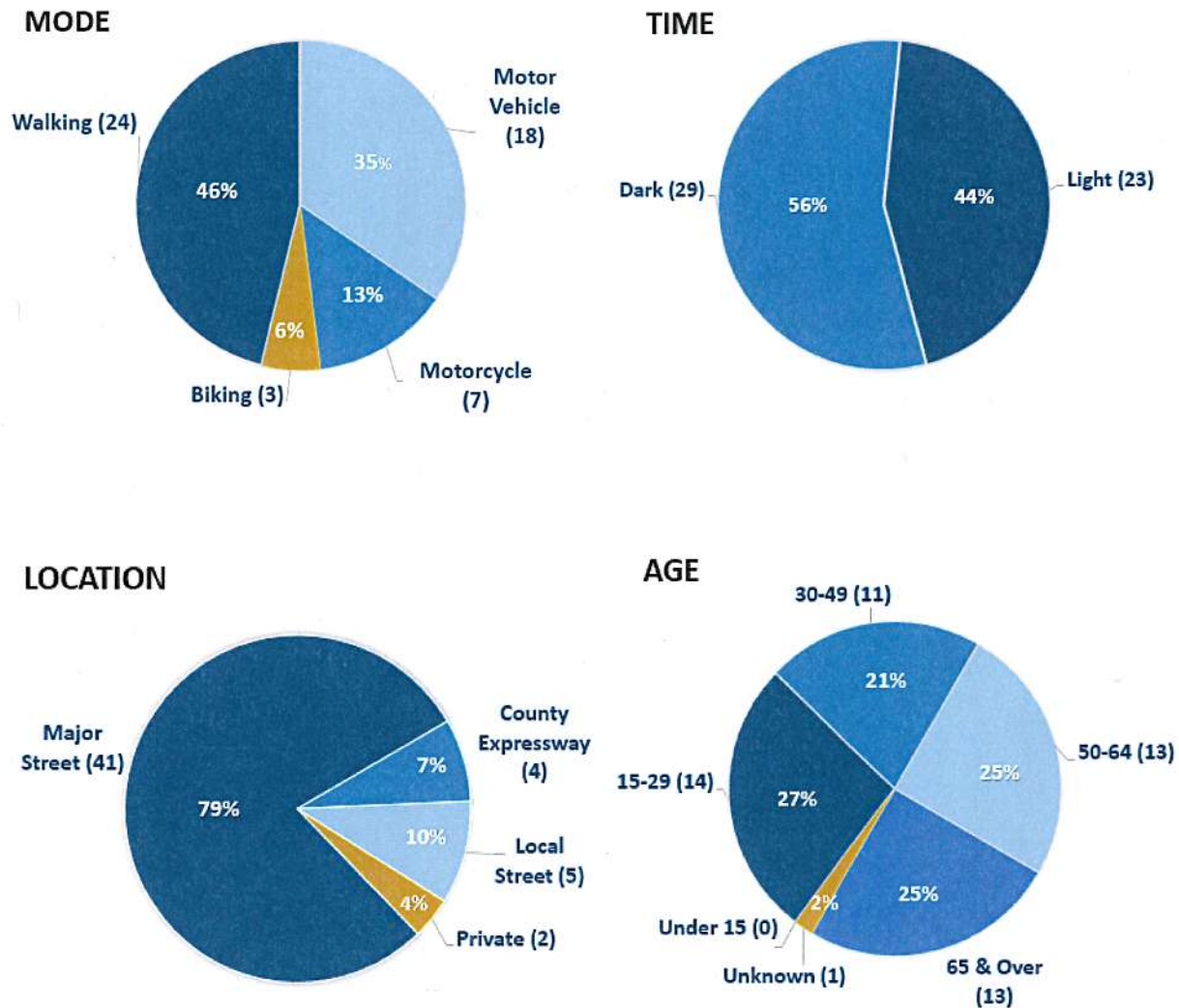
Figure 5 – Priority Safety Corridors



- Priority Safety Corridor Audits and Pursuit of Grants – 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 and pinpoint high collision locations. The reports along with the corridors' concept improvement plans have assisted DOT with applying for federal, state, and regionally competitive grants to fund projects. DOT has been awarded over \$29 million in grant funds, between 2007 and 2019, for safety projects on Priority Safety Corridors. Attachment A shows grant funded safety projects for Priority Safety Corridors and for other areas of the City.
- Vision Zero Analytics – DOT is building up this competency as part of our Vision Zero work plan to help gain a better understanding of the effectiveness of the safety improvements that San José has already built, as well as benchmark of projects that other Vision Zero cities are building that could be adapted for implementation in San José. DOT is also initiating contact with the Santa Clara County Medical Examiner-Coroner's Office in 2019 to compare fatality data, particularly an observed uptick in homeless pedestrian fatalities. Key findings of the 2018 traffic fatalities are summarized in Figure 6.

⁴ The Metropolitan Transportation Commission's Equity Analysis in its Bay Area 2040 Plan (2016) defines communities of concern as "intended to represent a diverse cross-section of populations and communities that could be considered disadvantaged or vulnerable in terms of both current conditions and potential impacts of future growth." <https://www.planbayarea.org/2040-plan/plan-details/equity-analysis>

Figure 6 – 2018 Traffic Fatalities by Mode, Time, Location, and Age



Key Findings for 2018 traffic fatalities:

- **Location:** 87% (45) on major roadways, with the remaining 13% (7) taking place on local roads (5) and on private property (2).
- **Pedestrians:** 46% of fatalities (24 of 52), compared to <2% of mode share. 42% (10) of the pedestrian fatalities occurred in crosswalks, while 58% (14) were outside crosswalks.
- **Older Pedestrians:** 38% of pedestrian fatalities (9 of 24) are age 65+. The older adult population and percentage of the population (12.7% in 2017) is growing.
- **Speeding** is the most common factor contributing to fatalities and severe injuries
- **Darkness:** 56% of fatalities.
- **Motorcycle:** 13% of fatalities, compared to <1.2% of mode share (none are scooters)

