2023

California Highway Safety Improvement Program Implementation Plan

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BCR	Benefit-Cost Ratio
CA MUTCD	California Manual on Uniform Traffic Control Devices
CalSTA	California State Transportation Agency
Caltrans	California Department of Transportation
CHP	California Highway Patrol
CMF	Crash Modification Factor
CPUC	California Public Utilities Commission
CRASH	Crash Reporting and Analysis for Safer Highways
CRF	Crash Reduction Factor
CRIS	Crash Records Information System
DLA	Division of Local Assistance
DOT	Department of Transportation
DRMT	Division of Rail and Mass Transportation
DRISI	Division of Research, Innovation, and System Information
F	Fatal
F+SI	Sum of Fatal and Serious Injuries
FARS	Fatality Analysis Reporting System
FAST Act	Fixing America's Surface Transportation Act
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
Five Es	Engineering, Enforcement, Education, Emergency Response, and Emerging Technologies
FTIP	Federal Transportation Improvement Program
FY	Fiscal Year
HSIP	Highway Safety Improvement Program
HSM	Highway Safety Manual
HSP	Highway Safety Plan

ITS	Intelligent Transportation Systems
LPI	Leading Pedestrian Interval
LRSP	Local Road Safety Plan
MAP-21	Moving Ahead for Progress in the 21st Century Act
MMUCC	Model Minimum Uniform Crash Criteria
MPO	Metropolitan Planning Organization
MVMT	Million Vehicle Miles Traveled
NHTSA	National Highway Traffic Safety Administration
NSC	National Safety Council
OTS	Office of Traffic Safety
PSCs	Proven Safety Countermeasures
RHCP	Railway Highway Crossing Program
RTPA	Regional Transportation Planning Agency
SHOPP	State Highway Operation and Protection Program
SHS	State Highway System
SHSP	Strategic Highway Safety Plan
SI	Serious Injury
SPMTs	Safety Performance Management Targets
State	State of California
SWITRS	Statewide Integrated Traffic Records System
TASAS	Traffic Accident Surveillance and Analysis System
TSI	Traffic Safety Index
TSN	Transportation System Network
TSNR	Transportation System Network Replacement Project
UC	University of California
VMT	Vehicle Miles Traveled

CHAPTER 1. PURPOSE AND NEED

1.1 Purpose

The 2023 Highway Safety Improvement Program (HSIP) Implementation Plan identifies tangible actions for the State of California (State) to take in Federal fiscal year (FFY) 2023 to make progress toward achieving the safety performance targets. This HSIP Implementation Plan describes how the California Department of Transportation (Caltrans) meets the requirement of spending the fiscal year (FY) 2019 HSIP funding apportionment of $207,228,565 within the FY 2023 HSIP and identifies the proposed projects, activities, and strategies expected to be funded under the State's HSIP. The HSIP Implementation Plan provides recommendations to improve the effectiveness of the HSIP by continuing to improve alignment with the Strategic Highway Safety Plan (SHSP) Challenge Areas and to implement projects that reduce the number of traffic fatalities and serious injuries on all public roads.

1.2 Background

The Federal Highway Administration (FHWA) completed a target achievement assessment for the State's calendar year (CY) 2020 safety performance targets based on the five-year averages for CY 2016 to 2020 and determined on April 21, 2022, that the State did not meet or make significant progress toward achieving any of the five 2020 safety performance targets. Significant progress is defined as having the actual outcome be lower than the baseline performance. The baseline performance is the five-year average ending with the year prior to the establishment of the target, which was CY 2014 to 2018 for the 2020 performance measures. In response to this determination, the State must obligate HSIP funds in the amount apportioned for the prior year (2019) only for HSIP projects (a practice the State already fulfills) and must submit an HSIP Implementation Plan by October 1, 2022.

Under 23 U.S.C. 148(i), the HSIP Implementation Plan must:

- Identify roadway features that constitute a hazard to road users.
- Identify HSIP projects based on crash experience, crash potential, or other data-supported means.
- Describe how HSIP funds will be allocated, including projects, activities, and strategies to be implemented.
- Describe how the proposed projects, activities, and strategies funded under the State's HSIP will allow the State to make progress toward achieving the safety performance targets.

- Describe the actions the State will undertake to achieve the performance targets.

The State's FY 2023 HSIP Implementation Plan was prepared by Caltrans to address the FHWA requirement and to share the progress of the traffic safety paradigm change in the State.

Caltrans formed the Division of Safety Programs in 2020 to lead and champion the traffic safety paradigm change throughout Caltrans. The historical processes and procedures of the State's HSIP are a key component of implementing new safety strategies and Caltrans will use this HSIP Implementation Plan to identify opportunities to improve the HSIP process. The information discovered in reviewing potential reasons why the State failed to meet or make significant progress toward meeting the safety performance targets has underscored the need for Caltrans to refine and/or develop new methodologies. These include safety performance targets, project selection, project evaluation, data-driven decision making, and aligning efforts between concurrent Caltrans efforts and other safety plans, including the SHSP.

FHWA also determined that California triggered three HSIP Special Rules: High Risk Rural Roads (HRRR), Older Drivers and Pedestrians, and Vulnerable Road User (VRU). The HSIP Annual Report and SHSP will provide the corresponding action(s) required for implementation. Per the HRRR Special Rule, California is required to obligate in FY 2023 an amount equal to at least 200 percent of its FY 2009 high risk rural roads set-aside in the amount of $17,563,128. Per the Older Drivers and Pedestrians Special Rule, California is required to include strategies to address the increase in older driver and pedestrian fatal and serious injury rates in the next SHSP update. Additionally, a second analysis should be conducted to determine whether the emphasis of safety programs and countermeasures should be focused on drivers and/or pedestrians. Per the VRU Special Rule, California is required to obligate more than 15 percent of the amount apportioned under 23 U.S.C. 104(b)(3) in FY 2023 for highway safety improvement projects to address the safety of vulnerable road users. All highway safety improvement projects, including those implemented under the HRRR and VRU Special Rule, must be on a public road consistent with the SHSP and improve a hazardous road location or feature, or address a highway safety problem. In response to FHWA's determination of these three HSIP Special Rules, the State does not anticipate any challenges fulfilling the necessary requirements.

1.3 Need

Caltrans understands the need and fully supports the development of the HSIP Implementation Plan to reduce the number of traffic fatalities and serious injuries within the State. As shown in Figure 1-1, annual traffic fatalities have increased from a low of

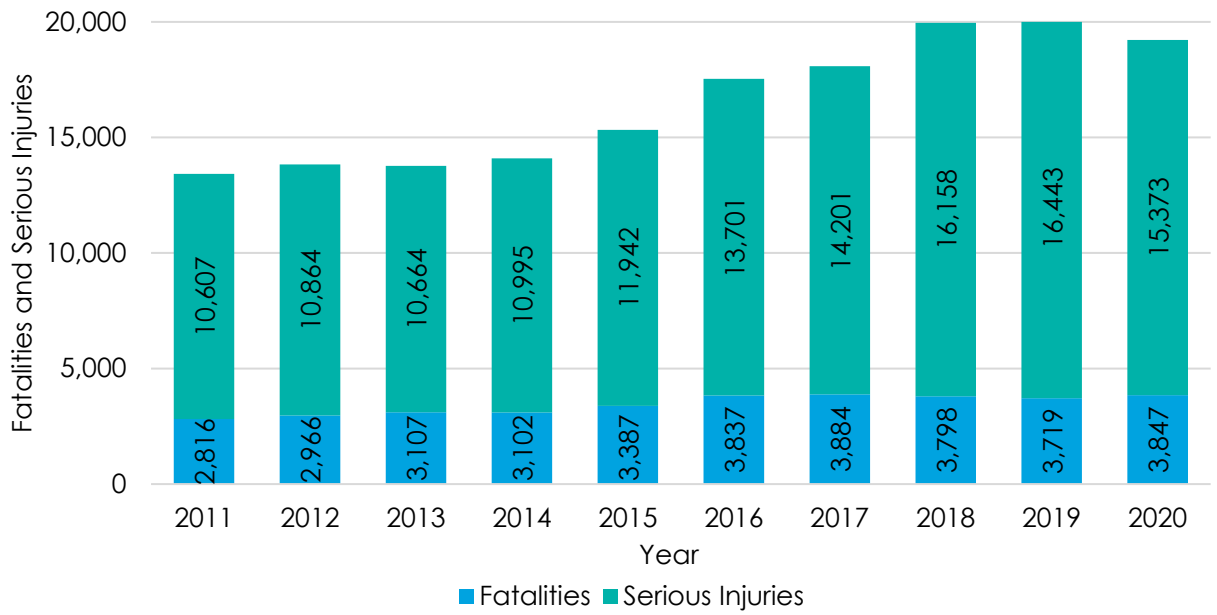
2,816 in 2011 to a high of 3,884 in 2017. In 2020, there were 3,847 traffic fatalities, which is a 3.4% increase from 2019. The number of people injured in traffic crashes were down in 2020, but the number of traffic fatalities increased with lesser vehicles on the roadway. NHTSA's 2020 crash data report, as compared to 2019, stated fatalities in speeding-related crashes increased by 17% and fatalities in alcohol-impaired driving crashes increased by 14%.

As shown in Figure 1-1, annual serious injuries have increased from a low of 10,607 in 2011 to a high of 16,443 in 2019. A factor that attributed to a greater increase from 2017 to 2018 is the serious injury definition change to include suspected serious injuries, which the State implemented in 2017. The US DOT defines a serious injury using the Model Minimum Uniform Crash Criteria (MMUCC) 4th Edition "Suspected Serious Injury (A)" attribute found in the "injury status" data element. A suspected serious injury is defined in the MMUCC 4th Edition as any injury other than fatal that results in one or more of the following:

- Severe laceration resulting in exposure of underlying tissues/muscle/organs or resulting in significant loss of blood.
- Broken or distorted extremity (arm or leg).
- Crush injuries.
- Suspected skull, chest, or abdominal injury other than bruises or minor lacerations.
- Significant burns (second and third degree burns over 10% or more of the body).
- Unconsciousness when taken from the crash scene; or
- Paralysis.

The first full year of using the new definition was 2018, which resulted in an increase of 18% from 2016, which was the last full year of using the old definition. The annual trend in serious injuries had a 6.96% decrease in serious injuries from 2019 to 2020.

Figure 1-1: Statewide Fatalities and Serious Injuries (2011-2020)



Source: 2011-2020 fatality data is from NHTSA's Fatality Analysis Reporting System (FARS) and the serious injury data is from CHP's Statewide Integrated Traffic Records System (SWITRS).

Caltrans understands the benefit of reviewing current processes and performance standards to determine how best to revise existing and/or establish new procedures. Reviewing past performance is used to determine ways to substantially improve the effectiveness and transparency of safety implementation. The HSIP Implementation Plan facilitates a review of current processes to identify opportunities for improvement and action items moving forward to help the State meet future targets.

In general, the HSIP Implementation Plan:

- Develops a data-driven approach toward target setting.
- Aligns efforts with the SHSP and other safety plans.
- Recommends improvements to HSIP processes.
- Provides transparency for safety implementation; and
- Improves processes to evaluate the effectiveness of projects and specific countermeasures.

1.3.1 Develop Target Setting Approach

Historical target setting was evaluated to identify data used and agencies involved in the process. New target setting methodologies emphasize a collaborative approach with Caltrans, OTS, Metropolitan Planning Organizations (MPOs), Regional Transportation Planning Agencies (RTPAs), and other stakeholders. Caltrans will determine the

connection between projects, activities, and strategies to reduce the number of traffic fatalities and serious injuries.

1.3.2 Align with the SHSP and Other Safety Plans

The HSIP Implementation Plan highlights the benefits of a structured process to strengthen the partnership between the State's safety-related efforts and the resulting investment in programs, strategies, and actions that continually prioritize safety. The SHSP is a federally required safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on all public roads. The Highway Safety Plan (HSP) documents the State's highway safety program that is data-driven in establishing performance targets and designed to reduce the number and severity of crashes using behavioral countermeasures. As shown in Figure 1-2, there needs to be clear alignment between the SHSP, HSIP, HSP, and annual safety targets that advance the broader vision. The alignment review process evaluates the countermeasures and SHSP emphasis areas for projects that have been historically funded to identify the need for changes in the way funds are allocated.

Figure 1-2: HSIP, SHSP, and HSP Alignment Chart and 4 Pillars of Traffic Safety

The revised SHSP (2020-2024) reflects the joint commitment of statewide safety partners to develop strategies to eliminate traffic fatalities and serious injuries on California's roadways. It identifies four Guiding Principles to implement the cultural change required to achieve this goal, which include leveraging proven practices, accelerating advanced technology, leading safety culture change through implementation of a Safe System Approach, and ensuring integration of equity in safety outcomes.

The Caltrans Strategic Management Plan (2020-2024) affirms the department's commitment to eliminating fatalities and serious injuries on our roads and includes the four SHSP Guiding Principles among the essential strategies to be implemented to achieve this goal.

In February 2022, Caltrans established the operational framework for implementing a Safe System Approach through a new Director's Policy – Road Safety (DP-36). The Safe System Approach is based on these principles: eliminate death and serious injury, humans make mistakes, humans are vulnerable, responsibility is shared, redundancy is crucial, and safety is proactive and reactive.

Caltrans' commitment aligns with the National Roadway Safety Strategy (NRSS) released by the United States Department of Transportation (US DOT) in January 2022. The NRSS describes major actions to make a meaningful difference over the next few years. The US DOT will launch new programs, coordinate and improve existing programs, and adopt foundational principles as guidance. Caltrans will work with FHWA's divisional office to explore opportunities provided by the new programs to advance DP-36 and the Safe System Approach under the NRSS.

1.3.3 Recommend Improvements to HSIP Processes

Caltrans obligated nearly $4.2 billion on the SHS and local roads for safety projects between July 1, 2017 and June 30, 2022. The current guidelines for selecting and evaluating safety projects is primarily a reactive approach based on the analysis of existing crash data. A proactive approach takes a broader view and evaluates the risk across the entire roadway system. The reactive and proactive approaches will be reviewed to determine if recommended improvements are effectively reducing fatalities and serious injuries on all public roads. As noted in Chapter 7, the HSIP Implementation Plan identifies opportunities to improve existing HSIP processes to fill gaps and incorporate established best practices to help the State achieve zero fatalities and serious injuries. Caltrans' State Highway System Management Plan (SHSMP) is an integrated management plan for the SHS that is performance driven. The SHSMP drives the HSIP expenditures on the SHS through the State Highway Operation and Protection Program (SHOPP) to specifically target fatalities and serious injuries

instead of all crashes and establishes performance objective targets for districts based on funding availability.

1.3.4 Provide Transparency

Caltrans has a responsibility to develop the HSIP Implementation Plan. However, this Plan addresses targets for all users on all public roads in the State. Caltrans collaborates and shares information with federal, tribal, State, regional, and local stakeholders to increase access to data to improve the effectiveness and transparency of safety implementation.

In 2021, Caltrans developed the SHSP Crash Data Dashboard to provide SHSP implementers with direct access to crash data to support data-driven implementation of the SHSP. The dashboard currently uses finalized crash data from the Fatality Analysis Reporting System (FARS) and the Statewide Integrated Traffic Records System (SWITRS).

The dashboard allows for filtering of the number and characteristics of fatal and serious injury crashes over the last 10 years. Some filtering options include:

- SHSP Challenge Area
- Crash Severity
- Location: District, County, Metropolitan Planning Organization (MPO), and City
- Crash Cause
- Crash Time
- Crash Party and Victim Demographics

The SHSP Crash Data Dashboard is continually adding new features. For example, in 2022, a tribal filter feature was added that highlights fatal and serious injury crash occurrences within five miles of a tribal boundary. This data is made available in collaboration with the Native American Advisory Committee. This feature illustrates integrating equity for all users.

1.3.5 Improve Process to Evaluate Effectiveness

Caltrans will work to improve the safety effectiveness evaluations of completed safety projects. The purpose of an evaluation is to determine how a particular countermeasure, or group of countermeasures, has affected the safety performance at the treated location. A safety effectiveness tool was implemented to estimate the safety project outcome based on the crash frequency, crash severity, and project scope. Caltrans can use the results of the evaluations in future decisions about allocation of funds and changes to policies.

To help bridge the gap on countermeasure selection, Caltrans has assigned a proven safety countermeasures subject matter expert. The subject matter expert analyzes

current guidance, develops new guidance, and provides more-easily accessible resources. By establishing the fatal and serious injury targets in the SHSMP and predicting the outcome of each project, a closer link between project scope and project fatal and serious injury measures were established.

CHAPTER 2. BACKGROUND INFORMATION

This chapter summarizes Caltrans' review of its target setting methodology; HSIP and safety funding expenditures; and a survey of State, local, and regional organizations and agencies to identify gaps that could be improved with program modifications.

2.1 Safety Performance Management Target (SPMT) Setting Methodology

States are required to set five annual SPMTs each year and report methodology and progress toward the targets to the FHWA. Historical target setting methodology was reviewed for the HSIP Implementation Plan.

2.1.1 2020 Targets

Caltrans is required to set five annual SPMTs for all public roads with three targets matching OTS. For the 2020 calendar year, the targets were set by August 31, 2019. The 2019 SPMTs supported the 2015-2019 SHSP to adopt "Toward Zero Deaths" by 2050 with the goal to decrease the number of fatalities by 3% and number of serious injuries by 1.5%. The 2020 SPMTs used a target line of reaching zero fatalities by 2050 with the goal to decrease the number of fatalities by 3.03% and the number of serious injuries by 1.5%.

Each target is based on a baseline of the five-year rolling average, which is the average of five individual, consecutive points of data. The five-year rolling average provides a better understanding of the overall data over time without eliminating years with significant increases or decreases; and provides a mechanism for accounting for regression to the mean. If a particularly high or low number of fatalities and/or serious injuries occur in one year, a return to a level consistent with the average in the previous year may occur.

The baseline for targets for fatalities, serious injuries, and non-motorized fatalities and serious injuries are calculated by adding the number for the most recent five consecutive years ending in the year for which the targets are established, dividing by five, and rounding to the tenth decimal place. The baseline for the rate targets is calculated similarly but rounding to the thousandth decimal place. This accurately differentiates one five-year average from another which might otherwise be obscured if the numbers were truncated.

The specific methodologies that were used to develop each of the five targets are outlined in the following sections.

2.1.1.1 Number of Fatalities

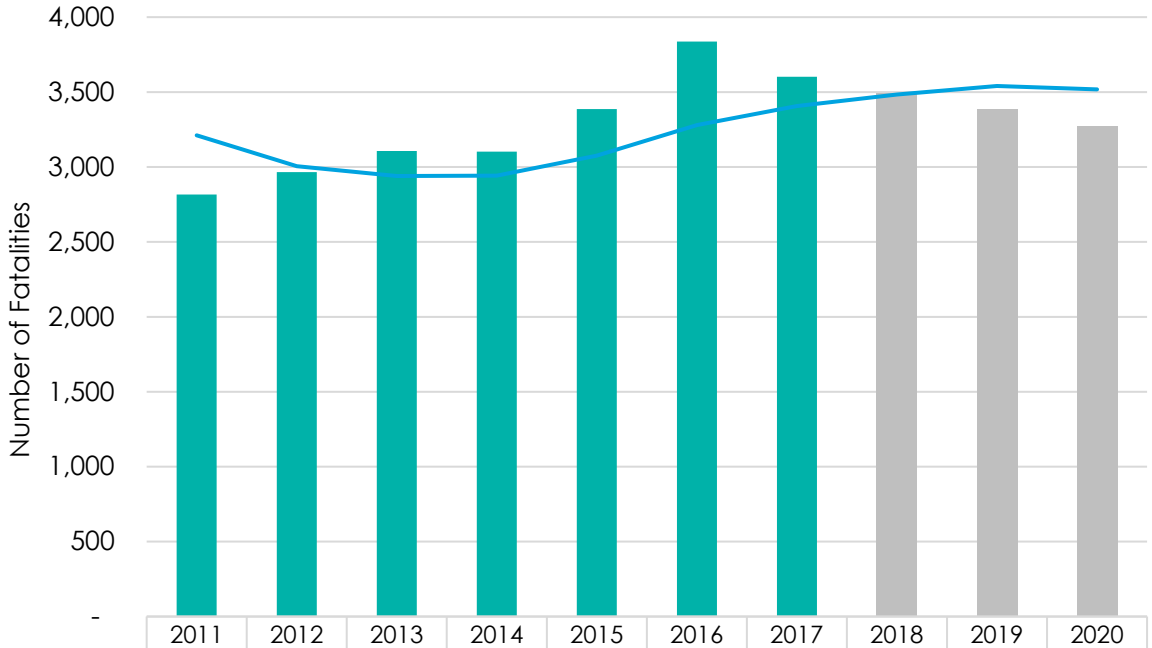
In 2020, the target for fatalities based on the five-year rolling average is 3,518.0 with 3,275 fatalities projected. Figure 2-1 illustrates the number of fatalities, five-year rolling average and fatality targets from year to year.

- Data up to and including 2017 was based on data available in FARS at the time of the target setting process.
- 2020 target was set by applying a 3.03% decrease from year 2017 to year 2018 and then applying this same amount (not percentage) of fatalities to each subsequent year thereafter. This projection is based on a target line to decrease fatalities to zero by the end of December 2049.

At the time the 2020 SPMTs were set, a Toward Zero Death concept by 2050 was in place for the State. From 2017 to 2050, the number of fatalities would need to decrease by 109 per year to reach zero by the end of December 2049. The projected number of fatalities in 2018 was calculated by reducing the number of fatalities in 2017 of 3,602 by 109, so the 2018 projection was 3,493. The same calculation was completed for 2019 and 2020, and the resulted projections were 3,384 and 3,275 respectively.

To determine the 2020 target for the number of fatalities, a five-year rolling average was calculated, which used the average of a year-to-year basis based on the previous five years of data. The 2020 target for fatalities was 3,518.0.

Figure 2-1: Number of Fatalities



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fatalities	2,816	2,966	3,107	3,102	3,387	3,837	3,602	3,493	3,384	3,275
5-Year Average	3211.0	3005.2	2939.8	2942.2	3,075.6	3,279.8	3,407.0	3,484.2	3,540.6	3,518.0

2.1.1.2 Fatality Rate

For the purposes of safety performance target setting, an increase of 1% in Vehicle Miles Traveled (VMT) was forecasted from year-to-year for the years from 2017 to 2020. The VMT for 2016 was 3428.5 (100M VMT) and 2017 was 3443.1 (100M VMT).

The fatality rate was calculated by dividing the number of fatalities by 100M VMT. The same assumptions utilized for the calculation of the number of fatalities outlined in Section 2.1.1.1 were incorporated into the analysis and are as follows:

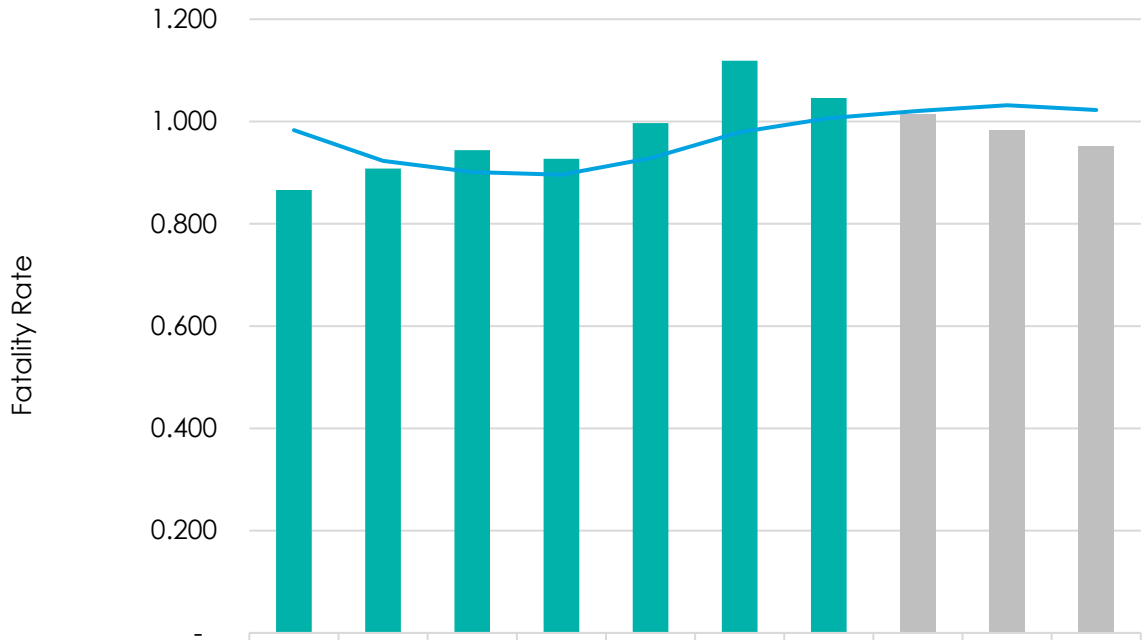
- Data up to and including 2017 was based on data available in FARS at the time of the target setting process.
- 2020 target was set by applying a 3.03% decrease from year 2017 to year 2018 and then applying this same amount (not percentage) of fatalities to each subsequent year thereafter (divided by 100M VMT to determine the fatality rate). This projection is based on a target line to decrease fatalities to zero by the end of December 2049.

At the time the 2020 SPMTs were set, a Toward Zero Death concept by 2050 was in place for the State. From 2017 to 2050, the number of fatalities would need to

decrease by 109 per year (divided by 100M VMT to determine the fatality rate) to reach zero by the end of December 2049. The projected number of fatalities in 2018 was calculated by reducing the number of fatalities in 2017 of 3,602 by 109, so the 2018 projection was 3,493. The 2018 projection was then divided by the forecasted 100M VMT to determine the 2018 fatality rate. The same calculation was completed for 2019 and 2020, and this resulted in a projected fatality rate of 0.983 and 0.951 respectively.

To determine the 2020 target for the fatality rate, a five-year rolling average was calculated, which used the average of a year-to-year basis based on the previous five years of data. The 2020 fatality rate target was 1.023 per 100M VMT. Figure 2-2 illustrates the fatality rate, five-year rolling average and fatality rate targets from year to year.

Figure 2-2: Fatality Rate



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fatality Rate (per 100M VMT)	0.866	0.908	0.944	0.927	0.997	1.119	1.046	1.014	0.983	0.951
5-Year Average	0.983	0.923	0.901	0.896	0.928	0.979	1.007	1.021	1.032	1.023

2.1.1.3 Number of Serious Injuries

In 2020, the target for serious injuries was based on the five-year rolling average. Figure 2-3 illustrates the number of serious injuries, five-year rolling average and serious injury targets from year to year.

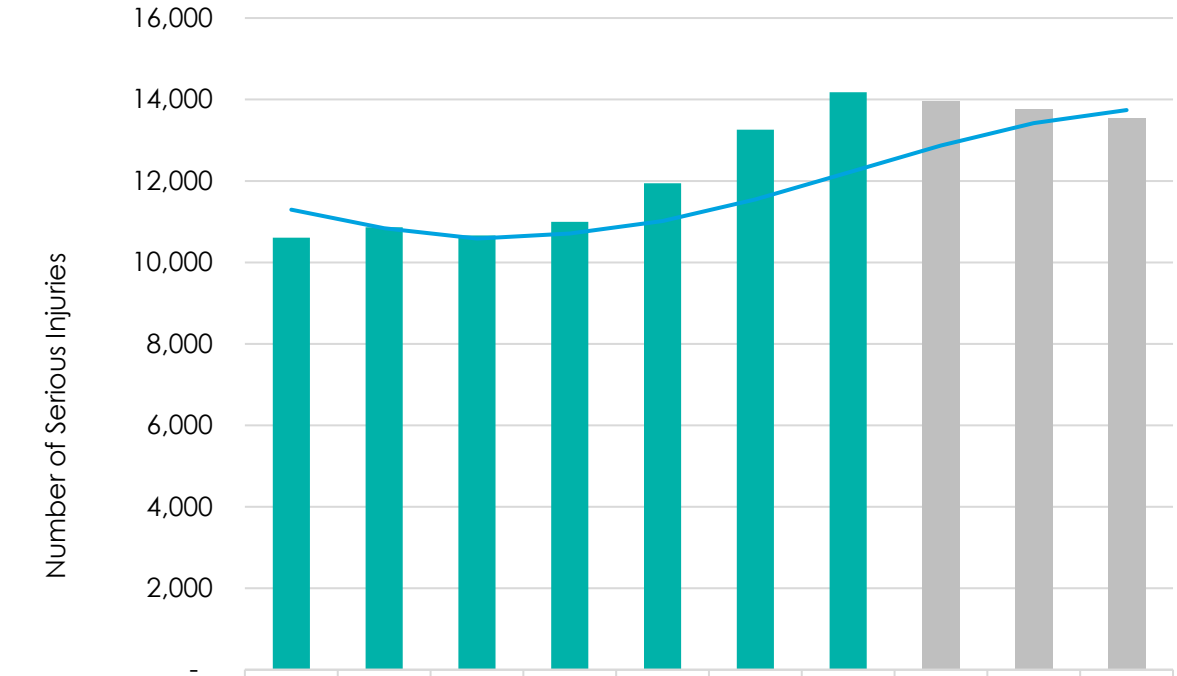
- Data up to and including 2017 was based on data available in SWITRS (as of June 2019).

- 2020 target was set by applying a 1.50% decrease from year 2017 to year 2018 and then applying this same amount (not percentage) to the number of serious injuries to each subsequent year thereafter.

At the time the 2020 SPMTs were set, a goal to decrease the number of serious injuries by 1.5% was in place throughout the State. To calculate the projected number of serious injuries in 2020, the serious injuries in 2017 of 14,180 was decreased by 1.5% to estimate the serious injuries in 2018 of 13,967. Then the difference of 213, between year 2017 and year 2018, was the reduction in serious injuries for 2019 and then 2020. This resulted in a projected number of serious injuries of 13,542 in 2020.

To determine the 2020 target for the number of serious injuries, a five-year rolling average was calculated, which takes the average on a year-to-year basis of the previous five years of data. The 2020 target for the number of serious injuries was 13,740.4.

