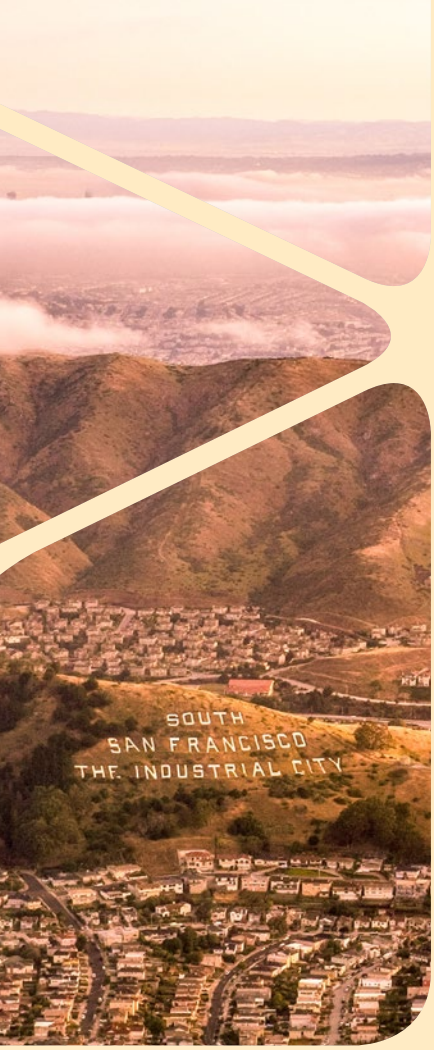

Prepared for:

City of South San Francisco
Local Road Safety Plan

Prepared by:

Kimley»Horn

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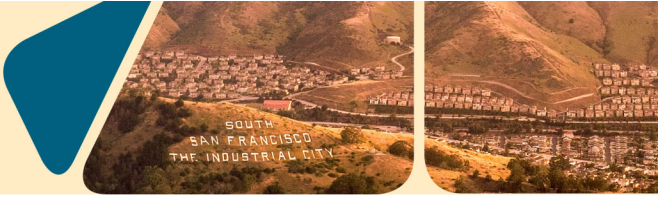
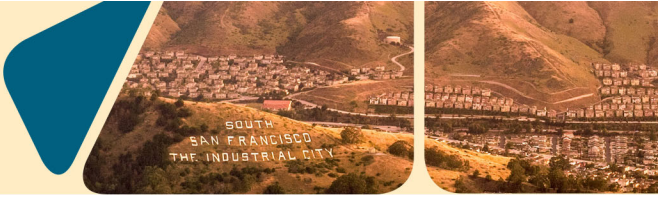


SOUTH SAN FRANCISCO LOCAL ROAD SAFETY PLAN

January 2022



FINAL REPORT

FOR

CITY OF SOUTH SAN FRANCISCO
LOCAL ROAD SAFETY PLAN

Prepared for:

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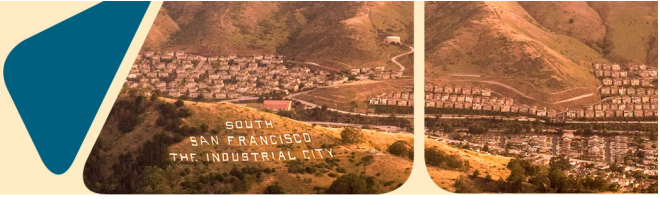

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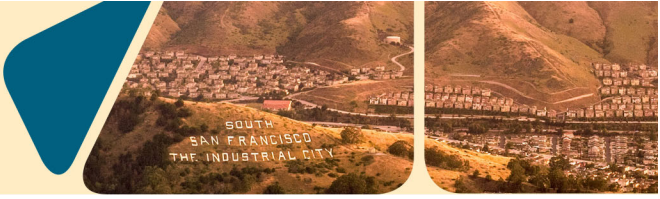
Statutory Notice

23 U.S.C. § 409: US Code - Section 409: Discovery and admission as evidence of certain reports and surveys

Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway- highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.



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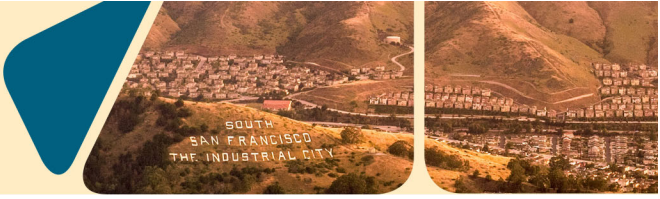

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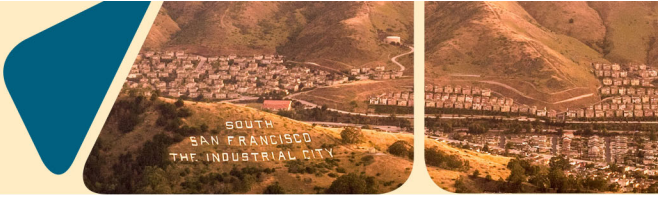
LIST OF FIGURES



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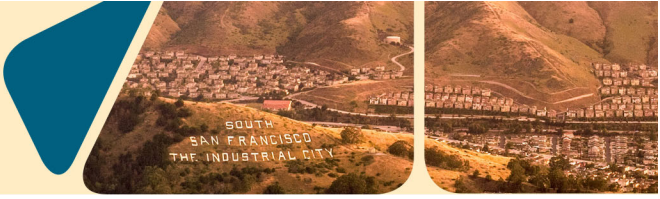
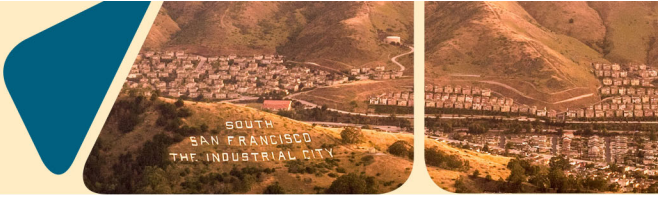


List of Acronyms

A	Serious Injury Crash
AASHTO	American Association of State Highway and Transportation Officials
ARIDE	Advance Roadside Impaired Enforcement
B	Non-incapacitating Injury Crash
C	Possible Injury Crash
Caltrans	California Department of Transportation
CCR	Critical Crash Rate
City	City of South San Francisco
CMF	Crash Modification Factor
CRF	Crash Reduction Factor
DEV	Daily Entering Volume
DRE	Drug Recognition Expert
EPDO	Equivalent Property Damage Only
FHWA	Federal Highway Administration
GIS	Geographic Information System
HFST	High Friction Surface Treatment
HSM	Highway Safety Manual
K	Fatal Crash
K+SI	Fatal and Serious Injury Crashes
LRSM	Local Roadway Safety: A Manual for California's Local Road Owners (Version 1.5, April 2020)
LRSP	Local Road Safety Plan
NHTSA	National Highway Traffic Safety Administration
O	No Injury Crash (Property Damage Only)
OTS	Office of Traffic Safety
PDO	Property Damage Only
RRFB	Rectangular Rapid Flashing Beacon
R/W	Right-of-Way
SHSP	Strategic Highway Safety Plan
SWITRS	Statewide Integrated Traffic Records System
VMT	Vehicle Miles Traveled



1. INTRODUCTION

The City of South San Francisco (City) is an established community located roughly eight miles south of the City of San Francisco in San Mateo County. South San Francisco has a population of approximately 67,500 residents over a total area of 6.7 square miles. The City's transportation network includes 156 centerline miles of City-maintained roads and 69 traffic signals, the majority of which are located on key arterial and collector roadways.

This Local Roadway Safety Plan (LRSP) identifies emphasis areas to inform and guide further safety evaluation of the City's transportation network. The emphasis areas include type of crash, certain locations, and notable relationships between current efforts and crash history. The LRSP analyzes crash data on an aggregate basis as well as at specific locations to identify citywide trends, high-crash locations, high-risk locations, and locations with unusual crash patterns or high-crash severities. The analysis of crash history throughout the City's transportation network allows for opportunities to:

- Identify factors in the transportation network that inhibit safety for all roadway users
- Improve safety at specific high-crash locations
- Develop safety measures aligning with the California Strategic Highway Safety Plan (SHSP) Five Es of safety: Engineering, Enforcement, Education, Emergency Services, and Emerging Technologies, to encourage safer driver behavior and better severity outcomes

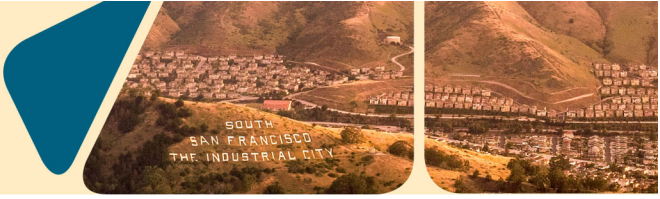
The process and analysis performed in development of the City's LRSP, including establishing the initial vision and goals for the LRSP, crash history analysis, and emphasis areas, are summarized in this LRSP. The information compiled will provide a foundation for decision making and prioritization for safety countermeasures and projects that enhance road safety for all modes of travel within the City.

The California Office of Traffic Safety (OTS) rankings[1] identified the City as being among the top (#16 of 102) for total fatal and injury crashes as compared to peer cities with population between 50,000 and 100,000 in 2018. The City also ranks high in speed related crashes (#17 of 102) and crashes involving pedestrians (#20 of 102). The City aims to continue to address these challenges in the LRSP by identifying areas of emphasis and systemic recommendations that can be implemented to enhance safety. This LRSP analyzes the most recent range of crash data (January 1, 2016 – December 31, 2020) and roadway improvements to assess historic trends, patterns, and areas of increasing concern.

The intent of the LRSP is to:

- Create a greater awareness of road safety and risks
- Reduce the number of fatal and severe-injury crashes
- Develop lasting partnerships through collaboration among professionals in various disciplines
- Support for grant/funding applications
- Assist in prioritizing investments in traffic safety

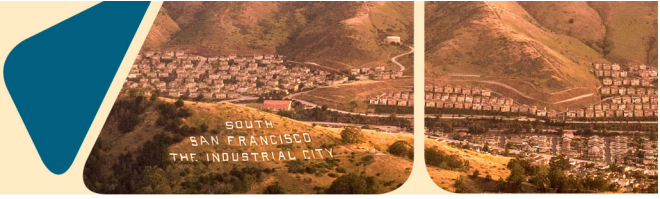
[1] California Office of Traffic Safety. (2022, January 14). https://www.ots.ca.gov/media-and-research/crash-rankings-results/?wpv-wpcf-year=2018&wpv-wpcf-city_county=South+San+Francisco&wpv_filter_submit=Submit



1.1. Document Organization

The LRSP is organized into the following sections:

- **Section 1** presents an introduction to the LRSP.
- **Section 2** presents the vision, goal, and objectives for the LRSP.
- **Section 3** presents the LRSP development process including guidance documents and analysis techniques.
- **Section 4** presents the project stakeholders.
- **Section 5** summarizes the review of City planning documents.
- **Section 6** contains the LRSP data sources.
- **Section 7** provides a summary of safety trends.
- **Section 8** includes recommended engineering and non-infrastructure countermeasures.
- **Section 9** summarizes the evaluation and implementation of the safety countermeasures.
- **Section 10** identifies next steps**.**
- **Appendices**



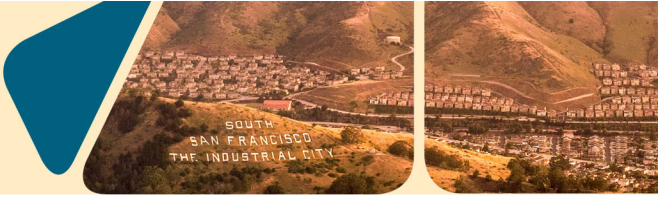
2. VISION, GOAL, AND OBJECTIVES

The South San Francisco LRSP evaluates the transportation network as well as non-infrastructure programs and policies within the City. Mitigation measures are evaluated using criteria to analyze the safety of road users (drivers and passengers, bicyclists, and pedestrians), the interaction of travel modes, and the potential benefits of safety countermeasures. This effort is intended to use historical data to identify trends and develop a toolbox of countermeasures applicable to conditions in the City that can be used for proactive identification and implementation of opportunities, without relying solely on a reaction and response to crashes as they occur.

The Federal Highway Administration (FHWA) maintains a list of Proven Safety Countermeasures. The list currently has 20 Proven Safety Countermeasures, and LRSPs are included on the list of 20 Proven Safety Countermeasures. Implementation of LRSPs has improved safety in local jurisdictions across the country by providing a guide for local jurisdictions to systemically address the conditions that lead to fatal and severe-injury crashes. They provide a locally developed and customized roadmap to directly address the most common safety challenges in the given jurisdiction.

Following discussions with South San Francisco staff and a review of existing plans and policies for the area, the following Vision, Goal, and Objectives have been established for this LRSP.

Vision:	**Support the California vision of moving towards significantly reducing fatalities and serious injuries for all road users**
Goal:	Identify transportation safety initiatives (projects and programs) and partnerships under the 5 Es of traffic safety including Engineering, Enforcement, Education, Emergency Response, and Emerging Technologies, to continue reducing fatalities and serious injuries in South San Francisco.
Objectives:	▪ Identify major contributing factors to crashes and define priority locations for safety improvements including pedestrian, bicycle, and vehicular modes of travel ▪ Identify cost-effective countermeasures and safety investments that can be applied systemically (i.e., flashing yellow arrow, retroreflective backplates, leading pedestrian interval, etc.) ▪ Promote safe, equitable, and multimodal mobility opportunities ▪ Define safety projects that are data driven for future Highway Safety Improvement Program (HSIP) and other program funding consideration while providing potential grant funding sources and opportunities ▪ Document South San Francisco's procedures for on-going crash data monitoring



3. PROCESS

Providing safe, sustainable, and efficient mobility choices for their residents and visitors is a primary goal for the City and their stakeholders. The City will be able to continue its collaboration with stakeholders to identify and discuss safety issues within the community through the development of the LRSP and its implementation.

Guidance on the LRSP process is provided at both the national (FHWA) and California Department of Transportation (Caltrans) level. Both agencies have developed a general framework of data and recommendations to be included in a LRSP.

The FHWA encourages:

- The establishment of a working group (Stakeholders) to participate in developing an LRSP
- Review crash, traffic, and roadway data to identify areas of concern
- Establish goals, priorities, and countermeasures to recommend improvements at spot locations, systemically, and comprehensively

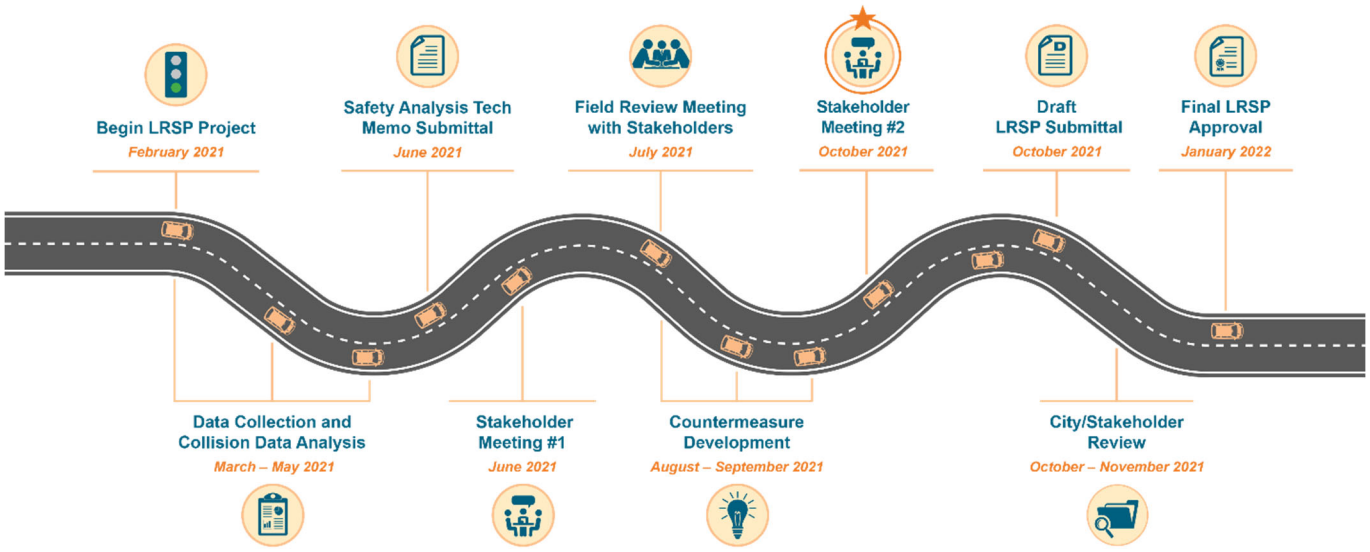
Caltrans guidance follows a similar outline with the following steps:

- Establish leadership
- Analyze the safety data
- Determine emphasis areas
- Identify strategies
- Prioritize and incorporate strategies
- Evaluate and update the LRSP

This LRSP documents the results of data and information obtained, including the vision, goal, and objectives for the LRSP; existing safety efforts; collision analysis; emphasis areas; and project sheets for priority locations. Furthermore, the development of the LRSP recommendations considers the Five Es of traffic safety defined by the California SHSP: Engineering, Enforcement, Education, Emergency Response, and Emerging Technologies throughout its process.

Figure *1* presents the project timeline.

Figure 1 – LRSP Project Timeline



3.1. Guiding Manuals

The following section describes the analysis process undertaken to evaluate safety within the City at a systemic level. Using a network screening process, locations within the City that will most likely benefit from safety enhancements were identified. Using historic crash data, crash risk factors for the entire network are derived. The outcomes inform the identification and prioritization of engineering and non-infrastructure safety countermeasures that address certain roadway characteristics and related behaviors that contribute to motor vehicle crashes as well as active transportation users.

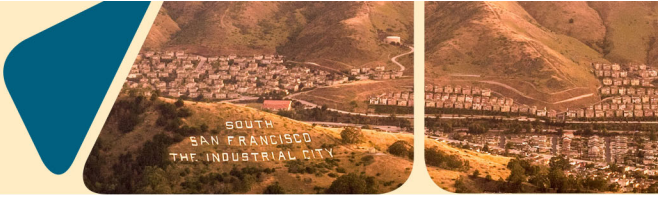
This process uses the latest National and State best practices for statistical roadway analysis described in the following sections.

3.1.1. Local Roadway Safety: A Manual for California's Local Road Owners

The Local Roadway Safety: A Manual for California's Local Road Owners (Version 1.5, April 2020) (LRSM) purpose is to encourage local agencies to pursue a proactive approach to identifying and analyzing safety issues, while preparing to compete for project funding opportunities. A proactive approach is defined as analyzing the safety of the entire roadway network through either a one-time, network wide analysis, or by routine analyses of the roadway network.

According to the LRSM, "The California Department of Transportation (Caltrans) – Division of Local Assistance is responsible for administering California's federal safety funding intended for local safety improvements."

To provide the most benefit and to be competitive for funding, the analysis leading to countermeasure selection should focus on both intersections and roadway segments and be considerate of roadway characteristics and traffic volumes. The result should be a list of locations that are most likely to benefit from cost-effective countermeasures, preferably prioritized by benefit/cost ratio. The LRSM suggests using a mixture of quantitative and qualitative measures to identify and rank locations that considers both crash frequency and crash rates. These findings



should then be screened for patterns such as crash types and severity to aid in the determination of issues causing higher numbers of crashes and the potential countermeasures that could be most effective. Qualitative analysis should include field visits and a review of existing roadway characteristics and devices. The specific roadway context can then be used to assess what conditions may increase safety risk at the site and systematic level.

Countermeasure selection should be supported using Crash Modification Factors (CMFs). These factors are the peer reviewed product of before and after research that quantifies the expected rate of crash reduction that can be expected from implementation of a given countermeasure. If more than one countermeasure is under consideration, the LRSM provides guidance on how to apply CMFs appropriately.

3.1.2. Highway Safety Manual

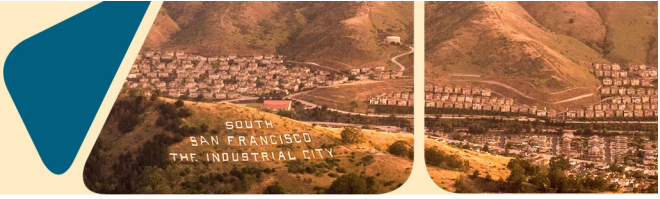
The American Association of State Highway and Transportation Officials (AASHTO) Highway Safety Manual (HSM), published in 2010, presents a variety of methods for quantitatively estimating crash frequency or severity at a variety of locations. This four-part manual is divided into Parts: A) Introduction, Human Factors, and Fundamentals, B) Roadway Safety Management Process, C) Predictive Method, D) Crash Modification Factors.

Chapter 4 of Part B of the HSM discusses the Network Screening process. The Network Screening Process is a tool for an agency to analyze their entire network and identify/rank locations that, based on the implementation of a countermeasure, are most likely to least likely realize a reduction in the frequency of crashes.

The HSM identifies five steps in this process:

1. **Establish Focus:** Identify the purpose or intended outcome of the network screening analysis. This decision will influence data needs, the selection of performance measures and the screening method that can be applied.
2. **Identify Network and Establish Reference Populations:** Specify the types of sites or facilities being screened (i.e., segments, intersections, geometrics) and identify groupings of similar sites or facilities.
3. **Select Performance Measures:** There are a variety of performance measures available to evaluate the potential to reduce crash frequency at a site. In this step, the performance measure is selected as a function of the screening focus and the data and analytical tools available.
4. **Select Screening Method:** There are three principal screening methods described in this chapter (i.e., ranking, sliding window, peak searching). Each method has advantages and disadvantages; the most appropriate method for a given situation should be selected.
5. **Screen and Evaluate Results:** The final step in the process is to conduct the screening and analysis and evaluate the results.

The HSM provides several statistical methods for screening roadway networks to identify high risk locations based on overall crash histories. In addition to identifying the total number of crashes, this LRSP uses a method referred to as Critical Crash Rate (CCR) to analyze the data.



3.2. Analysis Techniques

3.2.1. Crash and Network Screening Analysis

Intersections and roadways were analyzed using four crash metrics:

- Number of Crashes
- CCR (HSM Ch. 4)
- Probability of Specific Crash Types Exceeding Threshold Proportion (HSM Ch. 4)
- Equivalent Property Damage Only (HSM Ch. 4)

The initial steps of the crash analysis established sub-populations of roadway segments and intersections that have similar characteristics. For this LRSP, intersections were grouped by their control type (Signalized and Unsignalized) and segments by their roadway category (Major Arterial, Minor Arterial, Collector, and Local). Individual crash rates were calculated for each sub-population. The population level crash rates were then used to assess whether a specific location has more or fewer crashes than expected. These sub-populations were also used to determine typical crash patterns to help identify locations where unusual numbers of specific crash types are occurring.

The network screening process ranks intersections and roadway segments by the number of crashes that occurred at each one over the analysis period, and then identifies areas that had more of a given type of crash than would be expected for that type of location. These crash type factors were:

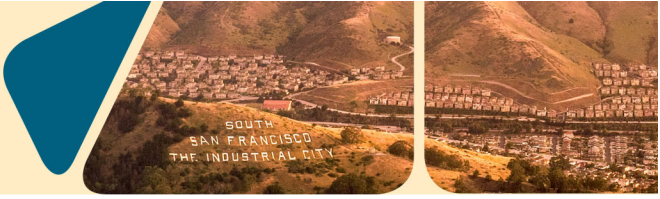
- Crash severity - fatal, serious injury, other visible injury, complaint of pain, and property damage only (PDO)
- Crash type - broadside, rear-end, sideswipe, head-on, hit object, overturned, bicycle, pedestrian, and other
- Environmental factors – lighting and wet roads
- Driver behavior - impaired, aggressive, and distracted driving

From the results of the network screening analyses, a short-list of locations was chosen based on crash activity, CCR, crash severity, crash patterns, location type, and area within the City to provide the greatest variety of locations covering the widest range of safety opportunities for toolbox development. The intent is to populate the safety toolbox with mitigation measures that will be applicable to most of the crash activity in the City.

3.2.2. Critical Crash Rate (CCR) Analysis

Reviewing the number of crashes at a location is a good way to understand the cost to society incurred at the local level, but does not provide a complete indication of the level of risk for those who use that intersection or roadway segment on a daily basis. The HSM describes the CCR method, which provides a statistical review of locations to determine where risk is higher than that experienced by other similar locations. It is also the first step in analyzing for patterns that may suggest systemic issues that can be addressed at that location, and proactively at others to prevent new safety challenges from emerging.

The CCR compares the observed crash rate to the expected crash rate at a particular location based on facility type and traffic volume using a locally calculated average crash rate for the specific type of intersection or roadway segment being analyzed. Based on traffic volumes and a



weighted citywide crash rate for each facility type, a critical crash rate threshold is established at the 95% confidence level to determine locations with higher crash rates that are unlikely to be random. The threshold is calculated for each location individually based on its traffic volume and the crash profile of similar facilities. A CCR value of greater than zero suggests that the location has a higher crash rate than facilities with similar volumes, while a negative value signifies a below-average crash rate. It should be noted that the CCR does not reflect the severity of the crashes occurring at the location, but rather the number of crashes for the given volume.

Critical Crash Rate Formula

$$R_{c,i} = R_a + \left[P \times \sqrt{\frac{R_a}{MEV_i}}\right] + \left[\frac{1}{(2\times(MEV_i))}\right]$$

Where,

$R_{c,i}$ = Critical crash rate for intersection i

R_a = Weighted average crash rate for reference population

P = P-value for corresponding confidence level

MEV_i = Million entering vehicles for intersection i

Source: Highway Safety Manual

Data Needs

CCR is calculated using:

- Daily Entering Volume (DEV) for intersections, or Vehicle Miles Traveled (VMT) for roadway segments
- Intersection control types to separate them into like populations
- Roadway functional classification to separate them into like populations
- Crash records in Geographic Information Systems (GIS) or tabular form including coordinates or linear measures

Strengths

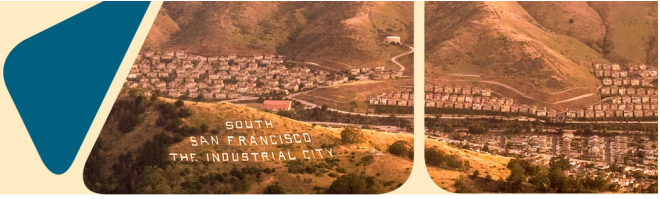
- Reduces low volume exaggeration
- Considers variance
- Establishes comparison threshold

Weaknesses

- Does not account for regression to the mean bias

3.2.3. Probability of Specific Crash Types Exceeding Threshold Proportion

When analyzing crash data systematically, it is important to identify areas where certain types of crashes are occurring with greater frequency. The HSM describes a method of identifying locations where probability of a specific crash type exceeds the threshold population. This method prioritizes locations based on the probability that the true proportion (long-term predicted proportion) of a type of crash or injury level will exceed the threshold proportion. The threshold proportion is based on the proportion of a specific crash type/severity to all crashes within the dataset (HSM, Chapter 4). This analysis identifies locations where certain crash types are over-represented to be isolated for further analysis.



3.2.4. Equivalent Property Damage Only (EPDO)

The EPDO method is described in the HSM. This method assigns weighting factors to crashes based on injury level (severe, injury, property damage only) to develop a property damage only score. In this analysis, the injury crash costs were calculated for each location (based on the latest Caltrans injury costs). This value is then divided by the injury cost for a property damage only crash. The resulting number is the equivalent number of property damage only crashes at each site. This value allows all locations to be compared based on injury crash costs (HSM, Chapter 4).

EPDO Formula:

$$EPDO = \frac{\left((N_{Fatal} + N_{Major}) * 1{,}590{,}000\right) + \left((N_{Minor} * 142{,}300) + (N_{PDO} * 13{,}300)\right)}{13{,}300}$$

Where,

EPDO = Equivalent Property Damage Only (in units of crashes)

N_{Fatal} = Number of fatal crashes

N_{Major} = Number of major crashes

N_{Minor} = Number of minor crashes

N_{PDO} = Number of PDO crashes

The cost to society for each crash type at signalized intersections is as follows:

- Fatal: $1,590,000
- Major: $1,590,000
- Minor: $142,300
- PDO: $13,300

Source: Highway Safety Manual

As an example, from Appendix E, the intersection of Linden Ave and Grand Ave experienced a total of 37 crashes. The crashes are broken down by severity as follows: 0 fatal crashes, 1 crash resulting in major injuries, 12 crashes resulting in minor injuries, and 24 PDO crashes.

$$EPDO = \frac{\left((0 + 1) * 1{,}590{,}000\right) + \left((12 * 142{,}300) + (24 * 13{,}300)\right)}{13{,}300} = 272$$

The 37 crashes of ranging severity that took place at the intersection of Linden Ave and Grand Ave comprise the monetary equivalent of 272 property damage only crashes. Additionally, this intersection also has a CCR value of 0.70.