- Creating Safe Streets for Seniors: – Pedestrians ages 65+ comprise a significant number of traffic related pedestrian fatalities; specifically, 38% (9 of 24 in 2018). Older adults age 65+ are currently 12% of San José's population, and growing. Attachment C highlights the locations of age 65+ pedestrian fatalities and severe injuries between 2014 through 2018 within San José. Analyzing the locations of senior pedestrian fatalities and severe injuries shows focus areas in the central area of the city (Council Districts 3, 6, and 7), where a higher density of these crashes are occurring. DOT will be seeking grants to build safety improvements in these areas. Staff will also study opportunities to create senior pedestrian focus areas where injury data indicates a need.
- Citywide Collision Review – This past year, DOT conducted a citywide evaluation of intersections with a high number of overall crashes, as well as intersections with a high frequency of traffic fatalities and severe injuries. Several multidisciplinary teams of engineers and operations staff with a wide range of expertise participated in the process. The team conducted extensive traffic collision data analysis for 54 identified intersections to find trends, patterns, and discern predominant collision factors. Using the results of the analysis, the team performed field safety assessments for these intersections and identified safety mitigation measures. Low-cost mitigation measures will be considered for implementation in the near-term, whereas, higher-cost improvements will be used as a framework for future grant funding opportunities.
- Traffic Safe Communities Network – DOT Vision Zero is a member of the Steering Committee of the Traffic Safe Communities Network (TSCN) of Santa Clara County's Department of Public Health. This includes sharing collision data and trends, coordinating educational seminars, and coordinating ongoing work.

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 Streets – In 2018, Council adopted the Complete Streets Design Standards and Guidelines that incorporate progressive standards to serve as a comprehensive set of street designs for how San José builds and retrofits streets. Complete Streets principles provide guidelines for the design and implementation of streets that are safe for all modes of travel, in support of Vision Zero strategies and the City's Envision 2040 General Plan mobility goals.