Figure 2-3: Number of Serious Injuries



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Serious Injuries	10,607	10,864	10,664	10,995	11,942	13,258	14,180	13,967	13,755	13,542
5-Year Average	11,295.0	10,841.2	10,585.4	10,710.6	11,014.4	11,544.6	12,207.8	12,868.4	13,420.4	13,740.4

2.1.1.4 Serious Injury Rate

As with the SPMT calculations for the fatality rate, an increase of 1% in VMT was forecasted from year-to-year for the years from 2017 to 2020. The VMT for 2016 was 3428.5 (100M VMT) and 2017 was 3443.1 (100M VMT).

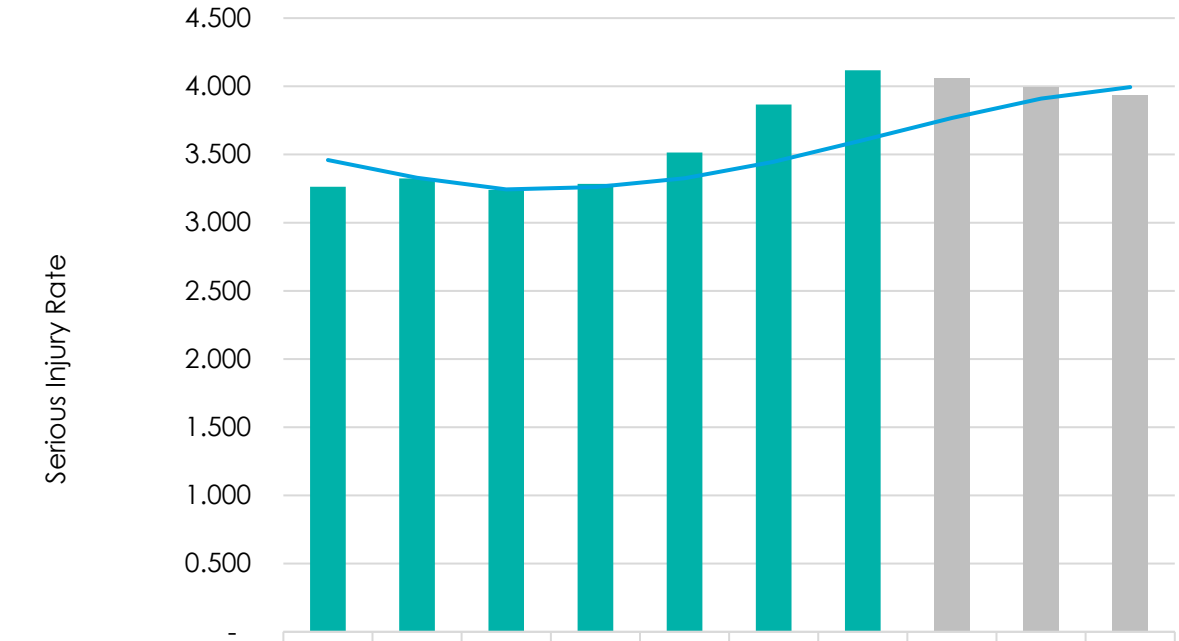
The serious injury rate was calculated by dividing the number of serious injuries by 100M VMT. The same assumptions utilized for the calculation of the number of serious injuries outlined in Section 2.1.1.3 were incorporated into the analysis and are as follows:

- Data up to and including 2017 was based on data available in SWITRS (as of June 2019).
- 2020 target was set by applying a 1.50% decrease from year 2017 to year 2018 and then applying this same amount (not percentage) to the number of serious injuries to each subsequent year thereafter.

At the time the 2020 SPMTs were set, a goal to decrease the number of serious injuries by 1.5% was in place throughout the State. To calculate the projected number of serious injuries in 2020, the serious injuries in 2017 of 14,180 was decreased by 1.5% to estimate the serious injuries in 2018 of 13,967. Then the difference of 213, between year 2017 and year 2018, was the reduction in serious injuries for 2019 and then 2020. This resulted in a projected number of serious injuries of 13,542 in 2020. The number of serious injuries was then divided by the anticipated 100M VMT to determine the serious injury rate of 3.933 in 2020.

To determine the 2020 target for the serious injury rate, a five-year rolling average was calculated, which used the average on a year-to-year basis of the previous five years of data. The 2020 target for the serious injury rate was 3.994 per 100M VMT. Figure 2-4 contains the serious injury rates, five-year rolling average and serious injury rate targets from year to year.

Figure 2-4: Serious Injury Rate



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Serious Injury Rate (per 100M VMT)	3.263	3.324	3.240	3.285	3.514	3.867	4.118	4.057	3.995	3.933
5-Year Average	3.459	3.329	3.244	3.261	3.325	3.446	3.605	3.768	3.910	3.994

2.1.1.5 Number of Non-Motorized Fatalities and Serious Injuries

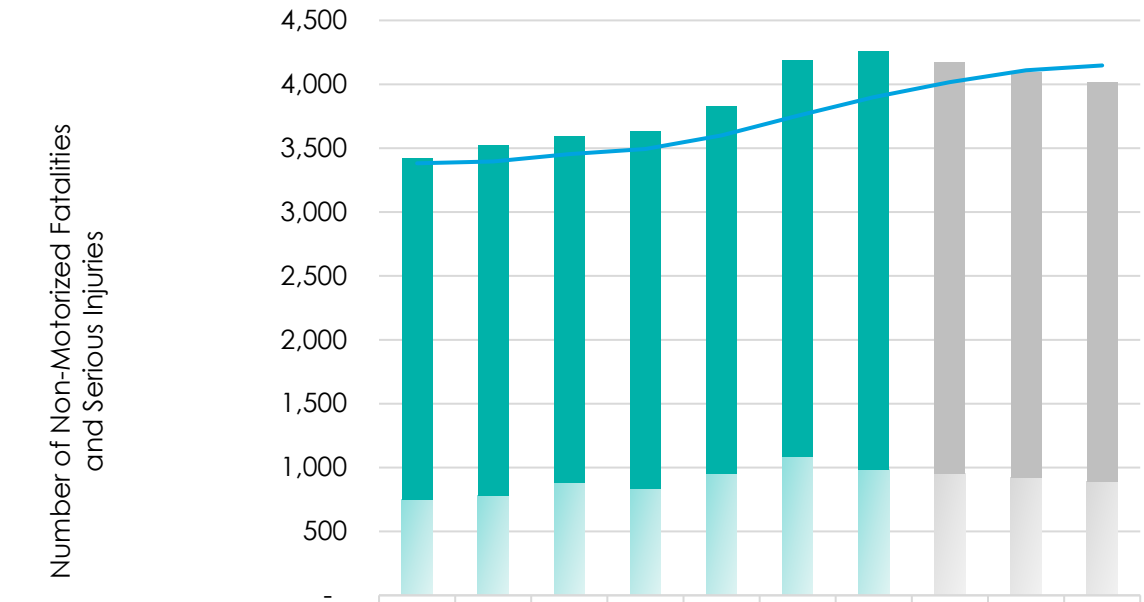
The goal was to decrease the number of non-motorized fatalities to zero by the end of December 2049 and the number of non-motorized serious injuries by 1.5%.

- Non-motorized fatality data up to and including 2017 was based on data available in FARS at the time of the target setting process.
- 2020 target for non-motorized fatalities was set by applying a 3.03% decrease from year 2017 to year 2018 and then applying this same amount (not percentage) of non-motorized fatalities to each subsequent year thereafter. This projection is based on a target line to decrease fatalities to zero by the end of December 2049.
- Non-motorized serious injuries data up to and including 2017 was based on data available in SWITRS (as of June 2019).
- 2020 target for non-motorized serious injuries was set by applying a 1.50% decrease from year 2017 to year 2018 and then applying this same amount (not percentage) to the number of serious injuries to each subsequent year thereafter.

To calculate the projected number of non-motorized fatalities in 2020, the non-motorized fatalities in 2017 of 982 was decreased by 3.03% to estimate the number of non-motorized fatalities in 2018 of 952. Then the difference of 30, between year 2017 and year 2018, was the reduction in non-motorized fatalities for 2019 and then 2020. This resulted in a projected number of 893 non-motorized fatalities in 2020. To calculate the projected number of non-motorized serious injuries in 2020, the non-motorized serious injuries in 2017 of 3,273 was decreased by 1.50% to estimate the non-motorized serious injuries in 2018 of 3,224. Then the difference of 49, between year 2017 and year 2018, was the reduction in non-motorized serious injuries for 2019 and then 2020. This resulted in a projected number of 3,126 non-motorized serious injuries in 2020.

To determine the 2020 target for the non-motorized fatalities and serious injuries, a five-year rolling average was calculated, which takes the average on a year-to-year basis of the previous five years of data. The 2020 target for non-motorized fatalities and serious injuries is 4,147.4. Figure 2-5 contains the non-motorized fatalities and serious injuries five-year rolling average and targets.

Figure 2-5: Number of Non-Motorized Fatalities and Serious Injuries



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Non-Motorized Serious Injuries	2,671	2,743	2,710	2,795	2,874	3,102	3,273	3,224	3,175	3,126
Non-Motorized Fatalities	749	782	881	838	955	1,088	982	952	922	893
5-Year Average	3,381.6	3,395.8	3,453.8	3,493.6	3,599.6	3,753.6	3,899.6	4,016.6	4,109.4	4,147.4

2.1.1.6 Summary of 2020 Targets

The resulting 2020 targets and outcomes are summarized in Table 2-1. The State did not meet any of the five targets that were set, resulting in the need for this HSIP Implementation Plan.

Table 2-1: 2020 SPMT Assessment

Performance Measure	2016-2020 Target[1]	2016-2020 Actual[2,3]	2014-2018 Baseline[4]	Met Target?	Better than Baseline?	Met or Made Significant Progress?
Number of Fatalities	3,518.0	3,817.0	3,601.6	No	No	No
Fatality Rate (per 100 MVMT*)	1.023	1.144	1.058	No	No	No
Number of Serious Injuries	13,740.4	15,165.8	13,399.4	No	No	No
Serious Injury Rate (per 100 MVMT*)	3.994	4.546	3.930	No	No	No
Number of Non-Motorized Fatalities and Serious Injuries	4,147.4	4,368.6	4,092.2	No	No	No

[1] Safety Performance Management Targets for 2019, Caltrans.
[2] State Traffic Safety Information, NHTSA, July 2021.
[3] Statewide Integrated Traffic Records System, Caltrans, July 2021.
[4] Mammano, Vince. Letter to Steven Keck. April 21, 2022.
* Million Vehicle Miles Traveled (MVMT)

2.1.2 2023 Targets

FHWA does not prescribe a methodology to set annual safety performance targets but encourages reviewing data sets and trends while considering factors that may affect targets. The safety performance targets should be data-driven, realistic, and attainable and should align with proposed projects, activities, and strategies in the HSIP and other safety funding programs. Since safety targets are applicable to all public roads in the State, regional and local jurisdictions should be collaboratively involved in the safety target setting process. The target setting methodology used a trend line approach and

extrapolated the existing trend in fatalities and serious injuries on all public roads into the future. Caltrans continues to align with the SHSP's goal of zero fatalities and serious injuries.

The State had a 3.44% increase in fatalities from 3,719 in 2019 to 3,847 in 2020. The targets for 2023 fatalities and fatality rate are based on the percentage change (averaged) from year to year starting with 2017 and ending with 2020. The definition of serious injuries was changed to include suspected serious injuries and was implemented in mid-2017. The first full year of suspected serious injuries resulted in an increase of 21% from the last full year using the old definition. As the last full year and partial year of using the old definition is transitioning out of the five-year rolling average calculation, the impact of these data points for 2016 and 2017 will subside with future target setting. The annual trend in serious injuries had a 6.96% decrease in serious injuries from 2019 to 2020. The target for 2023 non-motorized fatalities and serious injuries continued the annual reduction of 0.30% for fatalities and 2.30% for serious injuries. Table 2-2 contains a summary of the 2023 targets for the State.

Table 2-2: Safety Performance Management Targets for 2023

Performance Measure	FY 2023 Targets
Number of Fatalities	3,808.2
Fatality Rate (per 100 MVMT)	1.216
Number of Serious Injuries	15,156.2
Serious Injury Rate (per 100 MVMT)	4.904
Number of Non-Motorized Fatalities and Serious Injuries	4,131.7

2.2 Stakeholder Outreach

As part of the HSIP Implementation Plan, the State engaged both internal and external stakeholders to determine program needs and potential solutions. The stakeholder outreach contained a statewide virtual meeting and an internal/external online stakeholder survey.

2.2.1 Stakeholder Survey

Caltrans conducted an online survey to assist with stakeholder outreach and determine areas for improvement. The survey link was sent to 109 individuals, which included 24 Caltrans staff members and 85 individuals from other agencies and organizations throughout the State. The invited individuals were subdivided by organization type as shown in Table 2-3. A total of 16 responses were received.

Table 2-3: Survey by Agency/Organization

Organization Type	Number Invited
Caltrans	24
Local Agency	66
Regional Agency	8
Other Organization	5
State Agency	5
Educational	1
Total	**109**

As a result of the survey responses, the following are recommendations that Caltrans could consider moving forward, as identified from the stakeholders.

- Establish more collaboration meetings where MPOs and/or local agencies can share their safety efforts.
    - Caltrans and other agencies can share more ideas about safety target setting.
    - Caltrans can share safety target setting methodology ahead of target setting deadline, so there is more time to comment.
    - Provide multiple meeting dates and times (repeating information) to accommodate schedules.
    - Caltrans to post meeting minutes and presentations, and provide regular training to MPOs (i.e., data availability, safety target setting methodology, MPO requirements/schedule, and implementation to support meeting targets).
    - Caltrans to host a website that provides key dates, deadlines, and presentations.
- Stakeholders would like to meet with Caltrans quarterly.
- Stakeholders are extremely/somewhat interested in more coordination with Caltrans on 2024 safety target setting.
- Provide information on funding opportunities for local jurisdictions to create local roadway safety plans or systemic safety analysis report programs.

2.3 Historical Safety Funding Process

Caltrans highway safety funding was reviewed to determine distribution patterns at the State level based on funding administered through the SHOPP, at the local level, and for the Railway Highway Crossing Program (RHCP). Generally, the State receives an average of $222 million annually in federal HSIP funding. Approximately $16 million of HSIP funding is set-aside for the RHCP, a portion is for safety-related program takedowns, and the remaining funding is generally split evenly between Local HSIP

projects and SHS projects in the SHOPP. The California Streets and Highways Code, Chapter 6.5, Section 2333 states: "It is the intent of the Legislature that the commission allocate the total funds received from the federal government under Section 148 of Title 23 of the United States Code in approximately equal amounts between state highways and local roads."

California receives a formula-based apportionment of RHCP funds to focus on eliminating hazards at railway-highway crossings to reduce the number of fatal and injury crashes at public railway-highway grade crossings. The RHCP is funded via a set-aside from the HSIP and the RHCP funds cannot be transferred to other apportioned programs, and funds from other apportioned programs may not be transferred to the RHCP. The RHCP is managed in partnership by Caltrans and California Public Utilities Commission (CPUC).

The State supplements federal HSIP funds in the SHOPP with additional federal funds from other programs as well as State funds. The additional State funding averaged to three times the federal HSIP amount for safety improvements on SHS.

Figure 2-6 illustrates the funding apportionment for HSIP RHCP and HSIP road, which includes the Local and State HSIP funding programs. Table 2-4 shows the amounts allocated to the Local and State HSIP programs for FY 2016-2017 to FY 2021-2022. The table shows that the State has invested well beyond the approximately $222 million it receives in federal HSIP funding, investing nearly $4.6 billion over the previous five-year period. The SHOPP Program accounts for nearly 90% of safety funding in the State.

Caltrans' State HSIP Guidelines (2017) provides uniformity and guidance for programming federal funds for State HSIP projects within the SHOPP. Caltrans also provides guidance to local agencies in the Local Assistance Program Guidelines (Chapter 9, September 2021) and the Local Roadway Safety Manual for California's Local Road Owners (Version 1.6, April 2022). These documents assist local agencies in prioritizing safety improvement projects and applying appropriate countermeasures when developing safety projects for HSIP funding that align with the SHSP.

Figure 2-6: HSIP Funding Process and Breakdown

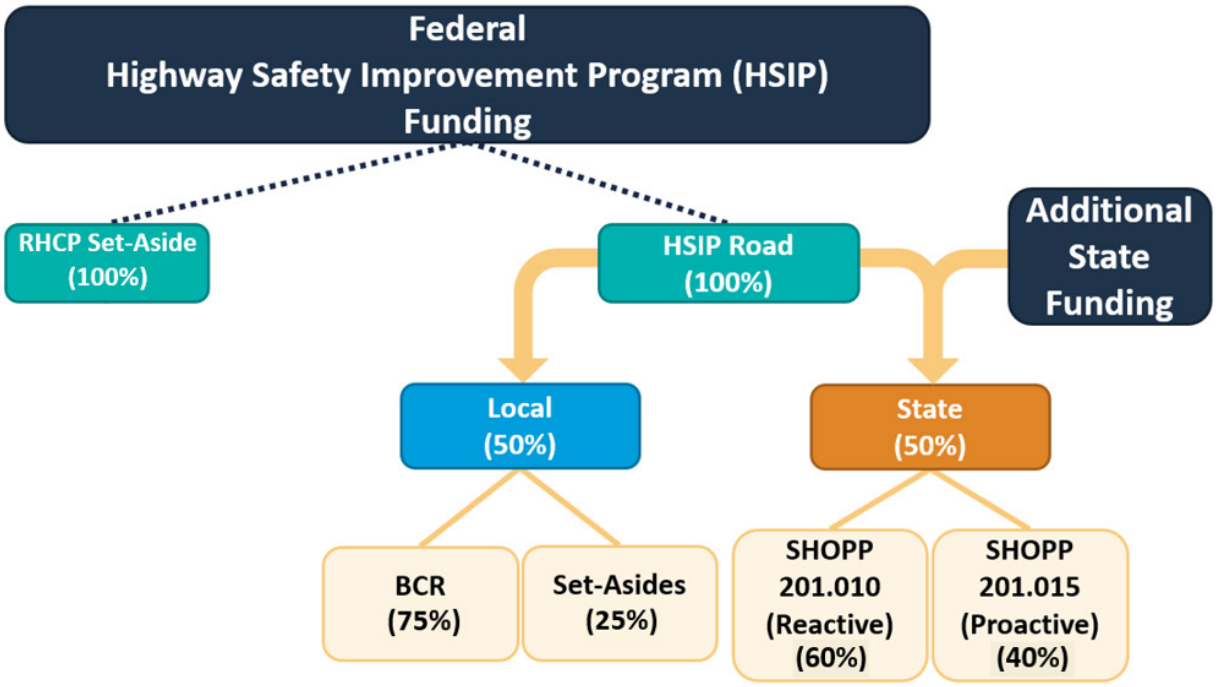


Table 2-4: Funding for Local and State HSIP Programs, FY 2017-2022

Funding Type	HSIP Local ($K)	SHOPP Reactive ($K)	SHOPP Systemic ($K)	Total SHOPP ($K)	Total Local and State ($K)
FY 16-17	$79,917	$330,463	$90,803	$421,266	$501,183
FY 17-18	$58,955	$574,324	$187,301	$761,625	$820,580
FY 18-19	$79,681	$351,675	$269,547	$621,222	$700,903
FY 19-20	$93,096	$894,738	$149,151	$1,043,889	$1,136,985
FY 20-21	$102,497	$168,929	$224,765	$393,694	$496,191
FY 21-22	$116,029	$572,666	$300,067	$872,733	$988,762
Total	**$530,175**	**$2,892,795**	**$1,221,634**	**$4,114,429**	**$4,644,604**
Percent of Total	**11%**	**62%**	**26%**	**89%**	**100%**

Notes: Local HSIP Projects – Construction Authorization lists for FY 2017-2018 to FY 2021-2022. For reactive and systemic, SHOPP List after CTC Meeting lists for FY 2017-2018 to FY 2021-2022. SHOPP 201.010 and 201.015 projects are partially funded with HSIP funding and the remaining with State funding. HSIP funding is split evenly between the Local and State Programs.

Since this HSIP implementation plan focuses on HSIP funds, it will not discuss other available funding such as the Tribal Transportation Program Safety Funds.

The following sections provide a summary of historical safety funding programmed within the SHOPP, Local HSIP, and combined programs. It is important to note that the different programs track different items, so matching figures and tables could not be developed for comparison purposes.

2.3.1 Historical SHOPP Funding

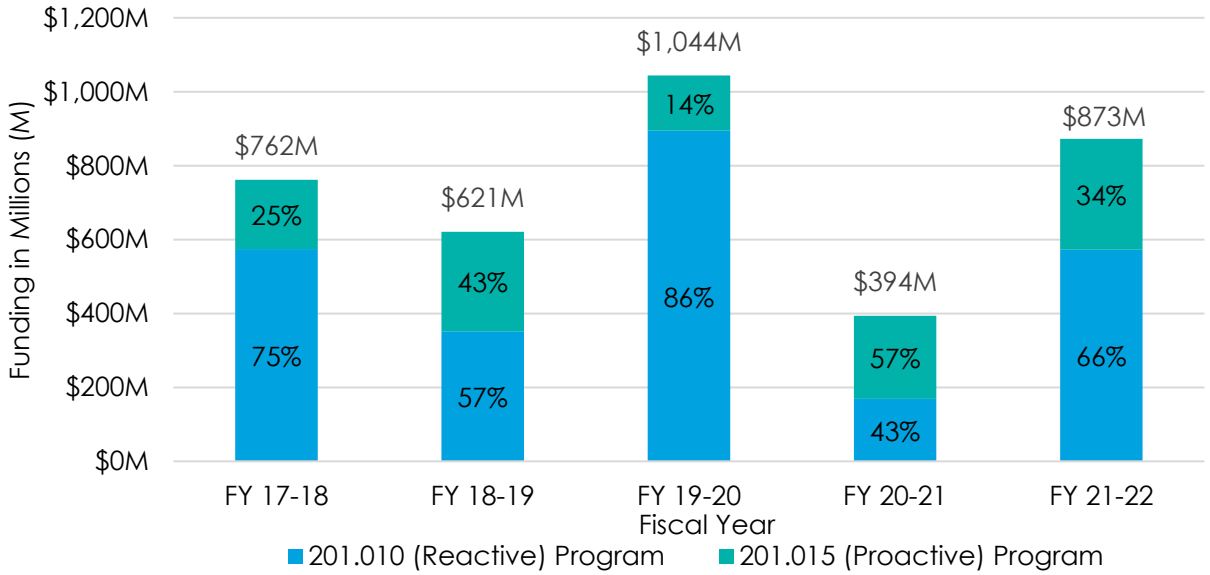
The SHOPP is a multi-year program of transportation projects on the SHS. The main objective of SHOPP is to preserve and protect the SHS without adding capacity. Within the Collision Reduction category of SHOPP, there are two groups that receive a portion of the HSIP funds:

201.010 Safety Improvements: The reactive approach is based on an analysis of crash history and requires a Traffic Safety Index (TSI) calculation, which incorporates the crash cost saved by motorists expressed as a percentage of the improvement's capital cost, or identification through a monitoring program.

201.015 Collision Severity Reduction: The proactive approach is to decrease the potential of crashes and/or reduce the severity of crashes. However, these projects do not necessarily have a crash history but may experience crashes based on specific roadway features associated with a particular crash type. Beginning in FY 2022, Caltrans moved the 201.015 Collision Severity Reduction Program into the Proactive Safety Program, which funds the proactive Collision Severity Reduction, Bridge Rail, and Roadside Safety activity category.

Figure 2-7 shows funding for the five most recent FYs (FY 2017-2018 to FY 2021-2022) for the 201.010 (reactive) Program and the 201.015 (proactive) Program by FY. The funding split has averaged 65% to the 201.010 (reactive) Program and 35% to the 201.015 (proactive) Program. Beginning in FY 2021-2022, Caltrans will work toward funding 60% to the Reactive Safety Improvement Program and 40% to the Proactive Safety Improvement Program.

Figure 2-7: Funding per 201.010 and 201.015 Programs (FY 2017-2022)



There are 12 Caltrans Districts, each of which received SHOPP funding during FY 2017-2022. Table 2-5 shows the Caltrans Districts in order of safety funding received over the five-year period.

Table 2-5: SHOPP Funding by Caltrans District (FY 2017-2022)

District #	District Name	201.010 Reactive ($K)	201.015 Proactive ($K)	Total SHOPP Funding ($K)	Percent of Total
3	Marysville/Sacramento	$605,167	$174,608	$779,775	18.95%
4	Bay Area/Oakland	$552,449	$166,878	$719,327	17.48%
8	San Bernardino/Riverside	$449,164	$237,124	$686,288	16.68%
1	Eureka	$375,199	$66,680	$441,879	10.74%
7	Los Angeles	$129,377	$183,200	$312,577	7.60%
5	San Luis Obispo/Santa Barbara	$192,927	$112,545	$305,472	7.42%
12	Orange County	$247,220	$45,296	$292,516	7.11%
10	Stockton	$94,385	$56,862	$151,247	3.68%
2	Redding	$87,542	$34,241	$121,783	2.96%
6	Fresno/Bakersfield	$111,523	$4,682	$116,205	2.82%
9	Bishop	$917	$99,718	$100,635	2.45%
11	San Diego	$46,925	$39,800	$86,725	2.11%
	Total	**$2,892,795**	**$1,221,634**	**$4,114,429**	**100.00%**
	Percent of Total	**70.31%**	**29.69%**	**100%**	

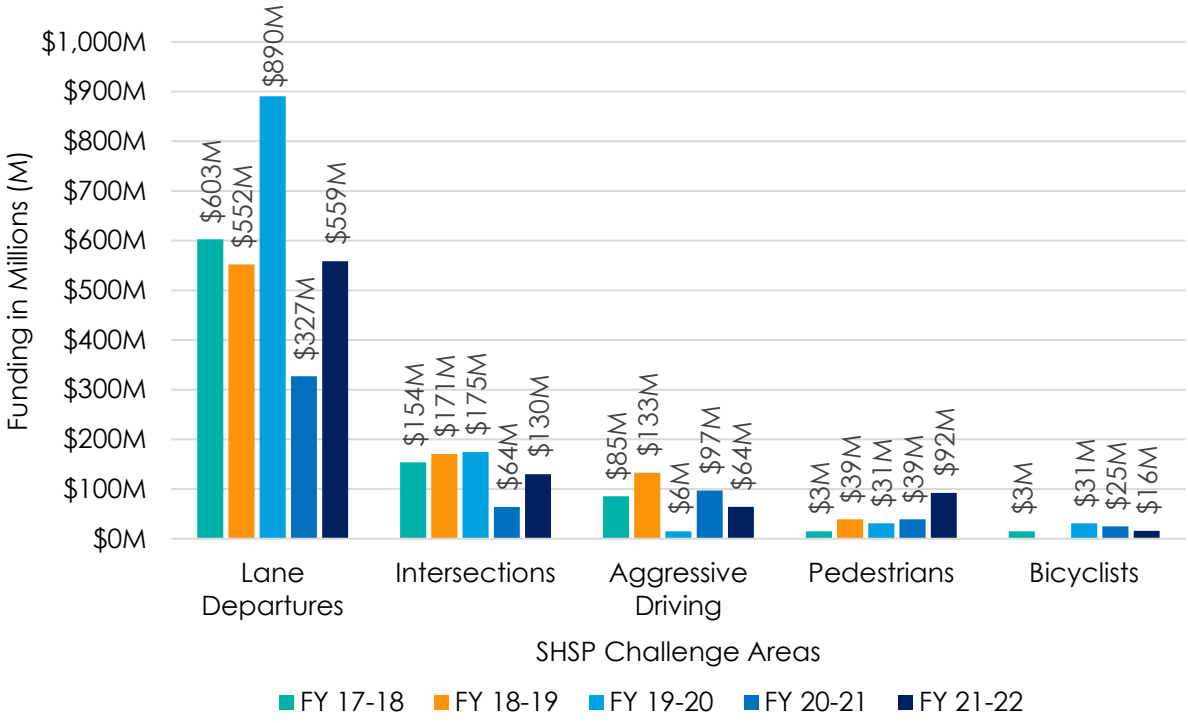
SHOPP funding was awarded for projects in 56 out of 58 counties during FY 2017-2022. Table 2-6 presents SHOPP funding amounts provided for projects within each of the top ten funded counties over the five-year period.

Table 2-6: SHOPP Funding by County (Top 10 Counties) (FY 2017-2022)

County Name	201.010 Reactive ($K)	201.015 Proactive ($K)	Total SHOPP Funding ($K)	Percent of Total SHOPP
San Bernardino	$236,201	$229,157	$465,358	11.31%
Orange	$247,220	$45,296	$292,516	7.11%
Los Angeles	$129,377	$142,716	$272,093	6.61%
Alameda	$153,423	$73,608	$227,031	5.52%
Riverside	$212,963	$7,967	$220,930	5.37%
Yuba	$109,982	$102,791	$212,773	5.17%
Butte	$201,817	$0	$201,817	4.91%
Lake	$193,733	$5,953	$199,686	4.85%
Humboldt	$122,529	$51,339	$173,868	4.23%
Contra Costa	$143,582	$27,695	$171,277	4.16%
Subtotal (Top 10)	$1,750,827	$686,522	$2,437,349	59.24%
Funding in Other Counties	$1,141,968	$535,112	$1,677,080	40.76%
Total	**$2,892,795**	**$1,221,634**	**$4,114,429**	**100.00%**

Figure 2-8 summarizes SHOPP funding awarded to projects by SHSP Challenge Area. Over the five-year period, SHOPP funds have primarily focused on lane departure, intersections, and aggressive driving.

Figure 2-8: SHOPP Funding per SHSP Challenge Area (FY 2017-2022)



Note: Projects can address multiple challenge areas and funding is summarized for each challenge area impacted by the project.