4. STAKEHOLDER ENGAGEMENT

As part of the LRSP, local stakeholders were included in the process to ensure the local perspective was kept at the forefront of this planning effort. A stakeholder group comprised of City staff and external stakeholders was formed. This group consisted of members of City staff, representatives from the South San Francisco Police Department, Traffic Safety Committee, Bicycle & Pedestrian Advisory Committee, and the San Mateo County Office of Education.

These advocates in the City were called together to offer insight on the safety issues present in the City's transportation network. After the initial network screening and safety analysis, the stakeholder group met to discuss potential countermeasures and challenge areas. The summary of the stakeholder meetings are outlined below.

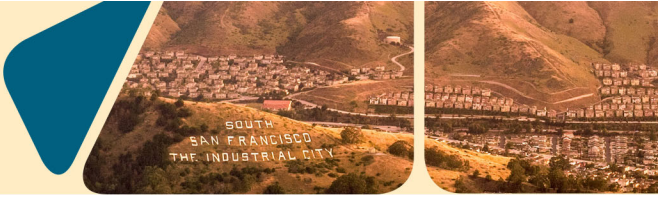
4.1. Stakeholder Meetings

As reflected in **Figure *1***, the first stakeholder meeting was conducted in June 2021, via Microsoft Teams. At the meeting, the LRSP stakeholder group were introduced to the project and provided an overview of the data used, data analysis approach, preliminary results and priority/emphasis areas.

In addition to the LRSP overview, stakeholders were asked to provide local insight and knowledge at the top "priority" locations that were identified after the initial network screening and crash data analysis process. Stakeholder feedback regarding the plan and recommendations were reviewed and incorporated into the study process for the development of the LRSP.

Additionally, the project team including members of the stakeholder group met in the field in July 2021, at the abovementioned "priority" locations. This meeting provided an opportunity to perform a field assessment and offer another opportunity to solicit feedback from members of the multidisciplinary stakeholder group. Potential safety countermeasures for each location were recommended and discussed at the field review meeting.

The City convened a third stakeholder meeting in October 2021. The group reviewed the safety countermeasure recommendations and site-specific improvements recommended for the priority projects as presented in Section 8. Members of the stakeholder group provided input and comments on the potential countermeasures.



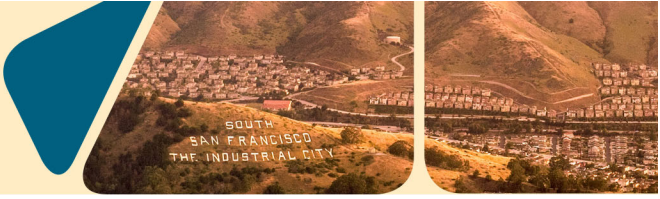
5. REVIEW OF CITY PLANNING DOCUMENTS

Existing plans, policies, and projects that were recently completed, planned, or are on-going within the City were compiled at the start of the LRSP process in order to gain perspective on the existing efforts for transportation-related improvements within the City. High-level key points regarding transportation improvements and safety-related topics were identified to inform decision making in this LRSP.

The following planning documents were reviewed to obtain planned and programmed projects:

- Capital Improvement Plan, Fiscal Year 2021-2022
- Active South City 2020 Administrative Draft, 2020
- Capital Improvement Program, Fiscal Year 2020-21
- General Plan – Transportation, Adopted 2015
- Mobility 20/20 East of 101 Transportation Plan, 2019
- San Mateo Countywide Sustainable Streets Master Plan, 2021
- South San Francisco Downtown Station Area Specific Plan, 2015
- Westborough Blvd and Gellert Blvd Traffic Operations Analysis Report, 2019
- Junipero Serra Blvd/Hickey Blvd and Hickey Blvd/Longford Dr Traffic Operations Analysis, 2016

A matrix identifying plans and improvements is included in **Appendix A**. The intent of this matrix is to provide an idea of the types of strategies in place or encouraged by the City and to reveal projects that may impact the safety analysis process.



6. DATA SOURCES

The following data was obtained from the City for use in crash data analysis.

6.1. Roadway Network

The crash analysis, which is described in detail in **Section 3**, used the City General Plan's roadway classification system. The roadway network classification was assigned to each corridor roadway segment as either a major arterial, minor arterial, collector, or local road to develop crash rates specific to the functional design and capacity. Comparative statistics were stratified by roadway classification (i.e., only major arterials are compared to major arterials).

6.2. Intersections

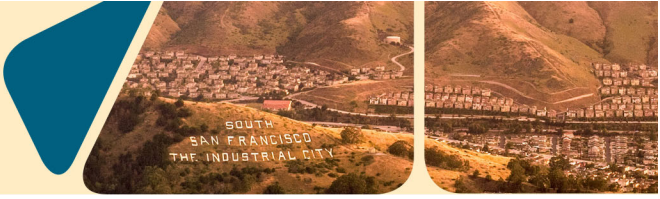
The crash analysis also required each intersection within the City to be classified by control type. Intersections throughout the City were classified by control type as either signalized or unsignalized. The safety analysis also only compared intersection safety performance with similar control types (i.e., signalized intersections are only compared to signalized intersections) within the City.

6.3. Crashes

Crash data for the most recent five-year period (January 1, 2016 through December 31, 2020[2]) was used for the crash analysis. Using data for the past five-year period is sufficient to identify potential trends in crashes by location and type, while not being outdated as to have data that would include long-term technology and cultural changes. The crash data is from the City's Roadway Information Management System (RIMS) database, which processes crash records from the City of South San Francisco's Police Department. The RIMS database provides the most up-to-date law enforcement records and provides GPS coordinate data that can be used to geocode crashes into a Geographic Information System (GIS) format. RIMS was used rather than an alternate crash database, such as SWITRS or TIMS, because RIMS is maintained by the local police department (PD) and provides more comprehensive data. Other crash databases use data submitted by local PDs, which are then post-processed and compiled. Since RIMS is locally recorded and locally submitted, this data set was utilized. Crash records were allocated to intersection and roadway network segments and then analyzed using a network screening process within GIS, which calculates crash frequency and crash rate for each individual segment and intersection within the City.

The RIMS crash data required preliminary cleaning and scrubbing to make it compatible with the GIS network screening tool. In total, there were 4,130 crash records in the RIMS database from January 1, 2016 to December 31, 2020, of which 3,437 crash records had GPS coordinate data and did not occur on private property. Of those 3,437 crashes, 3,387 contained clear, discernible geolocations within the City boundaries in GIS; however, not all crash points fell within the public right-of-way even though they were coded as such. The GPS coordinates sometimes correspond to the location of where the report was submitted, thus the discrepancies may be attributed to the instances where the reporting officer submitted the report away from the crash location.

[2] *Traffic volumes and patterns were irregular throughout the majority of 2020 because of the COVID-19 pandemic.*



To rectify these discrepancies, an iterative model was created in GIS to relocate the crashes to segments where the crash occurred. This was necessary as the GPS coordinates, at times, mapped crashes closer to an adjacent street, than to the street that the crash occurred on. Without this process, crashes would have a high likelihood of being improperly located, and the tool would not accurately analyze the network. Since the crash data stored the street name where the crash occurred, this data point was used to select and "snap" crashes to the proper segments that shared the same street name. For the crashes that did not have a value for the street that they occurred on, they were relocated to the next closest street. In total, 3,387 crashes were relocated (or "snapped") using this iterative model.

6.4. Crashes

Traffic volume data was obtained through a GIS network database provided by the City. The database contained several elements pertaining to the vehicular traffic on the roadway but did not provide an annual average daily traffic (AADT) value for the segments. The peak hour volume (PHV) for the AM and PM conditions were provided for both directions of travel and, therefore, a grown AADT value could be obtained after a few assumptions were made.

For each segment, the two volume features containing alternate direction vehicle volumes were summed to obtain a combined PHV, reflecting the total of both directions, in the AM and PM peak hour. A K-factor, or the proportion of AADT occurring in the analysis hour, was used to grow the PHV to an AADT. The maximum of the AM and PM PHVs were used to grow into the AADT by using a K-factor of 0.1. By this process, the maximum PHV exhibited by the segment was divided by 0.1 to assume the AADT for the segment. The maximum PHV was used as depending on the roadway conditions and trip generation, the AM and PM PHV could vary drastically.

$$V_{YX} = Vehicle\ Volume\ in\ direction\ Y\ during\ X\ peak\ hour$$

$$K = K\ Factor, proportion\ of\ AADT\ occuring\ in\ the\ analysis\ hour$$

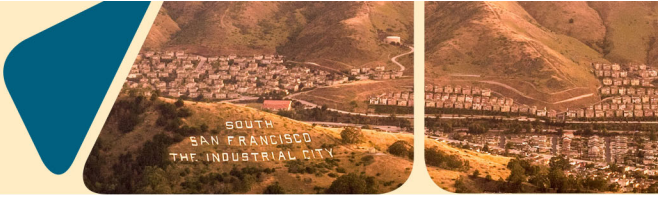
$$PHV_X = Sum(V_{1X}, V_{2X})$$

$$AADT = \frac{Max(PHV_{AM}, PHV_{PM})}{K}$$

$$K = 0.1\ or\ 10\%$$

After the assumed AADTs were calculated, the data was transferred to the existing roadway network mentioned above. For portions of the roadway network where AADT volumes were not assumed from the PHV due to lack of available data, general assumptions were made depending on the roadway type, the location of the segments, and the surrounding AADT values. For areas where the surrounding AADT was not applicable, the following general assumptions were made:

- Connected Residential: 1,000 AADT
- Disconnected Residential: 500 AADT
- Alley: 500 AADT
- Dead End / Cul-de-sacs: 250 ADT



7. SAFETY TRENDS

The following sections contain the results of the analysis process which included evaluation of South San Francisco fatal and serious injury (K+SI) crashes to statewide K+SI crashes, among other evaluations including crash by severity level, cause, pedestrian, and bicycle crashes. Summary tables presenting the crash data analysis and network screening results for all intersections and roadway segments are provided in **Appendix C** and **Appendix D**, respectively.

7.1. South San Francisco K+SI Crashes Compared to Statewide K+SI Crashes

The California SHSP focuses on 16 challenge areas identified by the SHSP Executive Leadership and Steering Committees after an in-depth analysis of California K+SI crash data as well as an extensive statewide outreach process that involved hundreds of diverse traffic stakeholders around the state. Crashes can be attributed to 13 of the 16 challenge areas. **Table 1** contains a comparison of City K+SI crashes to the statewide K+SI crashes. Challenge areas where the City percentages were higher than the statewide percentages are shown in bold in **Table 1**.

Table 1 – City K+SI Crashes Compared to Statewide K+SI Crashes

California SHSP Challenge Area	South San Francisco Comparison to Statewide Percentages	South San Francisco	Statewide Percentages
Aggressive Driving	Lower	30.4%	33.1%
Aging Drivers (≥65)	**Higher**	**13.5%**	**12.4%**
Bicyclists	Lower	5.8%	8.3%
Commercial Vehicles	Lower	3.4%	6.4%
Distracted Driving	Lower	3.9%	5.0%
Impaired Driving	Lower	17.9%	25.1%
Intersections	**Higher**	**28.5%**	**23.6%**
Lane Departure	Lower	40.1%	43.3%
Motorcyclists	**Higher**	**26.1%**	**21.0%**
Occupant Protection (Seat Belts, Helmets, Child Seats)	Lower	9.2%	14.2%
Pedestrians	**Higher**	**30.0%**	**19.2%**
Work Zones	Lower	0.0%	1.5%
Young Drivers (15-20)	Lower	7.7%	13.1%

Source: Statewide Integrated Traffic Record (SWITRS, 2009 – 2018).
Note: Percentages will not add up to 100%, as a fatality or serious injury could have involved multiple Challenge Areas (i.e., a young driver that was impaired and unrestrained)

7.2. Severity Level

Knowing the impacts of the crash (the injuries or type of damage which occurred) is a key part of assessing the environment and safety factors around the site of the crash. Over the observed time period, there was a total of 8 fatal crashes and 96 crashes resulting in major injuries, as shown in **Figure 2** and **Table 2.**

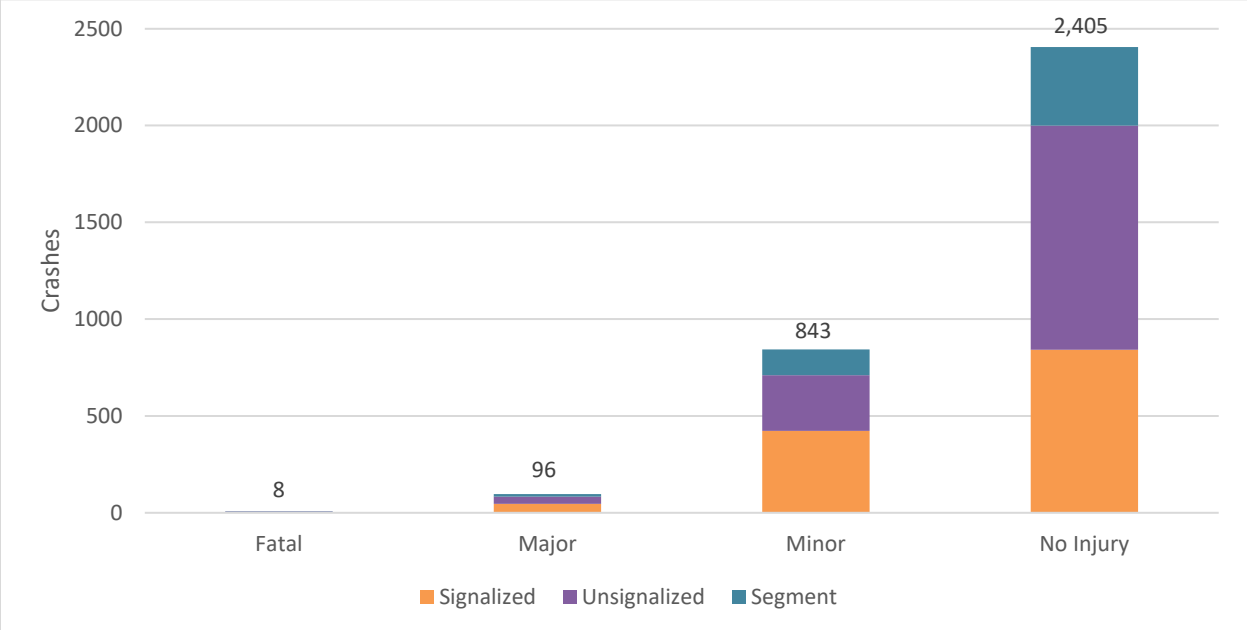
To analyze the crashes in the RIMS database, the Severity attribute was referenced to classify the varying degrees of severity:

- Fatal Injuries
- Major Injuries
- Minor Injuries
- No Injuries (Property Damage Only)

The National Safety Council developed the "KABCO" injury scale, which is frequently used by law enforcement for classifying injuries. Since our crash data is sourced from RIMS, which uses an alternate severity scale, a translation between the KABCO injury scale and RIMS is noted as:

- K – Fatal crash: Fatal Injuries
- A – Serious injury crash: Major Injuries
- B – Non-incapacitating injury crash: Major Injuries / Minor Injuries
- C – Possible injury crash: Minor Injuries
- O – No injury (property damage only) crash: No Injuries (PDO)

Figure 2 – Crashes by Severity



Source: Roadway Information Management System (2016 – 2020)

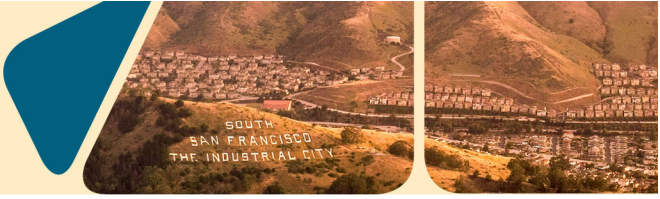


Table 2 – Crashes by Severity

Severity	Signalized Intersection		Unsignalized Intersection		Roadway Segments		Total	
	Crashes	%	Crashes	%	Crashes	%	Crashes	%
Fatal	4	<1%	2	<1%	2	<1%	8	<1%
Major	46	3%	37	2%	13	2%	96	3%
Minor	423	32%	287	19%	133	23%	843	25%
No Injuries	842	64%	1,157	77%	406	71%	2,405	71%
Unknown	8	1%	12	1%	15	3%	35	1%
Total	**1,323**	**39%**	**1,495**	**44%**	**569**	**17%**	**3,387**	**100%**

Source: Roadway Information Management System (2016 – 2020).

As shown in **Table 2**, a high proportion (83%) of crashes in the City over the five year period had occurred at intersections. **Figure 3** illustrates the intersection K+SI crashes throughout the City.

Figure 3 – Intersection K+SI Crashes Map

Legend

Intersection
- Fatal Injury Crashes: 1
- Major Injury Crashes: 1, 2, 3

Segment
- Fatal Injury Crashes: 1
- Major Injury Crashes: 1

Road Classification
- Major Arterial
- Minor Arterial
- Collector
- Other
- Highway
- City of South San Francisco

0 0.15 0.3 0.6 Miles

N

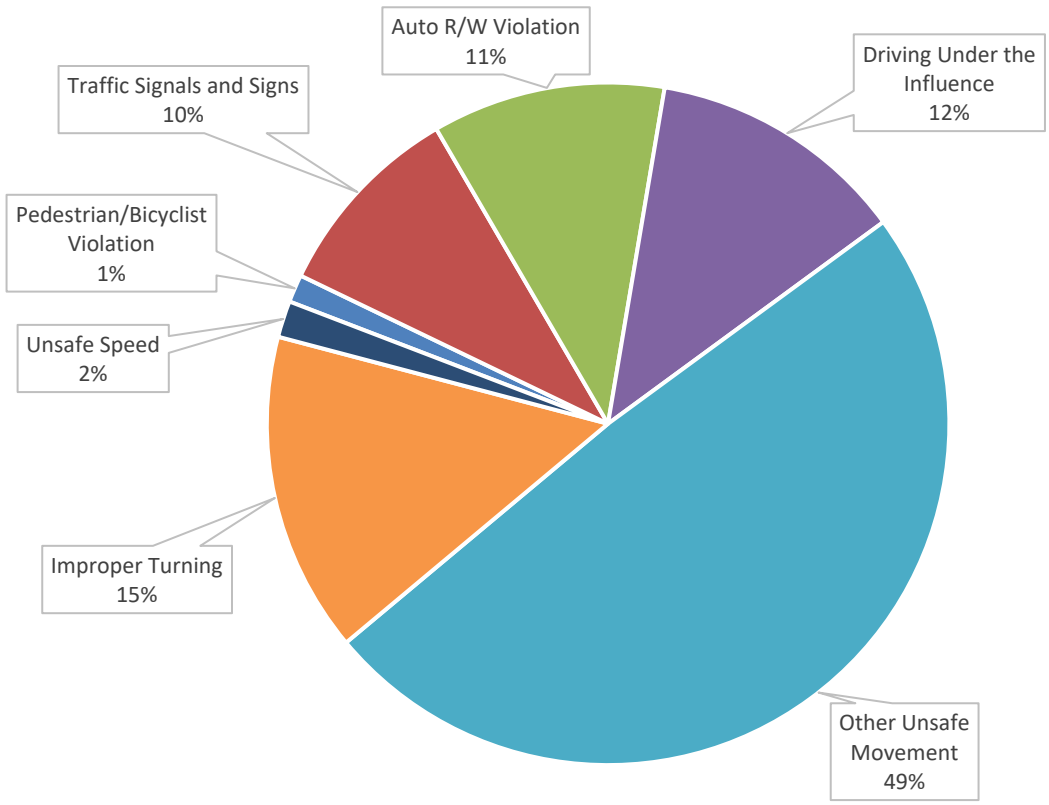
Source: Roadway Information Management System (RIMS) Data (2016-2020)

7.3. Cause of Crash

The California Vehicle Code (CVC) crash attribute of the RIMS dataset, as identified by the responding officer, was analyzed to obtain a primary crash factor (PCF) associated with the crash. This was completed to pinpoint a cause for each crash. Since not every RIMS datapoint had a CVC associated, the unknown data elements were left out to not skew the data. Overall, there were 2,135 crashes with CVC attributes out of the 3,387 crashes analyzed for the report. The CVC codes were compiled and assigned a PCF depending on the conditions of the violation. The PCFs were then broken into several categories based on the PCF and assigned a more general cause.

As shown in **Figure 4**, the most frequent contributing factor for crashes was 'Other Unsafe Movement' (49%), which included unsafe lane changes, improper overtaking, crossing solid lines, and other similar unsafe violations. The next most frequent factor was 'Improper Turning (15%), 'Driving Under the Influence' (12%), and 'Auto R/W Violation' (11%). The remaining causes made up approximately 13% of all crashes and included 'Traffic Signals and Signs' (10%), 'Unsafe Speed' (2%), and 'Pedestrian/Bicyclist Violation' (1%).

Figure 4 – Crashes by Cause

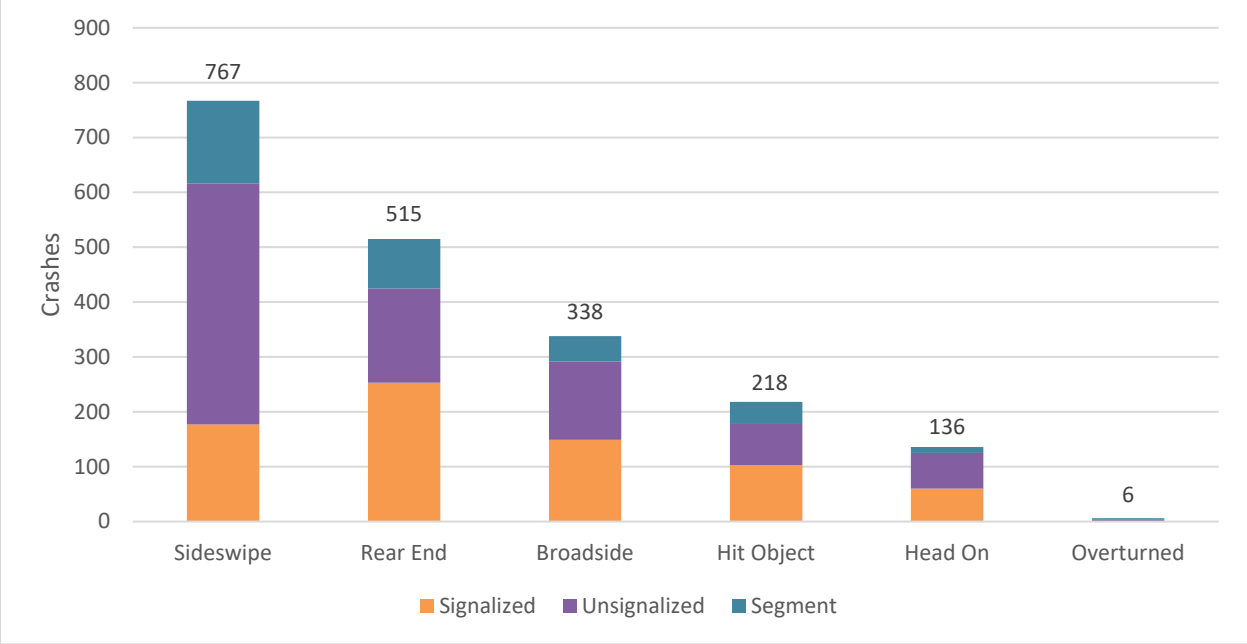


If crashes without a CVC violation were to be included, the 'Unknown / Not Stated' category would comprise 37% of the citywide crashes.
Source: Roadway Information Management System (2016 – 2020).

7.4. Highest Occurring Crash Types

According to reported data, approximately 4,130 crashes occurred within the City of South San Francisco during the five-year study period, of which 3,387 had clear, discernable spatial data. **Figure 5** indicates that 'Sideswipe' crashes are consistently the most common crash type within the City. Sideswipes are crashes that occur between vehicles moving in the same direction, such as might occur when a car changing lanes hits a vehicle in its blind spot. Sideswipes can also occur between vehicles moving in opposite directions, so long as the crashes are not head-on; an example of this would be "trading paint" by vehicles passing though a narrow section of road. The second most common crash types are 'Rear End' crashes, followed by 'Broadside' crashes and then 'Hit Object' crashes. Broadsides occur when a vehicle crashes into another vehicle from the side, such as a "T-bone" crash. These crashes are often more severe than sideswipes or rear-ends. Hit object crashes involve collisions between vehicles and fixed objects such as trees, sign posts or utilities. Hit object crashes also have the potential to result in major injuries or fatalities. Crashes resulting in overturned vehicles are generally less common in urban settings, and were the least common crash type in the City.

Figure 5 – Crashes by Type



Source: Roadway Information Management System (2016 – 2020).

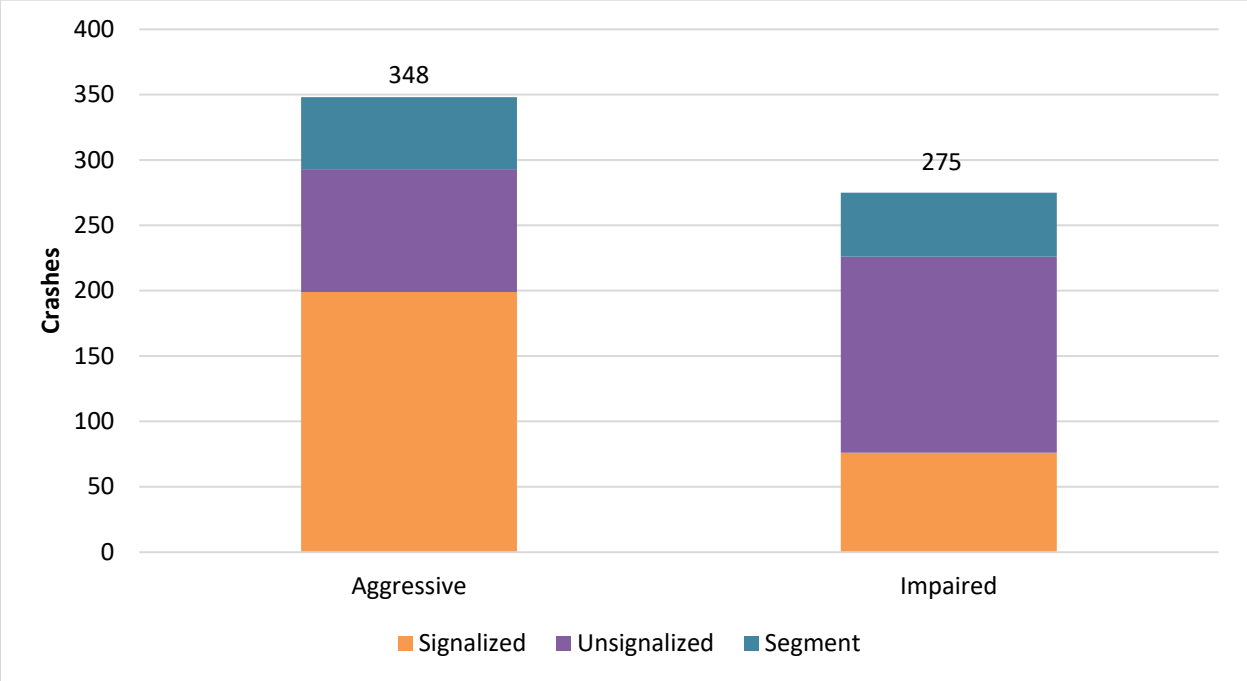
7.5. Lane Departure

Caltrans defines crashes involving lane departure as those with crash types listed as 'Head-On', 'Hit Object', or 'Overturned'. This also includes instances where a vehicle runs off the road or crosses into the opposing lane prior to the crash. There were 360 lane departure crashes over the study period within the City. Of the 360 lane departure crashes, one was fatal, 25 were reported with major injuries, 119 with minor injuries, 211 with no injuries (PDO), and four were unknown.

7.6. Aggressive and Impaired Crashes

Figure 6 contains a summary of aggressive and impaired crashes by intersections and segments. Additional information is included in the following sections.