- Pavement Program – DOT has been leveraging the Annual Pavement Maintenance Program to implement street redesigns to improve safety and comfort for all roadway users, with nearly 80 miles of roadways improved in 2019. Typical safety measures include reducing vehicle lane widths to reduce speeds, and installing bike lanes and enhanced crosswalks. Several good completed projects using this strategy include Payne Ave, Monroe Ave, Blossom Hill Road.

- Temporary Materials: Better BikewaySJ in Downtown was one of DOT's most visible projects in 2018. Working with the Knight Foundation, NACTO, the Better BikewaySJ project used a toolkit of temporary materials to separate bikes and traffic using inexpensive, traffic-tested materials, and 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 built five 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.



DOT is looking for opportunities to expand capacity for the temporary materials used for Better BikewaySJ—markings, signs, and bollards—to focus improvements where feasible for Vision Zero projects. The temporary materials are critical to enable safety measures to be implemented in a timely manner, until funding is available for permanent measures. DOT will also look for opportunities to install inexpensive signal treatments such as Leading Pedestrian and Bike Intervals (which makes pedestrians and cyclists more visible to drivers while the vehicle is making a conflicting turn through the crosswalk).

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

Public education and engagement can support improvements in traffic safety through changing behavior. To achieve major sustained results in behavior change will require significant resources that are currently not available. However, staff has initiated the efforts described below to build awareness of Vision Zero safety goals, and the need for all roadway users to prioritize street safety.

- visionzerosj.org – The Vision Zero website 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 2018. The next safety messaging campaign will more prominently feature the VZ website, and an update to the VZ website is planned with the rollout of the City's new website design.

- 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 Chinese.
- Vision Zero Messaging – Staff is working on implementing its second safety messaging campaign for roll-out in FY19-20. The campaign, themed on senior pedestrian safety awareness, was developed by VZ San Francisco and its District Attorney's Office. DOT plans to deploy the ads on street poles along Vision Zero Priority Corridors, and on VTA light rail stations, bus stops, inside bus and light rail vehicles, and on bus tails. The theme will coincide with Santa Clara County Department of Public Health initiatives to reduce senior pedestrian traffic fatalities, and support San José's efforts to improve safety for seniors.

This will be the first time in the Bay Area that multiple large cities have used the same Vision Zero safety messaging campaign. Regional Vision Zero messaging has the bonus of making the campaign more visible and memorable when seen in multiple Bay Area cities. Additionally, the campaign will build on earlier Vision Zero safety banners that were installed on some of the Priority Safety Corridors on street poles, at schools, and on yard signs provided to residents.



- Building Vision Zero awareness in San José – In 2017, a Vision Zero Advisory Committee was formed that convened representatives from California Walks, the Silicon Valley Bicycle Coalition, SPUR, Transform, the Santa Clara Department of Public Health, and the Police Department. This year, DOT will focus on expanding coordination with other City departments, the County, and other stakeholders to have additional partners to champion traffic fatality reduction in San José.

In 2018, California Walks, a statewide advocacy group created the Walk San José program to work on the local level with a focus on bike and pedestrian safety. The Office of Traffic Safety (OTS) funded the creation of Walk San José and provided for two Community Pedestrian and Bicycle Safety Training Program workshops: at Orchard School and the McKinley-Bonita Neighborhood Association. In early 2019, California Walks submitted a grant proposal to the National Safety Council's Road to Zero program to work with San José council offices to expand awareness of Vision Zero, and DOT submitted a separate proposal to OTS to expand DOT's safety education efforts in order to reach out to larger numbers of crucial demographics, including senior and homeless people.

Looking ahead, DOT plans to work with local advocacy groups in the Bay Area to establish a San José chapter of Families for Safe Streets (FSS). Membership to FSS is restricted to family members of people who have died in traffic collisions. The now national group was created in New York in 2014, and was instrumental in several key initiatives, including a lowered citywide speed limit in New York City and the establishment and expansion of its Automated Speed Enforcement program. There is a FSS chapter in San Francisco that supports traffic safety advocacy efforts of San Francisco Walks.