2.3.2 Historical Local HSIP Funding

Caltrans Division of Local Assistance (DLA) provided two project lists, where both included information about historical Local HSIP funding. These projects lists were:

Approved Project List for HSIP

- Cycle 7
- Cycle 8
- Cycle 9
- Cycle 10

California Local HSIP Projects, Construction Authorization Date

- July 1, 2017 - June 30, 2018
- July 1, 2018 - June 30, 2019
- July 1, 2019 - June 30, 2020
- July 1, 2020 - June 30, 2021
- July 1, 2021 - June 30, 2022

The historical summary of Local HSIP funding in the State is based on information from a list of approved projects organized by cycles and construction authorization dates. The combined list of approved projects contains different data fields to provide a comprehensive list of programmed Local HSIP projects.

2.3.2.1 Approved Project List for HSIP Cycles 7-10

The Approved Project List for HSIP Cycles 7-10 includes approved projects averaging $198 million per cycle, with an average of 209 projects approved per cycle. Applications could be submitted based on BCR for proposed projects or for funding set-asides. One of the disadvantages of the BCR is that projects are reactive as opposed to being proactive, since the BCR calculation includes prior crash history. Funding set-asides were introduced in Cycle 8 for low-cost proactive countermeasures at non-SHS locations.

Table 2-7 shows the amount of funding set-asides by category for Cycles 8, 9, 10, and 11 (currently accepting applications). Set-aside funding is generally 25% of the Local HSIP funding, and the amounts are determined based on feedback from the Local HSIP Advisory Committee and previous HSIP cycle applications. The HSIP Advisory Committee may consider continuing to increase the funding set-asides from cycle to cycle.

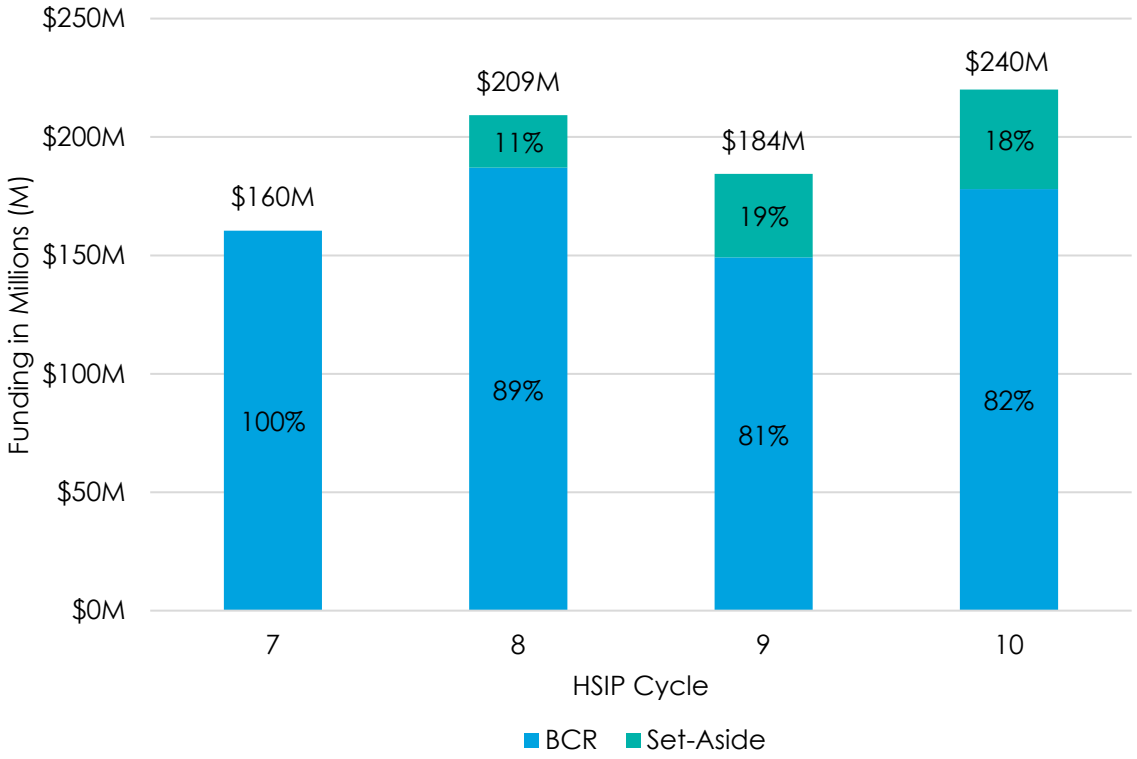
Table 2-7: Local HSIP Funding Set-Asides (Cycles 8-11)

Funding Set-Aside	Cycle 8 ($K)	Cycle 8 ($K)	Cycle 9 ($K)	Cycle 9 ($K)	Cycle 10 ($K)	Cycle 10 ($K)	Cycle 11 ($K)
	Available Funding	Approved Project List	Available Funding	Approved Project List	Available Funding	Approved Project List	Available Funding
Guardrail Upgrades	$20,000	$12,800	$20,000	$20,600	$20,000	$25,694	$12,000
Pedestrian Crossing Enhancements	$10,000	$9,400	$8,000	$12,800	$15,000	$20,497	$15,000
Projects on Tribal Land	N/A	N/A	$2,000	$1,200	$2,000	N/A	$2,000
High Friction Surface Treatment	N/A	N/A	$5,000	$0	N/A	$1,085	N/A
Horizontal Curve Signing	N/A	N/A	$5,000	$649	N/A	$523	N/A
Installing Edge Lines	N/A	N/A	N/A	N/A	$5,000	$3,262	$2,000
Bike Safety Improvements	N/A	N/A	N/A	N/A	N/A	N/A	$5,000
Total	**$30,000**	**$22,200**	**$40,000**	**$35,249**	**$42,000**	**$51,061**	**$36,000**

There were not Funding Set-Asides prior to Cycle 8. A maximum amount per agency is defined for each of the set-asides and can vary from cycle to cycle. For example, the maximum HSIP amount per agency for guardrail upgrades in Cycle 8 was $600K and in Cycle 11 is $1,000K. There were not any projects that utilized the set aside on Cycle 9 for HFST; however, there were projects that included HFST, but they were BCR projects.

The percent of funding for projects on the Approved Project List for HSIP Cycles 7-10 for set-aside and BCR per cycle is shown in Figure 2-9. Set-aside amounts increased between Cycle 8 to 10 due to the demand for those funds and a recognition of the importance of investing in proven countermeasures.

Figure 2-9: Local HSIP Set-Aside and BCR Funding



Note: Approved Project List for Local HSIP Cycles 7-10.

A systemic approach to safety involves widely implemented improvements based on high-risk roadway features correlated with specific severe crash types and is not based on crash history at the specific location. Spot improvements consist of identifying locations with a high crash history and identifying safety improvements. Systemic improvements tend to be proactive and spot improvements tend to be reactive. While the hotspot approach is reactive in the sense that it focuses on sites that have already experienced crashes, the systemic approach employs both reactive and proactive components. The hotspot approach is reactive since it uses historical crash data to identify the type of roadways that suffer from recurring safety challenges, while it is proactive since it provides a mechanism to also make improvements at sites that, while they share the same design and operational attributes, have not experienced many, or any, crashes. Figure 2-10 illustrates how different road safety management approaches are spread across a reactive-proactive continuum.

Figure 2-10: The Systemic Approach on the Reactive-Proactive Continuum

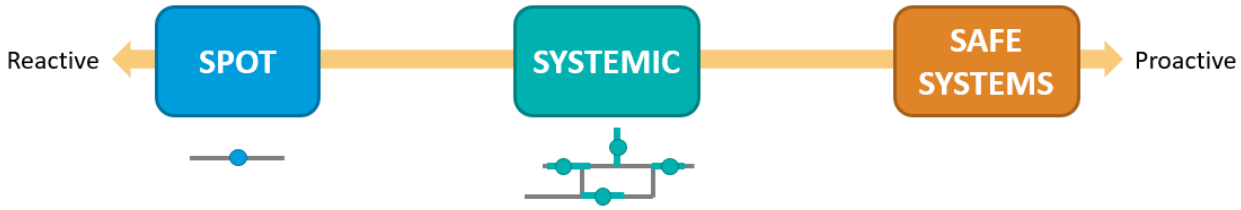
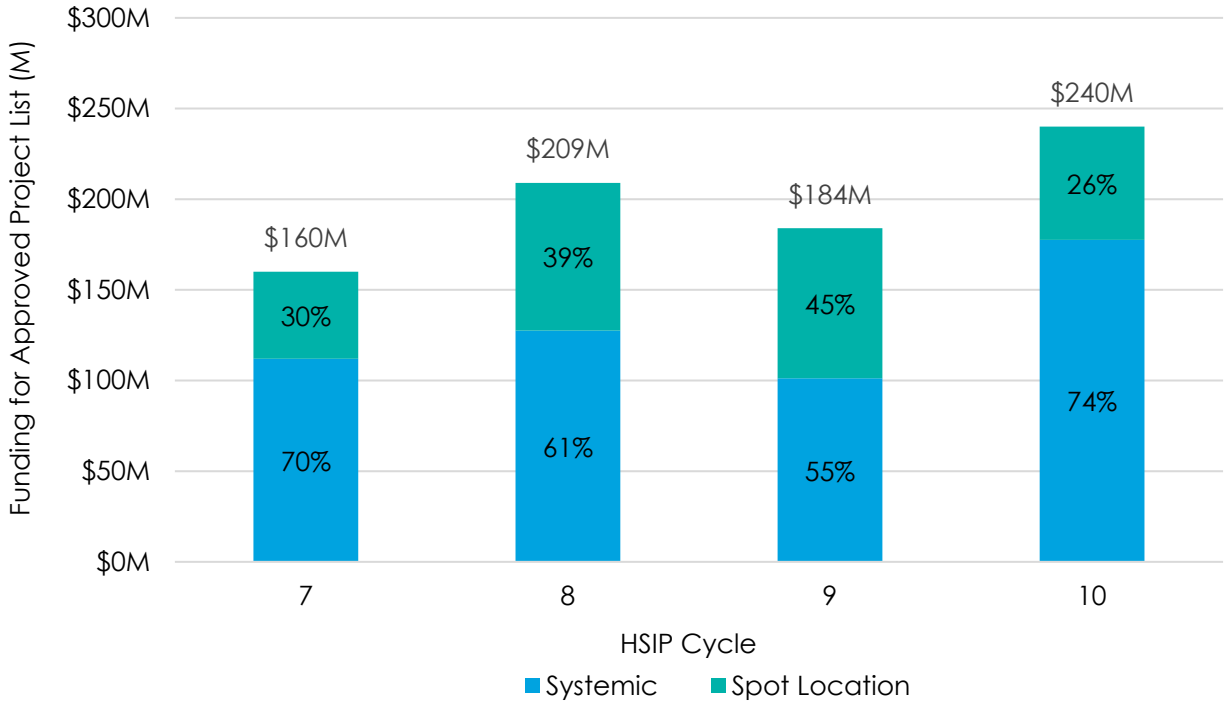


Figure 2-11 shows the percent of funding in the Approved Project List for HSIP Cycles 7-10 for spot locations versus systemic improvements by cycle.

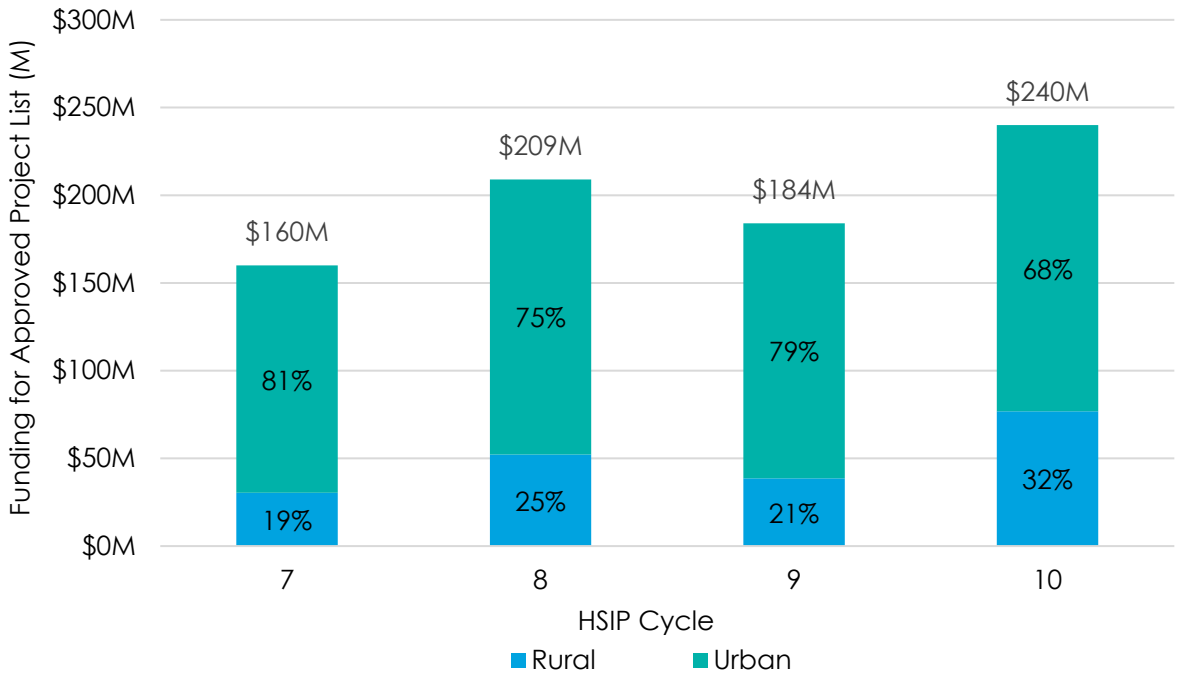
Figure 2-11: Local HSIP Spot and Systemic Improvement Funding



Note: Approved Project List for Local HSIP Cycles 7-10.

Figure 2-12 presents the percent of funding on the Approved Project List for HSIP Cycles 7-10 for urban and rural areas by cycle. Projects on urban roadways averaged at least three-quarters of the funds in the Approved Project List for HSIP Cycles 7-10.

Figure 2-12: Local HSIP Urban and Rural Funding



Note: Approved Project List for Local HSIP Cycles 7-10.

A total of 294 agencies were selected for the Approved Project List for HSIP Cycles 7-10. Table 2-8 shows the top ten agencies by project cost on the Approved Project List for HSIP Cycles 7-10, the total amount approved for projects for these top ten agencies, and the remaining approved funding to the remaining agencies. Five of the 10 (Los Angeles, Oakland, Riverside County, Los Angeles County, and Norwalk) are in the three Caltrans Districts that represent half of the fatalities in the State.

Table 2-8: Local HSIP Top 10 Funded Agencies

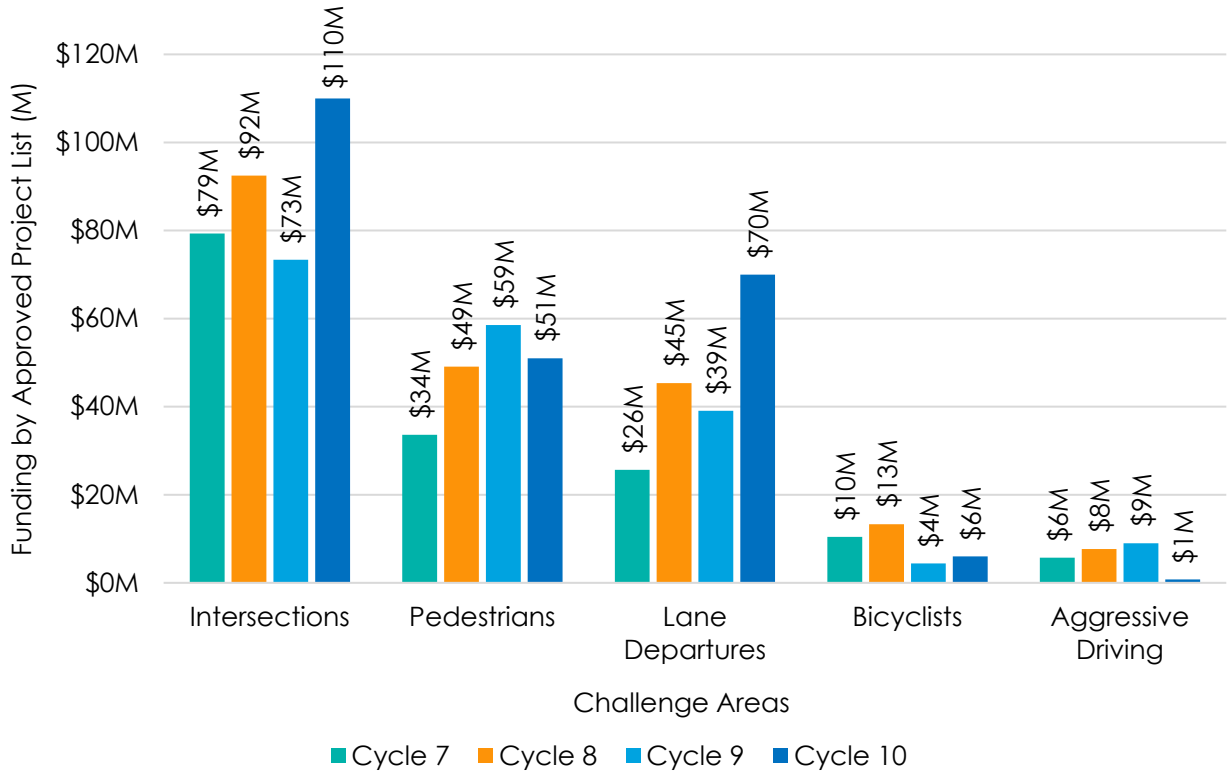
Agency	HSIP Funding Total - (Cycles 7-10) ($K)	Percent of Total
Riverside County	$26,681	3.36%
Sacramento City	$23,633	2.98%
Oakland	$23,595	2.97%
Los Angeles	$22,956	2.89%
Sacramento County	$18,832	2.37%
El Dorado County	$16,789	2.11%
Kern County	$13,034	1.64%
Contra Costa County	$12,686	1.60%
Los Angeles County	$11,499	1.45%
Norwalk	$10,196	1.28%
Total Funding Distributed to Top 10 Agencies	$179,901	22.66%
Total Funding for Other Agencies	$613,972	77.34%
Total Funding	**$793,873**	**100.00%**

Note: Approved Project List for Local HSIP Cycles 7-10.

The Approved Project List for HSIP Cycles 7-10 was evaluated by the SHSP Challenge Area most applicable to the countermeasures for each project as identified in the HSIP application. HSIP Cycle 7 applications reflected the 2010-2014 SHSP Challenge Areas, while Cycles 8 and 9 reflected the 2015-2019 SHSP Challenge Areas. For consistency, Cycle 7 Challenge Areas were manually adjusted to match the Cycle 8 and Cycle 9 SHSP Challenge Areas. Cycle 10 Challenge Areas were consistent with the 2020-2024 SHSP plan.

Figure 2-13 summarizes projects on the Approved Project List for HSIP Cycles 7-10 by the most identified SHSP Challenge Areas. Challenge Areas not shown in the chart were identified in less than five applications over the three cycles. Intersection projects had the highest percentage of approved projects.

Figure 2-13: Local HSIP Funding per SHSP Challenge Area

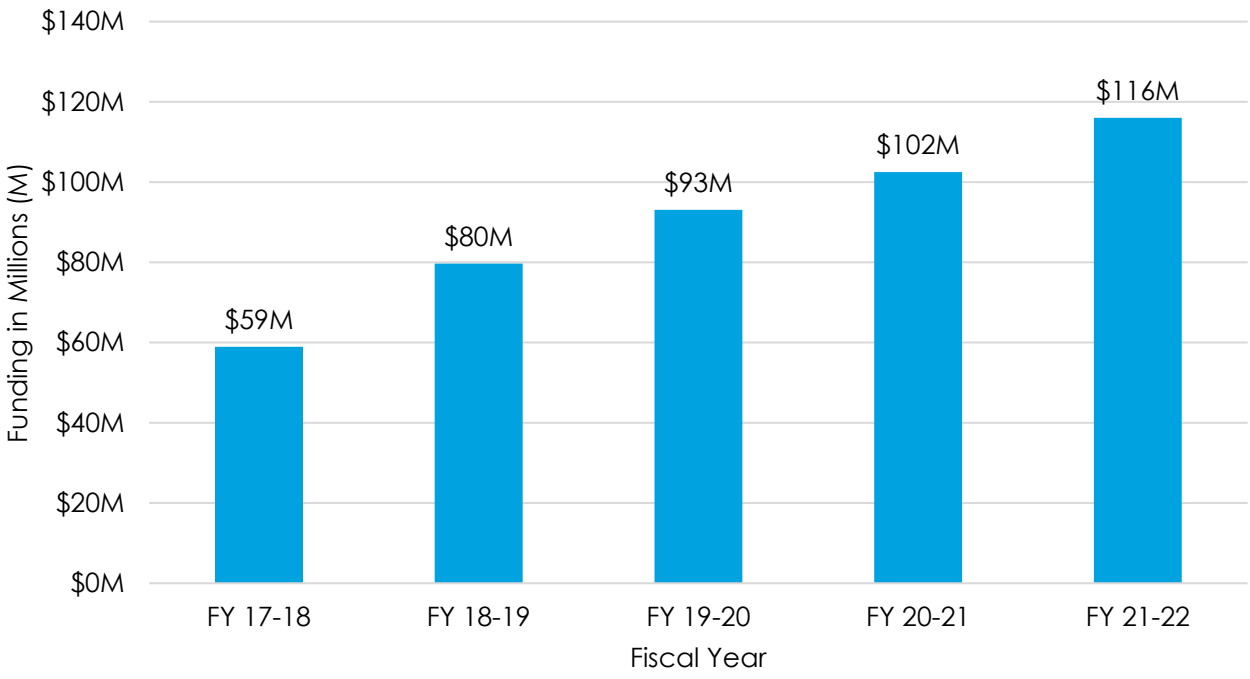


Notes: Projects can address multiple Challenge Areas, and funding is summarized in each Challenge Area identified to be impacted by the project. Approved Project List for Local HSIP Cycles 7-10.

2.3.2.2 California Local HSIP Projects, Construction Authorization Date, FY 2017-2018 to FY 2021-2022.

Figure 2-14 shows the projects approved for construction for FY 2017-2022 categorized as spot improvements or systemic projects. The total amount for construction authorized projects ranged from $59 million to $116 million.

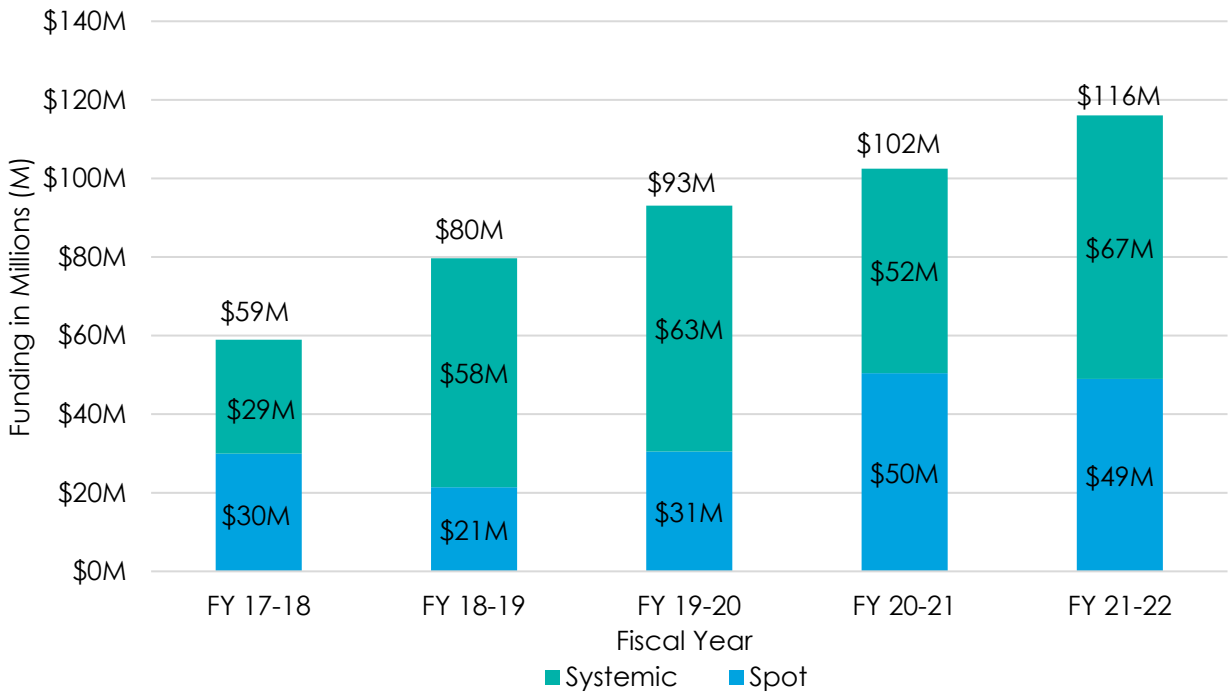
Figure 2-14: Local HSIP Projects by Year



Note: Local HSIP Projects, Construction Authorization Date, FY 2017-2018 to FY 2021-2022.

Figure 2-15 shows the projects authorized for construction categorized as spot improvements or systemic projects. Approved systemic projects have increased, over the last five fiscal years, to more than 50% of the construction authorized projects in FY 2021-2022.

Figure 2-15: Local HSIP Systemic and Spot Projects

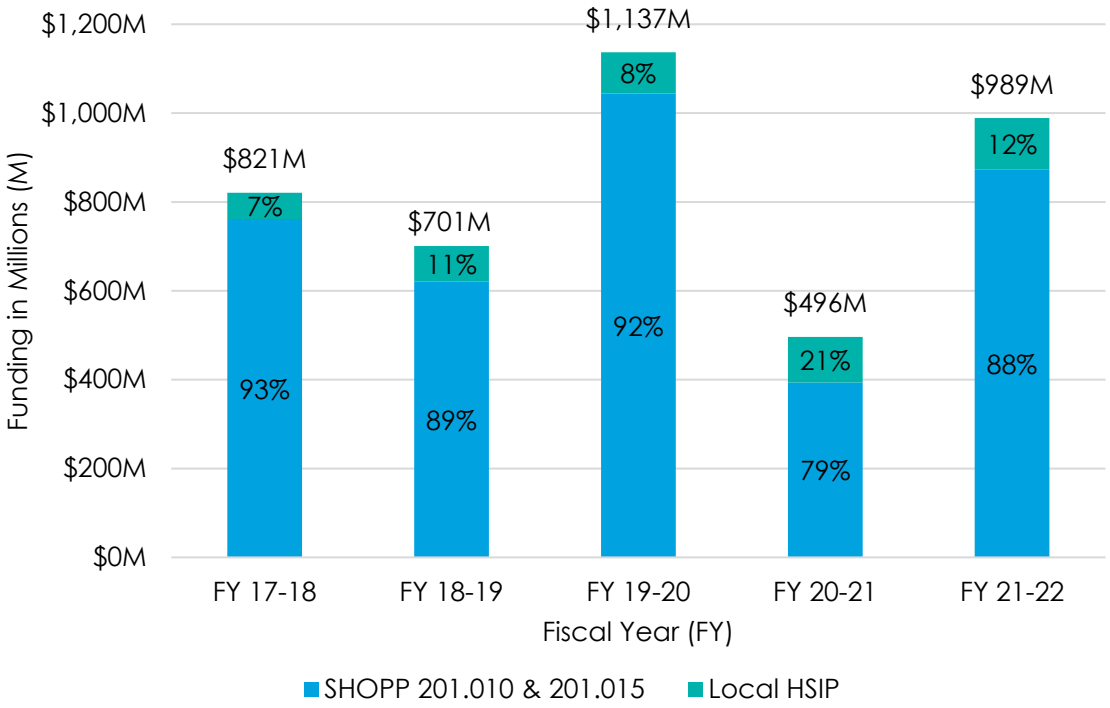


Note: Local HSIP Projects, Construction Authorization Date, FY 2017-2018 to FY 2021-2022.

2.3.3 Summary of Highway Safety Funding

Figure 2-16 summarizes the California HSIP projects for both the Local HSIP (construction authorization date, FY 2017-2018 to FY 2021-2022) and the State SHOPP allocation (by State FY). In FY 2021-2022, the State authorized $989 million in safety improvements.

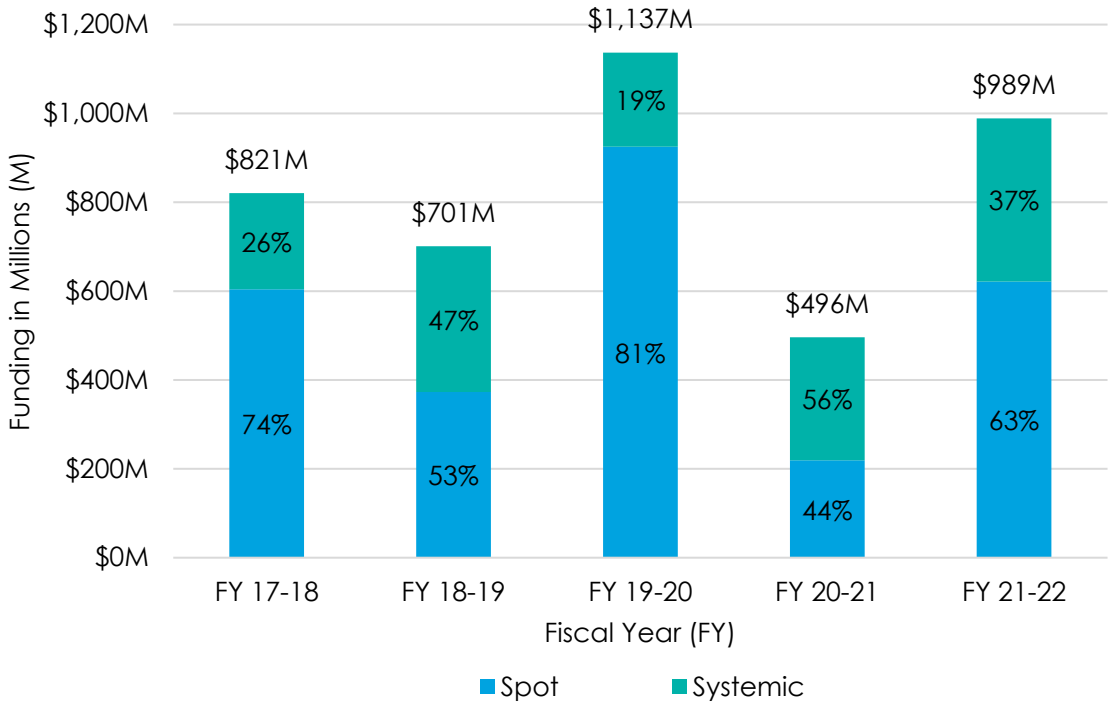
Figure 2-16: Local HSIP and State SHOPP 201.010 and 201.015 Programmed Projects (FY 2017-2018 to FY 2021-2022)



Note: Local HSIP Projects, Construction Authorization Date, FY 2017-2018 to FY 2021-2022.