Figure 6 – Aggressive and Impaired Driving Crashes



Source: Roadway Information Management System (2016 – 2020)

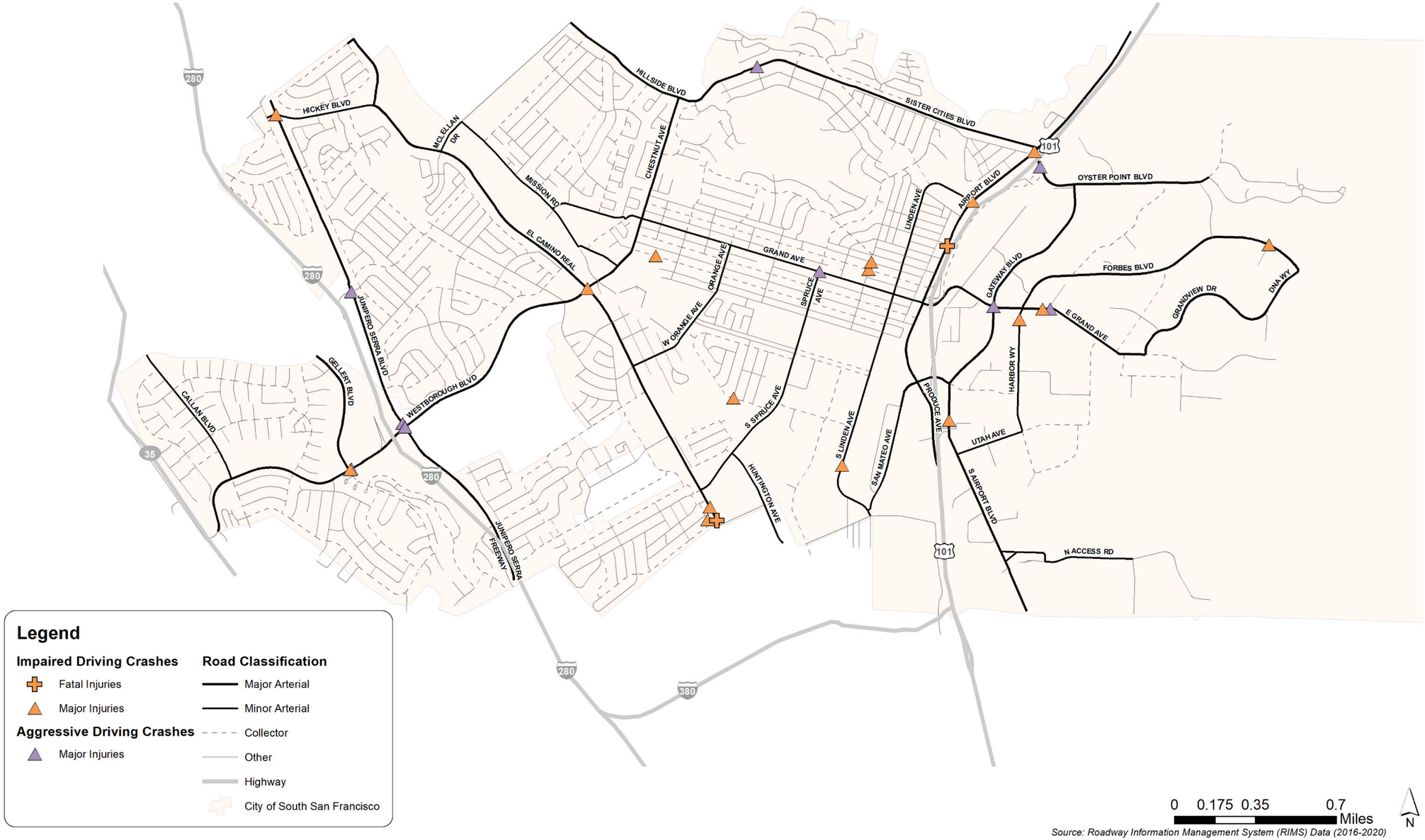
7.6.1. Aggressive Driving

Aggressive driving includes several behaviors including driving too fast, tailgating, and other reckless driving maneuvers as determined by the reporting officer. The data definition for this challenge area has been expanded from the previous SHSP to include crashes where drivers run traffic signals and signs, and where any of the before mentioned attributes are present even if they are not the primary crash factor. There were 348 aggressive driving crashes from 2016 to 2020. None of the crashes resulted in a fatality and 12 resulted in major injuries. **Figure 7** presents aggressive driving K+SI crashes within the City.

7.6.2. Impaired Driving

Crashes involving drugs or alcohol include all crashes where there was any evidence of drug or alcohol use by the driver. This is different from impaired driving statistics in that drivers do not need to exceed the legally defined threshold of intoxication to be counted. Caltrans considers any level of alcohol consumption to have the potential to impact driver responsiveness and decision making. There were 275 impaired driving crashes between 2016 and 2020. Two of the crashes resulted in fatalities and 17 resulted in major injuries.

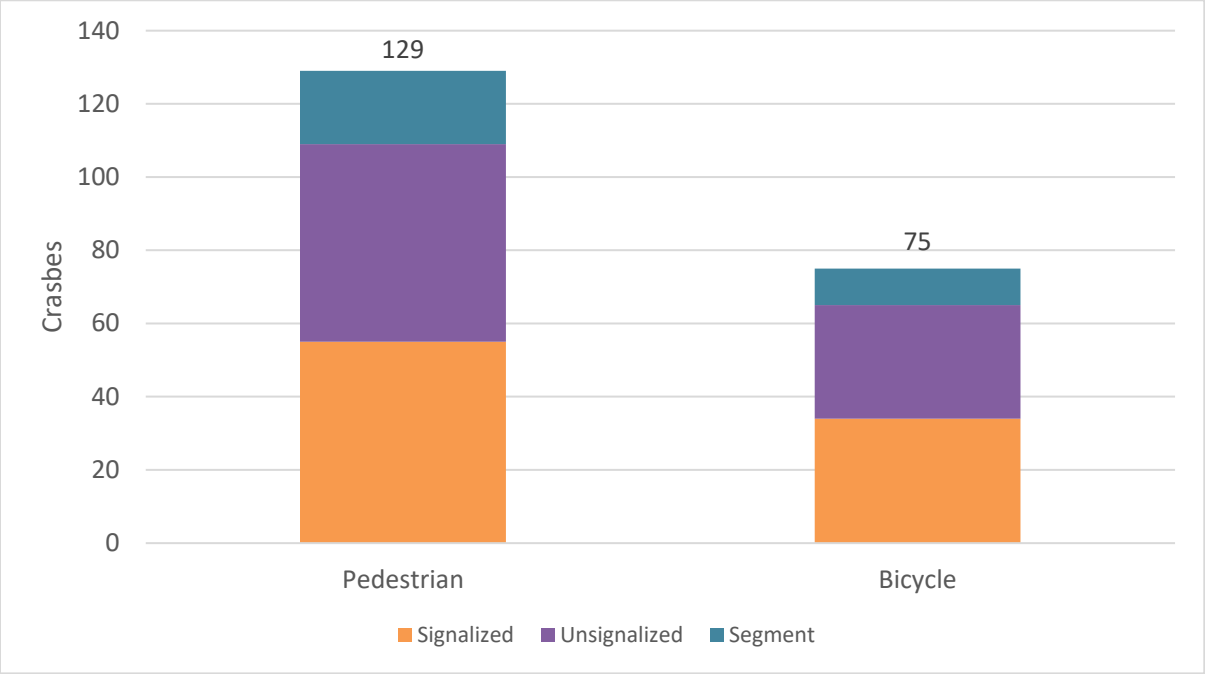
Figure 7 – Aggressive and Impaired Fatal and Major Injury Crash Map



7.7. Bicycle and Pedestrian Crashes

As shown in **Figure 8**, the majority of bicycle and pedestrian crashes occurred at intersections as opposed to roadway segments. Pedestrian crashes and bicyclist crashes generally occurred at the same rate at signalized and unsignalized intersections. **Figure 9** illustrates the locations of pedestrian and bicycle crashes within the City. Additional information on pedestrian and bicycle crashes is provided in the following sections.

Figure 8 – Bicycle and Pedestrian Crashes



Source: Crossroads (2015 – 2019).

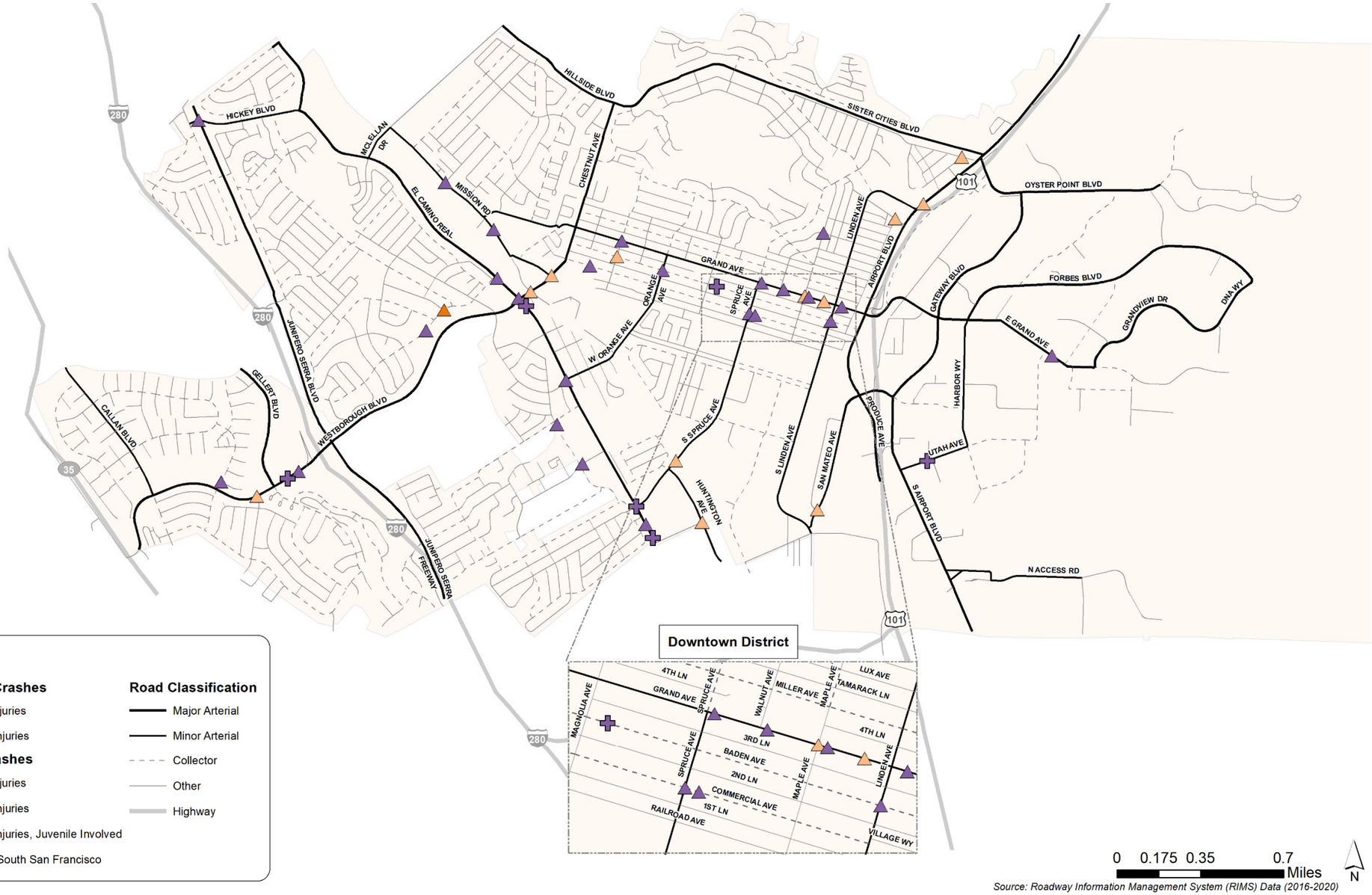
7.7.1. Bicycle Crashes

There were 75 bicycle-involved crashes that occurred in the City over the study period. Of the bicycle-involved crashes, none were fatal, 14 were reported with major injuries, 52 with minor injuries, and 9 with no injuries (PDO).

7.7.2. Pedestrian Crashes

Over the span from 2016 to 2020, a total of 129 pedestrian-involved crashes occurred in the City. Of the pedestrian-involved injury crashes, 6 were fatal, 25 were reported with major injuries, 90 with minor injuries, and 8 with no injuries (PDO). A pedestrian was involved in 75% of the fatal crashes during the analysis period.

Figure 9 – Non-Motorized Crashes Map



Source: Roadway Information Management System (RIMS) Data (2016-2020)

8. RECOMMENDATIONS

The following sections provide more information on potential engineering and non-infrastructure safety countermeasures that are likely to address conditions that were observed to contribute to crash activity in the City.

8.1. Engineering Countermeasures

While there are many safety countermeasures that could be used to systemically improve roadway safety, the following sections provide countermeasures for consideration by the City of South San Francisco. The following sections contain a description of Crash Modification Factors (CMFs) and Crash Reduction Factors (CRFs) associated with the engineering countermeasures toolbox.

8.1.1. Crash Modification Factors (CMFs)

When identifying potential systemic safety improvements, it is important to look at CMFs for the proposed improvements. The CMF Method is found in Part D of the HSM. CMFs are defined as the ratio of effectiveness of one condition in comparison to another condition and represent the relative change in crash frequency due to a change in one specific condition. In other words, a CMF is a multiplicative factor used to compute the expected number of crashes after implementing a given countermeasure at a specific site. Countermeasures with CMFs less than one are expected to reduce crashes if applied, while those countermeasures with CMFs greater than one are expected to increase crashes. **Figure 10** illustrates the definition of CMFs.

Figure 10 – CMF Calculation

$$CMF = \frac{\text{EXPECTED CRASHES WITH TREATMENT}}{\text{EXPECTED CRASHES WITHOUT TREATMENT}}$$

CMF = 1.0	Expected to have no impact on safety
CMF < 1.0	Expected to reduce crashes
CMF > 1.0	Expected to increase crashes

The CMF Method is used to calculate the expected number of crashes by taking the observed number of crashes and multiplying those crashes by the applicable CMF for the proposed countermeasure. It is recommended that CMFs be applied to a minimum of three years of crash data for urban and suburban sites and five years of crash data for a rural site. **Figure 11** is a sample calculation of the CMF method with one CMF being applied to a particular site for a single year.

Figure 11 – CMF Method Sample Calculation

10.1 crashes / year x 0.91 (CMF) =	9.2 crashes / year: a reduction of 0.9 total crashes per year and a CRF of 9%

A CRF is similar to a CMF but stated in different terms. A CRF is defined as a percentage of crash reduction that might be expected after the implementation of a given countermeasure at a specific site. **Figure 12** presents how a CRF is calculated in relationship to a CMF.

Figure 12 – CRF Calculation

$$CRF = (1 - CMF) \times 100$$

Caution should be used in the selection of appropriate CMFs. The following guidance should be considered when selecting CMFs for predictive crash analysis:

- CMFs should be selected from the HSM Part D, the LRSM, or from the FHWA CMF Clearinghouse website (http://www.cmfclearinghouse.org).
- Read the countermeasure abstract to determine if the CMF is applicable to the proposed improvement.
- Only CMFs with a four-star rating or higher should be considered for use in analysis.
- Be sure the selected CMF is applicable to the set of crash data being used for analysis. Some CMFs may only be applicable to a subset of the crash data.
- The application of multiple CMFs can overestimate the expected crash reduction. Unless each CMF addresses independent crash types, multiple CMFs should not be used. It is suggested that no more than three independent CMFs be applied to a particular site.

The countermeasures proposed in this document were chosen because of their effectiveness in reducing crashes.

8.1.2. Engineering Countermeasures Toolbox

The systemic improvements identified as most likely effective for the City are listed in **Table 3,** and include low-cost and higher-cost items that can be implemented in phases where appropriate. The CMF indicates how effective the countermeasure is at reducing crashes. CMFs and CRFs have been provided for reference to aid the City in understanding potential reductions from crashes by different countermeasures.

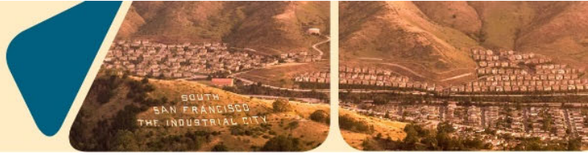
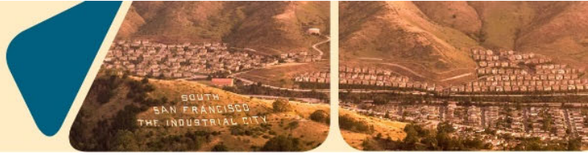
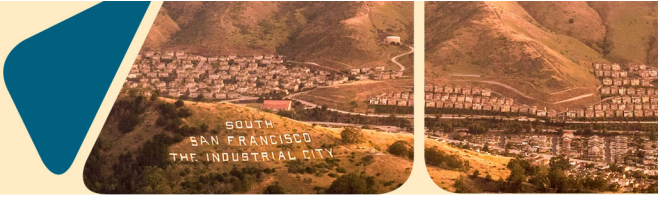


Table 3 – South San Francisco Engineering Countermeasures Toolbox

Countermeasure	Also Addresses		Crash Modification Factor (CMF)	Crash Reduction Factor (CRF)	CRF Applies to			Caltrans Funding	Cost to Implement
	Pedestrian	Bicycle			All	Nighttime	Pedestrian and Bicycle		
Signalized Intersections									
Install intersection lighting			0.6	40%		X		100%	$$
Retroreflective backplates			0.85	15%	X			100%	$
Improve signal timing (coordination)			0.85	15%	X			50%	$$
Advanced dilemma zone detection			0.6	40%	X			100%	$$
Install Left Turn Lane, Add Left Turn Phase			0.45	55%	X			100%	$$$
Protected left turn phase			0.7	30%	X			100%	$$
Convert signal from pedestal-mounted to mast arm			0.7	30%	X			100%	$$$
Install raised pavement markers and striping			0.9	10%	X			100%	$
Install flashing beacons as advanced warning			0.7	30%	X			100%	$$
Install High Friction Surface Treatment (HFST)			0.45	55%	X			100%	$$$
Install raised median on approaches			0.75	25%	X			100%	$$
Install pedestrian median fencing on approaches	X		0.65	35%			X	90%	$$
Pedestrian countdown signal heads	X		0.75	25%			X	100%	$
Pedestrian scramble	X		0.6	40%			X	100%	$$
Advanced stop bar before crosswalk and bicycle box	X	X	0.85	15%			X	100%	$
Modify signal to provide a Leading Pedestrian Interval (LPI)	X		0.4	60%			X	100%	$
Flashing yellow arrow			0.94	6%	X			N/A	$
Signal ahead warning signs			0.85	15%	X			N/A	$
Unsignalized Intersection									
Add intersection lighting			0.6	40%		X		100%	$$
Install all-way STOP control			0.5	50%	X			100%	$
Convert intersection to roundabout			Varies	Varies	X			100%	$$$
Install/upgrade intersection warning/regulatory signs			0.85	15%	X			100%	$
Upgrade pavement markings			0.75	25%	X			100%	$
Install flashing beacons at stop-controlled intersections			0.85	15%	X			100%	$$
Install flashing beacons as advanced warning			0.7	30%	X			100%	$$
Clear sight triangles			0.8	20%	X			90%	$ - $$$
Install High Friction Surface Treatment (HFST)			0.55	55%	X			100%	$$$
Install splitter-islands on minor road approaches			0.6	40%	X			100%	$$



Countermeasure	Also Addresses		Crash Modification Factor (CMF)	Crash Reduction Factor (CRF)	CRF Applies to			Caltrans Funding	Cost to Implement
	Pedestrian	Bicycle			All	Nighttime	Pedestrian and Bicycle		
Install raised median on approaches			0.75	25%	X			90%	$$
Directional median openings to restrict turning movements			0.5	50%	X			90%	$$
Reduced Left-Turn Conflict (R-CUT) intersections			0.5	50%	X			90%	$$$
Install right-turn lane			0.8	20%	X			90%	$$
Install left-turn lane			0.65	35%	X			90%	$$
Pedestrian refuge island	X		0.55	45%			X	90%	$$
Install/upgrade pedestrian crossing (with enhanced safety features)	X		0.65	35%			X	100%	$
Rectangular Rapid Flashing Beacon (RRFB)	X		0.65	35%			X	100%	$$
Pedestrian Signal	X		0.45	55%			X	100%	$$$
Retroreflective strips on signposts			Not Available	Not Available	X				$
Crosswalk lighting	X		0.6	40%			X	100%	$$
Colored bicycle lanes		X	0.61	39%			X		$
Curb extensions	X		0.63	37%			X		$$$
Segments									
Add segment lighting			0.65	35%		X		100%	$$
Remove or relocate fixed object outside of Clear Recovery Zone			0.65	35%	X			90%	$$$
Install impact attenuators			0.75	25%	X			100%	$$
Install pedestrian median fencing	X	X	0.65	35%			X	90%	$$
Install bike lanes	X	X	0.65	35%			X	90%	$$
Install/upgrade pedestrian crossing (with enhanced safety features)	X	X	0.65	35%			X	90%	$
Install raised pedestrian crossing	X	X	0.65	35%			X	90%	$$
Rectangular Rapid Flashing Beacon (RRFB)	X	X	0.65	35%			X	100%	$$
Speed feedback signs (mobile or fixed)	X	X	Not Available	Not Available	X			Opportunity for OTS	$



8.1.3. Project Sheets for Priority Locations

From the citywide crash data analysis, six project case study locations were selected for further analysis and recommendations. For each of these priority locations, project sheets were developed to provide a case study to organize projects when applying for grant funding. These locations were identified through the analysis process based on their crash histories, the observed crash patterns, and their differing characteristics to provide the most insight into potential systemic safety countermeasures that the City can employ to achieve the most cost-effective safety benefits.

Each project sheet includes location maps with aerial, crash data summary, and list of recommended safety countermeasures with corresponding CMF, number of crashes anticipated to be reduced, 10-year crash reduction estimate and benefit, and planning level construction cost estimates. Countermeasures were subjected to a benefit/cost assessment and scored according to their potential return on investment. These case studies can be used to select the most appropriate countermeasure(s), and to potentially phase improvements over the longer-term. The potential benefit of these countermeasures at locations with similar design characteristics can then be extrapolated regardless of crash history. These project sheets can also be used to position the City for future grant funding opportunities.

A project sheet was developed for the priority locations listed below and are included in **Appendix E.** A summary of the priority locations' safety countermeasures and resulting benefit/cost ratios are provided in the following sections.

- Airport Blvd and Sister Cities Blvd/Oyster Point Blvd
- Linden Ave and Grand Ave
- Grand Ave and Spruce Ave
- Spruce Ave and N Canal Street
- Commercial Ave and Chestnut Ave
- Shaw Road and San Mateo Ave

8.2. Non-Infrastructure Countermeasures

The National Highway Traffic Safety Administration (NHTSA) *Countermeasures that Work, Ninth Edition,* is a reference to assist safety stakeholders in selecting effective, science-based non-infrastructure traffic safety countermeasures for major highway safety problem areas. While many of the countermeasures are more appropriate to apply at the state-level or require legislative modifications to implement, **Table 4** contains countermeasures that have demonstrated effectiveness and could be applied at the City level. Access to Drug Recognition Experts (DREs) and Advanced Roadside Impaired Driving Enforcement (ARIDE) training for law enforcement is not included in the document but is something that could also be considered for the City.

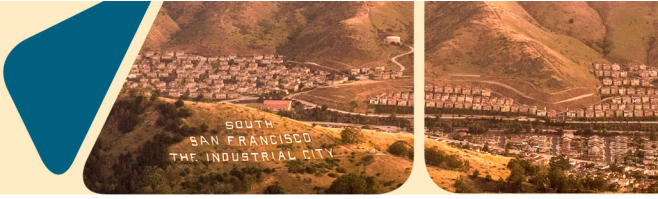
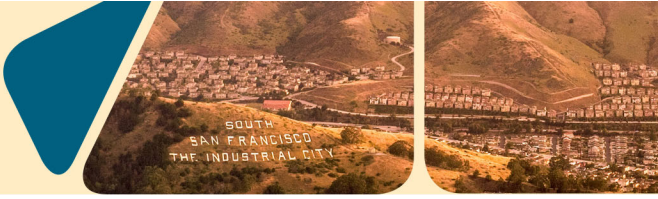


Table 4 - South San Francisco Non-Infrastructure Countermeasures Toolbox

Countermeasure	Effectiveness	Cost to Implement	Use	Time to Implement
Aggressive Driving				
Automated enforcement systems	*****	$$$†	Medium	Medium
Impaired Driving				
Publicized Sobriety Checkpoints	*****	$$$	Medium	Short
High-Visibility Saturation Patrols	****	$$	High	Short
Occupant Protection (Seat Belts, Helmets, Child Seats)				
Short-term high visibility enforcement	*****	$$$	Medium	Medium
Integrated nighttime seat belt enforcement	****	$$$	Unknown	Medium
Distracted Driving				
High visibility cellphone/text messaging enforcement	****	$$$	Low	Medium

Effectiveness:
****** Demonstrated to be effective by several high quality evaluations with consistent results*
***** Demonstrated to be effective in certain situations*
Cost to Implement:
$$$ Requires extensive new facilities, staff, equipment, or publicity, or makes heavy demands on current resources
$$ Requires some additional staff time, equipment, facilities, and/or publicity
$ Can be implemented with current staff, perhaps with training; limited costs for equipment, facilities, and publicity
†Can be covered by income from citations
Use:
High: More than two-thirds of states, or a substantial majority of communities
Medium: Between one-third and two-thirds of states or communities
Low: Less than one-third of states or communities
Unknown: Data not available
Time to Implement:
Long: More than 1 year
Medium: More than 3 months but less than 1 year
Short: 3 months or less



9. EVALUATION AND IMPLEMENTATION

9.1. Evaluation

The success of the LRSP will be evaluated using the preliminary process outlined below. This process will be useful to ensure proper implementation of goals and to determine when updates are needed.

- Quarterly progress meetings are recommended to be conducted to track the implementation of the plan. In addition, the success of the plan will be evaluated on an annual basis.
- An update to the plan should be considered after no more than five years.
- Continued monitoring and recording of traffic incidents on local roadways by law enforcement.
- Maintain a list of focus areas where there are transportation safety concerns, based on historical crash data.

9.2. Implementation

Implementation of the LRSP can be accomplished through several avenues including development of projects, the establishment of new policies and programs, developing a Citywide Vision Zero Action Plan, and development/strengthening of relationships with stakeholders.

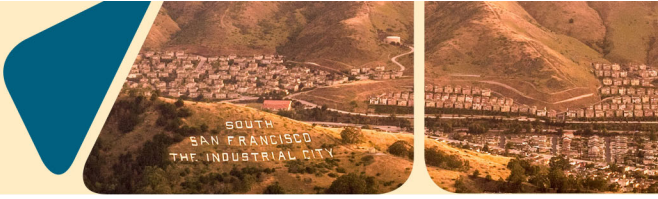
With regard to projects, the following identifies potential focus areas for the City in the near-to-mid-term.

9.2.1. Near- and Mid-Term Focus Areas

The opportunities identified in this LRSP provide more of the systemic countermeasures that can be applied within the City. Over the next three to five years, it is recommended that the City concentrate its efforts on the following emphasis areas:

- Pedestrians
- Motorcyclists
- Intersections
- Aging Drivers

Analysis conducted at the citywide level indicated that these factors were some of the most frequent influences contributing to crashes within the City. The countermeasure opportunities previously discussed in this LRSP for both systemic and project-specific improvements can be used as a basis for developing projects at locations where addressing these focus areas would be of the most benefit. Projects that address these focused areas can be developed with a high benefit-to-cost ratio (by applying citywide crash rates), allowing competitive projects to be developed even at sites with little to no direct crash history, but with conditions that might contribute to future crashes.



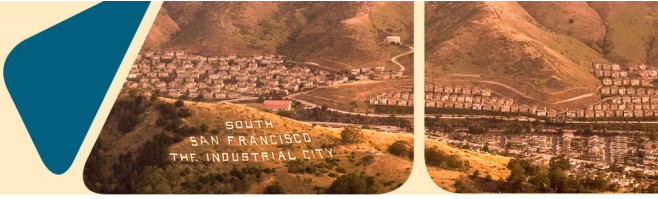
9.3. Updates to the LRSP

The following steps outline the recommended process for updating the City's LRSP.

1) Access necessary data
   - Roadway and intersection classification/configurations
   - Average Daily Traffic Volumes (Collected from counts where available)
   - Collision history
2) Network screening
   - Calculate the CCR for each roadway functional classification and intersection control type
   - Rank for each facility type
     i) Roadway Segment
        (1) Primary
        (2) Secondary
        (3) Local
     ii) Intersection
        (1) Signalized
        (2) Unsignalized
3) Select locations
   - Identify the location with a higher CCR than what is typical of comparable facility types within City
   - Analyze the collision history and work with local officials to understand any significant exterior influences on the location
4) Countermeasures
   - Using the Engineering Countermeasures Toolbox (**Table 3**) and Non-Infrastructure Toolbox (**Table 4**), identify potential countermeasures that can be applied to the local to enhance safety features
5) Develop a Project Sheet that can serve as a template for analyzing future locations
6) Calculate the benefit and the cost of each applicable countermeasure using Highway Safety Improvement Program (HSIP) tool and LRSM countermeasures. If those are not available, refer to other resources such as the CMF Clearinghouse and follow a similar calculation (using 20-year cost and benefit numbers). See more information in the section **HSIP Analyzer** below.