- Walk n' Roll San José – The Walk n' Roll program is currently working with 55 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 29%. Many of these schools have monthly or weekly walk to school events, with a total of about 10,000 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.
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- Traffic Safety Education – In FY 2018-2019, an estimated 37,000 school children will receive traffic safety education via assemblies, special events, and bike rodeos, which includes over 3,000 teens. An estimated 8,000 adults will receive traffic safety education, which includes 3,000 seniors and 1,000 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.
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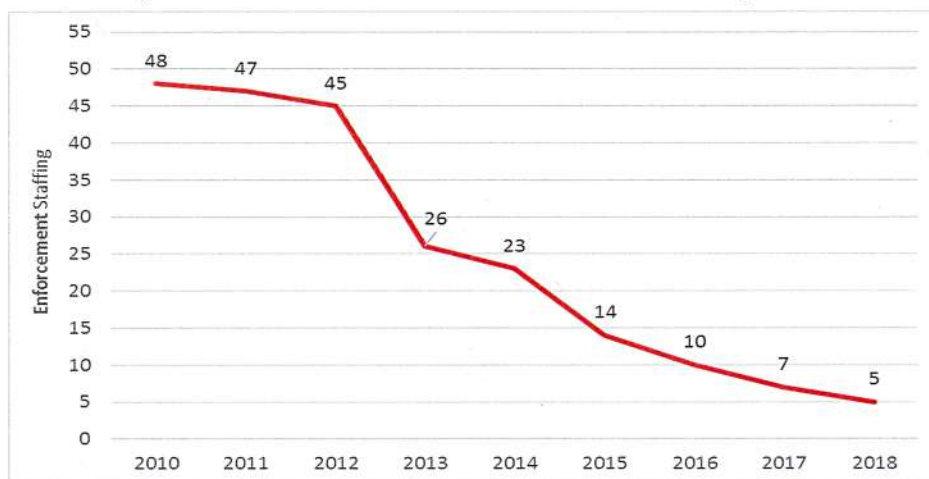
4. Enforcement – Targeted Enforcement and Technology

Deployment of Limited Traffic Enforcement Resources – As shown in Figure 7, active staffing in the Police Department Traffic Enforcement Unit (TEU) has declined by 90% since 2010. Based on DOT's discussions with staff from other large cities in California, declines in traffic enforcement resources is being experienced across the state. As of 2016, San José

had one of the smallest number of police forces per capita among large US cities: 9.0 per 10k population. By comparison, Oakland had 17.6 and San Francisco had 26.4 per 10k people.⁵

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. In response to reports of speeding concerns submitted by residents, the Police Department also deploys speed radar trailers in residential neighborhoods to improve speed compliance.

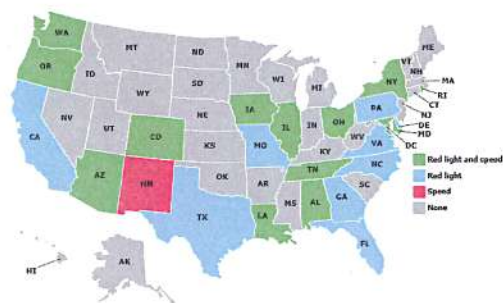
Figure 7. Decrease in Traffic Enforcement Staffing at SJPD



- **Automated Speed Enforcement** – Across the nation, 389 communities have red light camera programs and 139 communities have a speed camera program, as of March 2019.⁶ Automated Speed Enforcement (ASE) programs deter speeding and improve safety for all road users. Speeding is the most common factor contributing to fatalities and severe injuries in San José.

Outside California, Vision Zero cities have made safety progress with speed camera programs. In New York City, following a successful three-year pilot where speed cameras were installed outside 140 schools from 2014 to 2017, speeding decreased 63%, and fatalities and severe injuries dropped 21%. In March 2019, New York City resolved to increase the program to 750 schools, and longer hours of operation.

Figure 8. ASE Programs in the U.S.



⁵ Governing: <https://www.governing.com/gov-data/safety-justice/police-officers-per-capita-rates-employment-for-city-departments.html>

⁶ Insurance Institute for Highway Safety: Highway Loss Data Institute.
https://www.iihs.org/iihs/topics/laws/automated_enforcement?topicName=Red%20light%20running#map

In California, 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.