Figure 2-17 shows the amount by fiscal year for spot and systemic improvements for both the Local HSIP and SHOPP Programs.

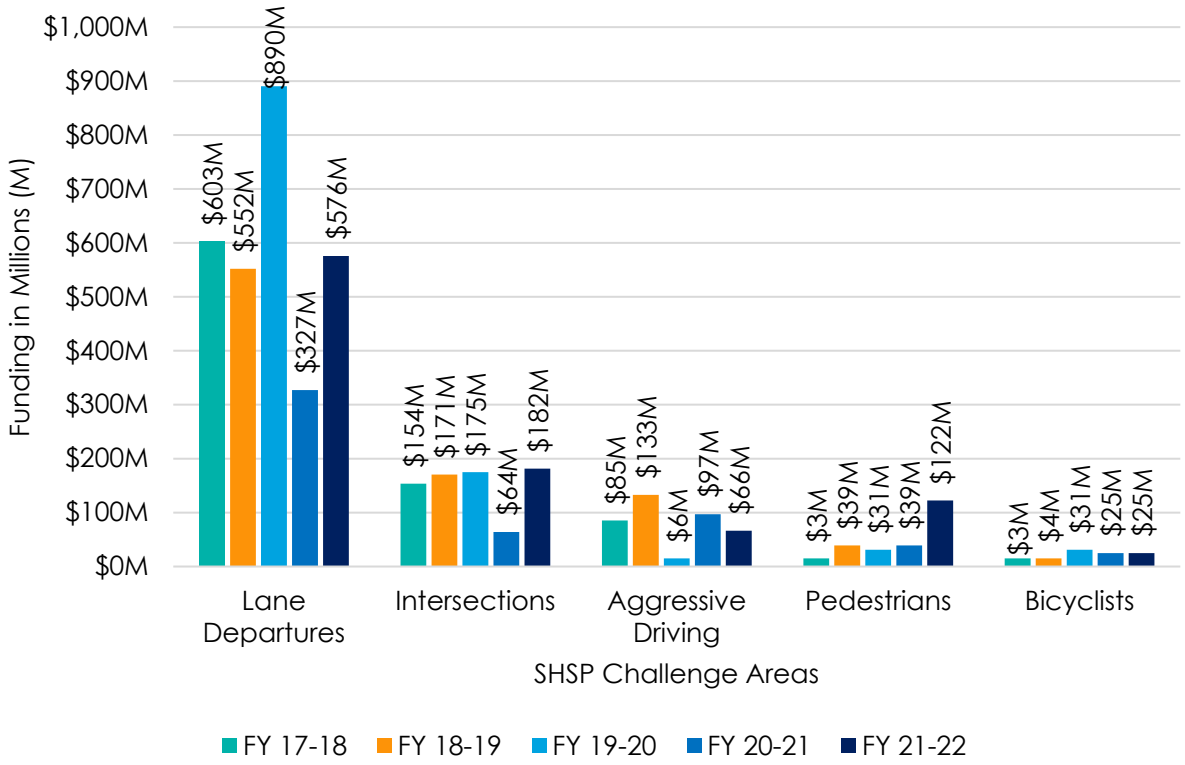
Figure 2-17: Local HSIP and State SHOPP 201.010 and 201.015 Programmed Spot and Systemic Improvements



Note: Local HSIP Projects, Construction Authorization Date, FY 2017-2018 to FY 2021-2022.

Figure 2-18 summarizes the amount for approved projects for the Local HSIP and SHOPP Programs by the five SHSP Challenge Areas with the highest amount of funding.

Figure 2-18: Local HSIP and State SHOPP 201.010 and 201.015 Funding by SHSP Challenge Area (FY 2017-2022)



Note: Projects can address multiple challenge areas and funding is summarized for each challenge area impacted by the project. Local HSIP Projects from Construction Authorization Date lists (FY 17-18 to FY 21-22).

Table 2-9 shows the Local HSIP and State SHOPP funding by District. Most of safety funds are allocated to projects on the SHS due to the significant investment of State funds into SHOPP programs.

Table 2-9: Local HSIP and State SHOPP Funding by District (FY 2017-2022)

District #	District Name	Local HSIP ($K)	State SHOPP Funding ($K)	Total ($K)	Percent of Total
3	Marysville/Sacramento	$81,485	$779,775	$861,260	18.54%
4	Bay Area/Oakland	$73,169	$719,327	$792,496	17.06%
8	San Bernardino/Riverside	$66,754	$686,288	$753,042	16.21%
1	Eureka	$8,331	$441,879	$450,210	9.69%
7	Los Angeles	$104,527	$312,577	$417,104	8.98%
5	San Luis Obispo/Santa Barbara	$29,385	$305,472	$334,857	7.21%
12	Orange County	$26,827	$292,516	$319,343	6.88%
10	Stockton	$46,292	$151,247	$197,539	4.25%
6	Fresno/Bakersfield	$34,652	$116,205	$150,857	3.25%
2	Redding	$19,982	$121,783	$141,765	3.05%
11	San Diego	$37,972	$86,725	$124,697	2.68%
9	Bishop	$799	$100,635	$101,434	2.18%
	Total	**$530,175**	**$4,114,429**	**$4,644,604**	**100.00%**
	Percent of Total	**11%**	**89%**	**100.00%**	

Notes: Approved Project List (FY 2016-2017 to 2021-2022). SHOPP funding includes a combination of federal HSIP funding and State funding (FY 2016-2017 to FY 2021-2022).

2.4 Review of Historical Project Performance

2.4.1 Project Performance

The 2022 HSIP Annual Report summarized before-and-after crash data for 48 SHOPP projects to develop conclusions for the effectiveness of specific project types. As summarized in the 2022 HSIP Annual Report, some projects had very high BCRs, and other projects had low BCRs. The projects with low BCRs generally had an increase in fatalities and serious injuries in the after period, resulting in low BCRs. Due to the random nature of fatal and serious injury crashes, similar project types could be grouped together in the future to calculate the BCRs.

Prior to 2020, Caltrans DLA did not measure project effectiveness from a three-year before-and-after evaluation for the Local HSIP because they did not request after-crash data. The Local HSIP now requests three years of after-crash data, so before-and-after evaluations will be documented in the next HSIP Annual Report.

2.4.2 Countermeasure Effectiveness

Caltrans DLA typically refers to the Crash Modification Factor (CMF) Clearinghouse for countermeasure effectiveness data. Additionally, the Local Roadway Safety – A Manual for California's Local Road Owners, Version 1.5, April 2020 contains standardized CMFs for common safety countermeasures used by local agencies. Caltrans does not currently have a policy for completing countermeasure effectiveness evaluations.

2.4.3 Program Performance

The State measures its program success on the number and amount of annual HSIP obligations, increased awareness for safety and data-driven processes, increased focus on local road safety, and more systemic programs.

Caltrans has implemented various programs, data collection systems, and crash analysis processes that assist efforts to reduce fatalities and serious injuries. Caltrans has also established a multi-prong approach to tracking crashes that includes coordinating between District and Headquarters and tracking crash characteristics that have historically been most common. Further, Caltrans has developed an internal tool to overlay roadway and crash data to assist with crash monitoring. High-level details are provided in the following sections, with the State Highway Safety Improvement Program Guidelines (2017) providing more detailed information.

2.4.3.1 Monitoring Programs

Caltrans Headquarters analyzes crash data and produces annual reports for multiple crash monitoring programs along the SHS that identify locations to be investigated by the districts. The reports are based on criteria that identify locations where an engineering analysis should be performed. The districts review the reports, prioritize the proposed improvement locations, and submit a project request to Headquarters. After review and comment, Headquarters responds to the district(s) with approval to proceed with the recommended improvements. These projects are expedited and delivered as soon as practical. Projects that result from the following monitoring programs are included in the SHOPP 201.010 Program – Safety Improvements:

- Bicyclist Safety Improvement Monitoring Program
- Cross Over Collision Monitoring Program
- Run-Off-Road Collision Monitoring Program
- Pedestrian Safety Improvement Monitoring Program
- Pedestrian Systemic Safety Improvement Program
- Wrong Way Collision Monitoring Program

These crash monitoring programs focus on areas where proven countermeasures can reduce the specific types of crashes on roadways within the State. Caltrans is continually looking to improve the monitoring programs.

2.4.3.2 Table C

Caltrans SHS facilities are divided into three categories: highway segments, intersections, and ramps, and then subdivided into groups with similar facility features or characteristics called "rate groups." These rate groups are currently used to compare crash histories at individual sites to the average of all sites within a rate group. A statistical significance test, using rate groups as a factor, is performed for each SHS route, then analyzed using established criteria and network screening methods. The outcome of the significance test is "Table C."

The current factors used in determining Table C locations include traffic volumes, crash records, location, highway type, and rate group. The rate group represents the average crash distribution or rate characteristics for highway segments, intersections, and/or ramps meeting established criteria. This information is used with significance testing results to compare like or similar facility segments.

Table C contains a list of required investigation locations within each District. It is commonly used to identify 0.2-mile roadway segments, intersections, and/or ramps that trigger a safety investigation that may lead to a safety improvement recommendation.

2.4.3.3 Transportation System Network (TSN)

The Traffic Accident Surveillance and Analysis System – Transportation System Network (TASAS-TSN) is used to analyze crash, traffic, and highway data associated with the SHS. It combines the crash and highway inventory databases and incorporates census data to help users identify, prioritize, schedule, and evaluate safety improvements on all State highway facilities.

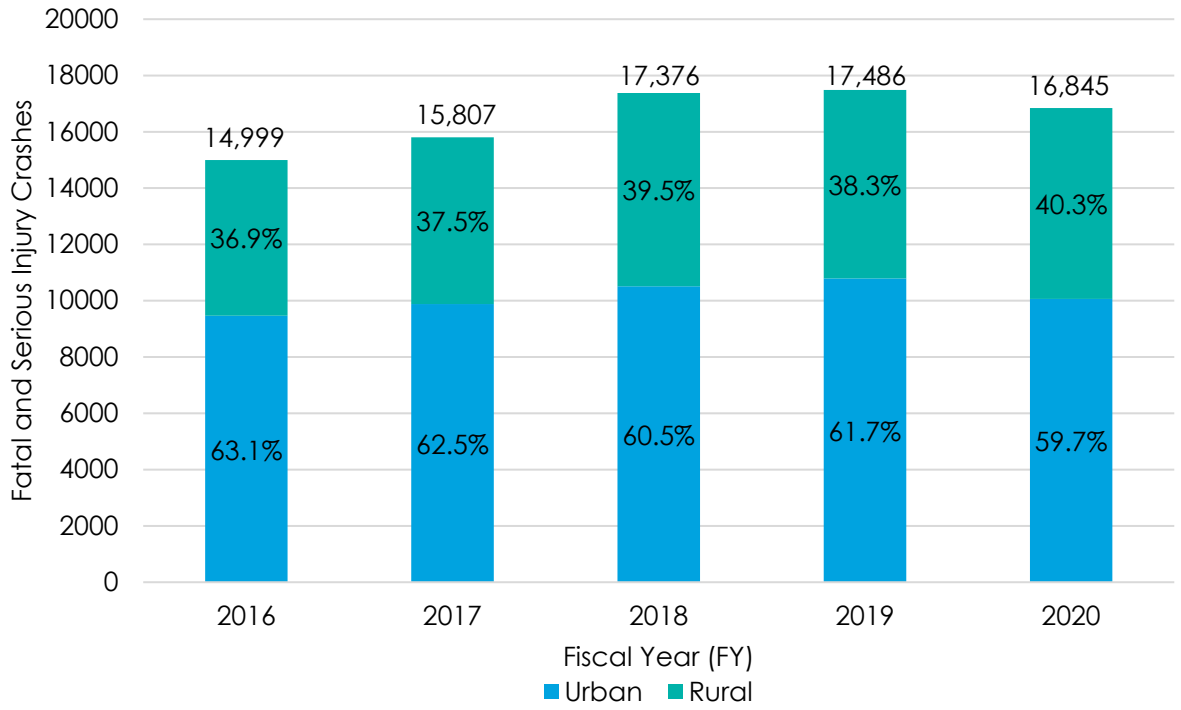
The system is currently limited in its functionality to exchange data between agencies, incorporate non-SHS facilities data, incorporate bicycle and pedestrian data, and provide geospatial information. Caltrans has plans to upgrade this tool over the next few years.

CHAPTER 3. CRASH DATA

Crash data from the most recent five-year period (2016-2020) was evaluated to identify trends in statewide fatalities and serious injuries. There was a total of 82,513 recorded fatal and serious injury crashes in the State from 2016-2020.

Figure 3-1 summarizes the percentage of fatal and serious injury crashes that occurred on rural and urban roadways. The data shows that approximately 60% of fatal and serious injury crashes occur on urban roadways and 40% occur on rural roadways.

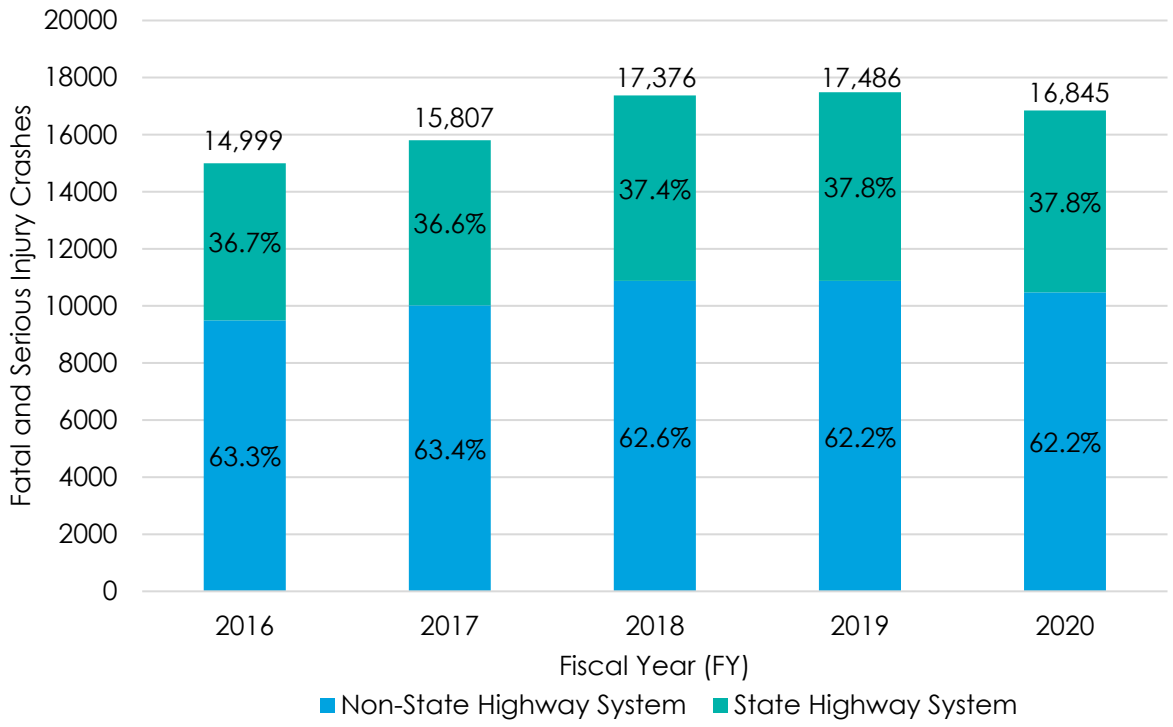
Figure 3-1: Fatal and Serious Injury Crashes by Location (2016-2020)



Notes: Data source is California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS).

Figure 3-2 summarizes the fatal and serious injury crashes by roadway ownership. The data shows that approximately two-thirds of crashes occur on non-SHS roadways and one-third occur on the SHS. This highlights the importance of funding local improvement projects on non-SHS roadways through HSIP and not just the SHS roadways.

Figure 3-2: Fatal and Serious Injury Crashes by Ownership (2016-2020)



Notes: Data source is California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS).

Table 3-1 summarizes the number of fatal and serious injury crashes that occurred in each District. Over half of the State's fatal and serious injury crashes occurred in three Districts: Los Angeles, Bay Area/Oakland, and San Bernardino/Riverside.

Table 3-1: Fatal and Serious Injury Crashes by Caltrans District (2016-2020)

District #	District Name	Fatal (F)	Serious Injury (SI)	F+SI	Percent of Total
7	Los Angeles	3,852	17,161	21,013	25.47%
4	Bay Area/Oakland	2,246	10,549	12,795	15.51%
8	San Bernardino/Riverside	2,876	7,567	10,443	12.66%
3	Marysville/Sacramento	1,617	6,136	7,753	9.40%
6	Fresno/Bakersfield	2,005	4,576	6,581	7.98%
11	San Diego	1,353	4,912	6,265	7.59%
10	Stockton	1,361	4,442	5,803	7.03%
12	Orange County	935	3,471	4,406	5.34%
5	San Luis Obispo/Santa Barbara	680	3,061	3,741	4.53%
1	Eureka	344	1,367	1,711	2.07%
2	Redding	400	1,300	1,700	2.06%
9	Bishop	53	249	302	0.37%
	Total	**17,722**	**64,791**	**82,513**	**100%**

Table 3-2 shows the number of recorded fatal and serious injury crashes that occurred in the ten counties with the most fatalities and serious injury crashes. The top ten counties with the highest recorded fatal and serious injury crashes resulted in almost 65% of the State's total recorded fatal and serious injury crashes. Los Angeles County accounts for almost one-quarter of all State fatal and serious injury crashes.

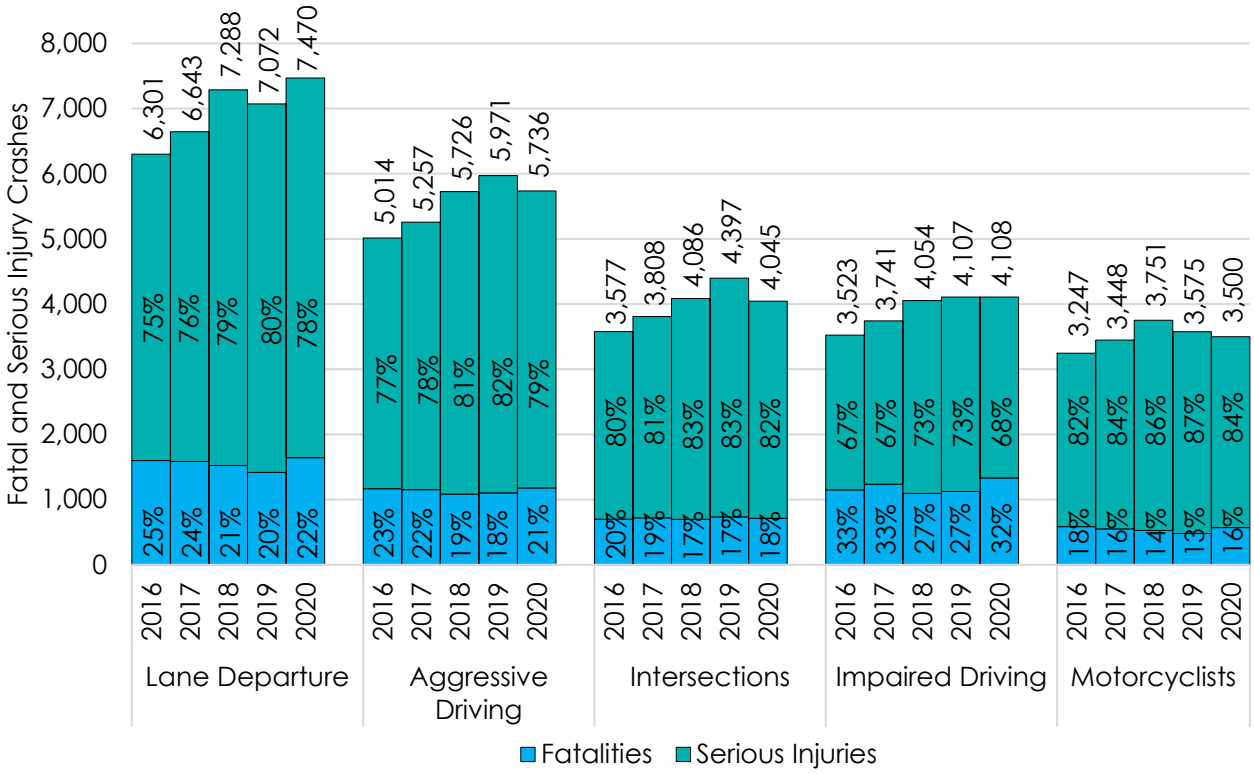
Table 3-2: Fatal and Serious Injury Crashes by County (2016-2020)

County	Fatal (F)	Serious Injury (SI)	F+SI	Percent of Statewide Total
Los Angeles	3,602	15,944	19,546	23.69%
San Diego	1,216	4,631	5,847	7.09%
San Bernardino	1,478	3,815	5,293	6.41%
Riverside	1,398	3,752	5,150	6.24%
Orange	935	3,471	4,406	5.34%
Sacramento	753	2,798	3,551	4.30%
Alameda	443	2,273	2,716	3.29%
Santa Clara	566	1,899	2,465	2.99%
Kern	753	1,676	2,429	2.94%
San Joaquin	542	1,616	2,158	2.62%
Total F+SI in Top 10 Counties	11,686	41,875	53,561	64.91%
Total F+SI in All Other Counties	6,036	22,916	28,952	35.09%
Total F+SI Statewide	**17,722**	**64,791**	**82,513**	**100.00%**

Notes: Data source is California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS).

Figure 3-3 shows the data representing the five Challenge Areas associated with the highest number of fatal and serious injury crashes.

Figure 3-3: Fatal and Serious Injury Crashes by SHSP Challenge Area (2016-2020)



Source: Data from Statewide Integrated Traffic Records System (SWITRS) from the California Highway Patrol (CHP).

CHAPTER 4. COMPARISON OF SAFETY FUNDING TO CRASH DATA

Fatal and injury crash data was compared with safety funding to determine if there were discrepancies between where and what types of fatal and serious injury crashes were occurring, and the funding allocated to those locations. The following sections outline funding and fatal and serious injury crashes by ownership, Caltrans district, county, and SHSP Challenge Area.

4.1 Funding and Crashes by Ownership

Table 4-1 summarizes the funding and fatal and serious injury crashes for SHS and non-SHS roadways. Currently, only 37% of the State's fatal and serious injury crashes occur on the SHS, yet the SHS receives 89% of the safety funding, as Caltrans augments the SHOPP 201.010 and 201.015 Programs with other federal and State funds. There are no other funds available to augment the 11% of the Local HSIP's total funds, which accounts for 63% of the State's fatal and serious injury crashes.

Table 4-1: Funding and Fatal and Serious Injury Crashes by Ownership

Roadway System	F+SI	Percent of Total	Total ($K)	Percent of Total
State Highway System	30,773	37%	$4,114,429	89%
Non-State Highway System	51,740	63%	$530,175	11%
Total	**82,513**	**100%**	**$4,644,604**	**100%**

Notes: Crash data source is California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS). Local HSIP and SHOPP funding from approved project list (FY 2016-2017 to 2021-2022).

4.1.1 Funding and Crashes by Caltrans District

Table 4-2 summarizes fatal and serious injury crashes and crash rates by Caltrans district. In some cases, the amount of funding received for projects within each district is not proportional to the number of fatal and serious injury crashes or crash rates. For example, 9.40% of the fatality and serious injury crashes occurred in District 3 (Marysville/Sacramento), and they received the most (18.54%) of the safety funding over the past five years. Conversely, 25.47% of the fatal and serious injury crashes occurred in District 7 (Los Angeles), yet they received 8.98% of the safety funding. Similar conclusions can be drawn when looking at fatal and serious injury crash rates and funding.

Table 4-2: Funding and Fatal and Serious Injury Crashes by Caltrans District

District #	District Name	F+SI	F+SI Rank	Percent of Total	F+SI Crash Rate*	Rate Rank	Total ($K)	Percent of Total	Funding Rank
1	Eureka	1,711	10	2.07%	9.25	1	$450,210	9.69%	4
2	Redding	1,700	11	2.06%	5.95	3	$141,765	3.05%	10
3	Marysville/ Sacramento	7,753	4	9.40%	5.56	4	$861,260	18.54%	1
4	Bay Area/ Oakland	12,795	2	15.51%	3.89	10	$792,496	17.06%	2
5	San Luis Obispo/ Santa Barbara	3,741	9	4.53%	5.43	5	$334,857	7.21%	6
6	Fresno/ Bakersfield	6,581	5	7.98%	4.79	8	$150,857	3.25%	9
7	Los Angeles	21,013	1	25.47%	5.01	7	$417,104	8.98%	5
8	San Bernardino/ Riverside	10,443	3	12.66%	4.74	9	$753,042	16.21%	3
9	Bishop	302	12	0.37%	5.18	6	$101,434	2.18%	12
10	Stockton	5,803	7	7.03%	6.85	2	$197,539	4.25%	8
11	San Diego	6,265	6	7.59%	3.69	11	$124,697	2.68%	11
12	Orange County	4,406	8	5.34%	3.29	12	$319,343	6.88%	7
	Total	**82,513**		**100%**	**5.30****		**$4,644,604**	**100.00%**	

Notes: Crash data source is California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS). Local HSIP and SHOPP funding from approved project list (FY 2016-2017 to 2021-2022). * Average per 100M VMT. ** Average F+SI crash rate.

4.1.2 Funding and Crashes by County

Table 4-3 contains the top 20 counties that received safety funding compared to fatal and serious injury crashes and crash rate. Similar to the funding by District, there does not seem to be a consistent correlation between funding and fatal and serious injury crashes and/or fatal and serious injury crash rates. It should be noted that these programs are not established to allocate funding by district or by county as both are statewide programs. Each HSIP program relies on the Caltrans district or the local agency to be proactive in completing safety investigations and developing safety projects.

Table 4-3: Funding and Fatal and Serious Injury Crashes by County

County	F+SI	Percent of Total	F+SI Rank	F+SI Crash Rate*	Rate Rank	Safety Funding ($K)	Percent of Total	Funding Ranking
San Bernardino	5,293	6.41%	3	4.65	14	$490,395	10.56%	1
Los Angeles	19,546	23.69%	1	5.05	11	$365,084	7.86%	2
Orange	4,406	5.34%	5	3.29	19	$319,343	6.88%	3
Riverside	5,150	6.24%	4	4.84	13	$262,648	5.65%	4
Alameda	2,716	3.29%	7	3.50	18	$247,476	5.33%	5
Butte	819	0.99%	14	8.39	4	$216,552	4.66%	6
Yuba	322	0.39%	19	8.49	2	$213,922	4.61%	7
Lake	358	0.43%	18	10.74	1	$201,442	4.34%	8
Contra Costa	1,897	2.30%	10	4.04	15	$188,121	4.05%	9
Humboldt	627	0.76%	16	8.43	3	$179,166	3.86%	10
Nevada	388	0.47%	17	6.58	5	$120,539	2.60%	11
San Diego	5,847	7.09%	2	3.72	17	$118,880	2.56%	12
Santa Clara	2,465	2.99%	8	3.13	20	$109,860	2.37%	13
Sonoma	1,195	1.45%	11	5.06	10	$87,614	1.89%	14
Santa Barbara	956	1.16%	13	5.17	9	$84,350	1.82%	15
Sacramento	3,551	4.30%	6	5.35	7	$81,282	1.75%	16
Monterey	1,092	1.32%	12	5.33	8	$80,204	1.73%	17
Placer	799	0.97%	15	3.95	16	$80,040	1.72%	18
Kern	2,429	2.94%	9	4.96	12	$80,017	1.72%	19
Mono	111	0.13%	20	6.36	6	$74,543	1.60%	20
Total in Top 20 Counties	59,967	72.68%	-	5.55	-	$3,601,477	77.54%	-
Total in All Other Counties	22,546	27.32%	-	6.44	-	$1,043,127	22.46%	-
Total	**82,513**	**100%**		**6.13**		**$4,644,604**	**100%**	

Notes: Crash data source is California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS). Local HSIP and SHOPP funding from approved project list (FY 2016-2017 to 2021-2022). * Average per 100M VMT. ** Average F+SI crash rate.

4.1.3 Funding and Crashes by Challenge Area

The lane departure challenge area has the highest amount of fatal and serious injury crashes and funding as shown in Table 4-4. While aggressive driving and impaired

driving have a high percentage of fatal and serious injury crashes, these challenge areas generally relate to behavioral countermeasures and are not funded through the HSIP.

0% funding is shown for motorcycle crashes because motorcycles are identified as a vehicle on the funding application instead of a separate line item. In many cases, roadway improvements also help improve safety for motorcyclists.