The LRSP has completed steps 2 through 6. In subsequent years, the City can begin at step 1 to continue the LRSP process. Additional items the City can do to keep the LRSP current are:

1) When new or reconstruction projects arise, use the data processed to identify locations with similar characteristics and apply countermeasures which proved effective
2) Proactively update its roadway and traffic standards to address systemic safety issues identified in the LRSP



9.3.1. HSIP Analyzer

As of 2021, the preferred way to calculate the BCR for the HSIP program uses Caltrans HSIP Analyzer tool in the form of an active PDF. The PDF tool contains 4 sections which are used to calculate the Benefit Cost Ratio for the Highway Safety Improvement Program.

This tool can be accessed on the Caltrans website:

https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/highway-safety-improvement-program/apply-now

Projects appropriate for other state grant programs can be analyzed using the Life-Cycle Benefit Cost Analysis Model (CalB/C) which has a much more comprehensive benefit assessment tool set.

California Life-Cycle Benefit/Cost Analysis Model (Cal-B/C):

https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/data-analytics-services/transportation-economics

9.3.2. HSIP Eligibility

Per Chapter 9 of the Highway Safety Improvement Program, funds are eligible for projects that improve the safety of its users on any public road or publicly owned bicycle or pedestrian pathway or trail, or on tribal lands for general use of tribal members.

HSIP looks for safety projects that can be designed and constructed expeditiously and do not require significant acquisition of rights-of-way. Proposed projects should not require extensive environmental review and mitigation. Additional information on the HSIP project selection criteria can be accessed online at:

Benefit Cost Ratio Applications:

> https://dot.ca.gov/-/media/dot-media/programs/local-assistance/documents/hsip/2020/hsipanalyzerinstructions2020bcr.pdf

Funding Set-asides (Non-Benefit Cost Ratio Applications):

> https://dot.ca.gov/-/media/dot-media/programs/local-assistance/documents/hsip/2020/hsipanalyzerinstructions2020sa.pdf

HSIP project eligibility is subject to the California SHSP. The SHSP identifies statewide challenge areas that correspond to safety concerns at the statewide level and potential countermeasure to address them and determine HSIP project eligibility. SHSP's are developed in compliance with FHWA requirements. A list of eligible project types can be seen in the current HSIP Analyzer. More information can be accessed online at this website:

https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/highway-safety-improvement-program/apply-now

9.4. Funding

Competitive funding resources are available to assist in the development and implementation of safety projects in South San Francisco. The City should continue to seek available funding and grant opportunities from local, state, and federal resources to accelerate their ability to implement safety improvements throughout South San Francisco. The following is a high-level introduction into some of the main funding programs and grants for which the City can apply.

9.4.1. Highway Safety Improvement Program (HSIP)

The Highway Safety Improvement Program (HSIP) is a Federal program housed under Fixing America's Surface Transportation (FAST) Act. This program apportions funding as a lump sum for each state, which is then divided among apportioned programs. These flexible funds can be used for projects to preserve or improve safety conditions and performance on any Federal-aid highway, bridge projects on any public road, facilities for non-motorized transportation, and other project types. Safety improvement projects eligible for this funding include:

- New or upgraded traffic signals
- Upgraded guard rails
- Pedestrian warning flashing beacons
- Marked crosswalks

California's local HSIP focuses on infrastructure projects with national recognized crash reduction factors. Normally HSIP call-for-projects is made at an interval of one to two years. The applicant must be a city, a county, or a tribal government federally recognized within the State of California.

Additional information regarding this program at the Federal level is available at: https://safety.fhwa.dot.gov/hsip/. California specific HSIP information – including dates for upcoming call for projects – is available at: http://www.dot.ca.gov/hq/LocalPrograms/hsip.html.

9.4.2. Caltrans Active Transportation Program (ATP)

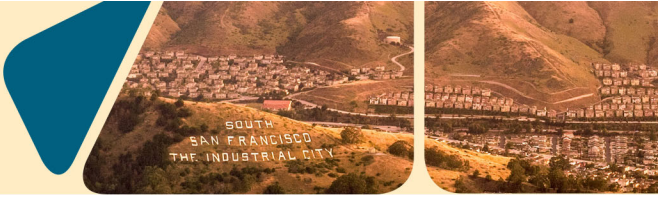
Caltrans Active Transportation Program (ATP) is a statewide funding program, created in 2013, consolidating several federal and state programs. The ATP funds projects that encourage increased mode share for walking and bicycling, improve mobility and safety for non-motorized users, enhance public health, and decrease greenhouse gas emissions. Projects eligible for this funding include:

- Bicycle and pedestrian infrastructure projects
- Bicycle and pedestrian planning projects (e.g. safe routes to school)
- Non-infrastructure programs (education and enforcement)

This program funding is provided annually. The ATP call for projects typically comes out in the spring. Information on this program and cycles can be found online at: http://www.dot.ca.gov/hq/LocalPrograms/atp/

9.4.3. State Transportation Improvement Program (STIP)

The State Transportation Improvement Program (STIP) provides state and federal gas tax money for improvements both on and off the state highway system. STIP programming occurs every two years. The programming cycle begins with the release of a proposed fund estimate, followed by California Transportation Commission (CTC) adoption of the fund estimate. The fund estimate serves to identify the amount of new funds available for the programming of transportation projects. Once the fund estimate is adopted, Caltrans and the regional planning agencies prepare



transportation improvement plans for submittal. Caltrans prepares the Interregional Transportation Improvement Program (ITIP) using Interregional Improvement Program (IIP) funds, and regional agencies prepare Regional Transportation Improvement Programs (RTIPs) using Regional Improvement Program (RIP) funds. The STIP is then adopted by the CTC. Information on this program can be found online at: https://catc.ca.gov/programs/state-transportation-improvement-program

9.4.4. California Senate Bill 1 (SB 1)

SB 1 is a landmark transportation investment to rebuild California by fixing neighborhood streets, freeways and bridges in communities across California and targeting funds toward transit and congested trade and commute corridor improvements.

California's state-maintained transportation infrastructure will receive roughly half of SB 1 revenue: $26 billion. The other half will go to local roads, transit agencies and an expansion of the state's growing network of pedestrian and cycle routes. Each year, this new funding will be used to tackle deferred maintenance needs both on the state highway system and the local road system, including:

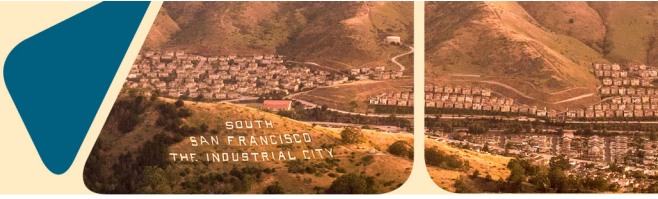
- Bike and Pedestrian Projects: $100 million
  - This will go to cities, counties and regional transportation agencies to build or convert more bike paths, crosswalks and sidewalks. It is a significant increase in funding for these projects through the Active Transportation Program (ATP).
- Local Planning Grants: $25 million

9.4.5. California Office of Traffic Safety (OTS) Grants

This program has funding for projects related to traffic safety, including transportation safety education and encouragement activities. Grants applications must be supported by local crash data (such as the data analyzed in this LRSP) and must relate to the following priority program areas:

- Alcohol Impaired Driving
- Distracted Driving
- Drug-Impaired Emergency Medical Services
- Motorcycle Safety
- Occupant Protection
- Pedestrian and Bicycle Safety
- Police Traffic Services
- Public Relations, Advertising, and Marketing Program
- Roadway Safety and Traffic Records

Information about the program can be found at: https://www.ots.ca.gov/grants/

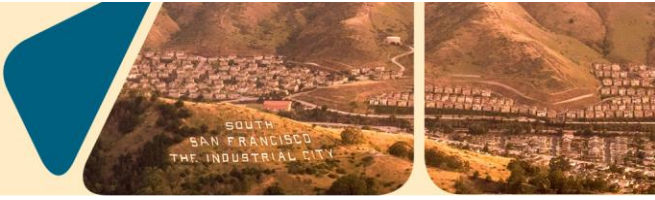


10. NEXT STEPS

The City of South San Francisco has completed this LRSP to guide the process of future transportation safety improvements for years to come. The data-driven analysis process identified crash types, related primary crash factors, and locations of many crashes. Based on this process, emphasis areas were identified. These emphasis areas will guide traffic safety improvements, education programs, and capital improvements for the City.

Using the analyzed data and outputs from this LRSP, the City will be able to:

- Apply for HSIP Cycle 11 grant funding for safety improvements throughout the City that address the various emphasis areas identified, including intersections and vulnerable users (pedestrians and bicyclists)
- Actively seek other funding opportunities to improve safety for all modal users
- Collaborate with established stakeholders and neighboring municipalities (i.e. San Mateo County) as improvements are made to create a cohesive transportation network
- Iteratively evaluate existing and proposed transportation safety programs and capital improvements to design and operate a safer transportation network in South San Francisco
- Form a Citywide Vision Zero Action Plan in support of the City of South San Francisco's goal to eliminate traffic fatalities and serve injuries among all road users

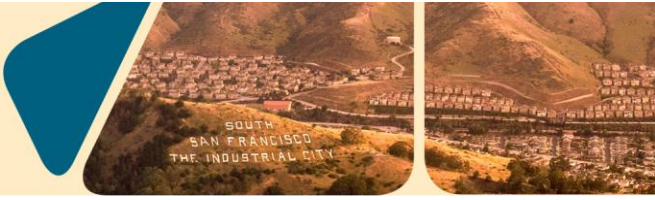


APPENDIX A

MATRIX REVIEW OF PLANNING DOCUMENTS

ID	Document Name	Year	Agency	Document Description	Transportation Improvements / Policies	Funding
1	Active South City 2020 Administrative Draft	2020	City of South San Francisco	Prioritizes projects and programs to integrate and improve walking, bicycling, and other active transporation modes	-Stated goals include: Improve safety, reduce collisions, and lower the traffic stress of people walking and biking in South San Francisco -Prioritized bicycle projects (see Appendix A) to nearly double existing bikeway mileage and add over 20 miles of Class IV Separated Bikeways -Prioritized pedestrian impovements identify Pedestrian Priority Areas and Spot Improvements (see Appendix A) -Projects recommended for: high-visibility crosswalks, curb extenstion construction, sidewalk construction, leading pedestrian intervals	-Local and Regional Funding Sources: Measure A, Measure M, Measure W, Transportation Funds for Clean Air, Bicycle Facilities Grant Program, One Bay Area Grant, Transportation Development Act Article 3, Regional Measure 3 -Competitive Grant Programs: ATP, Sustainable Transportation Planning Grants, HSIP, Solutions for Congested Corridors Program, Office of Traffic Safety, and others -Other State Funds: SB1
2	Capital Improvement Plan	Adopted Fiscal Year 2021-2022	City of South San Francisco	Update to the previous CIP; notes projects and programs that will result in capital construction projects or plan development over a 5-year planning horizon	-Grand Blvd Project Phase 1: Improves pedestrian crossings, implements ADA curbs and bulb outs, improved bus stop waiting areas -E101 Transit Shelter and Bulbout Grant: work with SamTrans to provide new bus stops in the biotechnology hub -South Linden Ave Grade Separation -Street Rehabilitation Program	-General Fund, Infrastructure Reserves, Gas Tax, Measure A, Road Maintenance Acct (SB1), Grants, Traffic Impact Fees
3	General Plan - Transportation	Adopted 2015	City of South San Francisco	Contains goals, policies, and objectives related to transportation and mobility	-Complete Streets Policy: Integrate Complete Streets infrastructure and design features into street design and construction to create safe and inviting environments for people to walk, bicycle, and use public transportation. -See Appendix B for street classifications	
4	Mobility 20/20 East of 101 Transportation Plan	2019	City of South San Francisco	Addresses transportation challenges in the East of 101 Area and recommends improvements for a robust multimodal network	-The plan will help address East of 101 Area existing and anticipated travel behaviors, infrastructure deficiencies, and possible transportation improvements based on City policy goals and stakeholder feedback. -Overarching policies include: expand throughput capacity, maintain efficient street operations, reduce VMT, reduce drive alone mode share, and improve safety. -External Street Connection Projects Considered: I-380 Connection (via Haskins Way), Utah Ave Interchange, Grande Ave NB Off-Ramp Flyover, Sierra Point Connection (via Veterans Blvd and Shoreline Court), Railroad Ave Extension -Internal Street Operations and Safety Projects Considered: Oyster Point Blvd, East Grand Ave, South Airport Blvd, Utah Ave, Gull Dr, Forbes Blvd	-East of 101 Transportation Impact Fee, Bicycle and Pedestrian Impact Fee, Community Facilities District, Measure W, Regional Measure 2, ATP, SB1, grants
5	San Mateo Countywide Sustainable Streets Master Plan	2021	San Mateo County	Roadmap and set of tools to assist public agenices in planning and implementing sustainable streets	-Sustainable streets are right-of-way projects that integrate pedestrian, bicycle, and transit improvements with green infrastructure components like stormwater planters and pervious pavement. -Key transportation planning need: Facilitating higher rates of active transportation through complete street improvements in line with local, county, and regional transportation goals.	-AHSC, CMAQ, HSIP, LSR Program, Sustainable Communities Planning Grants, TCC, Urban Greening Grants, One Bay Area Grant Program, ATP, TDA Article 3, Transportation for Livable Communities, Safe Routes to School, BUILD Grants, Transportation Fund for Clear Air, San Mateo County TA, Measure A, C/CAG Measure M, SamTrans Measure W
6	South San Francisco Downtown Station Area Specific Plan	2015	City of South San Francisco	Framework for future development of Downtown Station Area Specific Plan	-South San Francisco Station Area Specific Plan incorporates a “complete streets” approach that prioritizes creation of a multi-modal transportation system. -Guiding Principle Example: Enhance the intersection of Grand Avenue and Airport Boulevard to reflect the intersection’s role as the key connection between Downtown, the Caltrain Station and east of US 101.	-Local tax increment and assessment districts, local sources of funds, regional and state sources of funds

ID	Document Name	Year	Agency	Document Description	Transportation Improvements / Policies	Funding
7	Westborough Blvd and Gellert Blvd Traffic Operations Analysis	2019	DKS Engineering	Summaries the traffic analysis and gives recommendations for how to make this intersection safer	-Add a 10' crosswalk on the east leg of the intersection, push back limit line accordingly -Add pedestrian signal phase to run alongside the NB through approach -Include pedestrian countdown, update walking time based on 3.5 mph pedestrian walking speed -Extend Southeast curb further West -Update curb ramps to meet ADA standards, corresponding limit lines -Upgrade pedestrian push buttons -Replace mast arm poles on N and E approaches to support left-turn signal heads -Remove 1-B poles on N and W approaches -SB approach will consist of 2 exclusive LT lanes, one T/LT lane, and one RT lane -Extend WB/EB LT lanes by 100 ft	
8	Junipero Serra Blvd/Hickey Blvd and Hickey Blvd/Longford Dr Traffic Operations Analysis	2016	DKS Engineering	Summaries the traffic analysis and provides intersection design plans	-Square up all the intersection corners and eliminate channelized right turns -Install crosswalks across all four legs of the intersection -Increase minimum traffic signal phase lengths per CA MUTCD -Implement minimum walking time of 7 sec and pedestrian clearance timing based on 3 ft/sec walking speed -Furnish and install ADA compliant pedestrian buttons -Install sidewalks on East side of the Northern leg of Junipero Serra Blvd and along the North side of the East leg of Hickey Blvd -Stripe bike lanes on all intersection approaches -Add a blank out sign to 1-B poles (Restrict RTOR) on SB approach -Install Battery Backup System	



APPENDIX A-1

EXCERPT OF BIKEWAY MASTER PLAN, SOUTH SAN FRANCISCO (2015)

Table 4: Prioritized Bicycle Projects with Planning-Level Costs

Street	Cross Street 1	Cross Street 2	Existing Class	Proposed Class	Mileage	Total Points	Implementation Category	Total Project Cost with Contingency (30%)
Oak Ave	El Camino Real	Oak Ave		IV	0.21	9	Long Term Improvement	$631,449
Orange/Canal Bicycle Boulevard Group			III	IIIB	2.54	9	Short Term	$3,368,040
Airport Blvd	2nd Ln	Miller Ave		IV	0.17	8	Long Term Improvement	$524,888
El Camino Real	City limit	City limit		IV	2.75	8	Long Term Improvement	$8,260,694
W Orange Bicycle Boulevard Group			III	IIIB	1.00	8	Short Term	$1,326,000
Airport Blvd	Miller Ave	Armour Ave	II	IV	0.34	7	Short Term	$170,957
Alta Loma/Buri Buri Bicycle Boulevard Group			III	IIIB	3.11	7	Short Term	$4,123,860
Arroyo Dr	Camaritas Ave	El Camino Real	III	IV	0.14	7	Opportunity Project	$414,440
Avalon Bicycle Boulevard Group			III	IIIB	1.64	7	Short Term	$2,174,640
Bike/Ped Bridge Study	Airport Blvd	Poletti Way		I	0.20	7	Long Term Improvement	$19,500,000

Centennial Trail Connections	Grand Ave	El Camino Real		I	0.03	7	Long Term Improvement	$49,375
Chestnut Ave	El Camino Real	Sunset Ave	III	IV	0.65	7	Long Term Improvement	$1,954,485
Grand Ave	Bayshore Blvd Airport Blvd	E Grand Ave		II	0.04	7	Long Term Improvement	$6,864
Hickey Blvd	City limit	El Camino Real		IV	0.57	7	Long Term Improvement	$1,712,809
Westborough Blvd	Junipero Serra Blvd	El Camino Real	II & III	IV	1.05	7	Long Term Improvement	$3,157,245
Westborough Blvd	Skyline Blvd	Junipero Serra Blvd	II & III	IV	1.86	7	Long Term Improvement	$5,592,834
Airport Blvd	2nd Ln	S Airport Blvd		IV	0.26	6	Long Term Improvement	$773,307
Bayshore Blvd	Sister Cities Blvd	City limit	II	IV	0.63	6	Long Term Improvement	$1,903,075
Centennial Trail	Existing trail	City limit		I	0.21	6	Long Term Improvement	$401,030
E Grand Ave	Forbes Blvd	Haskins Ave	II	IV	0.76	6	Long Term Improvement	$2,294,336
E Grand Ave	Grand Ave	Poletti Way		I	0.20	6	Long Term Improvement	$390,000
E Grand Ave Trail	Grand Avenue	Forbes Blvd		I	0.29	6	Long Term Improvement	$557,798
Evergreen/Holly Bicycle Boulevard Group				IIIB	1.91	6	Opportunity Project	$2,532,660
Forbes Blvd	Eccles Ave	Allerton Ave		IV	0.68	6	Long Term Improvement	$2,052,979
Grand Ave	Spruce Ave	Airport Blvd		IV	0.47	6	Long Term Improvement	$1,402,711

Harbor Bicycle Boulevard Group				IIIB	0.20	6	Opportunity Project	$265,200
Linden Bicycle Boulevard Group			III	IIIB	0.98	6	Opportunity Project	$1,299,480
McLellan Dr	El Camino Real	Mission Rd		IIB	0.17	6	Opportunity Project	$86,397
Mission Rd	Chestnut Ave	Lawndale Blvd	II	IIB	0.94	6	Long Term Improvement	$472,258
Mission Rd	Chestnut Ave	Lawndale Blvd		I	0.23	6	Long Term Improvement	$440,786
N Access Rd	Bay Trail	S Airport Blvd		IV	0.19	6	Long Term Improvement	$571,311
Poletti Way	Caltrain Station Tunnel	Oyster Point Blvd		I	0.69	6	Long Term Improvement	$1,340,830
S Spruce Ave	El Camino Real	N Canal St	III	IV	0.75	6	Low Priority	$2,268,438
Sneath Ln extension	Huntington Ave	S Linden Ave		IV	0.34	6	Low Priority	$1,022,346
Oyster Point Blvd	Gateway Blvd	End of street	II	IV	0.85	6	Opportunity Project	$2,555,865
Bay Trail/Shaw/ Tanforan	Airport Blvd	Huntington Ave		I	0.91	5	Long Term Improvement	$1,782,091
Colma Creek Bay Trail	Existing Bay Trail	Utah Ave		I	0.29	5	Long Term Improvement	$565,500
Colma Creek Service Road	Harbor Way	Colma Creek Trail		III	0.09	5	Low Priority	$4,095
E Grand Ave	Existing facility	End of street		III	0.23	5	Opportunity Project	$10,626
E Grand Ave	Existing facility	Gateway Blvd		II	0.12	5	Opportunity Project	$20,592
Gellert Blvd	Westborough Blvd	Shannon Dr	III	IV	0.54	5	Low Priority	$1,635,096

Gellert Blvd	King Dr	Westborough Blvd	II	IV	0.56	5	Low Priority	$1,669,717
Grand Ave	Chestnut Ave	Spruce Ave	II	IIB	0.81	5	Opportunity Project	$405,038
Greendale Bicycle Boulevard Group			III	IIIB	1.33	5	Opportunity Project	$1,763,580
Harbor Way	RR tracks/proposed trail	Littlefield Ave		III	0.53	5	Opportunity Project	$24,115
Huntington Ave	Spruce Ave	Noor Ave		IV	0.27	5	Low Priority	$811,863
Junipero Serra Blvd	Avalon Dr	City limit	II	IV	2.12	5	Low Priority	$6,389,555
Oyster Point Blvd	Marina Blvd	Parking lot		II	0.08	5	Opportunity Project	$13,295
Oyster Point Blvd	Sister Cities Blvd	Gateway Blvd		II	0.27	5	Low Priority	$45,669
Produce Ave/ new road	Airport Blvd/San Mateo Ave	Utah Ave extension		IV	0.38	5	Long Term Improvement	$1,142,622
Shannon Bicycle Boulevard Group			III	IIIB	0.91	5	Opportunity Project	$1,206,660
Airport Blvd	Armour Ave	Sister Cities Blvd	II	IIB	0.24	4	Opportunity Project	$120,728
Airport Blvd	Armour Ave	Chapman Ave	II	IIB	0.23	4	Opportunity Project	$114,258
Airport Blvd	Gateway Blvd	Belle Aire Rd		IV	0.64	4	Low Priority	$1,924,416
Country Club Dr	Alida Way	El Camino Real		IIB	0.13	4	Opportunity Project	$63,407
Gateway Trail	E Grand Ave	Oyster Point Blvd		I	0.67	4	Low Priority	$1,303,385
Gellert-Chateau				NP	0.06	4	Low Priority	$119,981

Haskins Way	E Grand Ave E Grand Ave	North Access Road		I	1.08	4	Low Priority	$2,099,636
Hillside Blvd	Linden Ave	Spruce Ave	III	II	0.12	4	Opportunity Project	$20,703
Hillside Blvd	Sister Cities Blvd	Ridgeview Court	III	II	0.71	4	Opportunity Project	$121,371
Littlefield Ave	Harbor Way	Proposed trail		III	0.03	4	Opportunity Project	$1,365
near Eccles Ave & Oyster Point Blvd	E Grand Ave	Oyster Point Blvd		I	0.80	4	Low Priority	$1,554,126
Oak Ave	Mission Rd	Grand Ave		IV	0.13	4	Low Priority	$390,897
Orange Ave	Centennial Trail	Railroad Ave	II	IIB	0.26	4	Opportunity Project	$132,192
S Spruce	N Canal St	Railroad Ave	III	IV	0.15	4	Low Priority	$458,904
San Mateo Avenue	Airport Blvd	S Airport Blvd	III	II	0.78	4	Low Priority	$133,848
Sister Cities Blvd	Hillside Blvd	Airport Blvd	II	IV	0.89	4	Low Priority	$2,686,082
Utah Ave	San Mateo Ave	US-101	III	II	0.29	4	Long Term Improvement	$49,764
W Orange Ave	Library Driveway	Fairway Dr	III	IV	0.26	4	Low Priority	$781,794
Chestnut Ave	Sunset Ave	Hillside Blvd	III	IV	0.28	3	Low Priority	$831,945
Grand Ave	Chestnut Ave	Mission Rd	III	IIB	0.41	3	Opportunity Project	$206,138
Linden Ave	Tanforan Ave	Baden Ave	III	II	0.98	3	Low Priority	$168,847
Littlefield Ave	E Grand Ave	Utah Ave	III	IV	0.38	3	Low Priority	$1,139,761
Mitchell Ave	Harbor Way	Airport Blvd		II	0.31	3	Opportunity Project	$53,196
near Harbor Way	E Grand Ave	Littlefield Ave		I	0.84	3	Low Priority	$1,643,124
Utah Ave	US-101	Littlefield Ave	III	IV	0.60	3	Low Priority	$1,804,140
Forbes Blvd	Allerton Ave	Gull Dr	IIB	IV	0.25	3	Low Priority	$751,725

Gull Drive	Forbes Blvd	Oyster Point Blvd	II	I	0.25	3	Low Priority	$487,500
DNA Way	Existing facility	Existing facility		IIB	0.06	2	Low Priority	$32,338
near Cabot Rd	Allerton Ave	E Grand Ave		I	0.61	2	Low Priority	$1,192,484
W Orange Ave	Library Driveway	Westborough Blvd	III	II	0.13	2	Low Priority	$21,486
W Orange Ave	Library Driveway	Fairway Dr	III	III	0.26	2	Low Priority	$11,830

The top 16 projects include the following projects:

- Class IV Separated bikeways on Oak Avenue, Airport Boulevard, El Camino Real, Arroyo Drive, Hickey Boulevard, and Westborough Boulevard
- Class IIIB Bicycle Boulevards in the Orange/Canal, W Orange, Alta Loma/Buri Buri, and Avalon Bicycle Boulevard Groups
- Class II Bike Lanes on the Grand Avenue overcrossing project
- Class I Shared-use paths including the proposed new bicycle/pedestrian bridge over US-101 and improved connections between the Centennial Trail near Kaiser between El Camino Real and Grand Avenue

29 bicycle projects were categorized as Low-Priority Projects, 22 projects were categorized as Opportunity Projects, 26 projects were categorized as Long Term Projects, and 5 projects were categorized as Short Term Projects.

Pedestrian Projects

Out of 12 possible points, pedestrian projects scored between three and nine points; the average project score was 5.4 points. 11 projects scored 7, 8, or 9 points and have been classified as the top pedestrian recommendations. Prioritized pedestrian projects can be seen in Table 5.