In October 2018, Governor Brown signed AB 2363 that requires the California Secretary of Transportation to create a task force to review California's methodology for setting speed limits. The task force will convene by July 1, 2019 and report to the legislature by January 1, 2020 on policies that can reduce traffic fatalities to zero. It is anticipated that ASE technology would be a topic discussed by the task force.

5. Technology – Safety Innovation

Advancements in vehicular technology have significant potential to reduce traffic injuries and fatalities. Technologies, such as front crash prevention, lane departure warning, pedestrian and blind spot detection can assist drivers with warnings or automatic braking to help avoid or mitigate a crash.

The City has been an active partner with national, state, and local jurisdictions to help shape the implementation and policies surrounding Autonomous Vehicle (AV) technology. In November 2018, the City entered into an agreement with Mercedes Benz Research and Development North America, Daimler, and Bosch, to negotiate an AV pilot that once complete in Q3 2019 will connect Diridon Station and Santana Row under the City's Demonstration Policy. Through this effort, the City will be obtaining new data for safety utilizing AV technology which has the potential to assist with our Vision Zero goals to eliminate traffic fatalities and reduce injuries. This pilot seeks to leverage the city's advanced traffic signal system to connect AVs directly to the signal phase and timing data feed as an added layer of safety redundancy. Looking towards the future, San José's data share requirements under this model seek to obtain midblock pedestrian crossing information to better inform infrastructure upgrades in San José.

At the 2019 National Planning Conference in San Francisco, DOT was presented with the American Planning Association's Smart City Award. The award was in recognition of San José's partnership with UrbanLogiq to develop a dashboard for staff to visualize transportation data in an open data environment.

B. Investments in Safety

In addition to the \$29 million the City has been awarded for projects on Priority Safety Corridors, an additional \$45 million has been awarded, between 2012 and 2018, for safety projects and programs in other areas for a total of over \$74 million in grant funds to implement safety 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. Attachment B lists various safety projects completed or scheduled for FY2018-2019. These projects have been funded through a combination of the Traffic CIP, grants, and community funds (Mitty High School).

- Crosswalk Enhancements – Enhancing crosswalks improve the mobility and safety conditions for pedestrians and supports walking as a transportation mode. Typical improvements include flashing beacons, pedestrian refuge islands, ADA ramps, and high visibility signage and markings.
- Bike Projects – Bikeways provide dedicated space for people who bike or use other types of micromobility devices like scooters, increasing their safety and visibility, and improving safety for all roadway users. In 2018, DOT installed 25 miles of new on-street bikeways and enhanced 10 miles of existing bikeways with buffers, vertical separation, and/or green paint in conflict zones (areas where bicycles and motor vehicles cross).
- Traffic Calming Projects – DOT coordinates priority traffic calming projects with Council Offices where speeding or safety is a concern. Measures may include the installation of road humps, enhanced crosswalks, radar speed display signs, or roadway striping.
- Traffic Signal Projects – The 2018-22 Traffic Capital Improvement Program (CIP) includes funds to enhance pedestrian crossings on major roadways. This is in addition to funding secured through development projects with traffic impacts, and grant-funded projects. Approximately 190 signals along coordinated corridors will be retimed this fiscal year.
- Parking Compliance – DOT Parking and Traffic Control Officers (PTCOs) support safe 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 non-compliance.
- Adult School Crossing Guard (ACG) – The Police Department's School Safety and Education Unit manages the ACG program, and currently staffs 121 intersections in San José that are used by school children with an allocation of 241 part-time Crossing Guards.
- LED Smart Streetlights – To date, over 27,000 streetlights have been converted to LEDs, of which approximately 26,000 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 and partnering with the Department of Public Works to prepare a work plan to retrofit the approximately 37,000 remaining streetlights to smart LED technology with funding from Measure T.

COORDINATION

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

/s/
JOHN RISTOW
Director of Transportation

For questions, please contact Lily Lim-Tsao, Acting Deputy Director for Transportation Safety, Operations, and Parking, at 408-975-3269.

Attachments