Table 4-4: Fatal and Serious Injury Crashes and Funding by Challenge Area

Challenge Area	F+SI Crashes	Percent of Total	HSIP Funding ($K)	Percent of Total
Lane Departure	34,774	42.14%	$3,029,349	65.22%
Aggressive Driving	27,704	33.58%	$303,241	6.53%
Intersections	19,913	24.13%	$840,939	18.11%
Impaired Driving	19,533	23.67%	$1,402	0.03%
Motorcyclists	17,521	21.23%	$0	0.00%
Pedestrians	15,764	19.10%	$328,977	7.08%
Occupant Protection	11,664	14.14%	$0	0.00%
Aging Drivers	10,691	12.96%	$1,739	0.04%
Young Drivers	9,865	11.96%	$0	0.00%
Bicycling	5,773	7.00%	$80,471	1.73%
Commercial Vehicles	5,509	6.68%	$27,643	0.60%
Distracted Driving	3,728	4.52%	$27,131	0.58%
Work Zones	1,158	1.40%	$0	0.00%
Not Specified	0	0.00%	$3,712	0.08%
Total	**82,513**	**100.00%**	**$4,644,604**	**100.00%**

Notes: Crash data source is California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS). Local HSIP and SHOPP funding from approved project list (FY 2016-2017 to 2021-2022). Projects can address multiple challenge areas and funding is summarized for each challenge area impacted by the project. Consequently, the total number of fatal and serious injury crashes filtered by challenge area is greater than the total number of fatal and serious injury crashes that occurred.

CHAPTER 5. NOTEWORTHY PRACTICES AND EFFECTIVE COUNTERMEASURES

In the summer of 2020, Caltrans and the SHSP Executive Leadership Committee decided to pivot the SHSP and institutionalize four guiding principles with the goal of making significant progress towards reducing fatalities and serious injuries in the State. The pivot focuses on integrating the following four pillars of safety in the development and implementation of the SHSP.

- Integrate Equity
- Implement Safe System Approach
- Double Down on What Works
- Accelerate Advanced Technology

As Caltrans advances the changing paradigm of safety within the State, the HSIP should also pivot to better align with the guiding principles of the SHSP. The following sections summarize the newly adopted guiding principles of the SHSP.

5.1 Integrate Equity

Integrating equity is essential to addressing institutional and systemic racial bias that has resulted in negative impacts to certain populations. Caltrans wants to ensure that the processes, strategies, and outcomes of the SHSP and HSIP serve all, but especially vulnerable and traditionally underserved populations.

To completely institutionalize equity, Caltrans is reviewing all aspects of the HSIP and SHSP processes. The dictionary defines equity as "fairness or justice in the way people are treated." There is a difference between equality and equity, and in the past, Caltrans approached safety from an equality standpoint, which is why Caltrans is now developing a plan to take the bold action and pivot to looking at it more through an equity lens. As part of the change to the SHSP, Caltrans would like to:

- Formally incorporate equity in the implementation of all strategies, currently proposed actions, and future action development criteria and evaluation.
- Expand data sets and evaluate existing ones for inherent biases.
- Increase participation from individuals or agencies representing traditionally underserved populations in the SHSP Committee and team membership at all levels.
- Ensure that outreach activities are inclusive of and targeted to traditionally underserved and vulnerable populations.

- Partner across multiple divisions to develop an area-based Equity Index Score to be used for equity considerations in the project identification and selection process.
- The working definition of Equity has been developed and is as follows: *"Everyone has the right to travel safely on California's public roads — regardless of race, socioeconomic status, gender, age, and ability. When developing and implementing the SHSP, equity means taking into account any historical, present-day, and systemic biases so that safety is improved for all groups, particularly our most vulnerable and traditionally underserved populations. Equity will be integrated into all aspects of the SHSP, including the 5 Es of Education, Enforcement, Engineering, Emergency Response, and Emerging Technologies, so that a comprehensive, inclusive and equitable approach can be taken to implement solutions to save lives on all of California's public roads."*

To align with this guiding principle of the SHSP, HSIP funding applications should also consider how equity can be incorporated and addressed.

5.2 Implement Safe System Approach

The Safe System Approach is founded on the principles that people will always make mistakes leading to crashes and that the road system should be designed in a way that is as forgiving as possible, so all users are protected from serious injury or death in the event a crash occurs. The United Nations has recognized the implementation of Safe System strategies and principles as a critical component of improving road safety worldwide.

The FHWA is currently developing a document summarizing the Safe System Approach and how it relates to SHSPs and HSIPs, which is expected to be released soon. This document is expected to include six foundational principles.

- Death or serious injury is unacceptable: While no crashes are desirable, the Safe System Approach prioritizes crashes that result in death and serious injuries, since no one should experience either when using the transportation system.
- Humans make mistakes: People will inevitably make mistakes that can lead to crashes, but the transportation system can be designed and operated to accommodate human mistakes and injury tolerances and avoid death and serious injuries.
- Humans are vulnerable: People have limits for tolerating crash forces before death and serious injury occurs; therefore, it is critical to design and operate a transportation system that is human-centric and accommodates human vulnerabilities.

- Responsibility is shared: All stakeholders (transportation system users and managers, vehicle manufacturers, etc.) must ensure that crashes do not lead to fatal or serious injuries.
- Redundancy is crucial: Reducing risks requires that all parts of the transportation system are strengthened, so that if one part fails, the other parts still protect people.
- Safety is proactive, not reactive: Proactive tools should be used to identify and mitigate latent risks in the transportation system, rather than waiting for crashes to occur and reacting afterwards.

The Safe System Approach requires making a commitment to zero deaths by addressing every aspect of crash risk through five elements. These layers of protection and shared responsibility promote a holistic approach to safety across the entire transportation system.

- Safe road users: The Safe System Approach addresses the safety of all road users, including those who walk, bike, drive, ride transit, and travel by other modes.
- Safe vehicles: Vehicles are designed and regulated to minimize the occurrence and severity of crashes using safety measures that incorporate the latest technology.
- Safe speeds: Humans are unlikely to survive high-speed crashes. Reducing speeds can accommodate human injury tolerances in three ways: reducing impact forces, providing additional time for drivers to stop, and improving visibility.
- Safe roads: Designing to accommodate human mistakes and injury tolerances can greatly reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.
- Post-crash care: When a person is injured in a crash, they rely on emergency first responders to quickly locate them, stabilize their injury, and transport them to a medical facility. Post-crash care also includes forensic analysis at the crash site, traffic incident management, and other activities.

Where possible, future HSIP projects should focus on:

- Separating users in a physical space (e.g., sidewalks, dedicated bicycle facilities).
- Separating users in time (e.g., Leading Pedestrian Intervals (LPIs), pedestrian scrambles, dedicated turn phases).
- Alerting users to potential hazards (e.g., emerging and advanced technology).

- Accommodating human injury tolerance through interventions that reduce speed or impact force (e.g., modifications to roadways to reduce speeds).

5.3 Double Down on What Works

To institute change and reduce fatalities and serious injuries, it is imperative to focus on countermeasures that work (FHWA Proven Safety Countermeasures (PSCs) and countermeasures with high Crash Reduction Factors (CRFs)). With the pivot of the SHSP, strategies and actions are being developed to focus on PSCs that result in reductions in fatalities and serious injuries.

In reviewing HSIP project applications, Caltrans currently references the CMF Clearinghouse for PSCs and includes standardized CRFs in the Local Roadway Safety Manual for California Local Road Owners, Version 1.5, April 2020. Caltrans should continue implementing PSCs for the HSIP funding application process. Countermeasures should not only include "hot spot" recommendations that often yield high BCRs, but also systemic improvements that do not always yield BCRs as high as "hot spot" recommendations to account for the random nature of crashes (especially in rural areas) but are proactive in reducing crashes.

5.4 Accelerate Advanced Technology

Technology can play a key role in improving safety on all roadways, whether it be enhancements to vehicle design and communications, Intelligent Transportation Systems (ITS), or more robust collection and analysis of safety data. As part of the pivot of the SHSP, Caltrans is embracing and promoting technological innovations that can improve safety on all roadways by including it as a guiding principle of the SHSP, one of the overall Five E overall strategies, and is a separate Challenge Area.

The rate of technology development is expected to continue to increase rapidly. To accelerate the deployment of new technologies, Caltrans envisions new partnerships with manufacturers, technology providers, emergency medical and trauma systems, safety/health groups, and the public sector. These new and expanded partnerships will help Caltrans to identify and prioritize safety applications and opportunities, evaluate safety benefits, and increase consumer interest and adoption through education and incentives.

To align with this guiding principle, Caltrans may consider incorporating advanced technology into future HSIP projects.

CHAPTER 6. HSIP PROGRAM OVERVIEW

6.1 Funding Allocation

Caltrans receives an average of $222 million in federal HSIP funds and adds additional State funds to support safety projects. Per the California Streets and Highways Code, Chapter 6.5, Section 2333, 50% of the HSIP funds are to be allocated to the SHS and 50% to the non-SHS. The State will allocate 50% of the HSIP funds to the SHOPP and supplement with additional State funds. It is anticipated that approximately 60% of the funds will be allocated to the SHOPP 201.010 (reactive) Program and 40% of the funds will be allocated to the SHOPP 201.015 (proactive) Program. The exact amount of funding for the SHOPP Program had not been determined at the writing of this document.

For Local HSIP Cycle 11, the following funding allocation for set-asides have been established. Table 6-1 summarizes Local HSIP set-aside funding allocation. Caltrans expects to spend approximately 20% of the anticipated funding on set-aside projects and the remaining funding on BCR projects. Exact funding amounts may vary based on the applications received from the local agencies.

Refer to Figure 2-6 for the typical breakdown of HSIP and RHCP funding apportionment, which includes Local HSIP and State HSIP funding programs.

Table 6-1: Local HSIP Funding Allocation for Cycle 11

Categories	Cycle 11 ($K)
Set-Asides	
Guardrail Upgrades	$12,000
Pedestrian Crossing Enhancements	$15,000
Installing Edge Lines	$2,000
Bike Safety Improvements	$5,000
Tribes	$2,000
BCR Projects	$174,000
Total	**$210,000**

6.2 Methodology for Identifying Projects

Caltrans has a well-documented methodology for identifying safety projects. The following sections provide an overview of the methodology and process for identifying SHOPP and Local HSIP projects. Table 6-2 provides the methodology and implementation of the programs.

Table 6-2: Summary of Safety Programs

Program	Purpose	Cost	Methodology and Implementation	Benefit
201.010 Safety Improvement Projects	Reactive approach based on analysis of crash history	Approximately 62% of the SHOPP safety funds	• Bicyclist Safety Improvement Monitoring Program • Bicyclist Systemic Safety Improvement Program • Cross Over Collision Monitoring Program • Pedestrian Safety Improvement Monitoring Program • Pedestrian Systemic Safety Improvement Program • Run-Off-Road Collision Monitoring Program • Table C • Wet Table C • Wrong Way Collision Monitoring Program • Wrong Way Driver Systemic Safety Improvement Program	Projects in FY 2022 SHOPP are anticipated to reduce the number of crashes on the SHS by 4,425

Program	Purpose	Cost	Methodology and Implementation	Benefit
201.015 Collision Severity Reduction Projects	Proactive safety improvements to reduce the potential for traffic crashes based on past performance of roadway characteristics	Approximately 26% of the SHOPP safety funds	• Crosswalk safety improvements • Glare screen • Left-turn channelization • New/upgraded crash cushions • New/upgraded guardrail • New/upgraded guardrail transitions and end treatments • Overcrossing pedestrian fencing • Rock fall mitigation • School zone signals • Shoulder/centerline rumble strips • Other considerations	Projects in FY 2022 SHOPP are anticipated to reduce the number of crashes on the SHS by 254
Local HSIP Projects	Safety improvements on local roadways	Each cycle varies depending on programming capacity, so $210 million is available for Cycle 11 (due September 12, 2022) HSIP funds	• BCR funding (spot location and systemic approach) • Funding set-asides	Local agencies use the HSIP Analyzer to calculate the BCR for BCR funding while projects requesting funding set-asides do not require a BCR

Program	Purpose	Cost	Methodology and Implementation	Benefit
RHCP-Railway-Highway Crossing Program	Provide funds for safety improvements to reduce the number of fatal and injury crashes at public railway-highway grade crossings	Approximately $16 million apportioned by formula as a set-aside from HSIP	• Active warning equipment installation/upgrades • Approach improvements • Grade crossing elimination • Roadway geometry improvements • Signage and pavement marking improvements • Visibility improvements	Reduce the number and/or severity of crashes and to reduce pedestrian fatalities and injuries from trespassing at grade crossings

6.2.1 State HSIP Projects

The SHOPP is a multi-year program of transportation projects on the SHS. The main objective of SHOPP is to preserve and protect the SHS without adding capacity. Within the Safety/Collision Reduction category of SHOPP, there are two programs that receive a portion of the HSIP funds:

- 201.010 Safety Improvements: Reactive approach based on analysis of crash history
- 201.015 Collision Severity Reduction: Proactive safety improvements to reduce the potential for traffic crashes based on past performance of roadway characteristics

The following sections summarize the two programs on the SHS, and more details are available in the State Highway Safety Improvement Program Guidelines (2017).

6.2.1.1 201.010 Safety Improvements

The purpose of 201.010 Safety Improvement program is to fund Caltrans' top priority safety projects. Projects in the 201.010 program are funded as soon as the project initiation document is approved and are intended to address locations with a history of crash concentrations. Historically, approximately 75% of the SHOPP safety funding is allocated to the 201.010 Safety Improvements Program.

There are two different methods used to identify safety projects for 201.010 funding: TSI and monitoring program reports. Projects must have a TSI over 200, which indicates the benefit (total crash cost saved to motorists over the project life) is at least twice the project construction cost, to qualify as a 201.010 safety improvement project; however, a TSI of 230 is recommended.

Table C and Wet Table C hotspots can qualify as a safety project using the TSI methodology. A list of Table C hotspots is provided to the districts annually and the hotspots are based on the crash experience at the hotspot location. Commonly recommended safety improvements for Table C hotspots are new signals, modified signals, curve improvements, rumble strips, and shoulder widening. A list of Wet Table C hotspots is also provided to the districts annually and the hotspots are based on the crash experience in wet conditions at the hotspot location. Commonly recommended safety improvements for Wet Table C hotspots are high friction surface treatment, open graded asphalt concrete, pavement grooving, and localized drainage improvements.

Caltrans headquarters analyzes crash data and distributes other data monitoring program reports to the districts annually. The monitoring program reports use a data-driven process to identify locations where an engineering investigation and analysis needs to be conducted. Caltrans currently has the following monitoring programs:

- Bicyclist Safety Improvement: This monitoring program addresses fatal and injury-related bicycle crashes on the SHS by identifying high crash concentration locations. Traffic safety investigations determine probable cause and identify potential countermeasures to reduce crashes involving bicyclists. Commonly recommended improvements include bike lanes, buffered bike lanes, bike boxes, warning signs, and safety pavement markings.
- Bicyclist Systemic Safety Improvement Program: This program uses a proactive approach to identify locations that may experience crashes based on specific roadway features that are associated with a bicyclist-related crash type and provides improvements that can be implemented at locations throughout the SHS. The inaugural report will be released by the end of 2022.
- Cross Over (CO) Collision: This monitoring program addresses cross over crashes that involve two or more vehicles traveling in opposite directions. The Two- and Three-Lane Cross Centerline Collision Monitoring Program and the Multilane Cross Median Collision Monitoring Program have been combined into this monitoring program. A roadway location qualifies for this program if the crash rate is greater than or equal to 0.50 crashes per mile per year on facilities with greater than or equal to four lanes, or the crash rate is greater than or equal to 0.12 crashes per mile per year with a minimum of three CO crashes in a five-year period. Commonly recommended improvements include shoulder rumble strips or modified (sinusoidal) shoulder rumble strips, edge line rumble strips or modified (sinusoidal) edge, centerline rumble strips or modified (sinusoidal) centerline rumble strips, buffer zones used in combination with rumble strips, reduce or eliminate passing areas or improving passing sight distance, lane and shoulder widening, and median barriers (cable barriers, concrete barriers, beam guardrail) on two- or three-lane facilities.

- Pedestrian Safety Improvement: This monitoring program addresses fatal and injury-related pedestrian crashes on the SHS (excluding freeways and expressways) by identifying high crash concentration locations. Caltrans headquarters assesses the crash locations and provides a ranking for further evaluation by district staff. Districts are encouraged to start with low-cost improvements to calm traffic prior to implementing higher-cost improvements. Commonly recommended improvements include crosswalks (signs and markings only), LPI, right-turn-on-red restrictions, pedestrian crossings with safety features (bulb-outs), and pedestrian beacons (hybrid or rectangular rapid flashing).
- Pedestrian Systemic Safety Improvement Program: This program uses a proactive approach to identify locations that may experience crashes based on specific roadway features that are associated with a pedestrian-related crash type and provides improvements that can be implemented at locations throughout the SHS. Commonly recommended improvements include advance stop lines at traffic signals, leading pedestrian intervals, enhancing crosswalks, installing rectangular rapid flashing beacons, extending curbs, and enhancing crossing lighting.
- Run-Off-Road Collision: This monitoring program addresses crashes or overturns in which a vehicle veers off the road into or past the shoulder, into the middle of a separated highway, or crosses the opposing lanes of a non-divided highway (excluding events involving a vehicle entering a median and colliding with another vehicle). A corridor approach is taken to identify locations that may not have been previously captured. Districts are encouraged to implement low-cost improvements. Commonly recommended improvements include rumble strips (shoulder, centerline, or edge line), enhanced shoulder or in-lane delineation and markings for sharp curves, enhancing pavement markings, enhancing surface friction strategies, shoulder treatments, eliminating shoulder drop-offs, widening and/or paving shoulders, removing, relocating, or delineating trees or utility poles with reflective tape or object markers within the clear recovery zone, and improving design and application of barrier and attenuation systems.
- Wrong Way Collision: This monitoring program addresses wrong way driving crashes on freeways and expressways. Fatal and total wrong-way crash rates are utilized to identify locations for further investigation. Commonly recommended improvements include repainting or adding wrong-way pavement arrows, reorienting, relocating, or adding wrong-way sign packages, modifying trailblazing freeway entrance packages, placing edge-line and pavement markers, upgrading signs with high-intensity reflective sheeting, and modifying lighting.
- Wrong Way Driver Systemic Safety Improvement Program: This program uses a proactive approach to identify locations to reduce the number of drivers

entering freeways and expressways in the wrong direction and the associated crash. The exit ramp locations are not identified based on crashes, so the recommendation is to incorporate improvements into existing projects. Commonly recommended improvements include applying additional red-backed retroreflective markers and striping, installing LED-bordered wrong way and do not enter signs, and providing a second set of LED-bordered signs activated by the detection of a wrong way vehicle.

6.2.1.2 201.015 Collision Severity Reduction

The purpose of the Collision Severity Reduction Program is to use a proactive approach to reduce the potential for traffic crashes based on past performance of the roadway type. Another goal of this program is to keep vehicles on the roadway, and where practical, to make the area outside of the roadway safer for vehicles that leave the roadway. Historically, approximately 25% of the SHOPP safety funding is allocated to the 201.015 Collision Severity Reduction Program.

Projects that do not qualify under the 201.010 Program may be funded under the 201.015 Program. The following improvement types fall under the 201.015 Program:

- Crosswalk Safety Improvements: Improvements address pedestrian-related crashes and include improvements to encourage drivers to yield to pedestrians, shorten crossing distances, and provide active warning of pedestrian presence at crossings.
- Glare Screen: Screens address crashes associated with headlight glare on divided roadways and an engineering evaluation must be conducted to consider safety impacts and cost.
- Left-Turn Channelization: Channelization addresses intersection-related crashes and include installation of left-turn channelization islands.
- New/Upgrade Crash Cushions: Crash cushions reduce the severity of impact with a fixed object and include the installation of new crash cushions and upgrading existing crash cushions to meet current standards.
- New/Upgrade Guardrail: Guardrails reduce the severity of run-off-road crashes, and include the Midwest Guardrail System, concrete, and cable guardrail.
- New/Upgrade Guardrail Transitions and End Treatments: Guardrail transitions and end treatments reduce the impact severity of crashes with the guardrail.
- Overcrossing Pedestrian Fencing: Fencing addresses crashes associated with objects being thrown off overcrossings. It is recommended that overcrossing pedestrian fencing be installed in all urban areas where overcrossings contain sidewalks.
- Rock Fall Mitigation: Mitigation addresses crashes with fallen rocks in the roadway. To qualify, there should be a minimum of two reported crashes with

fallen rocks in the past five years and improvements must be coordinated with the Office of Structural Foundations.
- School Zone Signals: Signals would address pedestrian and bicycle crashes. If the criteria in the CA MUTCD, Warrant 5, School Crossing are satisfied, then traffic signals can be funded under this program.
- Shoulder/Centerline Rumble Strips: Rumble strips address cross centerline and run-off-road crashes and include edge line and centerline rumble strips.

6.2.2 Local HSIP Projects

The Local HSIP program identifies projects to improve safety on non-SHS roadways. Cities, counties, or tribal governments federally recognized within the State can apply for funding under the Local HSIP. The intent of the program is to identify safety projects that can be designed and constructed expeditiously. Projects that typically take longer to deliver must show an incremental approach of lower-cost countermeasures that were installed. There are two different methodologies used to qualify locations for improvements with Local HSIP funds:

- BCR: Based on an analysis of crash history and cost of improvements and requires a BCR to be calculated. Most BCR projects are systemic.
- Funding Set-Asides: Proactive approach targeted to reduce the potential for traffic crashes based on past performance of roadway characteristics. This funding targets specific countermeasures and limits the funding allocation for each local agency.

Historically, 50% of the overall HSIP funding is allocated to the Local HSIP, and of this allocation, approximately 75% is reserved for BCR projects and 25% for funding set-asides. For Cycle 11, applicants are required to have a Local Roadway Safety Plan or equivalent that identifies the recommended project and countermeasures. The LRSP requirement was initiated with this cycle and the target time for project selection results will be announced in late Fall 2022.

The following sections summarize the two methodologies used by Local HSIP, and more details are available in the Local Roadway Safety – A Manual for California's Local Road Owners, Version 1.5, April 2020.

6.2.2.1 Benefit-Cost Ratio

For BCR projects, fatal and serious injury crashes addressed vary based on the countermeasure identified. The project must include a calculated BCR using the HSIP Analyzer, which is a PDF form-based software that streamlines the project cost estimate, safety improvement countermeasure evaluation, collision data input, and BCR calculation. For the current HSIP Cycle 11, a minimum BCR of 3.5 is required for a

project to be considered for funding. Improvements allowed under this program are defined in the Local Roadway Safety – A Manual for California's Local Road Owners, Version 1.5, April 2020.

6.2.2.2 Funding Set-Asides

Fatal and serious injury crashes addressed include run-off-road, crash with roadside objects, pedestrians, and occurrence on tribal land. The purpose of the funding set-asides is to implement specific safety countermeasures or improvements and apply them systemically. A BCR is not required; however, agencies still need to utilize the HSIP Analyzer to determine a project's cost estimate. The Cycle 11 funding set-asides include guardrail upgrades, pedestrian crossing enhancements, installing edge lines, bike safety improvements, and projects on tribal land.

6.3 Summary of Benefits from HSIP Projects

Based on the State's methodology for project selection, the identified programs are anticipated to contribute to a reduction in fatal and serious injury crashes on roadways within the State. The State considers a combination of spot improvements (reactive) based on crash history along with systemic improvements (proactive) to reduce crashes. The following is a summary of the different programs to reduce fatal and serious injury crashes:

- SHOPP 201.010 Safety Improvement Projects: A TSI over 200 is required for project submission; however, 230 is recommended. Projects in FY 2022 are anticipated to reduce the number of crashes on the SHS by approximately 4,425.
- SHOPP 201.015 Collision Severity Reduction Projects: The purpose of the program is to reduce the potential of traffic crashes based on past performance of roadway characteristics regardless of crash history. Projects in FY 2022 are anticipated to reduce the number of crashes on the SHS by approximately 254.
- Local HSIP BCR Projects: This is a reactive approach based on crash history analysis and cost of improvements. The current Cycle 11 is requiring a minimum BCR of 3.5.
- Local HSIP Funding Set-Aside: A BCR is not required to fund these projects for the following countermeasures: guardrail upgrades, pedestrian crossing enhancements, edge line installation, bike safety improvements, and projects on tribal land.

6.4 Project List

While the HSIP Implementation Plan includes a project list in Appendix A, individual projects may still need to be justified and approved on a case-by-case basis in accordance with the stewardship and oversight agreement between the State and

California Transportation Commission. The project list includes the SHOPP and Local HSIP Funding. Table 6-3 contains a summary of the planned projects within the programs.

Table 6-3: Planned Projects by Program

Program	Estimated # of Projects	Estimated Funding ($K)
SHOPP 201.010	32	$168,949
SHOPP 201.015	13	$94,937
Local HSIP BCR	80	$103,608
Local HSIP Funding Set-Asides	66	$22,878
Total	**191**	**$390,372**

Source: FY 22-23 SHOPP List (010 & 015 Projects) and Anticipated Project List for Local HSIP

CHAPTER 7. IDENTIFICATION OF OPPORTUNITIES

7.1 Previously Identified Opportunities

The State's HSIP team prioritizes highway safety strategies that will result in the greatest impact at reaching zero fatalities and serious injuries on the State's public roadways. Table 7-1 summarizes opportunities previously identified in the 2021 and 2022 HSIP Implementation Plans that could be incorporated into the HSIP. The table categorizes each opportunity to assist with status tracking. The progress or actions taken are provided when an opportunity is in-progress or completed. Completed opportunities will be removed from future implementation plans while opportunities in-progress will continue to be identified.

Table 7-1: List of Opportunities and Current Status

ID	Year	Opportunity	Category	In-Progress/ Completed	Status
1	2021	Implement the CalSTA AB 2363 ZTFTF Engineering Findings and Recommendations for Policy Consideration by revising the HSIP funds allocation between local roads and the SHS from a data-driven perspective.	Funding	In-Progress	Reviewed crash data and summarized funding allocation between State and Local HSIP.
2	2021	Evaluate the proactive safety funding in each district while considering the number and rate of fatal and serious injury crashes in each district.	Funding	In-Progress	2021 SHSMP adopted district targets for proactive safety projects and funding based on fatal and serious injuries.
3	2021	Expand 201.010 Program to include proactive safety improvements that are low-cost.	Funding	In-Progress	Developed maintenance program to provide funding for maintenance projects.

ID	Year	Opportunity	Category	In-Progress/ Completed	Status
4	2022	Reserve funding under Maintenance program that enables implementation of low-cost PSCs.	Funding	Completed	Established HM4 safety pilot program to use highway maintenance to quickly implement pedestrian safety improvements, curve warning, and wrong way driving prevention countermeasures. A PSC champion was assigned in Spring 2021 to evaluate the awareness, use, and guidance for PSCs.
5	2021	Balance funding by county based on the number and rate of fatal and serious injury crashes occurring in a county.	Funding	Not yet started	
6	2021	Consider transitioning to phased contracts for RHCP funding authorizations instead of funding all phases at one time.	Funding	Completed	Phase contracts are executed with local agencies only. Railroad company contracts are still funded as lump sum due to their internal policies and procedures.
7	2021	Increase funding set-asides for pedestrian crossing enhancements. Expand this set-aside category to include additional pedestrian improvements.	Funding	Not yet started	
8	2021	Include a funding set-aside for bicycle improvements.	Funding	Completed	Bicycle safety improvements included as a funding set-aside for Cycle 11.

ID	Year	Opportunity	Category	In-Progress/ Completed	Status
9	2021	Increase funding for pedestrian-focused safety improvements (i.e., enhanced crossings and lighting).	Funding	Completed	Released Pedestrian Safety Improvement Monitoring Program Reports in 2020 and 2021 and Pedestrian Systemic Safety Improvement Program Reports in 2020 and 2022. In 2021, Caltrans received approval in the state budget to use an additional $41.2 million for a 2-year pilot to enhance signs and markings at over 3000 locations with wrong way driver, pedestrian safety, and curve warning treatments. Caltrans provided guidance for leading pedestrian interval in September 2021. Caltrans received approval to hire twelve new transportation engineers to focus on pedestrian and bicyclist safety investigations.
10	2021	Meet with OTS to share finding of disproportionate funding based on pedestrian-related crashes and inquire if they have observed similar discrepancies (i.e., 9.5% of fatal and serious injury crashes; pedestrian safety projects accounted for 4.5% of safety funding).	Funding	Not yet started	

ID	Year	Opportunity	Category	In-Progress/ Completed	Status
11	2022	Limit the amount that can be expended for a single project funded by the 201.010 Program.	Funding	Not yet started	
12	2021	Require a LRSP (or equivalent) for counties and local agencies to apply for local HSIP funding.	Guidance	Completed	LRSP (or equivalent) are required when applying for HSIP funding in Cycle 11 Call-for-Projects due September 12, 2022.
13	2021	Caltrans to change "accident" and "collision" to "crash" throughout Caltrans.	Guidance	Completed	Caltrans released a memorandum on June 30, 2021, to adopt the terms "crash," "collision," and "incident" and discontinue the term "accident" when referring to traffic crashes.
14	2022	Develop a document containing countermeasures and associated CMFs that could be used by both state and local agencies.	Safety Countermeasure	In-Progress	Caltrans launched a proven safety countermeasure website that provides a library of tools and guidance. The document would include the traffic safety bulletin information for the rumble strip guidelines issued in January 2021.
15	2022	Conduct analysis on crash data and project data as they relate to disadvantaged community locations and race.	Safety Data	Completed	Conducted analysis and published data fact sheets on the SHSP website.

ID	Year	Opportunity	Category	In-Progress/ Completed	Status
16	2021	Caltrans to work with CHP and OTS to identify opportunities to design and procure an electronic crash records reporting system through the Traffic Records Coordinating Committee.	Safety Data	In-Progress	Prior to October 2015, CHP manually entered all crash reports from local agencies into their own software, which then electronically transferred into SWITRS. In October 2015, CHP started implementing their goal to electronically merge crash reports into SWITRS. The goal is to have 75% of the crash reports from local agencies electronically submitted by 2026. OTS will continue to provide funding to assist local agencies to expedite their crash report submissions.
17	2021	Caltrans will replace the Table C process with a network screening tool based on the HSM predictive methodology.	Safety Data	In-Progress	UC Berkeley is currently updating the Safety Performance Function tool to account for divided highways.
18	2022	Revisit the monitoring programs to update the criteria to improve the method of identifying locations and focus on the areas of greatest need.	Safety Data	In-Progress	UC Berkeley is currently reviewing the criteria and analyzing the data.