Table 5: Prioritized Pedestrian Projects with Planning Level Costs

Location	Improvement	Total Points	Implementation Category	Project Total with Contingency (30%)
Mission and Lawndale/McLellan	Upgrade all crosswalks to high-visibility crosswalks. Construct curb extensions at all four corners. Provide leading pedestrian intervals for all crossings. Construct sidewalks on the west side of McLellan south of Mission Rd.	9	Long Term Improvement	$1,250,340
El Camino Real and McLellan	Upgrade all crosswalks to high-visibility crosswalks. Install a high-visibility crosswalk at the western ECR approach. Provide a leading pedestrian interval for the ECR crossings. Construct curb extensions.		Long Term Improvement	$1,352,000
McLellan and BART	Upgrade existing crosswalks to high-visibility crosswalks. Install leading pedestrian intervals at all crossings.Build curb extensions at the eastern corners.		Long Term Improvement	$422,500
El Camino Real and BART	Straighten the crosswalk across the northern approach. Upgrade both crosswalks to high-visibility crosswalks. Provide a leading pedestrian interval.		Long Term Improvement	$139,750
Grand and Airport Blvd	Remove free right turn lane. Upgrade two marked crossings to high-visibility. Consider pedestrian-only phase. Construct a pedestrian refuge island at the Airport Boulevard approach.	8	Long Term Improvement	$334,750
El Camino Real and Ponderosa	Construct sidewalks on the eastern side of ECR between Country Club Drive and Ponderosa. Upgrade all three marked crosswalks to high-visibility crosswalks. Provide a leading pedestrian interval for the ECR crossings. Construct median refuge islands for the ECR crossings.	7	Long Term Improvement	$459,875

Grand Avenue and E Grand Avenue	Upgrade two existing crosswalks to high-visibility crosswalks. Remove free right turn lane at the southeast corner. Install pedestrian refuge island in the E Grand Avenue crossing. Install curb extensions at the northeast, southwest, and southeast corners. Add a leading pedestrian interval for the E Grand Avenue crossing.	7	Long Term Improvement	$919,750
Mission and Sequoia	Install a crosswalk on the northern approach. Upgrade all crosswalks to high-visibility crosswalks. Construct curb extensions.	7	Long Term Improvement	$1,062,750
Orange and Railroad	Upgrade the transverse crosswalk across Railroad Avenue to high-visibility and construct a curb extension at the southeast corner.	7	Long Term Improvement	$68,250
Orange and Tennis Dr	Construct curb extensions for the crossings of Orange Avenue and Tennis Drive. Install a high-visibility crosswalk across Tennis Drive.	7	Long Term Improvement	$263,250
Westborough and Galway	Upgrade all four crosswalks to yellow high-visibility crosswalks. Construct pedestrian refuge islands on the Westborough crossings. Construct curb ramps at all corners. Install curb extensions to tighten corner radii. Update/add school zone signs.	7	Long Term Improvement	$1,453,400
Westborough and Junipero Serra Blvd	Construct sidewalks on the southern side of Westborough Boulevard through the interchange area to Junipero Serra. Install/upgrade high visibility crosswalks at all interchange crossing locations. Install with appropriate signs and pavement markings.	7	Long Term Improvement	$191,165
Spruce and Grand	Install yellow transverse markings around the decorative crosswalk. Upgrade three remaining crosswalks to high-visibility. Consider installing curb extensions at all corners.	7	Opportunity Improvement	$1,073,150
Oyster Point/Sister Cities and Airport	Construct curb extensions at the north, west, and south corners. Upgrade two marked crosswalks to high-visibility crosswalks and realign to be straight. Implement a leading pedestrian interval for both crosswalks.	7	Long Term Improvement	$741,000

Arroyo and Alta Loma	Construct curb extensions on both sides of the crosswalk. Construct a median refuge island. Install an RRFB. Install a high visibility crosswalk across Alta Loma Drive.	6	Long Term Improvement	$406,250
E Grand and Poletti Way	Mark crosswalks across E Grand Avenue and Industrial Way to enhance Caltrain and Grand Avenue access. Tighten corner radii to square-up intersection approaches. Provide the proposed trail with an enhanced crossing.	6	Long Term Improvement	$289,250
El Camino Real and Kaiser	Construct sidewalks on the south side of ECR from the bus stop to the bend in Del Paso Drive. Build sidewalk between ECR and Del Paso. At the Kaiser driveway, upgrade all crosswalks to high visibility crosswalks. Redesign the pedestrian refuge island in the western ECR crossing. Provide a leading pedestrian interval for the ECR crossing.	6	Long Term Improvement	$215,735
El Camino Real and S Spruce	Upgrade all four crosswalks to high-visibility crosswalks. Construct pedestrian refuge islands for the two ECR crossings. Provide a leading pedestrian interval for the ECR crossings. Consider curb extensions at all four corners.	6	Long Term Improvement	$1,475,500
Grand and Linden	Install advance stop markings at all approaches. Provide a leading pedestrian interval for all crossings.	6	Opportunity Improvement	$171,600
Grand and Maple	Install advance stop markings at all approaches. Provide a leading pedestrian interval for all crossings.	6	Opportunity Improvement	$171,600
Hickey and El Camino Real	Upgrade all crosswalks to high-visibility crosswalks. Straighten the northern ECR crosswalk. Install a high-visibility crosswalk across the southern ECR approach (push back the northbound stop bar and median to create a straight crossing). Provide a leading pedestrian interval for the ECR crossings.	6	Long Term Improvement	$160,875
Miller and Oakcrest	Construct curb extensions at the southeast, southwest, and northwest corners. Install advance stop/yield pavement markings. Consider installing an RRFB.	6	Long Term Improvement	$686,400

BART/Cymbidium Circle Neighborhood Path	Create a stair channel along the existing stairs to improve bicycle access. Remove the gate at Alta Loma/Cymbidium to open stair access to both neighborhoods. At ECR, upgrade crosswalk to high visibility and straighten the crosswalk. Provide a leading pedestrian interval.	6	Long Term Improvement	$136,500
Spruce and S Canal Way	Straighten the crosswalk across S Canal Street. Upgrade both crosswalks to high-visibility crosswalks. Construct a curb extension at the southeast corner. Add trail wayfinding information. Consider leading pedestrian intervals for Spruce Avenue crossing.	6	Long Term Improvement	$242,125
Westborough and Gellert	Upgrade the three marked, and install on the fourth approach high-visibility crosswalks. Build out the necessary corners to straighten all crosswalks. Construct pedestrian refuge islands at all crosswalks. Provide a leading pedestrian interval for the northern Westborough crosswalk.	6	Long Term Improvement	$2,314,000
Westborough/Chestnut and El Camino Real	Upgrade all crosswalks to high-visibility crosswalks. Straighten the northern crosswalk across Chestnut. Provide a leading pedestrian interval for all crossings. Consider installing curb extensions at all corners. Extend all four medians to create pedestrian refuge islands.	6	Long Term Improvement	$2,314,000
Crestwood/Gardenside	Install a neighborhood traffic circle. Upgrade all crosswalks to high-visibility crosswalks.	5	Low Priority	$247,000
El Camino Real and Arroyo & Arroyo and Del Paso	Remove the crosswalk at Del Paso Drive across Arroyo Drive; close gap in the median, and remove yield paddle. At ECR, upgrade all crosswalks to high visibility crosswalks. Provide a leading pedestrian interval for ECR crossings. Consider curb extensions at all four corners	5	Low Priority	$1,266,525
Grand and Cypress	Install advance yield markings and signs for the Grand Avenue crossings.	5	Opportunity Improvement	$13,000
Grand mid-block crossings between Linden and Maple	Install advance yield pavement markings and signs.	5	Opportunity Improvement	$16,250

Hillside and Arden	Refresh the two existing high-visibility crosswalks. Construct curb extensions at the two eastern corners. Install advance stop/yield markings.	5	Low Priority	$296,400
Hillside and Belmont	Shift the crossing of Hillside Boulevard to the western approach to improve site lines. Install curb extensions at all three corners with a crosswalk. Install an RRFB for the Hillside crosswalk. Install advance yield markings.	5	Low Priority	$677,300
Linden and N Canal	Widen on or both of the existing paths on the Colma Creek bridge to ADA complaint width. Install appropriate curb ramps. Mark a crosswalk across S Canal street if sidewalks are present on the west side.	5	Low Priority	$108,290
Miller and Westview	Construct curb extensions at the southeast, southwest, and northwest corners. Straighten the crosswalk across Miller. Install advance stop/yield pavement markings. Consider installing an RRFB.	5	Low Priority	$689,650
S Airport and Utah	Consistent with proposed Utah overcrossing of 101, install high visibility crosswalks at all four approaches. Provide a leading pedestrian interval.	5	Opportunity Improvement	$191,750
Spruce and Hillside	Construct curb extensions at the two northern and southeastern corners. Mark high-visibility crosswalks across Spruce Avenue and School Street.	5	Low Priority	$598,000
Spruce and Park Way	Upgrade the two existing crosswalks across Park Way to high-visibility crosswalks. Install high-visibility crosswalks across both Spruce approaches. Install advance stop markings. Paint/refresh red curb at all corners.	5	Opportunity Improvement	$93,686
Utah Ave/ San Mateo Ave	Install a protected intersection with high visibility crosswalks.	5	Long Term Improvement	$650,000
Westborough and Callan	Upgrade all four crosswalks to yellow high-visibility crosswalks. Construct pedestrian refuge islands on the Westborough and Callan crossings. Update/add school zone signs.	5	Long Term Improvement	$629,525

Airport and Gateway	Upgrade existing crosswalks to high-visibility crosswalks. Construct median refuge islands at the west, east, and south approaches. Remove slip lane from the southern approach.	4	Low Priority	$793,000
Chestnut and Commercial	Upgrade all crosswalks to high-visibility. Remove the slip lane from the southeast corner and construct a curb extension; straighten both crosswalks from this corner.	4	Low Priority	$247,000
Grand and Gateway	Upgrade all crosswalks to high-visibility crosswalks. Remove free right turn lanes at northwest and southeast corners. Install pedestrian refuge islands in all crossings. Install curb extensions at all four corners.	4	Low Priority	$2,645,500
Grand and Walnut	Install advance yield pavement markings and signs.	4	Opportunity Improvement	$29,250
Holly/Crestwood	Upgrade all crossings to high-visibility crosswalks. Consider installing a neighborhood traffic circle.	4	Opportunity Improvement	$247,000
Junipero Serra and Arroyo	Construct sidewalks on the western (highway) side of Junipero Serra Boulevard from the interchange to Arroyo Drive. Install a HAWK beacon at JSB/Arroyo Drive.	4	Low Priority	$546,000
Junipero Serra and Avalon & Avalon and Valverde	Mark high-visibility crosswalks across Valverde Drive. Construct sidewalks on the eastern (golf course) side of JSB to Westborough Boulevard from Avalon Drive. Mark a high-visibility crosswalk across the eastern approach of Avalon Drive/JSB.	4	Low Priority	$256,750
Junipero Serra and Hickey	Remove the free right turn lane at the southeast, southwest, and northwest corner. Upgrade all crosswalks to high visibility crosswalks. Provide leading pedestrian intervals for both crosswalks. Construct pedestrian refuge islands.	4	Low Priority	$1,579,500
Spruce and N. Canal St	Build curb extensions at the two northern corners. Straighten and upgrade all three marked crosswalks to high-visibility crosswalks.	4	Low Priority	$277,875
East Grand and Forbes	Upgrade all crosswalks to high-visibility crosswalks. Install curb extensions at all four corners. Install pedestrian refuge islands across E Grand Avenue.	3	Low Priority	$1,329,250

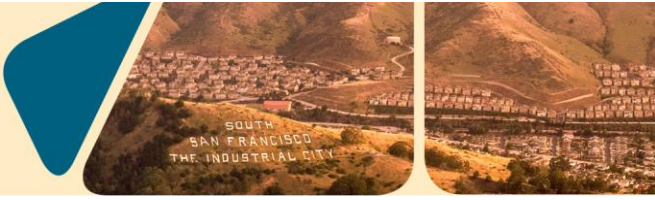
El Camino Real and W Orange	Straighten the southern crosswalk across ECR. Create pedestrian refuge islands for the ECR crossings. Upgrade all four crosswalks to high visibility crosswalks. Provide a leading pedestrian interval for the ECR crossing.	3	Low Priority	$429,000
Grand and Mission	Upgrade both crosswalks to high-visibility crosswalks. Extend medians and create pedestrian refuge islands.	3	Low Priority	$279,500
Grand and Orange	Upgrade all crosswalks to high-visibility crosswalks. Consider installing curb extensions at all four corners. Provide a leading pedestrian interval for the crossings of Grand Avenue.	3	Opportunity Improvement	$1,222,000

The top 11 pedestrian projects are at the following locations:

- BART Station-area Recommendations (four locations)
- Grand Avenue/Airport Boulevard
- Grand Avenue/E Grand Avenue
- Grand Avenue/Spruce Avenue
- El Camino Real/Ponderosa Road
- Mission Road/Sequoia Avenue
- Orange Avenue/Railroad Avenue
- Orange Avenue/Tennis Drive
- Westborough Boulevard/Galway Drive
- Westborough Boulevard/Junipero Serra Boulevard
- Oyster Point Boulevard/Sister Cities Boulevard/Airport Boulevard

18 pedestrian projects were categorized as Low-Priority Projects, 10 projects were categorized as Opportunity Projects, 21 projects were categorized as Long Term Projects, and no projects were categorized as Short Term Projects. Some pedestrian projects (or components of some projects), however, can be implemented with shorter-term materials (paint-and-post curb extensions, for example) and can later be converted to more permanent materials (concrete) when funding becomes available.

The top priority bicycle and pedestrian projects are shown on the following map, Figure 27:



APPENDIX A-2

EXCERPT OF GENERAL PLAN, SOUTH SAN FRANCISCO (2011)

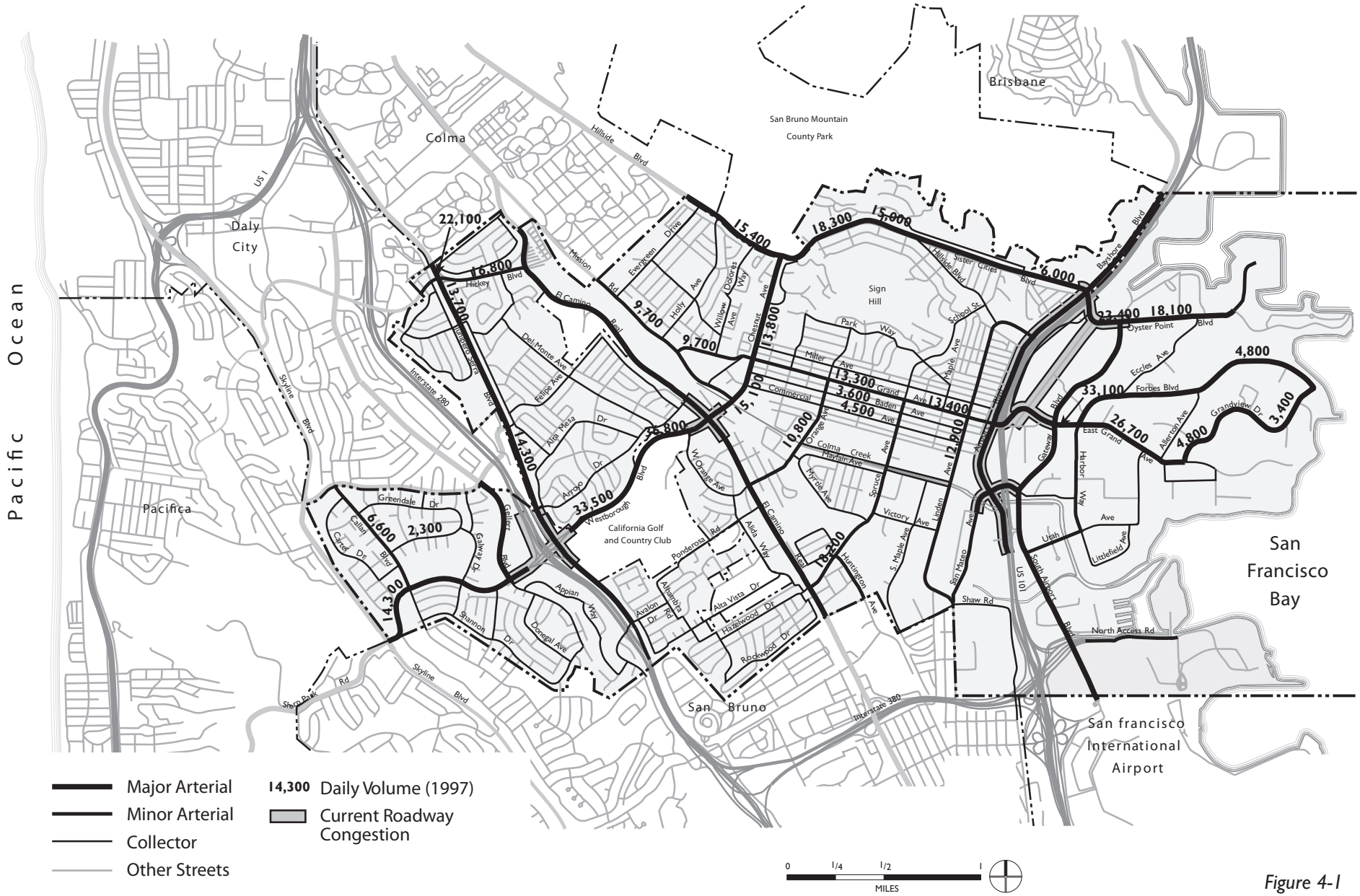
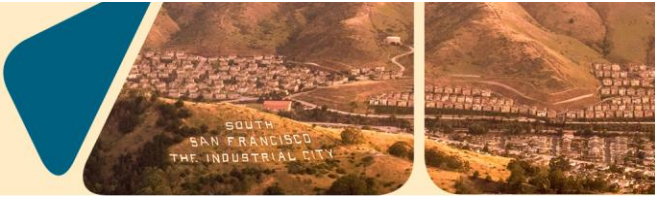


Figure 4-1
Street Classifications and Daily Volumes

Source: City of South SanFrancisco; Fehr & Peers



APPENDIX B

INTERSECTION NETWORK SCREENING RESULTS

Intersection	Cross Street 1	Cross Street 2	OBJECTID	Crashes	Local CCR Differential[1]	EPDO[2]	Fatal	Major Injury	Minor Injury	No Injury	Broadside	Sideswipe	Rear End	Head On	Hit Object	Overturned	Other	Pedestrian	Bicycle	Aggressive	Impaired	Dark	Wet
Signalized Intersections																							
JUNIPERO SERRA BLVD & WESTBOROUGH BLVD	JUNIPERO SERRA BLVD	WESTBOROUGH BLVD	160	**79**	0.43	687	0	3	26	50	12	9	14	5	8	0	3	0	0	12	4	3	8
EL CAMINO REAL & WESTBOROUGH BLVD	EL CAMINO REAL	WESTBOROUGH BLVD	391	**69**	0.38	689	1	3	15	50	6	3	18	4	6	0	0	2	1	9	3	2	6
SAN MATEO AVE & S AIRPORT BLVD	SAN MATEO AVE	S AIRPORT BLVD	270	**65**	0.87	329	0	1	15	49	4	10	11	2	5	0	2	0	0	7	7	2	4
AIRPORT BLVD & SISTER CITIES BLVD / OYSTER POINT BLVD	AIRPORT BLVD	SISTER CITIES BLVD / OYSTER POINT BLVD	689	**46**	0.09	409	0	2	13	31	7	5	8	6	4	0	1	0	0	5	4	3	6
AIRPORT BLVD & E GRAND AVE	AIRPORT BLVD	E GRAND AVE	384	**45**	0.48	309	0	1	15	29	3	12	9	1	5	0	0	1	4	6	3	4	5
EL CAMINO REAL & PONDEROSA RD	EL CAMINO REAL	PONDEROSA RD	264	**39**	0.24	313	0	1	16	22	6	6	7	1	1	0	1	3	0	5	0	0	3
LINDEN AVE & GRAND AVE	LINDEN AVE	GRAND AVE	413	**37**	0.70	272	0	1	12	24	4	10	4	1	2	0	1	7	1	4	4	5	5
JUNIPERO SERRA BLVD & HICKEY BLVD	JUNIPERO SERRA BLVD	HICKEY BLVD	791	**35**	-0.01	497	0	3	11	21	1	2	9	5	3	0	0	1	1	8	3	2	2
GELLERT BLVD & WESTBOROUGH BLVD	GELLERT BLVD	WESTBOROUGH BLVD	174	**34**	-0.05	476	0	3	9	21	1	6	7	2	4	0	0	0	0	9	5	3	1
SPRUCE AVE & GRAND AVE	SPRUCE AVE	GRAND AVE	457	**34**	0.88	436	0	2	17	15	6	3	8	1	1	0	1	5	2	7	0	2	1
LINDEN AVE & MILLER AVE	LINDEN AVE	MILLER AVE	444	**31**	1.03	236	0	1	9	20	7	0	7	0	1	0	1	1	0	5	0	0	0
JUNIPERO SERRA FREEWAY & AVALON DR	JUNIPERO SERRA FREEWAY	AVALON DR	88	**24**	-0.17	210	0	1	7	16	5	3	4	2	2	0	0	0	0	1	2	3	0
LINDEN AVE & BADEN AVE	LINDEN AVE	BADEN AVE	389	**24**	0.15	438	0	3	6	15	7	3	2	1	0	0	0	1	0	2	0	1	2
EL CAMINO REAL & HAZELWOOD DR / S SPRUCE AVE	EL CAMINO REAL	HAZELWOOD DR / S SPRUCE AVE	130	**23**	-0.19	287	1	0	15	7	4	1	7	1	1	0	1	2	0	6	1	4	3
GATEWAY BLVD & MITCHELL AVE	GATEWAY BLVD	MITCHELL AVE	281	**22**	0.03	89	0	0	7	14	0	2	7	0	0	0	0	1	1	2	0	1	0
GATEWAY BLVD & E GRAND AVE	GATEWAY BLVD	E GRAND AVE	316	**22**	-0.09	278	0	2	2	18	1	3	4	0	1	0	1	0	0	4	0	0	2
S AIRPORT BLVD & US 101 RAMPS	S AIRPORT BLVD	US 101 RAMPS	202	**21**	0.63	207	0	1	7	13	2	4	4	0	1	0	1	0	2	3	2	0	2
EL CAMINO REAL & HICKEY BLVD	EL CAMINO REAL	HICKEY BLVD	772	**21**	-0.14	207	0	1	7	13	3	3	4	1	1	0	1	1	0	3	1	0	2
MCLELLAN DR & EL CAMINO REAL	MCLELLAN DR	EL CAMINO REAL	721	**20**	-0.17	127	0	0	11	9	2	3	8	0	1	0	0	2	0	6	2	0	2
EL CAMINO REAL & W ORANGE AVE	EL CAMINO REAL	W ORANGE AVE	273	**20**	-0.20	197	0	1	6	13	1	2	6	2	0	0	0	2	0	4	2	1	3
MAPLE AVE & GRAND AVE	MAPLE AVE	GRAND AVE	434	**20**	0.37	276	0	2	2	16	1	3	3	1	0	0	1	3	1	1	0	2	1
DUBUQUE AVE & OYSTER POINT BLVD	DUBUQUE AVE	OYSTER POINT BLVD	690	**20**	-0.20	177	0	1	4	15	1	3	3	1	4	0	1	0	0	3	1	2	0
S AIRPORT BLVD & UTAH AVE	S AIRPORT BLVD	UTAH AVE	161	**19**	-0.05	29	0	0	1	18	1	2	2	0	2	0	1	0	0	2	2	0	1
AIRPORT BLVD & BADEN AVE	AIRPORT BLVD	BADEN AVE	355	**19**	0.07	58	0	0	4	15	4	3	4	0	1	0	0	0	0	2	2	0	2
ANTOINETTE LN & CHESTNUT AVE	ANTOINETTE LN	CHESTNUT AVE	442	**19**	-0.03	215	0	1	8	10	2	2	5	0	0	0	1	2	2	4	1	1	2
S SPRUCE AVE & N CANAL ST	S SPRUCE AVE	N CANAL ST	332	**19**	0.38	205	0	1	7	11	5	4	3	1	1	0	1	0	1	2	1	0	0
MAPLE AVE & BADEN AVE	MAPLE AVE	BADEN AVE	407	**18**	0.25	96	0	0	8	10	5	5	1	1	0	0	1	1	0	0	0	0	1
JUNIPERO SERRA BLVD & KING DR	JUNIPERO SERRA BLVD	KING DR	425	**18**	-0.19	304	0	2	5	11	4	0	3	1	3	0	1	0	0	4	1	2	5
BUTLER AVE & AIRPORT BLVD	BUTLER AVE	AIRPORT BLVD	691	**18**	0.09	66	0	0	5	13	3	2	5	0	1	0	0	1	1	3	0	0	1
S AIRPORT BLVD & BELLE AIRE RD	S AIRPORT BLVD	BELLE AIRE RD	39	**17**	-0.11	184	0	1	5	11	1	2	2	1	1	0	0	0	1	1	1	0	1
S SPRUCE AVE & TERRACE DR	S SPRUCE AVE	TERRACE DR	156	**17**	-0.15	164	0	1	3	12	0	3	1	1	4	0	1	1	1	1	1	3	2
W ORANGE AVE & CAMARITAS AVE	W ORANGE AVE	CAMARITAS AVE	365	**17**	-0.18	104	0	0	9	8	4	6	1	2	0	0	0	0	0	2	0	1	1
EL CAMINO REAL & KAISER PERMANENTE DRIVEWAY	EL CAMINO REAL	KAISER PERMANENTE DRIVEWAY	887	**17**	-0.14	84	0	0	7	9	5	4	1	1	0	0	1	0	0	2	2	1	0
OAKMONT DR & WESTBOROUGH BLVD	OAKMONT DR	WESTBOROUGH BLVD	163	**16**	-0.22	94	0	0	8	8	4	2	3	0	2	0	0	1	0	3	1	2	2
S SPRUCE AVE & VICTORY AVE	S SPRUCE AVE	VICTORY AVE	244	**16**	-0.02	94	0	0	8	8	4	0	2	1	2	0	0	1	0	2	1	1	1
GALWAY PL & WESTBOROUGH BLVD	GALWAY PL	WESTBOROUGH BLVD	155	**15**	-0.24	53	0	0	4	10	2	2	3	1	0	0	1	0	0	2	0	2	2
MAGNOLIA AVE & GRAND AVE	MAGNOLIA AVE	GRAND AVE	490	**15**	0.28	102	0	0	9	6	3	1	2	1	1	0	0	2	2	2	0	1	1
EL CAMINO REAL & COUNTRY CLUB DR	EL CAMINO REAL	COUNTRY CLUB DR	208	**14**	-0.27	92	0	0	8	6	1	0	6	0	3	0	0	0	1	6	0	1	3
AIRPORT BLVD & TOWER PL	AIRPORT BLVD	TOWER PL	688	**14**	-0.24	43	0	0	3	11	0	2	2	0	2	0	2	0	1	1	2	0	0
CAMARITAS AVE & HICKEY BLVD	CAMARITAS AVE	HICKEY BLVD	773	**14**	-0.22	62	0	0	5	9	0	1	5	1	1	0	1	0	0	3	1	1	0
ARROYO DR & EL CAMINO REAL	ARROYO DR	EL CAMINO REAL	456	**13**	-0.27	190	0	1	6	6	0	1	5	2	0	0	0	3	0	3	1	2	3
HILLSIDE BLVD & SISTER CITIES BLVD	HILLSIDE BLVD	SISTER CITIES BLVD	840	**13**	-0.22	170	0	1	4	8	1	1	5	0	1	0	0	0	1	5	0	1	2

Intersection	Cross Street 1	Cross Street 2	OBJECTID	Crashes	Local CCR Differential[1]	EPDO[2]	*Fatal*	*Major Injury*	*Minor Injury*	*No Injury*	Broadside	Sideswipe	Rear End	Head On	Hit Object	Overturned	Other	Pedestrian	Bicycle	Aggressive	Impaired	Dark	Wet
HARBOR WY & E GRAND AVE	HARBOR WY	E GRAND AVE	401	**12**	-0.31	60	0	0	5	7	0	1	2	0	1	0	0	0	3	1	0	0	0
AIRPORT BLVD & MILLER AVE	AIRPORT BLVD	MILLER AVE	428	**12**	-0.03	31	0	0	2	10	1	3	0	1	1	0	2	0	0	1	1	0	2
ORANGE AVE & GRAND AVE	ORANGE AVE	GRAND AVE	520	**12**	0.06	31	0	0	2	10	1	0	1	1	0	0	1	0	0	0	1	0	0
LITTLEFIELD AVE & E GRAND AVE	LITTLEFIELD AVE	E GRAND AVE	336	**11**	-0.30	267	0	2	2	7	0	0	2	0	3	0	0	1	1	2	0	0	1
SPRUCE AVE & RAILROAD AVE	SPRUCE AVE	RAILROAD AVE	350	**11**	-0.05	59	0	0	5	6	2	2	3	0	0	0	0	0	0	2	0	0	0
MISSION RD & CHESTNUT AVE	MISSION RD	CHESTNUT AVE	452	**11**	-0.25	168	0	1	4	6	1	3	0	1	1	0	1	2	1	1	0	0	0
SPRUCE AVE & MILLER AVE	SPRUCE AVE	MILLER AVE	499	**11**	-0.01	50	0	0	4	7	2	2	0	0	0	0	0	2	0	0	0	0	1
LINDEN AVE & AIRPORT BLVD	LINDEN AVE	AIRPORT BLVD	534	**11**	-0.17	267	0	2	2	7	3	3	0	2	1	0	0	0	1	2	1	1	2
SPRUCE AVE & BADEN AVE	SPRUCE AVE	BADEN AVE	429	**10**	-0.15	29	0	0	2	8	0	4	1	1	0	0	0	1	0	0	3	2	1
HILTON AVE & HICKEY BLVD	HILTON AVE	HICKEY BLVD	796	**10**	-0.33	177	1	0	5	4	0	1	5	1	1	0	0	1	0	5	1	1	2
GATEWAY BLVD & OYSTER POINT BLVD	GATEWAY BLVD	OYSTER POINT BLVD	574	**9**	-0.37	38	0	0	3	6	1	3	3	0	0	0	0	0	1	0	1	0	0
S SAN FRANCISCO DR & HILLSIDE BLVD	S SAN FRANCISCO DR	HILLSIDE BLVD	863	**9**	-0.32	27	0	0	2	6	0	1	0	1	2	1	1	0	0	2	0	0	1
S LINDEN AVE & S LINDEN AVE	S LINDEN AVE	S LINDEN AVE	116	**8**	-0.19	27	0	0	2	6	0	5	0	0	2	0	1	0	0	0	0	1	0
S AIRPORT BLVD & N ACCESS RD	S AIRPORT BLVD	N ACCESS RD	25	**7**	-0.37	26	0	0	2	5	2	0	1	0	1	0	0	0	0	1	1	0	0
VETERANS BLVD & OYSTER POINT BLVD	VETERANS BLVD	OYSTER POINT BLVD	572	**7**	-0.38	36	0	0	3	4	2	0	0	0	1	0	0	0	0	1	0	0	1
TRADER JOES DRIVEWAY & MCLELLAN DR	TRADER JOES DRIVEWAY	MCLELLAN DR	885	**7**	-0.24	25	0	0	2	4	0	2	2	0	0	0	0	2	0	0	1	0	0
HUNTINGTON AVE & NOOR AVE	HUNTINGTON AVE	NOOR AVE	100	**6**	-0.37	144	0	1	2	3	0	0	0	0	2	0	1	0	1	1	0	0	0
S LINDEN AVE & RAILROAD AVE	S LINDEN AVE	RAILROAD AVE	300	**6**	-0.31	16	0	0	1	5	1	0	4	0	0	0	0	0	0	1	1	0	0
S LINDEN AVE & N CANAL ST	S LINDEN AVE	N CANAL ST	302	**6**	-0.31	6	0	0	0	6	0	1	0	0	1	0	0	0	0	0	1	0	1
MISSION RD & EVERGREEN AVE	MISSION RD	EVERGREEN AVE	741	**6**	-0.33	25	0	0	2	4	0	0	1	0	0	0	0	0	1	1	0	0	0
WILKINS WAY & SISTER CITIES BLVD	WILKINS WAY	SISTER CITIES BLVD	770	**6**	-0.38	6	0	0	0	6	0	0	1	0	0	0	0	0	1	1	0	0	0
GRAND AVE & E GRAND AVE	GRAND AVE	E GRAND AVE	404	**5**	-0.43	15	0	0	1	4	0	1	0	0	1	0	0	0	1	0	0	0	0
DUBUQUE AVE & E GRAND AVE	DUBUQUE AVE	E GRAND AVE	412	**5**	-0.44	15	0	0	1	4	0	2	0	0	0	0	0	0	0	0	0	0	0
CHESTNUT AVE & GRAND AVE	CHESTNUT AVE	GRAND AVE	599	**5**	-0.41	5	0	0	0	5	0	1	1	0	0	0	0	0	0	0	1	0	0
LINDEN AVE & LINDEN AVE	LINDEN AVE	LINDEN AVE	643	**5**	-0.26	15	0	0	1	4	0	1	0	0	1	0	0	1	0	0	0	0	0
RIDGEVIEW CT & HILLSIDE BLVD	RIDGEVIEW CT	HILLSIDE BLVD	803	**5**	-0.42	15	0	0	1	4	1	0	0	0	1	0	0	0	0	1	1	0	1
CHESTNUT AVE & HILLSIDE BLVD	CHESTNUT AVE	HILLSIDE BLVD	808	**5**	-0.43	24	0	0	2	3	0	0	2	0	1	0	0	0	0	3	0	0	0
GULL DR & FORBES BLVD	GULL DR	FORBES BLVD	486	**4**	-0.42	4	0	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0
GULL DR & OYSTER POINT BLVD	GULL DR	OYSTER POINT BLVD	650	**4**	-0.45	33	0	0	3	1	1	0	0	0	2	0	0	0	0	3	0	0	0
SKYLINE BLVD & WESTBOROUGH BLVD	SKYLINE BLVD	WESTBOROUGH BLVD	899	**4**	-0.45	23	0	0	2	2	0	1	2	0	1	0	0	0	0	1	0	0	1
DOLLAR AVE & S LINDEN AVE	DOLLAR AVE	S LINDEN AVE	118	**3**	-0.47	32	0	0	3	0	1	1	1	0	0	0	0	0	0	1	0	0	0
S SPRUCE AVE & MAYFAIR AVE	S SPRUCE AVE	MAYFAIR AVE	287	**3**	-0.48	3	0	0	0	3	0	0	1	0	0	0	1	0	0	0	0	1	0
GELLERT BLVD & WESTBOROUGH SQUARE DRIVEWAY	GELLERT BLVD	WESTBOROUGH SQUARE DRIVEWAY	880	**3**	-0.48	22	0	0	2	1	0	0	2	0	0	0	1	0	0	0	0	0	1
MISSION RD & MCLELLAN DR	MISSION RD	MCLELLAN DR	884	**3**	-0.48	22	0	0	2	1	0	1	2	0	0	0	0	0	0	1	0	0	0
GATEWAY BLVD & BANK OF AMERICA	GATEWAY BLVD	BANK OF AMERICA	891	**3**	-0.43	22	0	0	2	1	0	0	0	0	2	0	0	0	0	1	1	0	0
Unsignalized Intersections																							
SPRUCE AVE & COMMERCIAL AVE	SPRUCE AVE	COMMERCIAL AVE	402	**20**	0.84	418	0	2	2	16	4	4	3	0	0	0	4	2	0	0	6	3	1
LINDEN AVE & LUX AVE	LINDEN AVE	LUX AVE	478	**20**	0.96	48	0	0	3	16	2	2	1	1	0	0	0	2	0	0	1	1	2
EUCALYPTUS AVE & GRAND AVE	EUCALYPTUS AVE	GRAND AVE	561	**17**	0.72	255	0	1	5	11	1	0	2	2	4	0	0	3	1	1	1	0	1
NORTHWOOD DR / KENWOOD WY & HAZELWOOD DR	NORTHWOOD DR / KENWOOD WY	HAZELWOOD DR	128	**16**	0.56	45	0	0	3	13	0	3	5	1	0	0	0	2	0	4	3	2	1
LINDEN AVE & COMMERCIAL AVE / VILLAGE WY	LINDEN AVE	COMMERCIAL AVE / VILLAGE WY	367	**15**	0.07	44	0	0	3	12	2	2	5	1	0	0	0	0	0	0	1	0	0
MAGNOLIA AVE & BADEN AVE	MAGNOLIA AVE	BADEN AVE	455	**15**	0.72	204	1	0	0	14	0	3	2	0	0	0	1	1	0	0	1	1	0
EL CAMINO REAL & 1ST ST	EL CAMINO REAL	1ST ST	363	**14**	-0.12	252	0	1	5	8	2	3	3	1	0	0	0	0	0	1	4	0	1
OLYMPIC DR & WESTBOROUGH BLVD	OLYMPIC DR	WESTBOROUGH BLVD	151	**13**	-0.14	231	0	1	3	9	1	0	2	2	0	0	2	0	1	2	2	1	2

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Intersection	Cross Street 1	Cross Street 2	OBJECTID	Crashes	Local CCR Differential[1]	EPDO[2]	Fatal	Major Injury	Minor Injury	No Injury	Broadside	Sideswipe	Rear End	Head On	Hit Object	Overturned	Other	Pedestrian	Bicycle	Aggressive	Impaired	Dark	Wet
ARROYO DR & ALTA LOMA DR	ARROYO DR	ALTA LOMA DR	440	**13**	0.85	12	0	0	0	12	1	5	2	0	0	0	1	0	0	1	0	0	0
ORANGE AVE & COMMERCIAL AVE	ORANGE AVE	COMMERCIAL AVE	454	**13**	0.41	61	0	0	5	8	4	1	1	0	0	0	0	0	1	1	1	2	1
CHESTNUT AVE & COMMERCIAL AVE	CHESTNUT AVE	COMMERCIAL AVE	458	**13**	0.07	71	0	0	6	7	1	2	4	1	1	0	2	0	1	1	5	2	2
MAPLE AVE & MILLER AVE	MAPLE AVE	MILLER AVE	464	**13**	0.71	401	0	2	1	10	0	4	1	2	0	0	0	0	0	0	3	1	0
CYPRESS AVE & BADEN AVE	CYPRESS AVE	BADEN AVE	377	**11**	0.06	21	0	0	1	10	1	1	1	0	0	0	1	0	1	1	0	1	0
LINDEN AVE & JUNIPER AVE	LINDEN AVE	JUNIPER AVE	614	**11**	2.88	11	0	0	0	11	0	5	0	0	0	0	3	0	0	0	0	1	2
JUNIPERO SERRA BLVD & ARROYO DR	JUNIPERO SERRA BLVD	ARROYO DR	227	**10**	-0.17	49	0	0	4	6	2	0	0	1	0	0	0	0	1	0	0	1	0
ROEBLING RD & E GRAND AVE	ROEBLING RD	E GRAND AVE	359	**10**	-0.13	418	0	2	3	5	0	1	2	0	4	0	0	0	0	3	2	0	1
MAPLE AVE & COMMERCIAL AVE	MAPLE AVE	COMMERCIAL AVE	380	**10**	0.53	29	0	0	2	8	0	7	0	0	0	0	1	1	0	0	2	4	1
WALNUT AVE & GRAND AVE	WALNUT AVE	GRAND AVE	433	**10**	0.22	238	0	1	4	5	0	2	0	0	1	0	0	2	2	2	0	1	0
ORANGE AVE & BADEN AVE	ORANGE AVE	BADEN AVE	487	**10**	0.22	228	0	1	3	6	3	0	1	0	0	0	1	1	0	1	1	1	1
LINDEN AVE & PINE AVE	LINDEN AVE	PINE AVE	553	**10**	0.82	29	0	0	2	8	2	3	1	1	0	0	1	0	0	0	1	1	1
CHESTNUT AVE & BADEN AVE	CHESTNUT AVE	BADEN AVE	554	**10**	0.06	29	0	0	2	8	2	1	1	0	0	0	1	0	1	0	0	2	0
CHAPMAN AVE & MADRONE AVE	CHAPMAN AVE	MADRONE AVE	724	**10**	1.90	20	0	0	1	9	2	7	0	1	0	0	0	0	0	0	0	4	2
LINCOLN ST & HILLSIDE BLVD	LINCOLN ST	HILLSIDE BLVD	843	**10**	-0.13	49	0	0	4	6	2	1	3	0	0	0	0	0	0	2	1	0	1
SAN MATEO AVE & TANFORAN AVE/SHAW RD	SAN MATEO AVE	TANFORAN AVE/SHAW RD	106	**9**	0.17	9	0	0	0	9	1	5	0	0	0	0	0	0	0	0	0	0	0
S AIRPORT BLVD & MARCO WY	S AIRPORT BLVD	MARCO WY	120	**9**	-0.17	48	0	0	4	5	4	0	2	0	1	0	1	0	0	2	1	0	0
A ST & W ORANGE AVE	A ST	W ORANGE AVE	274	**9**	0.00	28	0	0	2	7	2	3	0	0	1	0	0	0	0	0	0	2	1
OLIVE AVE & PINE AVE	OLIVE AVE	PINE AVE	583	**9**	1.40	9	0	0	0	9	1	3	1	0	0	0	1	0	0	0	0	0	1
PECKS LN / CHAPMAN AVE & RANDOLPH AVE	PECKS LN / CHAPMAN AVE	RANDOLPH AVE	765	**9**	0.40	9	0	0	0	9	1	2	0	1	1	0	3	0	0	0	0	2	1
SAN MATEO AVE & LOWRIE AVE	SAN MATEO AVE	LOWRIE AVE	117	**8**	0.14	246	0	1	5	2	2	1	2	0	0	0	0	0	1	2	0	0	1
SOUTHWOOD CENTER & PONDEROSA RD	SOUTHWOOD CENTER	PONDEROSA RD	217	**8**	0.73	27	0	0	2	6	0	0	2	0	0	0	0	0	1	1	0	0	0
S MAPLE AVE & VICTORY AVE	S MAPLE AVE	VICTORY AVE	226	**8**	0.19	27	0	0	2	6	1	2	1	0	2	0	1	0	0	0	0	0	2
EUCALYPTUS AVE & COMMERCIAL AVE	EUCALYPTUS AVE	COMMERCIAL AVE	467	**8**	0.08	27	0	0	2	6	1	1	3	1	0	0	0	0	0	0	2	1	1
EUCALYPTUS AVE & BADEN AVE	EUCALYPTUS AVE	BADEN AVE	515	**8**	0.12	226	0	1	3	4	1	2	0	0	1	0	0	0	1	1	1	3	1
SPRUCE AVE & PARK WY	SPRUCE AVE	PARK WY	576	**8**	0.23	18	0	0	1	7	1	4	2	0	0	0	0	0	0	0	2	1	0
RANDOLPH AVE & GREEN AVE	RANDOLPH AVE	GREEN AVE	745	**8**	1.97	37	0	0	3	5	2	3	0	0	1	0	1	0	0	2	0	1	2
KEARNEY ST & HILLSIDE BLVD	KEARNEY ST	HILLSIDE BLVD	862	**8**	-0.19	197	0	1	0	7	1	1	0	0	5	1	0	0	0	2	2	1	1
AVALON DR & WAVERLY CT	AVALON DR	WAVERLY CT	16	**7**	-0.05	17	0	0	1	6	0	5	1	0	0	0	0	0	0	0	2	2	2
HARBOR WY & UTAH AVE	HARBOR WY	UTAH AVE	44	**7**	-0.20	26	0	0	2	5	2	0	1	0	0	0	0	0	1	0	0	1	0
S SPRUCE AVE & MYRTLE AVE	S SPRUCE AVE	MYRTLE AVE	214	**7**	-0.20	17	0	0	1	6	0	1	0	2	0	0	0	0	0	0	0	0	0
S LINDEN AVE & S CANAL ST	S LINDEN AVE	S CANAL ST	250	**7**	-0.02	46	0	0	4	3	0	1	3	0	0	0	0	1	0	1	1	0	2
CALLAN BLVD & CARTER DR	CALLAN BLVD	CARTER DR	293	**7**	-0.02	17	0	0	1	6	0	1	0	0	0	0	0	1	0	0	0	0	1
US HIGHWAY 101 & E GRAND AVE	US HIGHWAY 101	E GRAND AVE	354	**7**	-0.18	26	0	0	2	5	1	1	0	0	3	0	0	0	0	0	0	1	1
CYPRESS AVE & GRAND AVE	CYPRESS AVE	GRAND AVE	409	**7**	-0.10	16	0	0	1	5	0	1	1	0	0	0	0	2	0	0	0	1	1
ARROYO DR & CAMARITAS AVE	ARROYO DR	CAMARITAS AVE	416	**7**	-0.04	26	0	0	2	5	0	0	1	0	2	0	1	0	0	0	1	0	0
MAPLE AVE & 3RD LN	MAPLE AVE	3RD LN	420	**7**	0.11	7	0	0	0	7	0	4	0	1	0	0	0	0	0	0	1	1	1
MAGNOLIA AVE & COMMERCIAL AVE	MAGNOLIA AVE	COMMERCIAL AVE	427	**7**	0.16	17	0	0	1	6	0	5	2	0	0	0	0	0	0	2	1	1	3
LINDEN AVE & 6TH LN	LINDEN AVE	6TH LN	500	**7**	0.74	26	0	0	2	5	0	2	1	1	0	0	1	1	0	0	1	2	0
MAGNOLIA AVE & MILLER AVE	MAGNOLIA AVE	MILLER AVE	524	**7**	0.07	16	0	0	1	5	1	4	0	0	0	0	0	0	0	0	0	0	1
COMMERCIAL AVE & COMMERCIAL AVE	COMMERCIAL AVE	COMMERCIAL AVE	528	**7**	2.32	17	0	0	1	6	1	1	0	0	0	0	0	1	0	0	1	0	1
CYPRESS AVE & PINE AVE	CYPRESS AVE	PINE AVE	531	**7**	0.88	26	0	0	2	5	1	2	1	0	0	0	0	0	0	1	0	0	1
GRAND AVE & MISSION RD	GRAND AVE	MISSION RD	542	**7**	-0.19	26	0	0	2	5	2	2	0	0	0	0	0	0	1	0	0	2	0
WILLOW AVE & GRAND AVE	WILLOW AVE	GRAND AVE	597	**7**	-0.06	26	0	0	2	5	1	2	1	0	0	0	0	1	0	0	1	1	1

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Intersection	Cross Street 1	Cross Street 2	OBJECTID	Crashes	Local CCR Differential[1]	EPDO[2]	*Fatal*	*Major Injury*	*Minor Injury*	*No Injury*	Broadside	Sideswipe	Rear End	Head On	Hit Object	Overturned	Other	Pedestrian	Bicycle	Aggressive	Impaired	Dark	Wet
IRVING ST & HILLSIDE BLVD	IRVING ST	HILLSIDE BLVD	847	**7**	-0.22	17	0	0	1	6	0	0	2	1	1	0	0	0	0	1	0	0	1
COREY WY & UTAH AVE / WATTIS WY	COREY WY	UTAH AVE / WATTIS WY	162	**7**	-0.24	206	1	0	1	5	0	1	0	0	0	0	1	1	0	1	0	1	0
CALLAN BLVD & MEATH DR	CALLAN BLVD	MEATH DR	168	**6**	-0.16	25	0	0	2	4	2	0	1	0	0	0	0	0	0	0	1	0	0
OLIVE AVE & SCHOOL ST	OLIVE AVE	SCHOOL ST	719	**6**	0.13	16	0	0	1	5	0	3	1	1	0	1	0	0	0	0	1	0	1
LITTLEFIELD AVE & LAWRENCE AVE	LITTLEFIELD AVE	LAWRENCE AVE	231	**6**	-0.18	16	0	0	1	5	0	2	0	0	2	0	0	0	0	0	2	1	0
C ST & W ORANGE AVE	C ST	W ORANGE AVE	276	**6**	-0.13	6	0	0	0	6	0	3	0	0	0	0	0	0	0	0	0	0	0
CAPAY CIR & ARROYO DR	CAPAY CIR	ARROYO DR	320	**6**	0.66	16	0	0	1	5	0	1	2	0	0	0	0	0	0	2	1	0	0
MAPLE AVE & RAILROAD AVE	MAPLE AVE	RAILROAD AVE	324	**6**	0.30	16	0	0	1	5	0	1	1	0	1	0	2	0	0	0	1	1	0
CYPRESS AVE & LUX AVE	CYPRESS AVE	LUX AVE	465	**6**	0.09	16	0	0	1	5	2	2	0	0	1	0	0	0	0	0	0	1	2
EL CAMPO DR & DEL MONTE AVE	EL CAMPO DR	DEL MONTE AVE	471	**6**	0.23	25	0	0	2	4	2	4	0	0	0	0	0	0	0	0	0	0	1
WALNUT AVE & MILLER AVE	WALNUT AVE	MILLER AVE	481	**6**	-0.01	16	0	0	1	5	0	4	0	0	0	0	0	0	0	0	2	0	0
MAPLE AVE & LUX AVE	MAPLE AVE	LUX AVE	503	**6**	0.17	25	0	0	2	4	0	0	1	1	0	0	0	1	0	0	0	0	0
WALNUT AVE & PARK WY	WALNUT AVE	PARK WY	529	**6**	0.19	6	0	0	0	6	0	2	3	1	0	0	0	0	0	0	0	0	0
ALDENGLEN DR & GRAND AVE / OAK AVE	ALDENGLEN DR	GRAND AVE / OAK AVE	598	**6**	-0.17	25	0	0	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0
ALIDA WY & SCHOOL ST	ALIDA WY	SCHOOL ST	187	**5**	0.01	194	0	1	0	4	0	0	0	0	0	0	0	1	0	0	0	0	0
CONMUR ST & NORTHWOOD DR	CONMUR ST	NORTHWOOD DR	17	**5**	0.19	5	0	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0
BEACON ST & S AIRPORT BLVD	BEACON ST	S AIRPORT BLVD	46	**5**	-0.28	24	0	0	2	3	2	1	0	1	0	0	0	0	0	0	1	2	0
RANDOLPH AVE & MADRONE AVE	RANDOLPH AVE	MADRONE AVE	746	**5**	0.88	194	0	1	0	4	1	1	0	0	0	0	2	0	0	0	0	0	0
EL CAMINO REAL & NOOR AVE	EL CAMINO REAL	NOOR AVE	119	**5**	-0.29	194	0	1	0	4	0	0	0	0	1	0	0	1	0	1	1	0	1
OLYMPIC DR & DUBLIN DR	OLYMPIC DR	DUBLIN DR	144	**5**	-0.01	15	0	0	1	4	0	3	0	0	0	0	0	0	0	0	0	0	0
SAN MATEO AVE & LOWRIE AVE	SAN MATEO AVE	LOWRIE AVE	221	**5**	-0.14	5	0	0	0	5	0	3	0	0	0	0	0	0	0	0	0	0	0
RYAN WY & VICTORY AVE	RYAN WY	VICTORY AVE	238	**5**	-0.04	5	0	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0
B ST & W ORANGE AVE	B ST	W ORANGE AVE	275	**5**	-0.20	14	0	0	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0
CALLAN BLVD & CASHLEA CT	CALLAN BLVD	CASHLEA CT	280	**5**	-0.16	5	0	0	0	5	0	1	0	0	1	0	0	0	0	0	0	0	0
LINDEN AVE & 1ST LN	LINDEN AVE	1ST LN	357	**5**	-0.21	24	0	0	2	3	0	2	2	0	0	0	0	0	0	0	0	1	0
LINDEN AVE & 2ND LN	LINDEN AVE	2ND LN	381	**5**	-0.22	15	0	0	1	4	0	3	0	1	0	0	0	0	0	0	0	0	0
MAGNOLIA AVE & RAILROAD AVE	MAGNOLIA AVE	RAILROAD AVE	386	**5**	0.08	15	0	0	1	4	0	4	0	0	0	0	0	0	0	0	0	0	0
SPRUCE AVE & 1ST LN	SPRUCE AVE	1ST LN	387	**5**	-0.10	5	0	0	0	5	1	2	0	0	1	0	0	0	0	0	1	0	0
LINDEN AVE & 4TH LN	LINDEN AVE	4TH LN	424	**5**	-0.15	5	0	0	0	5	0	4	0	0	0	0	0	0	0	0	2	0	0
RANDOLPH AVE & GARDINER AVE	RANDOLPH AVE	GARDINER AVE	727	**5**	0.88	204	0	1	1	3	0	0	0	1	0	0	2	0	1	0	1	0	0
SPRUCE AVE & 3RD LN	SPRUCE AVE	3RD LN	447	**5**	-0.14	214	0	1	2	2	2	0	0	1	1	0	0	0	0	0	1	1	1
MAPLE AVE & TAMARACK LN	MAPLE AVE	TAMARACK LN	480	**5**	0.41	204	0	1	1	3	0	1	1	1	0	0	1	0	0	1	1	2	0
LINDEN AVE & CALIFORNIA AVE	LINDEN AVE	CALIFORNIA AVE	511	**5**	0.05	24	0	0	2	3	0	0	1	1	0	0	1	1	0	1	0	1	1
MAPLE AVE & PINE TERR	MAPLE AVE	PINE TERR	592	**5**	0.27	383	0	2	0	3	1	2	0	0	0	0	0	2	0	0	2	0	0
LINDEN AVE & ASPEN AVE	LINDEN AVE	ASPEN AVE	600	**5**	0.53	15	0	0	1	4	2	0	0	1	0	0	0	1	0	0	1	1	0
EUCALYPTUS AVE & MILLER AVE	EUCALYPTUS AVE	MILLER AVE	607	**5**	-0.05	24	0	0	2	3	1	1	2	1	0	0	0	0	0	1	2	0	1
CHESTNUT AVE & MILLER AVE	CHESTNUT AVE	MILLER AVE	647	**5**	-0.20	34	0	0	3	2	2	0	0	0	0	0	1	1	0	1	0	0	1
CHAPMAN AVE & AIRPORT BLVD	CHAPMAN AVE	AIRPORT BLVD	651	**5**	-0.25	204	0	1	1	3	2	2	0	0	0	0	0	0	0	0	0	0	0
OLIVE AVE & ARMOUR AVE	OLIVE AVE	ARMOUR AVE	678	**5**	0.44	15	0	0	1	4	0	4	1	0	0	0	0	0	0	1	0	1	0
HILLSIDE BLVD & SCHOOL ST	HILLSIDE BLVD	SCHOOL ST	681	**5**	-0.20	15	0	0	1	4	0	2	0	0	1	0	0	0	0	0	1	0	0
LEWIS AVE & GARDINER AVE	LEWIS AVE	GARDINER AVE	692	**5**	0.88	5	0	0	0	5	0	3	0	0	0	0	0	0	0	0	0	0	0
AIRPORT BLVD & CALIFORNIA AVE	AIRPORT BLVD	CALIFORNIA AVE	445	**4**	-0.22	14	0	0	1	3	2	1	0	0	0	0	0	0	0	1	0	0	2
ROCKWOOD DR & MANOR DR	ROCKWOOD DR	MANOR DR	78	**4**	1.18	213	0	1	2	1	0	1	1	0	0	1	0	0	0	1	1	0	0
MOSSWOOD WY & BRENTWOOD DR	MOSSWOOD WY	BRENTWOOD DR	79	**4**	0.51	4	0	0	0	4	0	2	1	0	0	0	0	0	0	0	1	0	0

Kimley»Horn

Intersection	Cross Street 1	Cross Street 2	OBJECTID	Crashes	Local CCR Differential[1]	EPDO[2]	*Fatal*	*Major Injury*	*Minor Injury*	*No Injury*	Broadside	Sideswipe	Rear End	Head On	Hit Object	Overturned	Other	Pedestrian	Bicycle	Aggressive	Impaired	Dark	Wet
GALWAY PL & SHANNON DR	GALWAY PL	SHANNON DR	107	**4**	0.03	14	0	0	1	3	0	2	0	0	1	0	1	0	0	1	2	0	0
ALHAMBRA RD & AVALON DR	ALHAMBRA RD	AVALON DR	111	**4**	-0.23	14	0	0	1	3	0	1	1	0	0	0	0	1	0	0	0	0	0
MOSSWOOD WY & HAZELWOOD DR	MOSSWOOD WY	HAZELWOOD DR	127	**4**	0.51	4	0	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0	0
ALIDA WY & NORTHWOOD DR	ALIDA WY	NORTHWOOD DR	147	**4**	-0.21	4	0	0	0	4	0	3	0	0	0	0	1	0	0	0	1	0	0
CARTER DR & MEATH DR	CARTER DR	MEATH DR	170	**4**	0.26	4	0	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0	0
US HIGHWAY 101 & TERMINAL CT	US HIGHWAY 101	TERMINAL CT	201	**4**	-0.29	4	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	0	0
PRODUCE AVE & US-101 OFF RAMP	PRODUCE AVE	US-101 OFF RAMP	230	**4**	-0.30	14	0	0	1	3	0	3	1	0	0	0	0	0	0	1	2	0	0
CARTER DR & LEIX WY	CARTER DR	LEIX WY	233	**4**	0.51	14	0	0	1	3	0	1	1	1	0	0	1	0	0	1	0	2	0
GILBERT CT & GREENDALE DR	GILBERT CT	GREENDALE DR	236	**4**	0.51	4	0	0	0	4	1	1	1	0	0	0	0	0	0	0	0	1	0
RADBURN DR & GALWAY DR	RADBURN DR	GALWAY DR	237	**4**	-0.14	4	0	0	0	4	1	2	0	0	0	0	0	0	0	1	0	2	0
S SPRUCE AVE & STARLITE ST	S SPRUCE AVE	STARLITE ST	239	**4**	-0.27	14	0	0	1	3	0	1	1	0	0	0	0	0	0	1	0	0	1
CARTER DR & CARTER DR	CARTER DR	CARTER DR	247	**4**	0.51	3	0	0	0	3	0	2	0	0	1	0	1	0	0	0	2	0	0
FAIRFAX WY & FAIRFAX WY	FAIRFAX WY	FAIRFAX WY	279	**4**	0.26	4	0	0	0	4	1	1	1	0	0	0	0	0	0	0	0	0	0
S SPRUCE AVE & S CANAL ST	S SPRUCE AVE	S CANAL ST	330	**4**	-0.28	14	0	0	1	3	1	1	1	0	0	0	0	0	0	0	1	1	0
A ST & 2ND ST	A ST	2ND ST	335	**4**	0.26	4	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	1	0
NEWMAN DR & KING DR	NEWMAN DR	KING DR	426	**4**	-0.23	3	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0
CYPRESS AVE & MILLER AVE	CYPRESS AVE	MILLER AVE	436	**4**	-0.13	4	0	0	0	4	1	0	0	0	1	0	0	0	0	0	1	1	0
LOCUST AVE & GRAND AVE	LOCUST AVE	GRAND AVE	494	**4**	-0.22	14	0	0	1	3	0	2	2	0	0	0	0	0	0	1	1	0	0
CYPRESS AVE & CALIFORNIA AVE	CYPRESS AVE	CALIFORNIA AVE	501	**4**	0.02	4	0	0	0	4	0	2	1	0	0	0	0	0	0	0	1	1	0
PINE TERR & LUX AVE	PINE TERR	LUX AVE	512	**4**	0.25	4	0	0	0	4	0	2	0	0	0	0	0	0	0	1	0	1	0
LAUREL AVE & BADEN AVE	LAUREL AVE	BADEN AVE	514	**4**	-0.16	4	0	0	0	4	0	3	0	0	0	0	1	0	0	0	0	0	0
OLIVE AVE & CALIFORNIA AVE	OLIVE AVE	CALIFORNIA AVE	516	**4**	0.17	14	0	0	1	3	0	1	1	0	0	0	0	1	0	0	0	0	0
LINDEN AVE & 7TH LN	LINDEN AVE	7TH LN	530	**4**	0.38	14	0	0	1	3	1	1	0	0	0	0	0	0	0	0	0	0	0
MAPLE AVE & WALNUT AVE	MAPLE AVE	WALNUT AVE	540	**4**	-0.02	14	0	0	1	3	0	2	0	0	1	0	0	1	0	1	2	2	0
FELIPE AVE & DEL MONTE AVE	FELIPE AVE	DEL MONTE AVE	560	**4**	-0.14	14	0	0	1	3	1	1	0	0	0	0	0	1	0	0	0	1	0
ORANGE AVE & MILLER AVE	ORANGE AVE	MILLER AVE	564	**4**	-0.15	14	0	0	1	3	0	3	0	0	0	0	0	1	0	0	0	2	1
LAUREL AVE & GRAND AVE	LAUREL AVE	GRAND AVE	568	**4**	-0.23	14	0	0	1	3	0	1	0	0	0	0	0	0	0	0	0	0	0
CYPRESS AVE & ARMOUR AVE	CYPRESS AVE	ARMOUR AVE	617	**4**	0.08	193	0	1	0	3	0	1	0	0	0	0	0	0	1	0	0	0	0
OLIVE AVE & ASPEN AVE	OLIVE AVE	ASPEN AVE	621	**4**	0.57	14	0	0	1	3	2	1	0	1	0	0	0	0	0	0	0	0	0
CEDAR PL & ARMOUR AVE	CEDAR PL	ARMOUR AVE	627	**4**	0.15	4	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	2	1
WESTVIEW AVE & MISSION RD	WESTVIEW AVE	MISSION RD	634	**4**	-0.27	23	0	0	2	2	0	1	1	0	0	0	0	0	1	2	0	0	0
LINDEN AVE & ARMOUR AVE	LINDEN AVE	ARMOUR AVE	641	**4**	-0.05	4	0	0	0	4	0	2	0	1	0	0	0	0	0	0	2	0	0
CHAPMAN AVE & GARDINER AVE	CHAPMAN AVE	GARDINER AVE	694	**4**	0.26	13	0	0	1	2	0	0	0	0	0	0	0	0	1	0	0	0	0
SUSIE WY & BRUSCO WY	SUSIE WY	BRUSCO WY	699	**4**	0.51	4	0	0	0	4	2	2	0	0	0	0	0	0	0	1	0	0	0
LEWIS AVE & MADRONE AVE	LEWIS AVE	MADRONE AVE	720	**4**	0.51	4	0	0	0	4	0	2	1	0	0	0	0	0	0	0	1	2	1
SEQUOIA AVE & MILLER AVE	SEQUOIA AVE	MILLER AVE	781	**4**	0.02	23	0	0	2	2	0	1	1	0	1	0	0	1	0	1	1	0	0
AIRPORT BLVD & PINE AVE	AIRPORT BLVD	PINE AVE	508	**4**	-0.32	213	1	0	2	1	1	1	1	0	0	0	0	0	1	2	1	0	0
S AIRPORT BLVD & BEACON ST	S AIRPORT BLVD	BEACON ST	45	**3**	-0.33	3	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0
AVALON DR & I-280 ON RAMP	AVALON DR	I-280 ON RAMP	59	**3**	-0.33	3	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0
GREENWOOD DR & WILDWOOD DR	GREENWOOD DR	WILDWOOD DR	60	**3**	0.15	13	0	0	1	2	0	2	1	0	0	0	0	0	0	0	0	0	1
S MAPLE AVE & BROWNING WY	S MAPLE AVE	BROWNING WY	69	**3**	0.01	13	0	0	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0
WEXFORD AVE & DUBLIN DR	WEXFORD AVE	DUBLIN DR	75	**3**	0.15	3	0	0	0	3	0	1	0	0	0	0	1	0	0	0	0	1	0
MAYWOOD WY & HAZELWOOD DR	MAYWOOD WY	HAZELWOOD DR	109	**3**	-0.01	22	0	0	2	1	0	1	1	1	0	0	0	0	0	0	0	0	0
KENWOOD WY / ROCKWOOD DR & BRENTWOOD DR	KENWOOD WY / ROCKWOOD DR	BRENTWOOD DR	115	**3**	0.06	22	0	0	2	1	0	1	0	0	1	0	0	1	0	0	0	0	0