ID	Year	Opportunity	Category	In-Progress/ Completed	Status
19	2022	Increase the number of before-and-after studies provided in the HSIP Annual Report to evaluate program benefits and project effectiveness.	Safety Data	Completed	The 2022 HSIP Annual Report provided 48 before-and-after studies while the 2021 HSIP Annual Report provided 39 and the 2020 HSIP Annual Report provided 42 before-and-after studies.
20	2022	Conduct before-and-after studies for local HSIP projects beginning with Cycle 5 projects now that three years of after-crash data is available.	Safety Data	Not yet started	
21	2022	Modify TASAS to include five levels of severity.	Safety Data	Completed	TASAS was updated in June 2022 to include the crash severity level breakdown (fatal, serious injury, minor injury, possible injury, and property damage only).
22	2021	Develop a strategic stakeholder engagement and communications strategy for the implementation of the SHSP, HSIP, and target setting to increase local and regional collaboration and participation.	Stakeholder Engagement	In-Progress	HSIP consultant will begin developing strategies in September 2022 and will coordinate with the SHSP and District Traffic Safety Plan teams, which include contracted consultants.

ID	Year	Opportunity	Category	In-Progress/ Completed	Status
23	2021	Align HSIP with SHSP's guiding principles (notably Safe System Approach and Equity) in project identification, monitoring programs, and project and program effectiveness evaluation. Incorporate guiding principles by identifying locations for safety projects using crash-based monitoring programs and proactive programs, and then report project and program effectiveness.	Strategic Implementation	In-Progress	UC Berkeley is currently reviewing the criteria and analyzing the data for the monitoring programs to focus on fatal and serious injury crashes.

ID	Year	Opportunity	Category	In-Progress/ Completed	Status
24	2021	Develop Caltrans District Traffic Safety Plans to: integrate the guiding principles of the SHSP, coordinate with Local Road Safety Plans, and include a systemic analysis to identify project locations and include low-cost PSCs for districts to apply for HSIP funding.	Strategic Implementation	In-Progress	Secured State Planning and Research funds for consultant support. Contract to be executed in Fall of 2022. The purpose of the District Traffic Safety Plans is to identify locations on the SHS and make recommendations for prospective hotspot and systemic-based safety improvement projects. The hotspot approach is reactive and focuses on high crash concentration locations. The systemic-based analysis is a proactive approach which identifies locations with crash risk based on roadway characteristics that match high crash locations, not crash history.

ID	Year	Opportunity	Category	In-Progress/ Completed	Status
25	2021	Modify the target setting methodology (for SPMTs) to include forecasting fatal and serious injury reductions based on planned implementation of projects with PSCs.	Strategic Implementation	In-Progress	SHSMP to adopt targets for each district to achieve reductions in fatal and serious injuries through HSIP (and other funded) projects. Developed a Safety Performance Estimation Tool to estimate fatal and serious injury reductions for all SHOPP projects. The contract to enhance the Safety Performance Estimation Tool started in June 2022 and the tool will provide crash reduction factors for all proven safety countermeasures.
26	2021	Identify opportunities for the RHCP to introduce systemic improvements to the program.	Strategic Implementation	Not yet started	
27	2021	Replace the existing TSN with a new system that will store temporal and historical safety data, allow external agencies to exchange data and create a centralized repository of inventory, traffic, crash, investigations, and pedestrian and bicycle data on all public roads.	Strategic Implementation	In-Progress	The TSNR contract started in June 2022 and will end in December 2024.
28	2021	Consider revising or modifying the BCR requirement for local HSIP BCR projects.	Strategic Implementation	Not yet started	

7.2 Additional Opportunities

Based on review of existing programs, fatal and serious injury crashes, discussions with Caltrans staff and external partners, the following sections outline additional opportunities that can be incorporated in the HSIP. A few of these opportunities were also identified in Caltrans Complete Streets Action Plan (2022-23), which highlights key high-priority efforts needed to implement the new Director's Policy for Complete Streets (DP-37) over the next two years.

7.2.1 CalSTA Report of Findings, AB 2363 Zero Traffic Fatalities Task Force

The CalSTA Report of Findings, AB 2363 Zero Traffic Fatalities Task Force (January 2020), Engineering Findings and Recommendations for Policy Consideration, C-EN1, identifies numerous findings and recommendations for policy consideration to reduce traffic fatalities to zero. A previously identified opportunity ID #1, to review and revise HSIP funding allocation, in the summary table stemmed from the CalSTA report. The following recommendations from the CalSTA report are some additional opportunities for Caltrans to consider.

Opportunity: The CalSTA report recommends increasing the reduction allowance for posted speed limits to allow greater deviations from the 85th percentile speed. Recent research has demonstrated that reducing the posted speed limits reduces vehicle operating speeds and improves safety across most road environments. The current procedures for establishing speed limits do not offer State and local authorities enough flexibility to set appropriate speed limits, and the posted speed may only be reduced by 5 mph from the nearest 5 mph increment of the 85th percentile speed. With the approval of Assembly Bill 43, Caltrans shall define a safety corridor and concentrations for pedestrians and bicyclists in the next revision of the CA MUTCD to provide guidance for local authorities.

Opportunity: The CalSTA report recommends developing a statewide traffic safety monitoring program that identify and address locations with speeding-related crashes with the long-term goal of reducing fatalities and serious injuries. Caltrans is working with researchers from UC Berkeley to develop and release a new systemic Speeding-related Monitoring Program that will involve multiple departments. The current framework of the program is to focus on crash attributes relating to each department.

7.2.2 HSIP Guidelines

With the safety culture pivot, Caltrans adopted a new approach to traffic safety and introduced the 4 Pillars of Traffic Safety. Since the current version of the HSIP guidelines does not reflect this new approach, Caltrans should update the HSIP guidelines to implement the Safe System Approach and proven safety countermeasures. The intent

of the HSIP guidelines is to provide a resource tool for staff working with State HSIP projects and programming federal funds in the SHOPP.

Opportunity: Caltrans will update the HSIP guidelines to incorporate the safety culture pivot and include the 4 Pillars of Traffic Safety. In rethinking ways to reduce the risks, Caltrans will accommodate predictable human error rather than focusing on improving driver behavior, promoting proven strategies, and institutionalizing equity.

7.2.3 Traffic Safety Investigations Enhancement Process

The SHSP's guiding principles support the need to incorporate new ideas and reach a larger audience to share Caltrans' vision, mission, and goal. The traffic safety investigations enhancement process proposes increased collaboration with external stakeholders to identify and implement best practices, technology, and lessons learned. The enhancement process would also include community engagement and the Safe System Approach. The initial step to revising the investigation process is to focus on fatal and serious injury crashes and complement the reactive investigations with proactive investigations.

Opportunity: Caltrans will align traffic safety investigations with the Safe System Approach by combining hotspots into corridor level investigations. Caltrans will review locations identified by Table C, Wet Table C, and monitoring program reports to determine if high crash concentration locations can be joined into corridor level investigations.

Opportunity: Caltrans will develop a field guide reference tool to assist investigators conduct a traffic safety investigation. The tool will help investigators identify additional roadway features that can benefit from low-cost proven safety countermeasures when the location does not have a history of crashes.

Opportunity: Caltrans will engage the community regarding safety issues during the traffic safety investigation process to gather local perspective and experience. The additional feedback will provide a better understanding for the investigator to select countermeasures based on the roadway users who live and work in the area.

Opportunity: Caltrans will build statewide consistency and efficiencies by applying the Lean 6 Sigma method for operational excellence. The statewide effort will develop a method to track implementation of traffic investigation reports with recommended improvements. The goal is to optimize the processing time for an investigation while maintaining the overall quality.

Opportunity: Caltrans will establish a process for non-engineering recommendations on investigations with CalSTA partners (CHP, OTS, and DMV). The new communication

channel would discuss and implement recommendations relating to enforcement and education.

Opportunity: Caltrans will develop a mechanism to incorporate roadway safety audits on select traffic safety investigations. Roadway safety audits are a thorough examination of the safety performance of an existing or future roadway segment, ramp, or intersection.

7.2.4 SHS Crash Data Dashboard

To accelerate advanced technology, Caltrans can pilot the use of crash data dashboards. The crash data dashboards would use TSN as the source system of record and provide information for crash occurrences on the SHS. The crash data dashboards would also have an easy to navigate user interface to filter through crash data to eliminate the need for TSN privileges and the understanding to run a TSN query.

Opportunity: Caltrans to develop user-friendly crash data dashboards using TSN data as the source system of record. The data would include all relevant crash reporting fields for users to filter and sort as needed.

7.2.5 Disadvantaged Communities

There are disadvantaged communities with less than equal access to transportation system services and opportunities, so Caltrans has committed to providing more equitable access and better mobility for these communities. With Caltrans Office of Race and Equity's transportation equity index, Caltrans can be more inclusive of disadvantaged communities and conduct an analysis on crash data as it relates to communities of color and under-served communities.

Opportunities: Caltrans to analyze crash data as it relates to disadvantaged communities, and low-income communities, communities of color, and tribal nations are examples of disadvantaged communities for consideration. The transportation equity index in a GIS layer can be used to compare with crash data to determine safety needs.

7.2.6 Multimodal Transportation Network

To provide a safe and reliable transportation network that serves all users while respecting the environment, Caltrans can improve the multimodal transportation network by investing in networks for walking, biking, taking transit, and multimodal trips. The focus on vehicle movement over the years has made walking, cycling, and the use of transit inefficient for users. The first phase of the traffic calming guidance was issued in early 2022 and the purpose was to summarize current Caltrans guidance that can be

used to accomplish traffic calming that is self-enforcing or self-regulating with respect to vehicle speed.

Opportunity: Caltrans to develop traffic calming guidance that can be used to improve safety for those walking, biking, and taking transit. The collaboration for developing the traffic calming guidance will be led by the Division of Design.

7.2.7 MASH Program Management

Caltrans can provide engineering support for project delivery by updating plans, specifications, special provisions, and the Traffic Safety Systems Guidance to incorporate new MASH devices. Updated policies and guidance ensure construction compliance and most efficient use of time and materials.

Opportunity: Caltrans to update plans, specifications, special provisions, and the Traffic Safety Systems Guidance to incorporate new MASH devices (i.e., compliant temporary barrier devices). Caltrans to increase the number of MASH approved devices available for use in projects by reducing the evaluation list backlog of products waiting for approval.

7.2.8 Intersection Control Evaluation

To leverage a proven practice, Caltrans can implement statewide training on intersection control evaluations, which is the process of considering and selecting access strategies for intersections. The previous policy directive was issued in 2013 and did not require routine consideration for pedestrian and bicyclist safety countermeasures.

Opportunity: Caltrans to implement statewide training on intersection control evaluations, expand the policy directive, and require routine consideration for pedestrian and bicyclist safety countermeasures.

7.2.9 Inventory Program Management

Caltrans can improve the highway inventory database since it plays an important role in highway maintenance and asset management. The highway inventory database can provide the condition of the roadway along with location of signs, signals, light poles, roadway characteristics, and safety features.

Opportunity: Caltrans to update and maintain the highway inventory database by managing a consultant to collect statewide data.

7.2.10 Vision Zero Pilot – Fatal Crash Investigations

Caltrans investigates approximately 15% of the fatal crashes on the SHS that are identified through the current network screening process. By investigating all fatal crashes, Caltrans can implement low-cost safety countermeasures before the crash location is identified through the network screening process.

Opportunity: Caltrans to initiate a pilot program to investigate all fatal crashes on the SHS. The fatal crash investigations should not duplicate the fatal crash investigation identified through the network screening process. Caltrans does not have a mechanism dedicated to investigating isolated fatal crashes.

7.2.11 Institutionalize the Safe System Approach

The California Transportation Plan 2050, Caltrans 2020-2024 Strategic Plan, CalSTA's California Climate Action Plan for Transportation Infrastructure, and California's 2020-2024 SHSP commit to a vision of zero fatalities and serious injuries by 2050. To formalize Caltrans' commitment to this vision, Caltrans Director released a Director's Policy (DP-36) on Road Safety to align programs, plans, policies, and procedures and practices with the Safe System Approach.

Opportunity: To comply with DP-36, guidance will be released to aid in the development of a road safety action plan. Each Caltrans division and district will develop their specific road safety action plan and identify a single point of contact for road safety to lead the development of their road safety action plan.

APPENDIX A

Estimated list of State and Local HSIP Projects for FY 2023.

Estimated List of State HSIP Projects for FY 2023

Dist	County	Route	Post Miles	Location/Description	EA	PPNO	Project ID	Prog Code	FY	RW	Con	Vote	Fund Type	PA&ED	PS&E	RW Sup	Con Sup	Total Cap & Sup	Performance Value	Performance Measure
01	Lake	20	5.100/6.300	Near Upper Lake, from 0.4 mile west to 0.3 mile east of Witter Springs Road. Environmental mitigation work for safety project EA 0G330.	0G331	4647M	0120000076	201.010	22-23	$0	$187	$0	STP	$0	$0	$0	$293	$480	0	Collision(s) reduced
01	Mendocino	1	41.800/42.300	Near Albion, from 1.5 miles north of Route 128 to 0.1 mile south of Navarro Ridge Road. Widen for standard shoulders, improve roadway cross slope, and install rumble strips and guardrail.	0C550	4578	0112000300	201.010	22-23	$0	$3,994	$0	STP	$622	$300	$90	$800	$5,806	16	Collision(s) reduced
01	Mendocino	1	71.300	Near Fort Bragg, at Abalobadiah Creek. Improve sight distance and place additional curve warning signs.	0G060	4639	0116000120	201.010	22-23	$55	$623	$0	STP	$874	$973	$136	$853	$3,514	16	Collision(s) reduced
01	Mendocino	101	30.800/R33.800	Near Ukiah, from Route 20 to 0.1 mile south of Uva Drive/North State Street. Construct median barrier.	0K310	4751	0120000062	201.010	22-23	$28	$6,312	$0	STP	$682	$941	$66	$1,028	$9,057	30	Collision(s) reduced
02	Lassen	44	6.500/7.100	Near Old Station, from 6.5 miles east to 7.1 miles east of Shasta County line. Curve improvement.	1J570	3796	0220000106	201.010	22-23	$70	$2,950	$0	STP	$660	$650	$90	$660	$5,080	20	Collision(s) reduced
02	Plumas	36	R13.600/R14.200	Near Chester, from 0.3 mile west to 0.3 mile east of County Road A13. Construct roundabout.	0J640	3759	0219000145	201.010	22-23	$8	$4,980	$0	STP	$940	$1,190	$190	$1,350	$8,658	12	Collision(s) reduced
03	Butte	32	4.200	Near Chico, at the intersection with Meridian Road. Install traffic signal. (Additional contribution of $500,000 for Const Cap from the Butte County Association of Governments (BCAG)).	2J860	2120	0322000116	201.010	22-23	$80	$2,600	$0	STP	$310	$580	$160	$790	$4,520	7	Collision(s) reduced
03	Butte	32	7.100/R8.400	In and near Chico, from West 8th Avenue to West 2nd Street. Add green bike lane treatment, install signs, and construct curb ramps.	0J921	6257A	0321000159	201.010	22-23	$6	$450	$0	STP	$0	$39	$10	$45	$550	5	Collision(s) reduced
03	Colusa	20	R0.600/R1.200	Near Williams, from 0.6 mile east to 1.2 mile east of Lake County line; also at the intersection with Route 16 (PM 3.5). Upgrade existing signs, add new signs and flashing beacons, grind and replace existing pavement with asphalt and High Friction Surface Treatment (HFST), and upgrade guardrail.	2J950	2796	0322000142	201.010	22-23	$20	$2,210	$0	STP	$360	$640	$90	$620	$3,940	11	Collision(s) reduced
03	El Dorado	50	75.400/80.000	In South Lake Tahoe, from Route 89 to Pioneer Trail. Install lighting, pedestrian signals at mid-block crossings, signs, and green bike lane treatment to improve safety for pedestrians and bicyclists.	4H890	3469	0319000072	201.010	22-23	$2,320	$19,140	$0	STP	$1,610	$1,470	$2,720	$2,920	$30,180	13	Collision(s) reduced
03	Placer	28	0.200/0.500	In Tahoe City, from Mackinaw Road to Grove Street. Place green bike lane treatment or High Friction Surface Treatment (HFST), install recessed striping, rectangular flashing beacons, and signs, and construct curb ramps.	0J922	6257B	0321000161	201.010	22-23	$5	$250	$0	STP	$0	$16	$13	$25	$309	2	Collision(s) reduced
03	Sacramento	51	5.600/5.900	In the city of Sacramento, between Marconi Avenue and Howe Avenue. Construct outer separation barrier.	3H730	6414	0318000055	201.015	22-23	$62	$3,100	$0	STP	$410	$740	$90	$530	$4,932	6	Collision(s) reduced
04	Alameda	880	27.100/27.300	In Oakland, from 0.1 mile south to 0.1 mile north of East Creek Slough Bridge No. 33-0143. Construct outer separation concrete barrier in southbound direction, replace bridge rail, and install a drainage system.	4J540	1491C	0415000365	201.010	22-23	$601	$4,035	$0	STP	$956	$1,266	$102	$1,041	$8,001	5	Collision(s) reduced
04	Napa	29	-	In Napa County, on Routes 29, 121, and 128 at various locations. Install rumble strips.	3Q760	2033M	0419000570	201.010	22-23	$18	$3,271	$0	STP	$794	$1,403	$170	$1,215	$6,871	80	Collision(s) reduced

Estimated List of State HSIP Projects for FY 2023

Dist	County	Route	Post Miles	Location/Description	EA	PPNO	Project ID	Prog Code	FY	RW	Con	Vote	Fund Type	PA&ED	PS&E	RW Sup	Con Sup	Total Cap & Sup	Performance Value	Performance Measure
04	San Francisco	101	R5.000/M5.300	In the City and County of San Francisco, below Route 101 on 13th Street from Folsom Street to Otis Street/Mission Street. Construct and upgrade curb ramps, sidewalks, crosswalks, bulb-outs, painted safety zone markings, Accessible Pedestrian Signals (APS) and traffic signals to meet current Americans with Disabilities Act (ADA) standards as complete streets elements. Financial Contribution Only (FCO) to the San Francisco Municipal Transportation Authority (SFMTA) for construction implementation.	2W250	2908F	0421000161	201.015	22-23	$0	$2,115	$0	STP	$0	$0	$0	$0	$2,115	3	Collision(s) reduced
04	San Mateo	35	26.200/27.900	In Pacifica and South San Francisco, at the intersections of Route 35 and Sharp Park Road, and Route 35 and Hickey Road. Upgrade and reposition traffic signals, and upgrade facilities to Americans with Disabilities Act (ADA) standards.	0Q040	2031E	0418000038	201.010	22-23	$423	$2,694	$0	STP	$582	$780	$312	$1,060	$5,851	21	Collision(s) reduced
04	Santa Clara	101	0.100/49.600	In Santa Clara County, on Routes 9, 17, 85, 87, 101, 152, 237, 280, 680, and 880 at various locations. Upgrade guardrail transition railing.	0K110	1495A	0416000053	201.015	22-23	$30	$14,202	$0	STP	$1,127	$1,574	$70	$1,702	$18,705	18	Collision(s) reduced
05	San Benito	25	53.700/54.030	Near Hollister, at the intersection of Route 25 and Route 156. Environmental mitigation landscape and monitoring for project EA 1J480.	1J481	2746Y	0521000064	201.010	22-23	$0	$200	$0	STP	$0	$442	$0	$458	$1,100	0	Collision(s) reduced
05	San Luis Obispo	101	-	In San Luis Obispo and Santa Barbara Counties, on Routes 1, 41, 46, 101, and 135 at various locations. Install both centerline and edge line rumble strips and upgrade striping and pavement markings.	1M740	3026	0520000058	201.010	22-23	$0	$2,510	$0	STP	$0	$827	$25	$834	$4,196	111	Collision(s) reduced
05	Santa Barbara	101	9.200/10.100	In and near the city of Santa Barbara, from 0.2 mile north of Sheffield Drive Undercrossing to 0.1 mile north of San Ysidro Road. Upgrade median barrier, enhance highway worker safety, rehabilitate drainage systems and pavement, and install Transportation Management System (TMS) elements. This is a Construction Manager/General Contractor (CMGC) project. Local contribution for PA&ED, PS&E and R/W Sup as part of STIP project EA 0N70B.	1C824	2426D	0519000053	201.015	22-23	$0	$17,935	$0	STP	$0	$0	$0	$4,600	$22,535	3	Collision(s) reduced
05	Santa Cruz	17	3.200/11.270	In and near Scotts Valley, from south of Mt Hermon Road to 0.6 mile north of Glenwood Drive. Grind pavement and place Hot Mix Asphalt (HMA), apply High Friction Surface Treatment (HFST), and contrasting surface treatment.	1M730	3025	0520000055	201.010	22-23	$0	$6,923	$0	STP	$0	$1,049	$31	$560	$8,563	856	Collision(s) reduced
06	Fresno	5	26.800/30.000	Near Giffen Cantua Ranch, from Parkhurst Equipment Undercrossing to Route 33. Construct median cable barrier.	1A750	7066	0620000180	201.010	22-23	$35	$1,650	$0	STP	$700	$760	$10	$400	$3,555	32	Collision(s) reduced
06	Fresno	180	R62.900/R65.300	In and near Fresno, from Clovis Avenue to Temperance Avenue. Construct concrete median barrier and upgrade sign panels and guardrail.	1A320	7038	0619000233	201.010	22-23	$140	$4,200	$0	STP	$520	$1,100	$10	$1,100	$7,070	24	Collision(s) reduced
06	Kern	5	49.700/52.100	Near Buttonwillow, from 2.2 miles north of Stockdale Highway to Route 58. Construct median cable barrier.	1A690	7052	0620000116	201.010	22-23	$30	$3,100	$0	STP	$810	$1,100	$30	$650	$5,720	24	Collision(s) reduced

Estimated List of State HSIP Projects for FY 2023

Dist	County	Route	Post Miles	Location/Description	EA	PPNO	Project ID	Prog Code	FY	RW	Con	Vote	Fund Type	PA&ED	PS&E	RW Sup	Con Sup	Total Cap & Sup	Performance Value	Performance Measure
06	Tulare	201	0.000/4.900	Near Kingsburg, from east of Madsen Avenue to Road 56. Install centerline rumble strips, replace Transportation Management System (TMS) elements and upgrade striping, pavement markings, and roadside signs.	1A540	7060	0620000062	201.010	22-23	$130	$1,850	$0	STP	$800	$815	$5	$670	$4,270	7	Collision(s) reduced
07	Los Angeles	105	R4.300/R5.000	In Inglewood and Hawthorne, from East of Yukon Avenue to east of Crenshaw Boulevard. Apply High Friction Surface Treatment (HFST), upgrade guardrail, upgrade Transportation Management System (TMS) elements, and upgrade facilities to Americans with Disabilities Act (ADA) standards.	35700	5534	0719000064	201.015	22-23	$25	$6,208	$0	STP	$506	$1,629	$24	$1,498	$9,890	1	Collision(s) reduced
07	Los Angeles	126	R2.400	Near Del Valle, at the intersection with Chiquito Canyon Road. Intersection improvements.	37070	5732	0720000138	201.010	22-23	$26	$1,147	$0	STP	$495	$939	$17	$797	$3,421	7	Collision(s) reduced
08	Riverside	60	9.300/14.600	In Riverside and San Bernardino Counties, at various locations on Routes 60 and 215. Improve safety and reduce wrong-way collisions by installing wrong-way pavement markers and sign panels, and upgrading pavement markings at onramps and offramps. This project will reduce the number and severity of collisions.	1L640	3017U	0820000130	201.010	22-23	$20	$2,734	$2,009	STP	$642	$536	$36	$565	$4,533	4	Collision(s) reduced
08	Riverside	79	0.000/5.400	Near Aguanga, from the San Diego County line to south of Sage Road and from north of Woodchuck Road to north of Anza Road (PM 11.4/14.8); also in and near Beaumont, from north of Gilman Springs Road to First Street (PM R34.2/40.1). Install guardrail and flashing beacons.	1E140	3010X	0813000178	201.015	22-23	$28	$6,329	$0	STP	$405	$968	$56	$1,479	$9,265	9	Collision(s) reduced
08	Riverside	79	5.400/11.400	Near Temecula, from 3.1 miles north of Route 371 to 1.1 miles south of Pauba Road. Construct shoulders and rumble strip.	1G670	3006G	0816000049	201.010	22-23	$2,850	$57,200	$0	STP	$4,900	$4,700	$751	$8,520	$78,921	108	Collision(s) reduced
08	Riverside	Var	-	In San Bernardino and Riverside Counties, at various locations. Upgrade or install curve warning signs.	1H992	3019Q	0822000112	201.015	22-23	$10	$2,297	$0	STP	$0	$0	$0	$2,507	$4,814	3	Collision(s) reduced
08	San Bernardino	Var	-	In San Bernardino and Riverside Counties, at various locations. Upgrade or install curve warning signs.	1H990	3010Y	0817000179	201.015	22-23	$0	$0	$0	STP	$942	$2,102	$260	$0	$3,304	0	Collision(s) reduced
08	San Bernardino	Var	-	In San Bernardino and Riverside Counties, at various locations. Upgrade or install curve warning signs.	1H991	3019P	0822000111	201.015	22-23	$10	$5,103	$0	STP	$0	$0	$0	$4,349	$9,462	7	Collision(s) reduced
09	Mono	395	91.600/93.400	Near Bridgeport, from Burcham Flat Road to 0.3 mile south of Route 108. Widen shoulders, install rumble strips, install wildlife crossing and fencing and correct super elevation at three curves.	36800	2460	0917000011	201.015	22-23	$1,366	$16,854	$0	STP	$1,395	$1,764	$395	$2,084	$23,858	19	Collision(s) reduced
10	Merced	99	0.400/R12.700	In and near the city of Merced, from north of the Madera County line to south of East Childs Avenue. Construct median barrier.	1L310	3510	1020000183	201.010	22-23	$23	$13,399	$0	STP	$894	$1,384	$51	$1,856	$17,607	124	Collision(s) reduced
10	Merced	99	24.500/28.200	Near Atwater, from south of Westside Boulevard to south of Hammatt Avenue. Upgrade guardrail to current standards.	0Y610	3442	1013000245	201.015	22-23	$20	$3,224	$0	STP	$677	$1,374	$20	$783	$6,098	5	Collision(s) reduced
10	San Joaquin	205	L0.000/R13.200	In and near Tracy, from Alameda County line to Route 5. Upgrade guardrail to current standards.	1C380	3474	1018000272	201.015	22-23	$42	$5,011	$0	STP	$794	$1,348	$19	$868	$8,082	7	Collision(s) reduced

Estimated List of State HSIP Projects for FY 2023

Dist	County	Route	Post Miles	Location/Description	EA	PPNO	Project ID	Prog Code	FY	RW	Con	Vote	Fund Type	PA&ED	PS&E	RW Sup	Con Sup	Total Cap & Sup	Performance Value	Performance Measure
11	Imperial	111	R3.200/45.400	In and near Brawley, from Jasper Road to Niland Creek Bridge; also on Route 78 from 8th Street to Ben Hulse Highway (PM R12.9/15.5). Install rumble strips, upgrade guardrail, and upgrade facilities to Americans with Disabilities Act (ADA) standards.	43030	1318	1118000099	201.015	22-23	$510	$10,456	$0	STP	$780	$1,453	$253	$2,224	$15,676	9	Collision(s) reduced
12	Orange	1	8.500	In Laguna Beach, at the intersection with Cress Street. Improve safety by modifying existing signals, adding safety lighting, adding protected left-turn signal heads, and upgrading facilities to Americans with Disabilities Act (ADA) standards.	0R170	2285	1218000062	201.010	22-23	$115	$788	$0	STP	$210	$480	$210	$380	$2,183	16	Collision(s) reduced
12	Orange	5	5.300/7.300	In Dana Point and San Juan Capistrano, from 0.5 mile south of Camino De Estrella to 0.5 mile north of Route 1. Install safety lighting and upgrade median barrier.	0S170	2564B	1219000102	201.010	22-23	$4	$5,450	$0	STP	$300	$976	$0	$1,090	$7,820	110	Collision(s) reduced
12	Orange	5	33.700/35.400	In and near the cities of Santa Ana and Orange, from south of Route 22 to north of The City Drive/State College Boulevard. Upgrade signs and pavement delineation, lengthen lane reduction to improve merging, and install traffic count station.	0R750	2860F	1219000030	201.010	22-23	$0	$2,914	$0	STP	$339	$650	$0	$740	$4,643	71	Collision(s) reduced
12	Orange	22	R5.500	In Garden Grove, on the westbound onramp from Trask Avenue/Brookhurst Street. Place High Friction Surface Treatment (HFST), add pavement delineation, and install concrete barrier.	0R290	2916	1218000076	201.010	22-23	$0	$840	$0	STP	$311	$384	$0	$412	$1,947	15	Collision(s) reduced
12	Orange	39	12.200	In Anaheim, at the intersection with Orange Avenue. Upgrade traffic signals and lighting.	0R740	3207	1219000028	201.010	22-23	$10	$818	$0	STP	$200	$450	$40	$385	$1,903	31	Collision(s) reduced
12	Orange	90	R5.300	In Brea, at the intersection with the southbound offramp from Route 57; also at the intersection with Kraemer Boulevard (PM 6.6). Upgrade traffic signals and lighting.	0R920	4364	1219000054	201.010	22-23	$10	$1,193	$0	STP	$376	$566	$0	$619	$2,764	54	Collision(s) reduced
12	Orange	91	R0.800/R1.800	In Buena Park, from Valley View Street to Knott Avenue. Construct new overhead sign structure with high-reflective sign panels, replace existing sign panels, and upgrade guardrail.	0R730	4507C	1219000029	201.010	22-23	$0	$1,310	$0	STP	$410	$430	$0	$560	$2,710	230	Collision(s) reduced