Intersection	Cross Street 1	Cross Street 2	OBJECTID	Crashes	Local CCR Differential[1]	EPDO[2]	*Fatal*	*Major Injury*	*Minor Injury*	*No Injury*	Broadside	Sideswipe	Rear End	Head On	Hit Object	Overturned	Other	Pedestrian	Bicycle	Aggressive	Impaired	Dark	Wet
MOONLIGHT CT & APPIAN WY	MOONLIGHT CT	APPIAN WY	134	**3**	-0.28	13	0	0	1	2	0	0	0	1	1	0	1	0	0	1	0	0	1
RAMONA AVE & FRANCISCO DR	RAMONA AVE	FRANCISCO DR	141	**3**	-0.19	3	0	0	0	3	1	2	0	0	0	0	0	0	0	0	0	1	0
DORADO WY & AVALON DR	DORADO WY	AVALON DR	148	**3**	-0.25	13	0	0	1	2	0	2	1	0	0	0	0	0	0	1	2	0	1
S LINDEN AVE & VICTORY AVE	S LINDEN AVE	VICTORY AVE	149	**3**	-0.31	3	0	0	0	3	0	1	0	0	0	0	0	0	0	0	1	0	0
DOWNEY CT & APPIAN WY	DOWNEY CT	APPIAN WY	153	**3**	-0.32	3	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0
ALIDA WY & ALIDA WY	ALIDA WY	ALIDA WY	157	**3**	-0.19	22	0	0	2	1	0	2	1	0	0	0	0	0	0	0	1	0	0
PONDEROSA RD & VALENCIA DR	PONDEROSA RD	VALENCIA DR	173	**3**	0.15	22	0	0	2	1	0	1	0	0	0	0	1	1	0	0	0	0	0
HARBOR WY & MITCHELL AVE	HARBOR WY	MITCHELL AVE	222	**3**	-0.32	3	0	0	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0
FRANCISCO DR & WILMS AVE	FRANCISCO DR	WILMS AVE	223	**3**	0.15	3	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	1	0
CALLAN BLVD & TYRONE CT	CALLAN BLVD	TYRONE CT	224	**3**	-0.31	3	0	0	0	3	1	2	0	0	0	0	0	0	0	0	0	0	1
CALLAN BLVD & LEIX WY	CALLAN BLVD	LEIX WY	254	**3**	-0.31	13	0	0	1	2	0	0	1	0	0	0	0	1	0	0	0	0	0
ALTA MESA DR & ESCANYO DR	ALTA MESA DR	ESCANYO DR	284	**3**	-0.11	13	0	0	1	2	0	1	1	0	1	0	0	0	0	1	1	0	0
GRANDVIEW DR & E GRAND AVE	GRANDVIEW DR	E GRAND AVE	305	**3**	-0.33	13	0	0	1	2	1	0	1	0	0	0	0	0	1	0	0	1	1
KIMBALL WY & E GRAND AVE	KIMBALL WY	E GRAND AVE	307	**3**	-0.33	13	0	0	1	2	0	1	0	0	0	0	1	0	0	0	0	0	1
FIR AVE & MAYFAIR AVE	FIR AVE	MAYFAIR AVE	308	**3**	-0.08	3	0	0	0	3	1	1	0	0	0	0	0	0	0	0	0	0	0
ALLERTON AVE & E GRAND AVE	ALLERTON AVE	E GRAND AVE	315	**3**	-0.33	13	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0
EL CAMINO REAL & 2ND ST	EL CAMINO REAL	2ND ST	331	**3**	-0.33	212	0	1	2	0	1	0	1	0	0	0	1	0	0	0	0	0	0
MANZANITA AVE & MAYFAIR AVE	MANZANITA AVE	MAYFAIR AVE	339	**3**	-0.07	13	0	0	1	2	0	2	1	0	0	0	0	0	0	1	0	0	0
CHERRY AVE & MAYFAIR AVE	CHERRY AVE	MAYFAIR AVE	340	**3**	-0.03	3	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	2	0
MULBERRY AVE & MULBERRY AVE	MULBERRY AVE	MULBERRY AVE	341	**3**	0.15	3	0	0	0	3	0	2	0	1	0	0	0	0	0	0	0	0	0
D ST & W ORANGE AVE	D ST	W ORANGE AVE	346	**3**	-0.31	13	0	0	1	2	0	1	0	0	0	0	0	0	1	0	0	0	0
W ORANGE AVE & S AND N CANAL ST	W ORANGE AVE	S AND N CANAL ST	372	**3**	-0.32	22	0	0	2	1	0	0	0	1	0	0	0	1	0	0	1	0	1
VERANO DR & CUESTA DR	VERANO DR	CUESTA DR	376	**3**	0.16	13	0	0	1	2	0	1	1	0	0	0	0	0	1	0	0	1	0
MAPLE AVE & 2ND LN	MAPLE AVE	2ND LN	394	**3**	-0.26	13	0	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0
IVY WY & RAILROAD AVE	IVY WY	RAILROAD AVE	411	**3**	-0.16	22	0	0	2	1	1	1	1	0	0	0	0	0	0	0	1	0	2
MAGNOLIA AVE & 1ST LN	MAGNOLIA AVE	1ST LN	415	**3**	-0.06	3	0	0	0	3	0	1	2	0	0	0	0	0	0	0	0	1	0
MAGNOLIA AVE & 2ND LN	MAGNOLIA AVE	2ND LN	435	**3**	-0.14	3	0	0	0	3	0	1	0	0	0	0	1	0	0	0	0	1	0
ORANGE AVE & 1ST LN	ORANGE AVE	1ST LN	439	**3**	-0.24	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
CYPRESS AVE & 6TH LN	CYPRESS AVE	6TH LN	472	**3**	1.37	3	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0
ACACIA AVE & BADEN AVE	ACACIA AVE	BADEN AVE	488	**3**	-0.28	3	0	0	0	3	0	3	0	0	0	0	0	0	0	0	1	2	1
OAK AVE & MISSION RD	OAK AVE	MISSION RD	496	**3**	-0.30	13	0	0	1	2	0	0	2	0	0	0	1	0	0	1	1	0	0
OLYMPIC DR & SHANNON DR	OLYMPIC DR	SHANNON DR	34	**3**	-0.23	191	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
CYPRESS AVE & JUNIPER AVE	CYPRESS AVE	JUNIPER AVE	535	**3**	0.71	3	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0
AIRPORT BLVD & ARMOUR AVE	AIRPORT BLVD	ARMOUR AVE	537	**3**	-0.32	22	0	0	2	1	1	0	0	0	0	0	1	0	1	0	0	0	2
CYPRESS AVE & ASPEN AVE	CYPRESS AVE	ASPEN AVE	545	**3**	0.78	2	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0
MAGNOLIA AVE & TAMARACK LN	MAGNOLIA AVE	TAMARACK LN	549	**3**	-0.14	3	0	0	0	3	0	1	1	0	0	0	0	0	0	0	2	1	0
LOCUST AVE & MILLER AVE	LOCUST AVE	MILLER AVE	551	**3**	-0.23	3	0	0	0	3	0	0	1	0	0	0	0	0	0	0	1	0	0
EUCALYPTUS AVE & 4TH LN	EUCALYPTUS AVE	4TH LN	584	**3**	0.43	13	0	0	1	2	1	1	0	0	1	0	0	0	0	0	0	0	0
SAN FELIPE AVE & CAMARITAS AVE	SAN FELIPE AVE	CAMARITAS AVE	588	**3**	-0.08	3	0	0	0	3	0	1	0	0	0	0	2	0	0	0	0	0	0
ACACIA AVE & MILLER AVE	ACACIA AVE	MILLER AVE	590	**3**	-0.16	22	0	0	2	1	1	1	0	0	0	0	0	1	0	0	1	0	0
LINDEN AVE & 9TH LN	LINDEN AVE	9TH LN	628	**3**	0.15	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
ORANGE AVE & PARK WY	ORANGE AVE	PARK WY	666	**3**	-0.04	13	0	0	1	2	1	1	1	0	0	0	0	0	0	0	0	1	0
SEQUOIA AVE & MISSION RD	SEQUOIA AVE	MISSION RD	668	**3**	-0.31	192	0	1	0	2	0	1	0	0	0	0	0	1	0	0	0	1	1
HEMLOCK AVE & SPRUCE AVE	HEMLOCK AVE	SPRUCE AVE	693	**3**	-0.20	13	0	0	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0

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Intersection	Cross Street 1	Cross Street 2	OBJECTID	Crashes	Local CCR Differential[1]	EPDO[2]	*Fatal*	*Major Injury*	*Minor Injury*	*No Injury*	Broadside	Sideswipe	Rear End	Head On	Hit Object	Overturned	Other	Pedestrian	Bicycle	Aggressive	Impaired	Dark	Wet
HOLLY AVE & SUNNYSIDE DR	HOLLY AVE	SUNNYSIDE DR	706	**3**	-0.24	3	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	1	0
BUTLER AVE & GARDINER AVE	BUTLER AVE	GARDINER AVE	726	**3**	0.15	3	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0
HILLSIDE BLVD & HILLSIDE BLVD	HILLSIDE BLVD	HILLSIDE BLVD	740	**3**	-0.27	3	0	0	0	3	0	1	1	0	0	0	1	0	0	0	1	0	0
CHAPMAN AVE & GREEN AVE	CHAPMAN AVE	GREEN AVE	744	**3**	-0.01	3	0	0	0	3	0	2	0	0	1	0	0	0	0	0	2	1	0
CLAREMONT AVE & HILLSIDE BLVD	CLAREMONT AVE	HILLSIDE BLVD	747	**3**	-0.31	22	0	0	2	1	0	0	2	0	0	0	1	0	0	0	1	0	0
SUNSET AVE & STONEGATE DR	SUNSET AVE	STONEGATE DR	754	**3**	0.85	13	0	0	1	2	0	1	0	0	0	0	1	1	0	0	0	0	0
LONGFORD DR & DUNDEE DR	LONGFORD DR	DUNDEE DR	761	**3**	0.15	13	0	0	1	2	0	2	0	0	0	0	0	0	0	0	1	1	1
FOREST VIEW DR & WILLOW AVE	FOREST VIEW DR	WILLOW AVE	774	**3**	0.06	3	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
LARCH AVE & HIGHLAND AVE	LARCH AVE	HIGHLAND AVE	792	**3**	-0.01	3	0	0	0	3	0	1	2	0	0	0	0	0	0	0	1	1	2
HOLLY AVE & HILLSIDE BLVD	HOLLY AVE	HILLSIDE BLVD	854	**3**	-0.33	13	0	0	1	2	0	0	0	0	3	0	0	0	0	0	1	0	0
EVERGREEN AVE & MORNINGSIDE AVE	EVERGREEN AVE	MORNINGSIDE AVE	875	**3**	-0.19	3	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0

1. Local Critical Crash Rate Differential

2. Equivalent Property Damage Only Crashes

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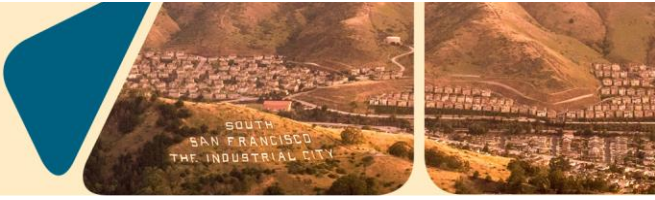

APPENDIX C

SEGMENT NETWORK SCREENING RESULTS

Facility	OBJECTID	Cross Street 1	Cross Street 2	Crashes	Local CCR Differential[1]	EPDO[2]	*Fatal*	*Major Injury*	*Minor Injury*	*No Injury*	Broadside	Sideswipe	Rear End	Head On	Hit Object	Overturned	Other	Pedestrian	Bicycle	Aggressive	Impaired	Dark	Wet	KH Identified Locations	KH Notes	CSSF Comments
Major Arterial																										
EL CAMINO REAL	929	MCLELLAN DR	HICKEY BLVD	19	1.10	85	0	0	7	10	2	4	7	0	1	1	0	0	0	6	0	2	1		Aggressive, Rear End	
GATEWAY BLVD	514	MITCHELL AVE	E GRAND AVE	11	1.27	68	0	0	6	4	3	2	2	0	3	0	0	0	0	1	2	0	1		Relatively High CCR, Minor Injury, Broadside, Hit Object	
EL CAMINO REAL	248	COUNTRY CLUB DR	PONDEROSA RD	10	0.43	28	0	0	2	7	0	3	2	0	0	0	0	0	1	1	0	1	1			
S AIRPORT BLVD	330	UTAH AVE	MARCO WY	9	0.93	48	0	0	4	5	2	1	2	0	0	0	0	1	0	2	0	0	1			
EL CAMINO REAL	653	1ST ST	WESTBOROUGH BLVD	8	0.30	27	0	0	2	6	1	1	3	0	0	0	0	0	0	2	0	0	0			
WESTBOROUGH BLVD	140	JUNIPERO SERRA BLVD	GELLERT BLVD	7	0.05	354	1	1	2	3	1	0	1	0	0	0	0	2	0	1	0	1	1	X	Fatal, Major Injury, High EPDO, Pedestrian	Future CIP Project to Install Fencing in the Median where Ped Accident Occurred
JUNIPERO SERRA BLVD	402	ARROYO DR	KING DR	7	-0.04	46	0	0	4	3	3	0	1	0	1	0	0	0	0	1	0	1	0			
JUNIPERO SERRA BLVD	20	AVALON DR	WESTBOROUGH BLVD	6	-0.21	25	0	0	2	4	0	2	1	0	1	0	0	0	1	2	0	1	0			
GELLERT BLVD	610	COUNTY LINE	ROWNTREE WY	6	3.34	16	0	0	1	5	0	3	0	0	2	0	0	0	0	2	1	0	2			
EL CAMINO REAL	1419	EL CAMINO REAL	ARLINGTON DR	6	0.30	35	0	0	3	3	0	0	4	0	0	0	0	0	0	3	1	0	0			
PRODUCE AVE	489	US-101 RAMP	TERMINAL CT	5	0.25	44	0	0	4	1	0	1	3	0	0	0	0	0	0	2	1	2	0			
S AIRPORT BLVD	515	MITCHELL AVE	US-101 RAMP	5	0.58	14	0	0	1	3	0	0	0	0	0	0	0	1	0	0	0	0	0			
DNA WY	936	FORBES BLVD	GRANDVIEW DR	5	1.33	24	0	0	2	3	0	1	1	0	0	0	0	1	0	1	0	0	0			
AIRPORT BLVD	450	S AIRPORT BLVD	2ND LN	3	-0.14	32	0	0	3	0	0	0	0	0	3	0	0	0	0	1	1	0	0			
EL CAMINO REAL	1653	BRENTWOOD DR	NOOR AVE	2	N/A	175	1	0	1	0	0	0	1	0	0	0	0	1	0	1	1	2	0		Fatal	
Minor Arterial																										
SAN MATEO AVE	181	LOWRIE AVE	LOWRIE AVE	8	0.88	17	0	0	1	6	0	1	0	0	1	0	1	0	0	0	0	1	0			
S SPRUCE AVE	439	MYRTLE AVE	TERRACE DR	5	-0.16	34	0	0	3	2	1	0	0	0	0	0	0	0	2	0	0	0	0			
S LINDEN AVE	541	S CANAL ST	VICTORY AVE	5	0.87	24	0	0	2	3	1	2	0	1	0	0	0	0	0	0	0	0	0			
GRAND AVE	783	LINDEN AVE	MAPLE AVE	5	1.49	178	0	1	1	3	0	1	0	0	1	0	0	0	1	0	0	1	0		High CCR, Major Injury, EPDO, Bicycle	
S SPRUCE AVE	334	TERRACE DR	HAZELWOOD DR	3	-0.40	3	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0			
MISSION RD	860	MISSION RD	PRIVATE DRIVE	3	0.04	167	0	1	0	2	0	0	0	0	1	0	0	1	0	0	1	0	0			
LINDEN AVE	1244	LINDEN AVE	AIRPORT BLVD	3	0.38	167	0	1	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0			
Collector																										
COMMERCIAL AVE	728	SPRUCE AVE	MAGNOLIA AVE	10	7.12	28	0	0	2	7	2	4	0	0	0	0	0	0	0	0	2	1	1	X	High CCR, Broadside, Sideswipe	
DUBUQUE AVE	1290	US-101 RAMP	E GRAND AVE	10	2.76	49	0	0	4	6	1	0	1	1	2	0	0	1	0	3	0	0	0			
BADEN AVE	845	MAGNOLIA AVE	ORANGE AVE	9	4.20	19	0	0	1	8	0	3	0	1	0	0	2	0	0	0	0	2	0			
UTAH AVE	350	HARBOR WY	LITTLEFIELD AVE	8	-0.05	37	0	0	3	5	2	1	0	0	0	0	1	0	1	0	0	1	0			
COMMERCIAL AVE	696	MAPLE AVE	SPRUCE AVE	8	6.36	56	0	0	5	3	2	1	3	1	0	0	1	0	0	1	2	2	0			
BADEN AVE	789	SPRUCE AVE	MAGNOLIA AVE	8	2.21	27	0	0	2	6	1	6	1	0	0	0	0	0	0	0	1	1	0			
S MAPLE AVE	400	VICTORY AVE	BROWNING WY	7	3.37	7	0	0	0	7	0	3	1	0	0	0	0	0	0	0	0	0	1			
S MAPLE AVE	252	BROWNING WY	TANFORAN AVE	3	1.29	3	0	0	0	3	0	2	0	0	1	0	0	0	0	1	0	0	0			
VICTORY AVE	399	S LINDEN AVE	S MAPLE AVE	3	0.56	13	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1			
COMMERCIAL AVE	882	EUCALYPTUS AVE	CHESTNUT AVE	3	-0.59	186	0	1	2	0	0	1	1	0	0	0	0	1	0	1	1	0	1			
SPRUCE AVE	1040	SPRUCE AVE	SPRUCE AVE	3	0.02	3	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	1	0			
SAN FELIPE AVE	1226	ALTA LOMA DR	CAMARITAS AVE	3	9.09	3	0	0	0	3	0	1	0	0	0	0	0	1	0	0	0	1	0			
DUVAL DR	1577	CALVERY AVE / ARLINGTON DR	HILTON AVE	3	2.90	3	0	0	0	3	0	2	1	0	0	0	0	0	0	1	0	0	0			
Local																										
SHAW RD	80	TANFORAN AVE	7TH AVE	28	16.19	75	0	0	5	22	2	10	3	1	4	0	1	0	0	1	2	0	3	X	High CCR, Crashes	

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Facility	OBJECTID	Cross Street 1	Cross Street 2	Crashes	Local CCR Differential[1]	EPDO[2]	*Fatal*	*Major Injury*	*Minor Injury*	*No Injury*	Broadside	Sideswipe	Rear End	Head On	Hit Object	Overturned	Other	Pedestrian	Bicycle	Aggressive	Impaired	Dark	Wet	KH Identified Locations	KH Notes	CSSF Comments
LOWRIE AVE	182	SAN MATEO AVE	SAN MATEO AVE	8	6.62	8	0	0	0	8	0	4	2	0	0	0	0	0	0	0	1	0	1			
RAILROAD AVE	680	SPRUCE AVE	MAGNOLIA AVE	8	3.92	37	0	0	3	5	1	2	2	0	0	0	0	0	0	1	1	0	0			
FAIRFAX WY	446	GREENDALE DR	FAIRFAX WY	6	10.66	5	0	0	0	5	0	3	0	0	0	0	1	0	0	0	0	1	0			
B ST	609	W ORANGE AVE	PUBLIC DR (HIGH SCHOOL)	6	13.68	16	0	0	1	5	0	3	2	0	0	0	0	0	0	2	0	0	0		High School access	
CARTER DR	208	PRIVATE DRIVE (APARTMENTS)	MEATH DR	3	4.69	3	0	0	0	3	0	1	0	0	0	0	2	0	0	0	0	1	1			
COUNTRY CLUB DR	247	EL CAMINO REAL	ALIDA WY	3	0.62	13	0	0	1	2	0	1	1	0	0	0	0	0	0	1	0	0	0			
STARLITE ST	580	S CANAL ST	S SPRUCE AVE	3	13.48	3	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0			
3RD LN	822	SPRUCE AVE	MAGNOLIA AVE	3	9.58	3	0	0	0	3	1	1	0	0	1	0	0	0	0	0	0	3	0			
MAPLE AVE	1127	ASPEN AVE	SCHOOL ST	3	6.86	3	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	1	0			
ROCCA AVE	1168	ROCCA AVE	POPLAR AVE	3	6.78	12	0	0	1	1	0	2	1	0	0	0	0	0	0	0	1	0	0			
VETERANS BLVD	1270	OYSTER POINT BLVD	PUBLIC DRIVE (HOTELS)	3	0.39	2	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0		Hotel Drive	

1. Local Critical Crash Rate Differential

2. Equivalent Property Damage Only Crashes

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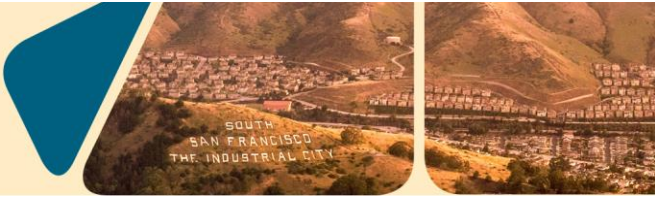
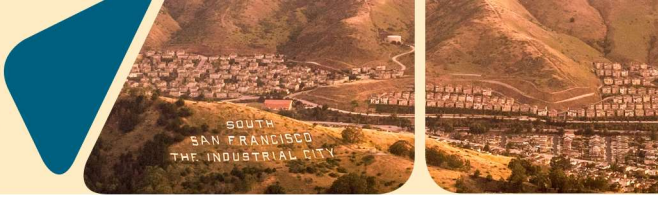


APPENDIX D

CAUSE OF CRASH:

PRIMARY COLLISION FACTOR FROM CALIFORNIA VEHICLE CODE

Cause of Crash	Primary Collision Factor (PCF)	California Vehicle Code (CVC)	Signalized Crashes	Unsignalized Crashes	Segment Crashes	Total Crashes
Auto R/W Violation	Entering a Highway from an Alley or Driveway	21804	15	21	21	57
	Failure to Yield Right-of-Way	21802	4	25	0	29
	Failure to Yield to a Pedestrian	21950	38	31	9	78
	Failure to Yield to Other Motorists	21800	4	8	0	12
	Failure to Yield to Pedestrian on Sidewalk	21952	1	0	2	3
	Failure to Yield When Making a Left or U-Turn	21801	21	28	7	56
	Improper Yielding to Emergency Vehicle	21806	1	0	0	1
Driving Under the Influence	DUI	23152	69	145	48	262
Improper Turning	Illegal U-Turn in a Business District	22102	2	1	2	5
	Illegal U-Turn in a Residence District	22103	0	3	1	4
	Illegally Using Bike Lane as Turn Lane	21717	1	0	0	1
	Turning on Roadways	22100	14	11	2	27
Other Unsafe Movement	Lane Weaving and Lane Straddling	21658	34	3	7	44
	Overtaking and Passing	21750	14	11	5	30
	Right Hand Lane Violations	21650	3	3	5	11
	Slow Vehicle	22400	0	1	0	1
	Stopping, Standing, and Parking	22515	1	7	1	9
	Vehicle in Bicycle Lane	21209	1	0	0	1
	Crossing a Divided Highway	21651	5	3	0	8
	Crossing Double Yellow Lines	21460	1	6	1	8
	Following Too Closely (Tailgating)	21703	17	6	6	29
	Operation of Unsafe Vehicle	24002	0	1	0	1
	Reckless Driving	23103	0	2	0	2
	Unsafe Lane Change	22107	144	412	133	689
	Unsafe Starting or Backing	22106	67	99	47	213
Pedestrian/Bicyclist Violation	Bicycle Illegally Traveling in Center of Lane	21202	2	1	0	3
	Failure of Pedestrian to Yield to Vehicles Outside of Crosswalk	21954	3	7	1	11
	Illegal Operation of Motorized Scooter	21235	1	1	0	2
	Improper Pedestrian/Bicycle Crosswalk Crossing	21456	1	0	1	2
	Jaywalking	21955	3	1	2	6
	Motor Vehicle Laws Applicable to Bicyclists	21200	1	2	1	4
Traffic Signals and Signs	Disobey Direction of Traffic Control Device	22101	8	0	0	8
	Flashing Yellow and Flashing Red Obedience	21457	2	0	0	2
	Green Light Rules	21451	9	1	1	11
	Gridlock	22526	1	0	0	1
	Ran a Red Light	21453	122	8	7	137
	Ran a Stop Sign	22450	1	42	0	43
Unsafe Speed	Speeding	22350	186	89	49	324
Unknown/Not Stated		#N/A	525	518	209	1,252
		Total:	1,322	1,497	568	3,387



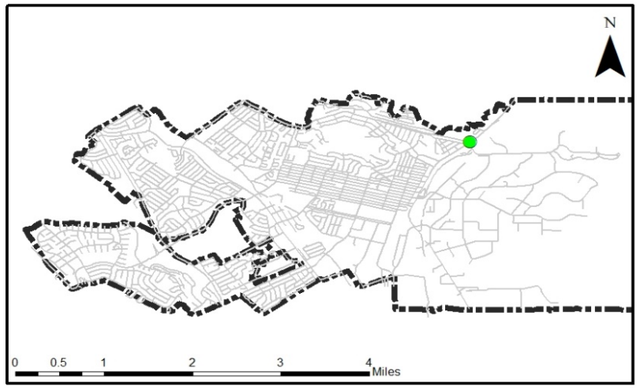
APPENDIX E

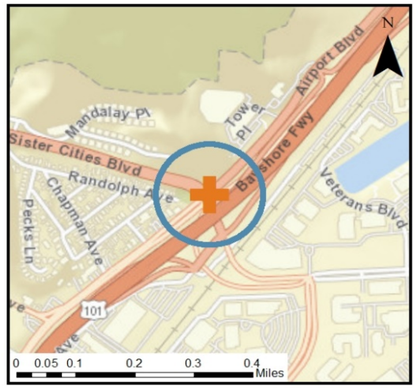
PROJECT SHEETS

South San Francisco Local Road Safety Plan
Project Description for Intersection Improvements

Signalized Intersection

Location: Airport Boulevard & Sister Cities Boulevard/Oyster Point Boulevard
Agency Name: City of South San Francisco
Contact Name: Chou, Jeffrey
E-mail: Jeffrey.Chou@ssf.net





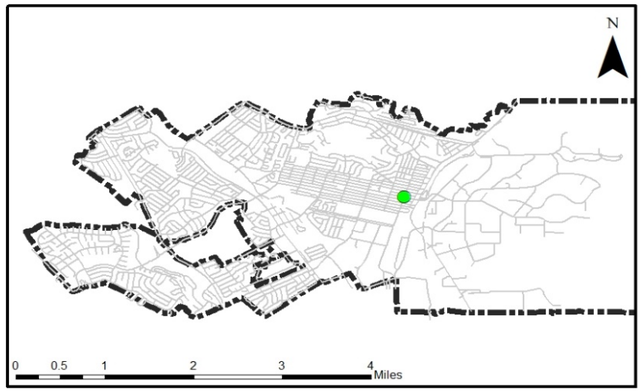
Total Crashes	**46**
Local CCR Differential	0.09
Equivalent Property Damage Only	499
Fatal	0
Major Injury	2
Minor Injury	13
PDO	31
Crash Type	
Broadside	7
Sideswipe	5
Rear End	8
Head On	6
Hit Object	4
Overturned	0
Non-Motorist Crashes	
Pedestrian	0
Bicycle	0
Contributing Factors	
Aggressive	5
Impaired	4
Crash Conditions	
Dark	3
Wet	6

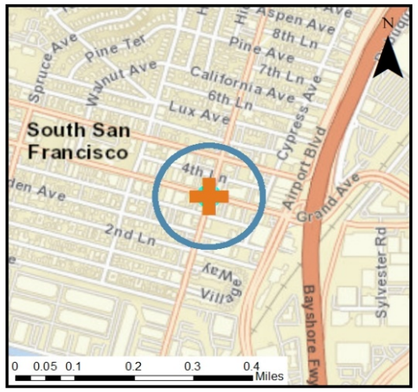
NOTES	COLLISION TYPE	RECOMMENDATION	LRSM/CMF COUNTERMEASURE	LRSM #	Expected Life (Years)	CMF	HSIP FUNDING ELIGIBILIBTY	NUMBER OF CRASHES (2015-2019)		NUMBER OF HISTORIC CRASHES REDUCED	10-YEAR CRASH REDUCTION ESTIMATE	10-YEAR CRASH REDUCTION BENEFIT (2016 $)	TOTAL 10-YEAR CRASH REDUCTION BENEFIT (2016 $)	QUANTITY/ NUMBER OF UNITS	UNIT COST	HSIP COST ESTIMATE	BENEFIT/COST
-	All	Install Retroreflective Backplates	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	S02	10	0.85	100%	Fatal	0	0.00	0.00	$ -	$ 1,632,664	25 Retroreflective Backplates	$750	$18,750	**87.1**
								Major Injury	2	0.30	0.60	$ 954,000				
								Minor Injury	13	1.95	3.90	$ 554,974				
								PDO	31	4.65	9.30	$ 123,690				
-	All	Add 3 additional signal heads (SB, EB, WB approaches)	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	S02	10	0.85	100%	Fatal	0	0.00	0.00	$ -	$ 1,632,664	3 Signal Heads	$3,500	$10,500	**155.5**
								Major Injury	2	0.30	0.60	$ 954,000				
								Minor Injury	13	1.95	3.90	$ 554,974				
								PDO	31	4.65	9.30	$ 123,690				
-	All	Add/extend all-red time	Improve signal timing (coordination, phases, red, yellow, or operation	S03	10	0.85	50%	Fatal	0	0.00	0.00	$ -	$ 1,632,664	1 Intersection	$5,000	$5,000	**326.5**
								Major Injury	2	0.30	0.60	$ 954,000				
								Minor Injury	13	1.95	3.90	$ 554,974				
								PDO	31	4.65	9.30	$ 123,690				
-	All	Install Signal Ahead pavement markers and striping on SB Sister Cities Blvd approach	Install raised pavement markers and striping	S09	10	0.9	100%	Fatal	0	0.00	0.00	$ -	$ 1,088,443	126 SQFT	$15	$1,890	**575.9**
								Major Injury	2	0.20	0.40	$ 636,000				
								Minor Injury	13	1.30	2.60	$ 369,983				
								PDO	31	3.10	6.20	$ 82,460				
-	All	Install Signal ahead sign with flashing beacon	Install flashing beacons as advance warning (S.I.)	S10	10	0.7	100%	Fatal	0	0.00	0.00	$ -	$ 3,265,328	1 Signal	$35,000	$35,000	**93.3**
								Major Injury	2	0.60	1.20	$ 1,908,000				
								Minor Injury	13	3.90	7.80	$ 1,109,948				
								PDO	31	9.30	18.60	$ 247,380				

South San Francisco Local Road Safety Plan
Project Description for Intersection Improvements

Signalized Intersection

Location: Linden Avenue & Grand Avenue
Agency Name: City of South San Francisco
Contact Name: Chou, Jeffrey
E-mail: Jeffrey.Chou@ssf.net





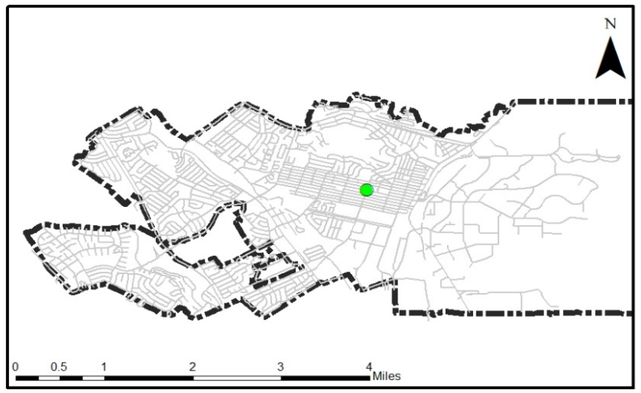
Total Crashes	37
Local CCR Differential	0.70
Equivalent Property Damage Only	317
Fatal	0
Major Injury	1
Minor Injury	12
PDO	24
Crash Type	
Broadside	4
Sideswipe	10
Rear End	4
Head On	1
Hit Object	2
Overturned	0
Non-Motorist Crashes	
Pedestrian	7
Bicycle	1
Contributing Factors	
Aggressive	4
Impaired	4
Crash Conditions	
Dark	5
Wet	5

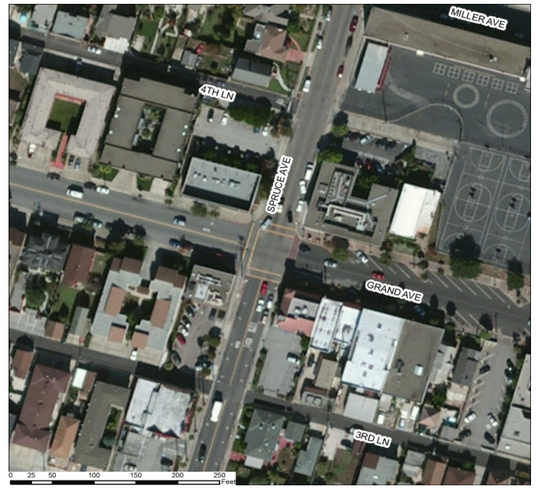
NOTES	COLLISION TYPE	RECOMMENDATION	LRSM/CMF COUNTERMEASURE	LRSM #	Expected Life (Years)	CMF	CALTRANS FUNDING	NUMBER OF CRASHES (2015-2019)		NUMBER OF HISTORIC CRASHES REDUCED	10-YEAR CRASH REDUCTION ESTIMATE	10-YEAR CRASH REDUCTION BENEFIT (2016 $)	TOTAL 10-YEAR CRASH REDUCTION BENEFIT (2016 $)	QUANTITY/ NUMBER OF UNITS	UNIT COST	HSIP COST ESTIMATE	BENEFIT/COST
-	All	Add/extend all-red time	Improve signal timing (coordination, phases, red, yellow, or operation	S03	10	0.85	50%	Fatal	0	0.00	0.00	$ -	$ 7,233,624	1 Intersection	$5,000	$5,000	**1,446.7**
								Major Injury	1	1.00	2.00	$ 3,180,000				
								Minor Injury	12	12.00	24.00	$ 3,415,224				
								PDO	24	24.00	48.00	$ 638,400				
-	Pedestrian and Bicycle	Implement LPI	Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	S21PB	10	0.4	100%	Fatal	0	0.00	0.00	$ -	$ 3,103,328	1 Intersection	$5,000	$5,000	**620.7**
								Major Injury	1	0.60	1.20	$ 1,908,000				
								Minor Injury	7	4.20	8.40	$ 1,195,328				
								PDO	0	0.00	0.00	$ -				
-	Pedestrian and Bicycle	Advanced Stop Bars to encourage drivers to stop further back from crosswalks for added safety of crossing pedestrians	Install advance stop bar before crosswalk (Bicycle Box)	S20PB	10	0.85	100%	Fatal	0	0.00	0.00	$ -	$ 775,832	92 Linear Feet	$6	$552	**1,405.5**
								Major Injury	1	0.15	0.30	$ 477,000				
								Minor Injury	7	1.05	2.10	$ 298,832				
								PDO	0	0.00	0.00	$ -				
-	All	Replace traffic signal pedestals with mast arms	Add intersection lighting	S08	20	0.7	100.00%	Fatal	0	0.00	0.00	$ -	$ 2,170,087	4 New Mast Arms	$10,000	$40,000	**54.3**
								Major Injury	1	0.30	0.60	$ 954,000				
								Minor Injury	12	3.60	7.20	$ 1,024,567				
								PDO	24	7.20	14.40	$ 191,520				
-	All	Install Retroreflective Backplates	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	S02	10	0.85	100%	Fatal	0	0.00	0.00	$ -	$ 1,085,044	8 Retroreflective Backplates	$750	$6,000	**180.8**
								Major Injury	1	0.15	0.30	$ 477,000				
								Minor Injury	12	1.80	3.60	$ 512,284				
								PDO	24	3.60	7.20	$ 95,760				
-	Nightime	Enhance intersection lighting	Add intersection lighting	S01	20	0.6	100%	Fatal	0	0.00	0.00	$ -	$ 362,802	4 Luminaires	$10,000	$40,000	**9.1**
								Major Injury	0	0.00	0.00	$ -				
								Minor Injury	3	1.20	2.40	$ 341,522				
								PDO	2	0.80	1.60	$ 21,280				

South San Francisco Local Road Safety Plan
Project Description for Intersection Improvements

Signalized Intersection

Location: Grand Avenue & Spruce Avenue
Agency Name: City of South San Francisco
Contact Name: Chou, Jeffrey
E-mail: Jeffrey.Chou@ssf.net





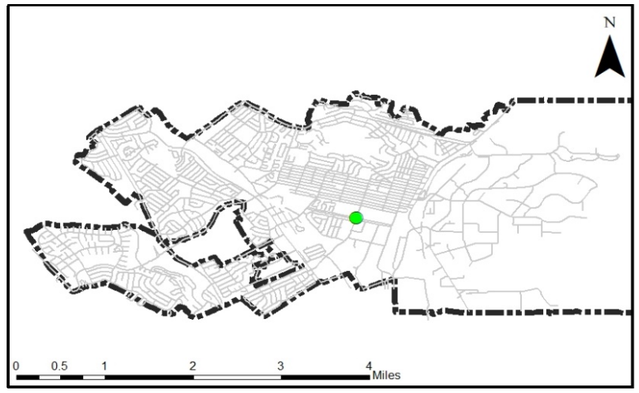
Total Crashes	34
Local CCR Differential	0.88
Equivalent Property Damage Only	526
Fatal	0
Major Injury	2
Minor Injury	17
PDO	15
Crash Type	
Broadside	6
Sideswipe	3
Rear End	8
Head On	1
Hit Object	1
Overturned	0
Non-Motorist Crashes	
Pedestrian	5
Bicycle	2
Contributing Factors	
Aggressive	7
Impaired	0
Crash Conditions	
Dark	2
Wet	1

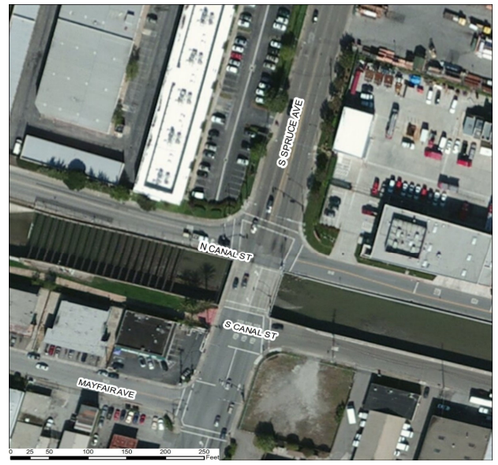
NOTES	COLLISION TYPE	RECOMMENDATION	LRSM/CMF COUNTERMEASURE	LRSM #	Expected Life (Years)	CMF	CALTRANS FUNDING	NUMBER OF CRASHES (2015-2019)		NUMBER OF HISTORIC CRASHES REDUCED	10-YEAR CRASH REDUCTION ESTIMATE	10-YEAR CRASH REDUCTION BENEFIT (2016 $)	TOTAL 10-YEAR CRASH REDUCTION BENEFIT (2016 $)	QUANTITY/ NUMBER OF UNITS	UNIT COST	HSIP COST ESTIMATE	BENEFIT/COST
-	All	Add/extend all-red time	Improve signal timing (coordination, phases, red, yellow, or operation	S03	10	0.85	50%	Fatal	0	0.00	0.00	$ -	$ 11,597,234	1 Intersection	$5,000	$5,000	**2,319.4**
								Major Injury	2	2.00	4.00	$ 6,360,000				
								Minor Injury	17	17.00	34.00	$ 4,838,234				
								PDO	15	15.00	30.00	$ 399,000				
-	Pedestrian and Bicycle	Implement LPI	Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	S21PB	10	0.4	100%	Fatal	0	0.00	0.00	$ -	$ 2,436,244	1 Intersection	$5,000	$5,000	**487.2**
								Major Injury	1	0.60	1.20	$ 1,908,000				
								Minor Injury	3	1.80	3.60	$ 512,284				
								PDO	1	0.60	1.20	$ 15,960				
-	Pedestrian and Bicycle	Install advanced stop bar	Install advance stop bar before crosswalk (Bicycle Box)	S20PB	10	0.85	100%	Fatal	0	0.00	0.00	$ -	$ 609,061	92 SQFT	$6	$552	**1,103.4**
								Major Injury	1	0.15	0.30	$ 477,000				
								Minor Injury	3	0.45	0.90	$ 128,071				
								PDO	1	0.15	0.30	$ 3,990				
-	All	Replace traffic signal pedestals with mast arms	Convert signal to mast arm (from pedestal-mounted)	S08	20	0.7	100.00%	Fatal	0	0.00	0.00	$ -	$ 3,479,170	4 New Mast Arms	$10,000	$40,000	**87.0**
								Major Injury	2	0.60	1.20	$ 1,908,000				
								Minor Injury	17	5.10	10.20	$ 1,451,470				
								PDO	15	4.50	9.00	$ 119,700				
-	All	Install Retroreflective Backplates	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	S02	10	0.85	100%	Fatal	0	0.00	0.00	$ -	$ 1,739,585	8 Retroreflective Backplates	$750	$6,000	**289.9**
								Major Injury	2	0.30	0.60	$ 954,000				
								Minor Injury	17	2.55	5.10	$ 725,735				
								PDO	15	2.25	4.50	$ 59,850				
-	Nightime	Enhance intersection lighting	Add intersection lighting	S01	20	0.6	100%	Fatal	0	0.00	0.00	$ -	$ 227,682	4 Luminaires	$10,000	$40,000	**5.7**
								Major Injury	0	0.00	0.00	$ -				
								Minor Injury	2	0.80	1.60	$ 227,682				
								PDO	0	0.00	0.00	$ -				
-	Pedestrian and Bicycle	High Visibility Crosswalks	Install pedestrian crossing (S.I.)	S18PB	20	0.75	100%	Fatal	0	0.00	0.00	$ -	$ 1,624,162	1750 SQFT	$6	$10,500	**154.7**
								Major Injury	1	0.40	0.80	$ 1,272,000				
								Minor Injury	3	1.20	2.40	$ 341,522				
								PDO	1	0.40	0.80	$ 10,640				

South San Francisco Local Road Safety Plan
Project Description for Intersection Improvements

Signalized Intersection

Location: Spruce Ave and N Canal St
Agency Name: City of South San Francisco
Contact Name: Chou, Jeffrey
E-mail: Jeffrey.Chou@ssf.net





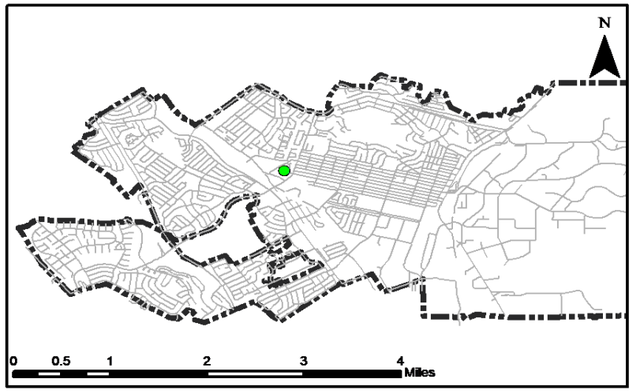
Total Crashes	19
Local CCR Differential	0.38
Equivalent Property Damage Only	251
Fatal	0
Major Injury	1
Minor Injury	7
PDO	11
Crash Type	
Broadside	5
Sideswipe	4
Rear End	3
Head On	1
Hit Object	1
Overturned	0
Non-Motorist Crashes	
Pedestrian	0
Bicycle	1
Contributing Factors	
Aggressive	2
Impaired	1
Crash Conditions	
Dark	0
Wet	0

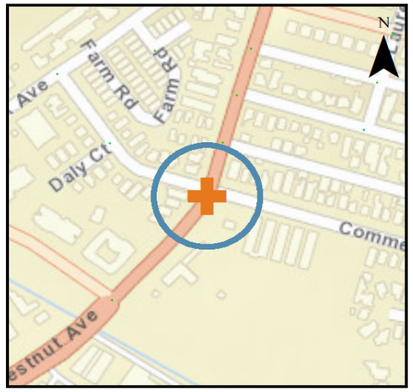
NOTES	COLLISION TYPE	RECOMMENDATION	LRSM/CMF COUNTERMEASURE	LRSM #	Expected Life (Years)	CMF	CALTRANS FUNDING	NUMBER OF CRASHES (2015-2019)		NUMBER OF HISTORIC CRASHES REDUCED	10-YEAR CRASH REDUCTION ESTIMATE	10-YEAR CRASH REDUCTION BENEFIT (2016 $)	TOTAL 10-YEAR CRASH REDUCTION BENEFIT (2016 $)	QUANTITY/ NUMBER OF UNITS	UNIT COST	HSIP COST ESTIMATE	BENEFIT/COST
-	All	Install Retroreflective Backplates	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	S02	10	0.85	100%	Fatal	0	0.00	0.00	$ -	$ 819,722	14 Backplates	$750	$10,500	**78.1**
								Major Injury	1	0.15	0.30	$ 477,000				
								Minor Injury	7	1.05	2.10	$ 298,832				
								PDO	11	1.65	3.30	$ 43,890				
-	Pedestrian and Bicycle	Install advanced stop bar	Install advance stop bar before crosswalk (Bicycle Box)	S20PB	10	0.85	100%	Fatal	0	0.00	0.00	$ -	$ 42,690	100 SQFT	$6	$600	**71.2**
								Major Injury	0	0.00	0.00	$ -				
								Minor Injury	1	0.15	0.30	$ 42,690				
								PDO	0	0.00	0.00	$ -				

South San Francisco Local Road Safety Plan
Project Description for Intersection Improvements

Unsignalized Intersection

Location: Commercial Ave and Chestnut Ave
Agency Name: City of South San Francisco
Contact Name: Chou, Jeffrey
E-mail: Jeffrey.Chou@ssf.net





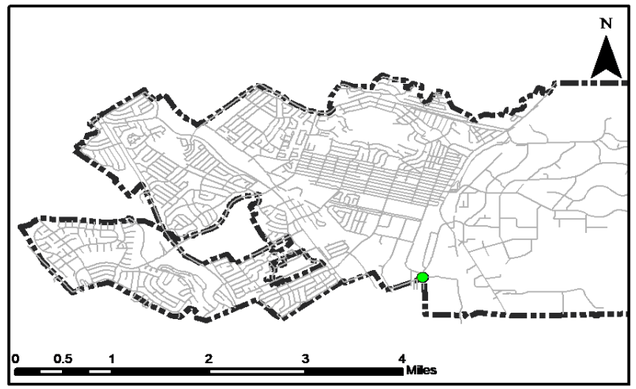
Total Crashes	13
Local CCR Differential	0.07
Equivalent Property Damage Only	71
Fatal	0
Major Injury	0
Minor Injury	6
PDO	7
Crash Type	
Broadside	1
Sideswipe	2
Rear End	4
Head On	1
Hit Object	1
Overturned	0
Non-Motorist Crashes	
Pedestrian	0
Bicycle	1
Contributing Factors	
Aggressive	1
Impaired	5
Crash Conditions	
Dark	2
Wet	2

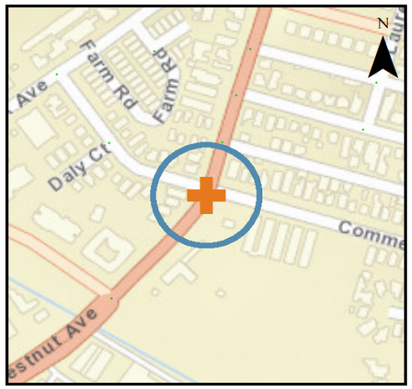
NOTES	COLLISION TYPE	RECOMMENDATION	LRSM/CMF COUNTERMEASURE	LRSM #	Expected Life (Years)	CMF	CALTRANS FUNDING	NUMBER OF CRASHES (2015-2019)		NUMBER OF HISTORIC CRASHES REDUCED	10-YEAR CRASH REDUCTION ESTIMATE	10-YEAR CRASH REDUCTION BENEFIT (2016 $)	TOTAL 10-YEAR CRASH REDUCTION BENEFIT (2016 $)	QUANTITY/ NUMBER OF UNITS	UNIT COST	HSIP COST ESTIMATE	BENEFIT/COST
-	All	Install larger stop signs for multi-lane Chestnut Ave approaches	Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	NS06	10	0.85	100%	Fatal	0	0.00	0.00	$ -	$ 284,072	2 Signs	$400	$800	**355.1**
								Major Injury	0	0.00	0.00	$ -					
								Minor Injury	6	0.90	1.80	$ 256,142					
								PDO	7	1.05	2.10	$ 27,930					
	All	Stop ahead pavement markings along Chestnut Ave approaches	Upgrade intersection pavement markings	NS07	10	0.75	-	Fatal	0	0.00	0.00	$ -	$ 473,453	126 SQFT	$15	$819	**578.1**
								Major Injury	0	0.00	0.00	$ -					
								Minor Injury	6	1.50	3.00	$ 426,903					
								PDO	7	1.75	3.50	$ 46,550					
	Bike and Pedestrian	Install high visibility crosswalk	Install pedestrian crossing at uncontrolled locations (signs and markings only)	NS21PB	20	0.65	100%	Fatal	0	0.00	0.00	$ -	$ 99,611	1 Crosswalk	$15,000	$15,000	**6.6**
								Major Injury	0	0.00	0.00	$ -					
								Minor Injury	1	0.35	0.70	$ 99,611					
								PDO	0	0.00	0.00	$ -					
	Bike and Pedestrian	Install flashing pedestrian beacon	Install Rectangular Rapid Flashing Beacon (RRFB)	R37PB	20	0.65	100%	Fatal	0	0.00	0.00	$ -	$ 99,611	1 RRFB	$15,000	$15,000	**6.6**
								Major Injury	0	0.00	0.00	$ -					
								Minor Injury	1	0.35	0.70	$ 99,611					
								PDO	0	0.00	0.00	$ -					
	All	Install traffic signal	Install Signals	NS03	20	0.70	100%	Fatal	0	0.0	0.0	$ -	$ 568,144	1 Lump Sum		$350,000	**1.6**
								Major Injury	0	0.0	0.0	$ -					
								Minor Injury	6	1.8	3.6	$ 512,284					
								PDO	7	2.1	4.2	$ 55,860					

South San Francisco Local Road Safety Plan
Project Description for Intersection Improvements

Unsignalized Intersection

Location: Tanforan Ave/Shaw Road and San Mateo Ave
Agency Name: City of South San Francisco
Contact Name: Chou, Jeffrey
E-mail: Jeffrey.Chou@ssf.net





Total Crashes	9
Local CCR Differential	0.17
Equivalent Property Damage Only	75
Fatal	0
Major Injury	0
Minor Injury	0
PDO	9
Crash Type	
Broadside	1
Sideswipe	5
Rear End	0
Head On	0
Hit Object	0
Overturned	0
Non-Motorist Crashes	
Pedestrian	0
Bicycle	0
Contributing Factors	
Aggressive	0
Impaired	0
Crash Conditions	
Dark	0
Wet	0

NOTES	COLLISION TYPE	RECOMMENDATION	LRSM/CMF COUNTERMEASURE	LRSM #	Expected Life (Years)	CMF	CALTRANS FUNDING	NUMBER OF CRASHES (2015-2019)		NUMBER OF HISTORIC CRASHES REDUCED	10-YEAR CRASH REDUCTION ESTIMATE	10-YEAR CRASH REDUCTION BENEFIT (2016 $)	TOTAL 10-YEAR CRASH REDUCTION BENEFIT (2016 $)	QUANTITY/ NUMBER OF UNITS	UNIT COST	HSIP COST ESTIMATE	BENEFIT/COST
-	All	Red Curb to restrict parking on San Mateo close to the corner to improve sight triangles	Improve sight distance to intersection (Clear Sight Triangles)	NS11	10	0.8	90%	Fatal	0	0.00	0.00	$ -	$ 47,880	195 LF	$4	$780	**61.4**
								Major Injury	0	0.00	0.00	$ -				
								Minor Injury	0	0.00	0.00	$ -				
								PDO	9	1.80	3.60	$ 47,880				
-	Bike and Pedestrian	Install marked Crosswalks	Install pedestrian crossing at uncontrolled locations (signs and markings only)	NS20PB	10	0.75	100%	Fatal	0	0.00	0.00	$ -	$ -	220 SQFT of striping, 2 Signs	$6/SQFT $400/Sign	$2,220	**0.0**
								Major Injury	0	0.00	0.00	$ -				
								Minor Injury	0	0.00	0.00	$ -				
								PDO	0	0.00	0.00	$ -				
-	All	Installing new traffic signal, coordinated with the intx of San Mateo and S Linden Ave	Install signals	NS03	20	0.7	100%	Fatal	0	0.00	0.00	$ -	$ 71,820	1 Intersection	$350,000	$350,000	**0.2**
								Major Injury	0	0.00	0.00	$ -				
								Minor Injury	0	0.00	0.00	$ -				
								PDO	9	2.70	5.40	$ 71,820				
-	Night	Install/upgrade intersection lighting	Install intersection lighting	NS01	20	0.6	100%	Fatal	0	0.00	0.00	$ -	$ -	4 Luminaires	$10,000	$40,000	**0.0**
								Major Injury	0	0.00	0.00	$ -				
								Minor Injury	0	0.00	0.00	$ -				
								PDO	0	0.00	0.00	$ -				