Estimated List of Local HSIP Projects for FY 2023

Unique Project ID	Cycle	Federal Project ID	District	Agency	MPO	Project Location	Description of Work	TotalCost	HSIPFunds	Funding Category	Funded Facility (NS, R, or S)	CM1	CM2	CM3
HSIP6-02-002	6	5068052	2	Redding	SRTA	On Old Oregon Trail between Midland Dr and Bear Mountain Rd	Widen and pave shoulder, horizontal curve realignment and drainage improvements	3,174,000	2,603,610	BCR	R (Bike Ln)	R16: Widen shoulder (paved)	-	-
H8-02-005	8	5905119	2	Trinity County	RURAL	Various locations on Rush Creek Road.	Install High Friction Surface Treatments	1,147,900	1,147,900	BCR	R	R24: Improve pavement friction (High Friction Surface Treatments)	-	-
H9-02-003	9	5908104	2	Tehama County	RURAL	Five (5) intersections: South Avenue and Rowles Road, South Avenue and Marguerite Avenue, South Avenue and Woodson Avenue, Finnell Avenue and 99W, and Capay Road and 99W.	Install splitter-islands on minor road approaches, remove current pavement markings and upgrade intersection pavement markings including a slurry seal, and install flashing beacons as advanced warning on major road approaches.	823,900	741,510	BCR	NS	NS8: Install flashing beacons as advance warning (NS.I.)	NS6: Upgrade intersection pavement markings (NS.I.)	NS11: Install splitter-islands on the minor road approaches
H9-02-004	9	5908105	2	Tehama County	RURAL	Two intersections on Gallagher Avenue: Gallagher Avenue and Houghton Avenue, and Gallagher Avenue and Edith Avenue.	Install flashing beacons as advanced warning, convert to all way stop control, and install transverse rumble strips on major road approaches.	247,100	219,919	BCR	NS	NS2: Convert to all-way STOP control (from 2-way or Yield control)	NS8: Install flashing beacons as advance warning (NS.I.)	-
HSIP7-03-010	7	5015028	3	Placerville	SACOG	In El Dorado County, in the City of Placerville, along Broadway from the intersection at Main Street eastward to approximately 1500 Broadway.	Construct sidewalk	1,066,470	959,810	BCR	R	R37: Install sidewalk/pathway (to avoid walking along roadway)	-	-
H8-03-014	8	5002200	3	Sacramento	SACOG	Florin Road between Greenhaven Drive and Luther Drive.	Convert from pedestal mounted to mast arms at 7 intersections; Install advanced detection at Florin Rd/24th St, and Florin Rd/Freeport Blvd; Install communications fiber; Install Countdown Ped Heads; and Replace 8" with 12" LED 3 Section Heads.	2,555,400	2,555,400	BCR	S	S7: Convert signal to mast arm (from pedestal-mounted)	S4: Provide Advanced Dilemma Zone Detection for high speed approaches	-
H9-03-021	9	5924246	3	Sacramento County	SACOG	Various locations along Edison Avenue, El Camino Avenue, Hurley Way, Manzanita Avenue, and Marconi Avenue	Construct curb, gutter, sidewalk infill and curb ramps, and install street lighting.	2,679,000	2,411,100	BCR	R	R37: Install sidewalk/pathway (to avoid walking along roadway)	-	-
H9-03-012	9	5425041	3	Paradise	BCAG	Sixteen stop-controlled intersections at various locations	Systemically improve minor street approaches with a combination of additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles.	959,500	863,550	BCR	NS	NS10: Improve sight distance to intersection (Clear Sight Triangles)	NS6: Upgrade intersection pavement markings (NS.I.)	NS11: Install splitter-islands on the minor road approaches
H9-03-018	9	5002211	3	Sacramento	SACOG	Various segments along Florin Road.	Install raised median, install pedestrian signals, and add pedestrian fencing to encourage crossings at protected crossing locations	1,414,200	1,272,780	BCR	NS/R	R9: Install raised median	R42: Install pedestrian median fencing on approaches	NS19: Install pedestrian signal or HAWK
H9-03-006	9	5479062	3	Elk Grove	SACOG	Four (4) locations: Bruceville Road at Laguna Creek Bridge, Sheldon Road at Laguna Creek Bridge, Waterman Road at Laguna Creek Bridge, and Grant Line Road at Deer Creek Tributary Bridge.	Upgrade outdated guardrail.	329,200	329,200	SA for GR Installation	R	R4: Install Guardrail	-	-
H9-03-007	9	5479063	3	Elk Grove	SACOG	Four (4) existing trail crossings of public roads: Laguna Park Drive, Adobe Springs Way, Bertwin Way, and Stonebrook Drive.	Install crosswalks, advance yield signs, Rapid Rectangular Flashing Beacons (RRFBs) and, associated advanced warning signs.	411,600	250,000	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H9-03-002	9	5925169	3	El Dorado County	SACOG	Intersections of Pleasant Valley Road with Oriental Street, Church Street and Racquet Way; Pleasant	Improve pedestrian safety along Pleasant Valley Road, including enhanced pedestrian crossings at intersections	492,300	250,000	SA for Ped-X	NS/R	Ped-X Enhancement	-	-
H9-03-003	9	5925170	3	El Dorado County	SACOG	At intersections of Pleasant Valley Road with Hanks Exchange Road, Cedar Ravine Road, Zandonella West/Big Cut Road, and Newtown Road.	Clear sight triangle at intersections and install warning signs with flashing beacons near high crash intersections	535,700	482,130	BCR	NS	NS8: Install flashing beacons as advance warning (NS.I.)	NS10: Improve sight distance to intersection (Clear Sight Triangles)	-
H10-03-010	10	-	3	Folsom	SACOG	American River Canyon Dr - Oak Canyon Wy and Canyon Rim Dr; Folsom Bd - US-50 and Iron Pt Rd; Glenn Dr - Sibley St and Folsom Bd; Blue Ravine Rd - Crossing Wy and Riley St; Folsom Auburn Rd; Prairie City Road; E Bidwell St - US-50 and Mangini Pk.	Install delineators, reflectors and object markers (with retro-reflectivity) on the sides of roads, and install rumble strip along the edges of the roadway segments.	366,600	366,600	BCR	R	R27: Install delineators, reflectors and/or object markers	R31: Install edgeline rumble strips/stripes	-
H10-03-025	10	-	3	Woodland	SACOG	Intersection of East Street and Main Street in the City of Woodland.	Intersection signal improvements.	336,900	158,450	BCR	S	S03: Improve signal timing (coordination, phases, red, yellow, or operation)	S20PB: Install advance stop bar before crosswalk (Bicycle Box)	S17PB: Install pedestrian countdown signal heads
H10-03-026	10	-	3	Woodland	SACOG	Pedestrian Crossings at Dingle, Maxwell, Zamora and Gibson Elementary Schools in Woodland.	Installation of Rectangular Rapid Flashing Beacons (RRFB) and AC Powered Speed Feedback Signs.	250,000	250,000	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H10-03-012	10	-	3	Glenn County	RURAL	Forest Highway 7 (FH7) west of State Route 162 in western Glenn County.	The updated HSIP funded scope includes replacing 5,700 linear feet of fire damaged wood post guardrail, along a 2.3 mile segment of FH7	1,000,000	1,000,000	SA for GR Installation	R	R4: Install Guardrail	-	-

Estimated List of Local HSIP Projects for FY 2023

Unique Project ID	Cycle	Federal Project ID	District	Agency	MPO	Project Location	Description of Work	TotalCost	HSIPFunds	Funding Category	Funded Facility (NS, R, or S)	CM1	CM2	CM3
H9-04-018	9	5921079	4	Napa County	MTC	Silverado Trail, MM 00.00-11.00.	Upgrade existing guardrail on Silverado Trail to meet the current standards.	999,400	999,400	SA for GR Installation	R	R4: Install Guardrail	-	-
H9-04-032	9	5051005	4	St Helena	MTC	Silverado Trail, with the project limits bordering Napa County, beginning from approximately 175 feet north of Howell Mountain Road and ending at the southern City limits (1,475 feet total).	Replace 136 LF of guardrail, including terminal systems and associated striping.	556,100	556,100	SA for GR Installation	R	R4: Install Guardrail	-	-
H9-04-005	9	5003032	4	Benicia	MTC	Various locations throughout the City	Upgrade existing guardrails and end treatments at 21 locations in the City	996,000	996,000	SA for GR Installation	R	R4: Install Guardrail	-	-
H9-04-006	9	5003033	4	Benicia	MTC	The intersections of West 5th St. with Military West and Hasting Dr. with London Dr.	Enhance pedestrian crossings by installing ADA curb ramp, RRFB system, median island, and sidewalk, and other relevant elements.	259,100	250,000	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H9-04-003	9	5933154	4	Alameda County	MTC	Crow Canyon Road, Palomares Road, North Vasco Road, and Altamont Pass Road in unincorporated Alameda County.	Widen paved shoulders, construct edgeline rumble strips, and install chevron signs and delineators.	1,812,700	1,631,430	BCR	R	R35: Install edgeline rumble strips/stripes	R16: Widen shoulder (paved)	R27: Install chevron signs on horizontal curves
H9-04-017	9	5927123	4	Marin County	MTC	Locations on Various rural arterials and major collector roadways in the County of Marin.	Upgrade nonstandard guardrails.	961,200	961,200	SA for GR Installation	R	R4: Install Guardrail	-	-
H9-04-022	9	-	4	Oakland	MTC	Four (4) uncontrolled crosswalks along minor arterials at the following three intersections: 7th Street & Filbert Street; Oakland Avenue & Moss Avenue; and 98th Avenue & C Street.	Install flashing beacons, pavement markings and signs; construct a median island, curb ramps and bulb outs.	282,300	250,000	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H9-04-001	9	5933152	4	Alameda County	MTC	Various unsignalized intersections in unincorporated Alameda County.	Install/upgrade larger or additional stop signs or other warning/regulatory signs; add intersection lighting; add pedestrian crossing with enhanced safety features.	1,942,400	1,942,400	BCR	NS	NS5: Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	NS1: Add intersection lighting (NS.I.)	NS18: Install pedestrian crossing at uncontrolled locations (with enhanced safety features / curb-extensions)
H9-04-002	9	5933153	4	Alameda County	MTC	Various signalized intersections throughout Alameda County; urban and suburban contexts.	Install mast arms; install signal hardware improvements such as additional signal heads, reflective backplates; install leading pedestrian interval.	2,493,900	2,493,900	BCR	S	S2: Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	S7: Convert signal to mast arm (from pedestal-mounted)	S22: Modify signal phasing to implement a Leading Pedestrian Interval (LPI)
H9-04-020	9	5361031	4	Novato	MTC	Diablo Avenue/De Long Avenue corridor between Novato Boulevard and Reichert Avenue.	Improve pedestrian crosswalks throughout the corridor, install advanced dilemma zone detection at two key intersections, and provide an advance flashing beacon at upstream of an intersection with an arterial roadway.	1,146,300	1,146,300	BCR	S	S4: Provide Advanced Dilemma Zone Detection for high speed approaches	S9: Install flashing beacons as advance warning (S.I.)	S20: Install pedestrian crossing (S.I.)
H10-04-005	10	-	4	Benicia	MTC	Kearney Street at Rose Drive, Kearney Street at Mid-Block Crossing, Hastings Drive at Southhampton Road and Military West at W 3rd Street.	Install high-visibility crosswalks, advance yield limit lines, signage, RRFB systems, ADA compliant ramps, and bulb-outs.	249,900	249,900	SA for Ped-X	S	Ped-X Enhancement	-	-
H10-04-006	10	-	4	Berkeley	MTC	Six intersections along Sacramento Street: Oregon Street, Julia Street, Tyler Street, Prince Street.	Install RRFBs, warning signing, and raised median extensions at three intersections. Install advanced yield	339,800	250,000	SA for Ped-X	S	Ped-X Enhancement	-	-
H10-04-033	10	-	4	Pleasanton	MTC	Various overcrossing on/off ramp locations along Interstate 580 between Hopyard Road, Hacienda Drive, and Santa Rita Road.	Install Rectangular Rapid Flashing Beacons and improve striping and pavement markings.	321,200	250,000	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H10-04-040	10	-	4	Solano County	MTC	Suisun Valley Rd & Ledgewood Rd, Suisun Valley Rd & Rockville Rd, and Rockville Rd & Abernathy Rd (roundabout).	Install high-visibility crosswalks, truncated domes, dikes, advance warning signs, and ADA ramps.	489,800	250,000	SA for Ped-X	S	Ped-X Enhancement	-	-
H10-04-001	10	-	4	Alameda	MTC	four intersections: Santa Clara Avenue/Grand Street, Otis Drive/Willow Street, Otis Drive/Park Street, and Fernside Blvd./San Jose Avenue.	Provide upgraded traffic signal equipment, timing and striping to improve pedestrian safety. Upgraded equipment includes cabinets, controllers, video detection, audible pedestrian signals and signal heads.	273,100	249,076	SA for Ped-X	S	Ped-X Enhancement	-	-
H10-04-010	10	-	4	Contra Costa County	MTC	Various locations on arterial and major collector roadways in the Briones area of unincorporated Contra Costa County.	Replace sub-standard MBGR guardrails with Caltrans standard MGS guardrails and end treatments on arterial and major collector roadways. Upgrade includes approximately 43 guardrails with a length of over 12,000 linear feet.	1,687,800	992,082	SA for GR Installation	R	R4: Install Guardrail	-	-

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Unique Project ID	Cycle	Federal Project ID	District	Agency	MPO	Project Location	Description of Work	TotalCost	HSIPFunds	Funding Category	Funded Facility (NS, R, or S)	CM1	CM2	CM3
H10-04-014	10	-	4	Danville	MTC	Existing Class I path crossings along Iron Horse Regional Trail at Linda Mesa Avenue, Love Lane and Del Amigo Road (all local roads); and existing mid-block crossing on Stone Valley Road (minor arterial) at Monte Vista High School entry.	Install solar-powered Rectangular Rapid Flashing Beacon (RRFB) systems, LED crosswalk warning signage and illumination systems at four uncontrolled crosswalk locations.	240,000	240,000	SA for Ped-X	NS	Ped-X Enhancement	-	-
H10-04-041	10	-	4	South San Francisco	MTC	6 Unsignalized Intersections along Olive Avenue, Linden Avenue, and Walnut Avenue: Lux Ave & Walnut Ave, Linden Ave & 9th Ln, Linden Ave & 8th Ln, Olive Ave & Aspen Ave, Olive Ave & Pine Ave, Park Way & Walnut Ave.	Improve pedestrian safety by bringing the existing non-ADA compliant curb ramps up to current standards and installation of new high visibility crosswalks.	249,800	249,800	SA for Ped-X	S	Ped-X Enhancement	-	-
HSIP6-05-003	6	5016053	5	San Luis Obispo	SLOCOG	On Higuera St between Bridge St and Elks Lane	Widen roadway (add two-way left-turn lane); install curbs, curb ramps, gutter, and sidewalk	498,700	448,800	BCR	NS/R	R14: Add two-way left-turn lane (without reducing travel lanes)	NS15: Install left-turn lane (where no left-turn lane exists)	-
H8-05-009	8	5007078	5	Santa Barbara	SBCAG	Various intersections within City of Santa Barbara.	Install new pedestrian countdown timers at one location (added to existing traffic signal), and install enhanced pavement markings, pedestrian access ramps, warning signs, and improve sight lines at twenty-two (22) uncontrolled crosswalks.	359,000	250,000	SA for Ped-X	NS	Ped-X Enhancement	-	-
H9-05-011	9	5936140	5	Santa Cruz County	AMBAG	Various locations on Old Santa Cruz Highway, Spreckels Drive, Buena Vista Drive, Mt. Madonna Road, and Lompico Road.	Upgrade single beam guardrail to w-beam guardrail.	500,000	500,000	SA for GR Installation	R	R4: Install Guardrail	-	-
H9-05-012	9	5936139	5	Santa Cruz County	AMBAG	Four (4) locations including Graham Hill Road near Covered Bridge Road, 7th Avenue at Bonnie St, Soquel Drive 1250 ft southeast of State Park Drive, and Green Valley Road at Amesti Road.	Install Rectangular Rapid Flashing Beacons (RRFBs) at four locations, two concrete landings with ramps, and one asphalt concrete landing. Install sign and pavement marking pedestrian crossing enhancements.	250,000	250,000	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H9-05-015	9	-	5	Soledad	AMBAG	The vicinity of 5 public schools: Main Street Middle School, Frank Ledesma Elementary School, Soledad High School, Gabilan Elementary School and Jack Franscioni Elementary School	Crossing and safety enhancements including: curb extensions, curb ramp improvements, high visibility crosswalks, pavement markings and signage, rapid flashing beacons, solar-powered stop signs, ped countdown signal heads, and lead ped interval timing	541,300	250,000	SA for Ped-X	NS	Ped-X Enhancement	-	-
H9-05-001	9	5086040	5	Monterey	AMBAG	The intersection of Del Monte Avenue and Casa Verde Way in City of Monterey and Casa Verde Recreational trail crossing just north of the intersection between Del Monte Avenue and Robertson Ave.	Intersection Improvements including: relocate of the Casa Verde Trail Crossing to the Int., protected left turn phase, shorten/restripe crosswalks, ADA Improvements, bike crosswalks/signals, median improvements, right turn lane and leading ped phase.	1,649,000	1,023,560	BCR	S	S6: Provide protected left turn phase (left turn lane already exists)	S20: Install pedestrian crossing (S.I.)	S22: Modify signal phasing to implement a Leading Pedestrian Interval (LPI)
H10-05-002	10	-	5	El Paso De Robles	SLOCOG	Intersection of Niblick Road and Appaloosa Drive	Install Rectangular Rapid Flashing Beacons (RRFBs), pedestrian refuge island & advanced yield markings, and restripe lanes.	247,970	247,970	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H10-05-020	10	-	5	Santa Maria	SBCAG	Various existing uncontrolled pedestrian crossing locations.	Enhance pedestrian crossings at uncontrolled locations using low-cost proven safety countermeasures to prevent vehicular/pedestrian collisions.	505,700	250,000	SA for Ped-X	NS	Ped-X Enhancement	-	-
H10-05-021	10	-	5	Soledad	AMBAG	Vicinity of 4 public schools: Main Street Middle School, Frank Ledesma Elementary School, Soledad High School, and Rose Ferrero Elementary School.	Install curb extensions, high-visibility crosswalks, enhanced crosswalk signage and pavement markings, Rectangular Rapid Flashing Beacons (RRFBs), and flashing beacons at stop signs.	1,126,700	250,000	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H10-05-010	10	5007096	5	Santa Barbara	SBCAG	One uncontrolled intersection: De La Vina at Pedregosa.	Install curb extensions and signs/markings to increase pedestrian visibility and decrease crossing distances.	250,000	250,000	SA for Ped-X	S	Ped-X Enhancement	-	-
H10-05-015	10	5951174	5	Santa Barbara County	SBCAG	Various locations in the unincorporated areas of Santa Barbara County.	Stripe new 6" edgeline on 2 lane roads with characteristics of systemic safety issue of roadway departures as identified in the Santa Barbara County Local Road Safety Plan.	248,000	248,000	SA for Edgeline Installation	R	Edgeline Installation	-	-
H9-06-008	9	5060357	6	Fresno	FCOG	Twenty-five (25) signalized intersections (Fresno Street crossings at Thomas and San Jose; the intersection of Fresno and R Street (east/west), the intersection of Fresno and Clinton and various intersections along Fresno from B Street to Friant Road).	Install two HAWK signals, two protected left turn signals and upgrade pedestrian countdown equipment.	2,189,800	2,181,800	BCR	NS/S	S19: Install pedestrian countdown signal heads	NS19: Install Pedestrian Signal (including Pedestrian Hybrid Beacon (HAWK))	S6: Provide protected left turn phase (left turn lane already exists)

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H9-06-010	9	999999	6	Kern County	KCOG	Eighty-two (82) crosswalk locations at 79 intersections throughout Kern County.	Install continental crosswalks, intersection warning signs, reflective signs, pedestrian crossing signs, ADA curb ramps, street lighting, cross drains, and AC tie-ins.	5,196,300	5,120,300	BCR	NS	NS1: Add intersection lighting (NS.I.)	NS6: Upgrade intersection pavement markings (NS.I.)	NS5: Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs
H9-06-013	9	9999999	6	Kern County	KCOG	San Diego Street between Hall Road and Burgundy Avenue, in the unincorporated community of Lamont, Kern County.	Install continental crosswalks and lighting at four existing uncontrolled pedestrian crossing areas.	250,000	227,700	SA for Ped-X	NS	Ped-X Enhancement	-	-
H9-06-002	9	-	6	Bakersfield	KCOG	Calloway Drive in front of Norris Middle School at existing crosswalk near Manhattan Drive; Monitor Street in front of Palla Elementary School at existing crosswalk near Kyner Avenue.	Install flashing yellow beacons near crosswalks.	246,100	246,100	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H9-06-017	9	5946185	6	Tulare County	TCAG	The intersection of Avenue 144 and Road 96 (Tipton).	Convert intersection to roundabout.	2,972,800	2,972,800	BCR	NS	NS4B: Convert intersection to roundabout (from stop or yield control on minor road)	-	-
H9-06-005	9	5143034	6	Dinuba	TCAG	Various locations along Alta Avenue, Crawford Avenue, El Monte Way, Saginaw Avenue, Kamm Avenue, Kern Street, Nebraska Avenue, Englehart Avenue, Surabian Drive, and Sequoia Drive.	Install flush median, edgeline and centerline, and Class II and Class III bicycle facilities.	1,912,300	1,604,070	BCR	R (Bike Ln)	R10: Install median (flush)	R32: Install edge-lines and centerlines	R36: Install bike lanes
H10-06-016	10	-	6	Lemoore	KCAG	Intersection at Bush Street and Champion Street.	Install Rectangular Rapid Flashing Beacon (RRFB) and pedestrian crossing at uncontrolled location with enhanced safety features.	250,000	250,000	SA for Ped-X	NS	Ped-X Enhancement	-	-
H10-06-001	10	-	6	Bakersfield	KCOG	Old Farm Road in front of existing Veterans Elementary School at existing crosswalk near Cherry Valley Avenue, and Mountain Vista Drive in front of existing Earl Warren Junior High School at existing crosswalk near Mount Snow Lane.	Install flashing yellow beacons near existing crosswalks to enhance visibility and slow down vehicular traffic.	246,100	246,100	SA for Ped-X	NS/R	Ped-X Enhancement	-	-
H10-06-002	10	-	6	Bakersfield	KCOG	Intersection of Beale Avenue and Monterey Street and intersection of Beale Avenue and Niles Street.	Install signal poles/controller equipment.	586,000	586,000	BCR	S	S08: Convert signal to mast arm (from pedestal-mounted)	-	-
H10-06-009	10	-	6	Kern County	KCOG	All Kern County-maintained multi-lane roads and Wheeler Ridge Road (single lane).	Upgrade striping of centerlines/edgelines, left or right turns, & lane drops. Improve safety of curve on Wheeler Ridge Rd with chevron signs. Add new raised pavement markers on all roads. 80 miles of roadway; 226 miles of striping.	1,394,700	1,317,467	BCR	R	R28: Install edge-lines and centerlines	-	-
H10-06-010	10	-	6	Kern County	KCOG	Several Kern County-maintained multi-lane roads.	Improve the safety of several multi-lane roads county-wide by upgrading approximately 27 miles of bike lane striping over 22 miles of roadway.	375,200	247,620	BCR	R (Bike Ln)	R32PB: Install bike lanes	-	-
H10-06-011	10	-	6	Kern County	KCOG	Various locations throughout the County of Kern.	Upgrade guardrail.	653,700	626,450	SA for GR Installation	R	R4: Install Guardrail	-	-
H10-06-013	10	-	6	Kern County	KCOG	Cuddy Valley Road between Ivins Road and Obrien Drive, near the community of Frazier Park.	Upgrade existing edgelines and install rumble stripes. Install recessed reflective pavement markers on the centerline.	158,800	158,800	SA for Edgeline Installation	R	Edgeline Installation	-	-
H10-06-017	10	-	6	Madera	MCTC	Granada Drive north of Industrial Avenue.	Install curb ramps, concrete median island refuge area, high visibility crosswalk, RRFBs and sidewalk.	141,500	113,760	SA for Ped-X	NS/R	Ped-X Enhancement	-	-
HSIP6-07-004	6	5403025	7	Carson	SCAG	Various locations on Figueroa St, Main St, Victoria St, and Carson St in Carson	Install bike lanes	1,487,200	1,352,790	BCR	R (Bike Ln)	R36: Install bike lanes	-	-
HSIP6-07-005	6	5403026	7	Carson	SCAG	Various locations on University Dr, Avalon, Central Ave, Del Amo Blvd, and 223rd St in Carson	Install bike lanes	1,389,100	1,263,440	BCR	R (Bike Ln)	R36: Install bike lanes	-	-
HSIP7-07-005	7	-	7	Compton	SCAG	Compton Boulevard, from Willowbrook Avenue to eastern City limits.	Installation of raised medians and Class II bicycle lanes	1,928,400	1,691,098	BCR	R (Bike Ln)	R9: Install raised median	R36: Install bike lanes	-
H8-07-020	8	5108178	7	Long Beach	SCAG	Various locations on Anaheim Street between the Los Angeles River and Pacific Coast Highway.	Install controlled-access medians, signal upgrades, and pedestrian refuges.	3,326,300	2,993,670	BCR	NS/S	S6: Provide protected left turn phase (left turn lane already exists)	NS13: Create directional median openings to allow (and restrict) left-turns and u-turns (NS.I.)	NS16: Install raised medians / refuge islands (NS.I.)
H8-07-034	8	-	7	Norwalk	SCAG	Pioneer Boulevard between 166th Street (South City Limits) and Lakeland Road (North City Limits).	Upgrade signals to provide separate left-turn phasing at eight (8) intersections and provide various safety improvements at adjacent intersections.	2,911,000	2,911,000	BCR	S	S6: Provide protected left turn phase (left turn lane already exists)	-	-

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Unique Project ID	Cycle	Federal Project ID	District	Agency	MPO	Project Location	Description of Work	TotalCost	HSIPFunds	Funding Category	Funded Facility (NS, R, or S)	CM1	CM2	CM3
H8-07-035	8	-	7	Norwalk	SCAG	Pioneer Boulevard between 166th Street (South City Limits) and Lakeland Avenue (North City Limits).	Update signal timing and coordinated operations of fifteen (15) signalized intersections, construct a fiber-optic communication network to integrate with the City's Traffic Management Center (TMC).	1,281,700	640,850	BCR	S	S3: Improve signal timing (coordination, phases, red, yellow, or operation)	-	-
H8-07-036	8	-	7	Norwalk	SCAG	Norwalk Boulevard from 166th Street (South City Limits) to Rosecrans Avenue; and from Adoree Street to Lakeland Road (North City Limits).	Upgrade signals to provide separate left turn phasing at six (6) intersections and provide various safety improvements at adjacent intersections.	2,294,500	2,294,500	BCR	S	S6: Provide protected left turn phase (left turn lane already exists)	-	-
H8-07-037	8	-	7	Norwalk	SCAG	Norwalk Boulevard from 166th Street (South City Limits) to Rosecrans Avenue; and from Adoree Street to Lakeland Road (North City Limits).	Update signal timing and coordinated operations of eleven (11) signalized intersections, construct a fiber-optic communication network to integrate with the City's Traffic Management Center (TMC).	1,135,100	567,550	BCR	S	S3: Improve signal timing (coordination, phases, red, yellow, or operation)	-	-
H8-07-055	8	-	7	Whittier	SCAG	7 various locations of guard rails within the City of Whittier.	Upgrade guardrails.	363,000	363,000	SA for GR Installation	R	R4: Install Guardrail	-	-
H8-07-005	8	-	7	Compton	SCAG	The Compton Blvd. corridor between Willowbrook Avenue and Central Avenue.	Install bike lanes and lighting along the corridor, and enhance pedestrian crossings at fifteen (15) intersections.	1,298,000	1,168,200	BCR	R(Bike Ln)	R1: Add segment lighting	R36: Install bike lanes	R9: Install raised median
H8-07-006	8	-	7	Compton	SCAG	Twenty (20) intersections.	Install Pedestrian Countdown Heads.	249,800	249,800	SA for Ped-X	S	Ped-X Enhancement	-	-
H8-07-024	8	5006868	7	Los Angeles	SCAG	Twenty (20) intersections: Lindley Av/Sherman Wy, Compton Av/Imperial Hwy, Foothill Bl/Osborne St, Lassen St/Sepulveda Bl, Florence Av/Van Ness Av, Balboa Bl/Parthenia St, Tampa Av/Victory Bl, Union Av/Washington Bl, and the other twelve (12) intersections.	Modify traffic signals to install protected phasing operations (19 locations for left-turn and 1 for pedestrian scramble); upgrade signal indication sizes, install APS devices, and install/upgrade curb ramps.	9,927,111	5,244,400	BCR	S	S6: Provide protected left turn phase (left turn lane already exists)	-	-
H8-07-026	8	5953756	7	Los Angeles County	SCAG	Intersections of Olympic Boulevard at Garfield Avenue and Whittier Boulevard at Eastern Avenue, located in the unincorporated County area of East Los Angeles.	Install various traffic signal improvements, including upgrading standards, mastarms, vehicle heads, protected left-turn phasing, bicycle and vehicle detection, ADA access ramps, communication, and other associated equipment.	763,000	763,000	BCR	S	S7: Convert signal to mast arm (from pedestal-mounted)	S6: Provide protected left turn phase (left turn lane already exists)	-
H8-07-029	8	5953759	7	Los Angeles County	SCAG	Intersections of Amar Rd at Baldwin Park Blvd, Badillo St at Irwindale Ave, Santa Anita Ave at Freer St, and Temple Ave at Azusa Ave, in various city/county shared-jurisdiction locations in the San Gabriel Valley area.	Install various traffic signal equipment upgrades, including upgrading standards, mastarms, vehicle heads, protected left-turn phasing, bicycle and vehicle detection, access ramps, communication, and other associated equipment.	1,217,200	1,217,200	BCR	S	S7: Convert signal to mast arm (from pedestal-mounted)	S6: Provide protected left turn phase (left turn lane already exists)	-
H8-07-046	8	-	7	San Fernando	SCAG	Nine (9) intersections along the Metrolink rail corridor (1st St at Hubbard Ave & Maclay Avenue; San Fernando Rd at Brand Blvd, Hubbard Ave & Maclay Ave; and Truman St at Brand Blvd, Hubbard Ave, Maclay Ave & Wolfskill St).	Install larger signal heads, additional street lighting, and protected left turn phase signals where left turn lanes already exist.	1,096,000	1,096,000	BCR	S	S1: Add intersection lighting (S.I.)	S2: Improve signal hardware: lenses, back-plates, mounting, size, and number	S6: Provide protected left turn phase (left turn lane already exists)
H8-07-032	8	-	7	Los Angeles County	SCAG	Bouquet Canyon Road between 640 ft North of M.M. 16.43 and 1145 ft North of M.M 3.52	Install chevron signs, curve advance warning signs, and variable speed warning signs.	475,100	475,100	BCR	R	R27: Install chevron signs on horizontal curves	R28: Install curve advance warning signs	R30: Install dynamic/variable speed warning signs
H8-07-033	8	5953758	7	Los Angeles County	SCAG	San Francisquito Canyon Road between 715 ft North of M.M. 0.42 to 530 ft North of M. M. 16.33. Lake Hughes Road between Elizabeth lake Road and 215 ft East of M.M. 20.58	Install chevron signs and advance curve warning signs.	1,086,500	1,086,500	BCR	R	R27: Install chevron signs on horizontal curves	R28: Install curve advance warning signs	-
H8-07-003	8	5403030	7	Carson	SCAG	Six (6) Intersections - Avalon Blvd at Victoria Street, Main Street at Sepulveda Blvd, Main Street at 220th Street, Main Street at 223rd Street, Figueroa Street at 223rd Street, and Figueroa Street at Torrance Blvd.	Construct intersection upgrades (new signal heads, ADA ramps, service upgrades, LED safety lighting, bike detection, audible pedestrian signals, signal poles, signal mast arms, signal cabinets, raised medians, signing, striping, and left-turn phasing)	1,912,100	1,720,890	BCR	S	S1: Add intersection lighting (S.I.)	S6: Provide protected left turn phase (left turn lane already exists)	S7: Convert signal to mast arm (from pedestal-mounted)
H9-07-001	9	5130022	7	Alhambra	SCAG	Various signalized intersections throughout the City of Alhambra.	Install pedestrian countdown signal head systems.	876,000	876,000	BCR	S	S19: Install pedestrian countdown signal heads	-	-
H9-07-018	9	5231018	7	Monterey Park	SCAG	Vvarious signalized intersections along Garfield Avenue between the northern and southern city limits.	Install signal hardware improvements to the lenses, back-plates with retroreflective borders, mounting, size, and number, as well as installation of pedestrian countdown signal heads.	537,200	537,200	BCR	S	S2: Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	S19: Install pedestrian countdown signal heads	-

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H9-07-022	9	5352020	7	South El Monte	SCAG	various signalized intersections throughout the City.	Install signal hardware improvements to the lenses, back-plates with retroreflective borders, mounting, size, and number, as well as installation of pedestrian countdown signal heads.	601,300	601,300	BCR	S	S2: Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	S19: Install pedestrian countdown signal heads	-
H9-07-023	9	-	7	South Gate	SCAG	Various intersections throughout the City of South Gate (California Avenue and Missouri Avenue, State Street and Illinois Avenue, Southern Avenue and Madison Avenue, Otis Street and Missouri Avenue).	Install crosswalk improvements including in-roadway warning lights, signing and striping upgrades to meet current standards, and upgrade pedestrian ramps to be ADA compliant.	249,780	249,780	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H9-07-016	9	5250030	7	Lynwood	SCAG	Intersection of Alameda St at Martin Luther King, Jr. Blvd.	Add left turn phases, detection and lighting, upgrade ramps and striping improvements.	460,900	460,900	BCR	S	S6: Provide protected left turn phase (left turn lane already exists)	S1: Add intersection lighting (S.I.)	S4: Provide Advanced Dilemma Zone Detection for high speed approaches
H9-07-013	9	-	7	Los Angeles County	SCAG	Various city/county shared-jurisdiction locations in the Florence and Willowbrook areas, including the intersections of Alameda St at 92nd St/Southern Ave, Alameda St at Nadeau St, Alameda St at El Segundo Bl, and Alameda St at Firestone Bl.	Install various traffic signal improvements, including upgrading standards, mastarms, vehicle heads, protected left-turn phasing, bicycle and vehicle detection, ADA access ramps, communication, and other associated equipment.	1,675,600	1,675,600	BCR	S	S7: Convert signal to mast arm (from pedestal-mounted)	S6: Provide protected left turn phase (left turn lane already exists)	-
H9-07-024	9	5392059	7	Thousand Oaks	SCAG	Thousand Oaks Blvd between Conejo School Rd and Skyline Dr.	Relocate and consolidate two existing crosswalks located on Thousand Oaks Blvd, at Live Oak St and Oakview Dr, to one single mid-block crosswalk between Live Oak St and Oakview Dr.	560,600	504,540	BCR	NS	NS16: Install raised medians / refuge islands (NS.I.)	-	-
H10-07-018	10	-	7	Lancaster	SCAG	53 signalized intersections within the city limits of Lancaster.	Upgrade existing crosswalks to high-visibility continental-style crosswalks using thermoplastic material.	646,900	250,000	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H10-07-031	10	-	7	Rancho Palos Verdes	SCAG	Palos Verdes Drive East between Palos Verdes Drive South and Palos Verdes Drive North.	Upgrade approx. 4,400 linear feet of guardrails.	999,900	999,900	SA for GR Installation	R	R4: Install Guardrail	-	-
H10-07-032	10	-	7	Santa Clarita	SCAG	Nine intersections near Placerita Junior High School and William S. Hart High School in the Newhall area of Santa Clarita.	Install curb extensions at one intersection, school continental crosswalks at six intersections, and upgrade existing crosswalks to school continental at two intersections.	274,600	250,000	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H10-07-036	10	-	7	South Gate	SCAG	Four uncontrolled crosswalks at Tweedy Boulevard and Virginia Avenue, Tweedy Boulevard and San Antonio Avenue, Tweedy Boulevard and Washington Avenue, Tweedy Boulevard and Walnut Avenue.	Upgrade 4 uncontrolled crosswalks with enhanced crosswalk features including in-roadway warning lights, high visibility signing and striping, and ADA curb ramps.	250,000	250,000	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H10-07-003	10	-	7	Covina	SCAG	Various uncontrolled crosswalk locations throughout the City of Covina.	Install inroad warning lights and/or rapid flashing beacons, signage, pavement markings, high visibility crosswalk and curb ramps.	282,500	250,000	SA for Ped-X	NS/R	Ped-X Enhancement	-	-
H10-07-019	10	-	7	Lancaster	SCAG	7 segments: Ave I, 37th St E to 40th St E; Ave J, 32nd St E to 50th St E; Ave J, 50th St E to 85th St E; Ave K, 35th St E to 107th St E; 60th St W, Ave J to Ave E; Ave I, 70th St W to 30th St W; and Ave G, 70th St W to 50th St W.	Upgrade and refresh 48 miles of roadway edgelines with thermoplastic material.	337,300	250,000	SA for Edgeline Installation	R	Edgeline Installation	-	-
H10-07-024	10	-	7	Ojai	SCAG	On State Route 150 (Ojai Ave.) at Canada, Blanche and Ventura Streets (post mile marker 17.3 to 17.5).	Install curb extensions at NW and NE corners and a median, and related striping (Canada St); install curb extension at NE corner and related striping (Blanche St); and install curb extensions at NE and SE corners and related striping (Ventura St).	307,500	242,500	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H10-07-028	10	-	7	Paramount	SCAG	Seven crosswalks citywide: San Mateo St & Orange Ave, San Miguel St & Orange Ave, Myrrh St & Orange Ave, San Juan St & Gundry Ave, San Miguel St & Gundry Ave, Jackson St & Texaco Ave, and Flower St & Passage Ave.	Upgrade uncontrolled crosswalks with Rectangular Rapid Flashing Beacons (RRFBs), high visibility signing and striping, and ADA accessible curb ramps.	250,000	250,000	SA for Ped-X	NS/R	Ped-X Enhancement	-	-
H10-07-033	10	-	7	Simi Valley	SCAG	30 major signalized intersections on Alamo Street, Cochran Street, Easy Street, Los Angeles Avenue, Madera Road, Royal Avenue and Wood Ranch Parkway.	Replace seventy-eight (78) 8"-section signal heads with 12"-section signal heads and install high visibility retroreflective tape on 448 signal heads.	157,700	157,700	BCR	S	S02: Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	-	-
H10-07-037	10	-	7	Thousand Oaks	SCAG	Thirty-five signalized intersections in the City of Thousand Oaks.	Install retroreflective backplates (yellow borders).	143,300	123,300	BCR	S	S02: Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	-	-

Estimated List of Local HSIP Projects for FY 2023

Unique Project ID	Cycle	Federal Project ID	District	Agency	MPO	Project Location	Description of Work	TotalCost	HSIPFunds	Funding Category	Funded Facility (NS, R, or S)	CM1	CM2	CM3
H10-07-038	10	-	7	Thousand Oaks	SCAG	Ten intersections throughout the City.	Install RRFBs at nine existing marked crosswalks and include advanced flashing beacons; and upgrade an existing equestrian crossing equipped with flashing beacons to RRFBs, add a marked pedestrian crosswalk, and provide advanced warning beacons.	207,000	179,000	SA for Ped-X	NS/R	Ped-X Enhancement	-	-
H10-07-039	10	-	7	Thousand Oaks	SCAG	10 segments of guardrail and their posts throughout the City.	Replace approx. 2,000 linear feet of guardrail and 205 anchor posts with new guardrail and new anchor posts.	535,500	512,500	SA for GR Installation	R	R4: Install Guardrail	-	-
H10-07-040	10	-	7	Torrance	SCAG	Intersection of Lomita Boulevard and Madison Street.	Install new traffic signal, including curb ramps, crosswalks, and all traffic signal equipment.	537,800	537,800	BCR	NS	NS03: Install signals	-	-
H10-07-041	10	-	7	Ventura	SCAG	All signalized intersections in the City of Ventura.	Implement traffic signal coordination for 136 city-maintained intersections. Improvements include a new fiber-optic interconnect communications system that allows for consistent and reliable traffic signal coordination.	6,651,310	3,325,650	BCR	S	S03: Improve signal timing (coordination, phases, red, yellow, or operation)	-	-
H10-07-042	10	-	7	Ventura	SCAG	All signalized intersections in the City of Ventura.	Install new traffic signal controllers and switches for implementation of Leading Pedestrian Intervals (LPIs).	1,570,700	1,570,700	BCR	S	S21PB: Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	-	-
H10-07-043	10	-	7	Ventura County	SCAG	Various Locations Throughout the County of Ventura.	Install Rectangular Rapid Flashing Beacons (RRFBs).	250,000	250,000	SA for Ped-X	NS	Ped-X Enhancement	-	-
H9-08-009	9	5275036	8	Indio	SCAG	Fifteen (15) signalized intersections throughout the City of Indio.	Install advanced dilemma zone detection.	1,402,200	1,402,200	BCR	NS/S	S4: Provide Advanced Dilemma Zone Detection for high speed approaches	-	-
H9-08-017	9	5083024	8	Redlands	SCAG	Orange Blossom Trail at Alabama Street and Tennessee Street.	Install pedestrian crossings with enhanced safety features.	250,000	250,000	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H9-08-026	9	5448009	8	Twentynine Palms	SCAG	Residential area (high speed rural residential/local area) south of Two Mile Rd, North of Baseline Rd, East of Encelia Ave, and west of Elm Ave.	Upgrade intersection pavement markings and installing advance flashing beacons for advance warning.	1,190,000	1,190,000	BCR	NS	NS6: Upgrade intersection pavement markings (NS.I.)	NS8: Install flashing beacons as advance warning (NS.I.)	-
H9-08-016	9	-	8	Ramona Band of Cahuilla	SCAG	Hog Lake Road (6S18), also referred to as Hog Lake Truck Trail. A 1.6 mile alignment from near the intersection with Bautista Road to the Ramona Reservation.	Upgrade existing stop signs and install new traffic signs.	20,000	20,000	SA for Tribes	-	-	-	-
H9-08-007	9	5421006	8	Grand Terrace	SCAG	Various sections of Barton Road, Mount Vernon Avenue, Vista Grande Way and Vivienda Avenue, in the cities of Grand Terrace and Colton.	Upgrade existing guardrails to meet the current standards.	648,300	648,300	SA for GR Installation	R	R4: Install Guardrail	-	-
H9-08-011	9	5074020	8	Lake Elsinore	SCAG	Ten (10) intersections throughout the Cityof Lake Elsinore.	Install advanced dilemma zone detection, protected left turns, and pedestrian countdown heads.	1,348,900	1,348,900	BCR	S	S4: Provide Advanced Dilemma Zone Detection for high speed approaches	S6: Provide protected left turn phase (left turn lane already exists)	S19: Install pedestrian countdown signal heads
H9-08-013	9	-	8	Murrieta	SCAG	Five uncontrolled mid-block crosswalk locations near four school sites.	Install in-pavement LED lighted crosswalks and curb ramps.	291,100	247,435	BCR	NS	NS18: Install pedestrian crossing at uncontrolled locations (with enhanced safety features / curb-extensions)	-	-
H9-08-023	9	-	8	San Jacinto	SCAG	The intersection of San Jacinto Ave and Shaver St.	Install traffic signal with protected left turn phasing, pedestrian push buttons and leading pedestrian intervals; construct ADA ramps; install sidewalk on the E/S of San Jacinto Ave.	519,200	467,280	BCR	NS	NS3: Install signals	-	-
H9-08-025	9	-	8	Temecula	SCAG	Signalized intersections of Margarita Road and Verdes Lane, Ynez Road and Town Center North, Ynez Road and Town Center South, Redhawk Parkway and Paseo Parallon/Overland Trail, and Winchester Road and Enterprise Circle.	Upgrade existing permissive left-turn phases and signal heads with protected left-turn phases on existing and/or new traffic signal poles and mast arms.	566,900	489,510	BCR	S	S6: Provide protected left turn phase (left turn lane already exists)	S17: Install left-turn lane and add turn phase (signal has no left-turn lane or phase before)	-
H9-08-001	9	5430034	8	Cathedral City	SCAG	Traffic Signal Safety Upgrades at 12 Intersections Throughout the City	Install advanced dilemma zone detection, protected left turn phases, and pedestrian countdown heads.	1,302,500	1,302,500	BCR	S	S4: Provide Advanced Dilemma Zone Detection for high speed approaches	S6: Provide protected left turn phase (left turn lane already exists)	S19: Install pedestrian countdown signal heads
H9-08-002	9	5430035	8	Cathedral City	SCAG	Date Palm Drive and Varner Road	Construct centerline and edgeline rumble strips, install flashing stop signs, and install guardrail.	1,089,700	1,089,700	BCR	R	R4: Install Guardrail	R34: Install centerline rumble strips/stripes	R35: Install edgeline rumble strips/stripes

Estimated List of Local HSIP Projects for FY 2023

Unique Project ID	Cycle	Federal Project ID	District	Agency	MPO	Project Location	Description of Work	TotalCost	HSIPFunds	Funding Category	Funded Facility (NS, R, or S)	CM1	CM2	CM3
H9-08-004	9	-	8	Desert Hot Springs	SCAG	Palm Drive from Dillon Road to Pierson Boulevard.	Upgrade standard pedestrian signal heads to countdown style pedestrian signal heads and pedestrian push buttons to accessible pedestrian signal (APS); construct continental style crosswalks with limit lines.	206,300	206,300	BCR	S	S19: Install pedestrian countdown signal heads	S21: Install advance stop bar before crosswalk (Bicycle Box)	-
H9-08-006	9	-	8	Desert Hot Springs	SCAG	The intersection of Palm Drive at 8th Street.	Construct median refuges and curb bulb outs, upgrade stop signs to LED bordered stop signs, and upgrade existing crosswalks to continental crosswalks.	177,300	159,570	BCR	NS	NS16: Install raised medians / refuge islands (NS.I.)	NS7: Install Flashing Beacons at Stop-Controlled Intersections	NS6: Upgrade intersection pavement markings (NS.I.)
H9-08-008	9	-	8	Hesperia	SCAG	The intersection of Main Street and Timberlane Avenue/Sultana Street.	Install a traffic signal; widen roadway to accommodate left turn pockets; install curb, gutter, sidewalk, curb ramps, crosswalks, and lighting; provide pedestrian phasing and countdown timers.	1,214,300	899,300	BCR	NS	NS3: Install signals	-	-
H9-08-014	9	5282049	8	Palm Springs	SCAG	Nine (9) signalized intersections throughout the City of Palm Springs.	Install advanced dilemma zone detection, protected left turns and pedestrian countdown heads.	1,702,700	1,702,700	BCR	S	S4: Provide Advanced Dilemma Zone Detection for high speed approaches	S6: Provide protected left turn phase (left turn lane already exists)	S19: Install pedestrian countdown signal heads
H9-08-018	9	5956274	8	Riverside County	SCAG	Various high profile roadway corridors, including Cajalco Rd between Wood Rd and Temescal Canyon Rd, Gavilan Rd between Cajalco Rd and Lake Mathews Rd, and Sage Rd between Cactus Valley Rd and SH-79.	Review and upgrade horizontal alignment warning signs per the CA MUTCD mandate.	250,000	250,000	SA for Curve Warning Signs	R	-	-	-
H10-08-024	10	-	8	Wildomar	SCAG	Intersection of Bundy Canyon Road and Harvest Way (three-leg intersection).	Install new traffic signal.	272,900	272,900	BCR	S	NS03: Install signals	-	-
H10-08-012	10	-	8	Murrieta	SCAG	Various locations citywide.	Install adaptive timing program at all City signalized intersections, including new traffic signal controllers and loops, as well as the required software and hardware at City Hall Traffic Management Center.	854,700	422,350	BCR	S	S03: Improve signal timing (coordination, phases, red, yellow, or operation)	-	-
H10-08-015	10	-	8	Perris	SCAG	Ramona Expwy from Webster Ave to E Rider St; Nuevo Rd from Frontage rd to Dunlap Dr; W 4th St from Navajo Rd to Redlands Ave; Ethanac Rd from Murietta Rd to Case Rd.	Improve signalized intersection safety with retroreflective backplates, advanced dilemma zone detection, and radar speed signage along segments of priority corridors.	1,389,900	1,173,700	BCR	S	R26: Install dynamic/variable speed warning signs	-	-
H10-08-016	10	-	8	Perris	SCAG	Ramona Expressway from N. Webster Ave to Rider St.	Install enhanced crosswalks along a priority corridor to improve safety of pedestrian and bicyclists.	292,000	250,000	SA for Ped-X	NS	Ped-X Enhancement	-	-
H10-08-020	10	-	8	San Jacinto	SCAG	San Jacinto Ave. (formerly SR79) between Menlo Avenue and Commonwealth Ave.	Install Pedestrian Hybrid Beacon (PHB) with enhanced pedestrian refuge island mid-block; install sidewalk on west and east side of San Jacinto from Commonwealth to Menlo; install roadway lighting; and install additional signage.	677,100	440,100	BCR	NS	NS01: Add intersection lighting (NS.I.)	-	-
H10-08-022	10	-	8	Victorville	SCAG	Seventh Street between Sage Street and C Street.	Implement a variety of safety improvements to existing signalized intersections, such as adding mast arms, lighting, enhancing video detection and upgrading PBS system.	680,500	680,500	BCR	S	S08: Convert signal to mast arm (from pedestal-mounted)	-	-
H9-09-001	9	-	9	Bishop Paiute Tribe	RURAL	Various intersections and road segments in the Bishop Paiute Indian Reservation (east of the City of Bishop).	Install enhanced signs and striping at intersections, install midblock crosswalk signs, add centerline and edge striping, and warning signs.	547,900	250,000	SA for Tribes	-	NS5: Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	R32: Install edge-lines and centerlines	NS17: Install pedestrian crossing at uncontrolled locations (new signs and markings only)
H9-09-002	9	-	9	Fort Independence Tribe	RURAL	Various intersections and road segments in the Fort Independence Indian Reservation (approximately two miles north of the city of Independence)	Install intersection signs, center and edge striping, and new warning and speed limit signs.	276,500	250,000	SA for Tribes	-	NS5: Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	R32: Install edge-lines and centerlines	R26: Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)
H10-09-004	10	-	9	Mono County	RURAL	Lower Rock Creek Road, Benton Crossing Road, Convict Lake Road, Twin Lakes Road, Eastside Lane, and Lundy Lake Road.	Implement systemic safety curve warning and chevron signage. Upgrade existing curve warning signs reflectivity.	209,500	198,500	BCR	R	R23: Install chevron signs on horizontal curves	R24: Install curve advance warning signs	R22: Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)
H10-09-006	10	-	9	Mono County	RURAL	Benton Crossing Road (easterly 23.5 mile portion), Eastside Lane (3.3 mile portion from Hwy 395 to Offal Rd), Lower Rock Creek Road (northerly 5 miles from Swall Meadows Rd to Hwy 395), North Shore Drive (3.5 miles) and Topaz Lane (3.5 miles).	Paint right-edgeline striping on existing roads throughout Mono county.	261,000	250,000	SA for Edgeline Installation	R	Edgeline Installation	-	-
H8-10-006	8	5929289	10	San Joaquin County	SJCOG	Intersection of Duncan Road and Comstock Road in Linden.	Install a roundabout.	1,213,900	1,213,900	BCR	NS	NS4B: Convert intersection to roundabout (from stop or yield control on minor road)	-	-

Estimated List of Local HSIP Projects for FY 2023

Unique Project ID	Cycle	Federal Project ID	District	Agency	MPO	Project Location	Description of Work	TotalCost	HSIPFunds	Funding Category	Funded Facility (NS, R, or S)	CM1	CM2	CM3
H9-10-001	9	5206018	10	Angels Camp	RURAL	Various locations throughout the city of Angels Camp.	Conduct a roadway safety signing audit (RSSA) and install/relocate/remove roadway signs (per MUTCD standards) based on the results of the RSSA.	163,300	163,300	BCR	R	R26: Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	R27: Install chevron signs on horizontal curves	R28: Install curve advance warning signs
H9-10-003	9	5930094	10	Calaveras County	RURAL	Murphys Grd 6.06-6.13R, O'Byrnes Ferry 0.04-0.06R, 0.04-0.06L, 0.70-0.75L, Copper Cove 1.06-1.0SR, 1.06-1.0SL, Pool Station 9.92-9.97R, Southworth 4.96-4.97R, 4.96-4.97L, 5.10-5.15R, 5.10-5.15L, Gold Strike 0.85-0.87R, 0. 85-0.87L, Garabaldi 0.00-0.05R	Upgrade existing guardrail, end caps/flared ends, and transition railing.	365,200	365,200	SA for GR Installation	R	R4: Install Guardrail	-	-
H9-10-002	9	5930095	10	Calaveras County	RURAL	County Rd #'s: 162,322,251,73,36,173,55,42,57,59,134,147,590,11,960,420,362, 43A,312,43,77,12A,74,58,54,27,127,48A,31 A,12, 28,761, 125,133,53,37,14,31,48,551,801,61,35,571,402,126,10 ,13,358,353,22,51,161,174,32,802,75,403,124,554, 29,72,60,1318,135,24	Conduct a roadway safety and signing audit (RSSA) and install/relocate/remove roadway signs (per MUTCD standards) based on the results of the RSSA.	3,116,000	3,067,358	BCR	R	R26: Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	R27: Install chevron signs on horizontal curves	R28: Install curve advance warning signs
H10-10-020	10	-	10	Stockton	SJCOG	Various locations on curve approaches throughout the City.	Place 3 speed trailers and 27 speed sentries at curve approaches that experience high rates of collisions.	320,000	320,000	BCR	R	R26: Install dynamic/variable speed warning signs	-	-
H10-10-023	10	-	10	Stockton	SJCOG	Various locations throughout the City.	Install reflective thermoplastic edgelines where existing striped edgelines have significantly faded and road departures exist.	250,000	250,000	SA for Edgeline Installation	R	Edgeline Installation	-	-
H8-11-016	8	5957129	11	San Diego County	SANDAG	Woodside Ave from Marilla Dr to Chestnut St in the unincorporated community of Lakeside.	Construct sidewalks, bike lanes, and advanced dilemma zone detection with signal coordination.	7,724,200	6,951,780	BCR	R/S	R36: Install bike lanes	R37: Install sidewalk/pathway (to avoid walking along roadway)	S4: Provide Advanced Dilemma Zone Detection for high speed approaches
H9-11-001	9	-	11	Barona Band of Mission Indians	SANDAG	The intersection of Ashwood Street/ Wildcat Canyon Road and Willow Road.	Install high visibility pedestrian crossings and advanced stop bars; install bike lane striping, edge-lines and centerlines; construct sidewalk and curb ramps; install pedestrian signal heads and safety lighting system.	348,300	248,706	SA for Ped-X	NS/S	Ped-X Enhancement	-	-
H9-11-019	9	-	11	San Pasqual Band of Mission Indians	SANDAG	Various locations throughout the San Pasqual Band of Mission Indians Reservation, within the County of San Diego.	Upgrade existing guardrail from wood posts to steel posts.	351,200	351,200	SA for GR Installation	R	R4: Install Guardrail	-	-
H9-11-021	9	-	11	Viejas Tribal Government	SANDAG	Entire length of Browns Road, Viejas Indian Reservation, San Diego County.	Install new signs, new dynamic/variable speed warning sign, new edge-lines, new centerlines and centerline and departure line rumble strips.	73,900	73,900	SA for Tribes	-	R26: Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	R30: Install dynamic/variable speed warning signs	R32: Install edge-lines and centerlines
H9-11-006	9	5446026	11	Encinitas	SANDAG	Three-block corridor of Santa Fe Drive from Gardena Road to Bonita Drive. Santa Fe Drive intersects with four streets along the corridor: Gardena Road, Arcadia Road, Nardo Road, and Bonita Drive.	Install sidewalk/pathway and install pedestrian hybrid beacon (HAWK).	769,600	692,640	BCR	NS/R	R37: Install sidewalk/pathway (to avoid walking along roadway)	NS19: Install Pedestrian Signal (including Pedestrian Hybrid Beacon (HAWK))	-
H9-11-016	9	5004209	11	San Diego	SANDAG	Various locations, including Skyline Drive & S.Woodman Street, West Mission Bay Drive & Ingraham Street On-ramp, North Torrey Pines Road N/O Callan Road, Via de la Melodia & Smythe Avenue, Sabre Springs Parkway S/O Evening Creek Drive South.	This project involves extending existing guardrails, installing end terminals or crash cushions and widening sidewalks to provide adequate access.	998,200	998,200	SA for GR Installation	R	R4: Install Guardrail	-	-
H10-11-013	10	-	11	National City	SANDAG	Intersections of 16th St & E Ave and Plaza Blvd / Paradise Valley Rd & 8th St.	Install high visibility pedestrian striping, curb extensions, pedestrian refuge islands, ADA curb ramps, pedestrian push button poles, and pedestrian lighting.	250,000	243,000	SA for Ped-X	S	Ped-X Enhancement	-	-
H10-11-018	10	-	11	San Diego County	SANDAG	West Lilac Road (between Lilac Rd and Camino del Rey) and Wildcat Canyon Road (between San Vicente Rd and Willow Rd) in unincorporated San Diego County.	Install 6" edgelines.	196,700	196,700	SA for Edgeline Installation	R	Edgeline Installation	-	-

Estimated List of Local HSIP Projects for FY 2023

Unique Project ID	Cycle	Federal Project ID	District	Agency	MPO	Project Location	Description of Work	TotalCost	HSIPFunds	Funding Category	Funded Facility (NS, R, or S)	CM1	CM2	CM3
H9-12-001	9	5055190	12	Anaheim	SCAG	Seven (7) signalized intersection locations, including Brookhurst/La Palma, Euclid/Crescent, Harbor/Lincoln, Ball/State College, Ball/Brookhurst, Magnolia/Lincoln, Magnolia/Broadway, and Ball/Knott.	Provide Advanced Dilemma Zone Detection for high speed approaches and signal hardware updates at seven locations, and protected left turn phase at four intersections.	2,372,100	2,372,100	BCR	S	S4: Provide Advanced Dilemma Zone Detection for high speed approaches	S6: Provide protected left turn phase (left turn lane already exists)	S2: Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number
H9-12-009	9	5073093	12	Orange	SCAG	The intersection of Glassell Street and Palmyra Avenue.	Install a two phase traffic signal.	369,100	369,100	BCR	NS	NS3: Install signals	-	-
H9-12-007	9	5266029	12	La Habra	SCAG	Six (6) intersections, including La Habra Blvd & Monte Vista St, La Habra Blvd & Cypress St, Harbor Blvd & Sterns Ave, Lambert Rd & Idaho St, Idaho St & Las Lomas Ave, and La Habra Blvd & Euclid St.	Add left-turn storage and left-turn protected signal phasing at one intersection; add left-turn protected signal phasing at four intersections; and upgrade existing signals at all six intersections.	784,600	706,140	BCR	S	S2: Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	S6: Provide protected left turn phase (left turn lane already exists)	S17: Install left-turn lane and add turn phase (signal has no left-turn lane or phase before)
H10-12-001	10	-	12	Anaheim	SCAG	3 Signalized Intersections in the City of Anaheim: Walnut Street at Ball Road; Anaheim Boulevard at Santa Ana Street; and Acacia Street/Anna Drive at La Palma Avenue.	Install protected/protected-permissive left-turn phasing.	702,100	702,100	BCR	S	S07: Provide protected left turn phase (left turn lane already exists)	-	-
H10-12-004	10	-	12	Mission Viejo	SCAG	Twenty-Four (24) prioritized signalized intersection locations within the City of Mission Viejo.	Install audible pedestrian push button systems.	248,200	248,200	SA for Ped-X	S	Ped-X Enhancement	-	-