# CALIFORNIA

# HIGHWAY SAFETY IMPROVEMENT PROGRAM

## 2017 ANNUAL REPORT


U.S. Department of Transportation
**Federal Highway Administration**

Photo source: Federal Highway Administration

# Table of Contents

# Disclaimer

**Protection of Data from Discovery Admission into Evidence**

23 U.S.C. 148(h)(4) states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section [HSIP], shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location identified or addressed in the reports, surveys, schedules, lists, or other data.”

23 U.S.C. 409 states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.”

# Executive Summary

The Moving Ahead for Progress in the 21st Century Act or "MAP-21" (Pub. L. 112-141, 126 Stat. 405), was signed into law July 6, 2012, and continued the Highway Safety Improvement Program (HSIP) as a core program under title 23 United States Code section 148 to reduce fatalities and injuries on all public roadways. Title 23 United States Code section 148(h) requires each state to submit an annual report to the Federal Highway Administration (FHWA) regarding its HSIP implementation and effectiveness and title 23 Code of Federal Regulations sections 924.15(a)(1) and 924.15(a)(2) specify that the report be submitted no later than August 31 of each year. This annual report describes the progress being made to implement projects and the status of program evaluations for the HSIP as described in Title 23 United States Code section 148, and for High-Risk Rural Roads (HR3) (23 U.S.C. § 148(g)). The Railway-Highway Crossings (23 U.S.C. § 130(g)) report is submitted to FHWA directly by the California Public Utility Commission as a separate report. Under the "MAP-21" (Pub. L. 112-141, July 6, 2012; 126 Stat. 405), the High-Risk Rural Roads program was merged into the HSIP for safety improvements on public rural roadways that meet the functional classification requirements of title 23 United States Code section 148(a)(1). In addition to the above, in accordance with title 23 United States Code section 164 repeat intoxicated transfer funds, approximately $60.79 million was obligated for alcohol impaired driving countermeasures. Caltrans' Division of Traffic Operations provided information on the State Highway System (SHS) for this report, and Caltrans' Division of Local Assistance for local roads. Caltrans implements the HSIP for State highways by programming and funding projects in the Collision Reduction Category, one of eight categories that make up the State Highway Operation and Protection Program (SHOPP). The Collision Reduction Category is further divided into two programs: Safety Improvement and Collision Severity Reduction. The Safety Improvement Program is among Caltrans' top priorities in the SHOPP. The projects evaluated in this report are funded by the Collision Reduction Category, which includes both federal HSIP and State highway funds.

The Fixing America's Surface Transportation (FAST) Act was signed into law on December 4, 2015 and continued the Highway Safety Improvement Program (HSIP) with only minor changes. The FAST Act confirmed the overall purpose of this program is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads through the implementation of infrastructure-related highway safety improvements.

Caltrans uses raw collision data on the state highway system from California Highway Patrol's SWITRS (Statewide Integrated Traffic Record System) database. Raw collision data were later imported and reconfigured in to the Transportation System Network (TSN) Caltrans database. The purpose of having another system database is to provide users the ability to select and export data based on certain needs. According to 2014 Collision Data on California State Highways, there were 15,079.1 road miles and 178,325.2 million vehicle miles traveled. Total collision rate was 0.81 collisions per million vehicle miles and 0.28 fatal + injury per million vehicle miles. There were a total of 144,423 collisions which consisted of 94,539 property damage only, 48,754 collisions with injury, and 1,130 fatal. Among the total collisions, there were a total of 1,260 persons killed and 70,753 injured. Caltrans estimates that these collisions resulted in societal economic losses of approximately $19.6 billion assuming collision costs for various injury severities derived by the National Safety Council. High concentration collisions locations are identified and systematically investigated to determine probable causes of the collisions in order to implement effective countermeasures to improve safety. Other locations identified for investigation and possible implementation of countermeasures are generated from Monitoring Programs: Cross Median Collisions, Two and Three Lane Cross Centerline Collisions, Wrong Way Collisions,

and Pedestrian Collisions. The HSIP and other State programs have contributed to making highways safer through the implementation of highway safety projects.

# Introduction

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads. As per 23 U.S.C. 148(h) and 23 CFR 924.15, States are required to report annually on the progress being made to advance HSIP implementation and evaluation efforts. The format of this report is consistent with the HSIP MAP-21 Reporting Guidance dated **February 13, 2013** and consists of four sections: program structure, progress in implementing HSIP projects, progress in achieving safety performance targets, and assessment of the effectiveness of the improvements.

# Introduction

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads. As per 23 U.S.C. 148(h) and 23 CFR 924.15, States are required to report annually on the progress being made to advance HSIP implementation and evaluation efforts. The format of this report is consistent with the HSIP Reporting Guidance dated December 29, 2016 and consists of five sections: program structure, progress in implementing highway safety improvement projects, progress in achieving safety outcomes and performance targets, effectiveness of the improvements and compliance assessment.

# Program Structure

***Program Administration***

**Describe the general structure of the HSIP in the State.**

Traffic Operations addresses the state highway system and local agencies address all other public roads.

**Where is HSIP staff located within the State DOT?**

Other-Traffic Operations and Local Assistance

**Enter additional comments here to clarify your response for this question or add supporting information.**

**How are HSIP funds allocated in a State?**

Central Office via Statewide Competitive Application Process

**Enter additional comments here to clarify your response for this question or add supporting information.**

At the Division of Local Assistance, there is a competitive application process; however, there is no competitive application process at the State. All HSIP projects are funded when HQ approves and concurs based on if a project meets minimum criteria such as with a minimum collision threshold, effective countermeasures selection, safety index greater than or equal to 200, and all required documents are submitted.

**Describe how local and tribal roads are addressed as part of HSIP.**

Caltrans Division of Local Assistance (DLA) uses an HSIP application benefit-cost tool to provide a consistent, data-driven methodology for ranking local roadway (non-State owned and operated) project applications on a statewide basis. This tool was developed by the DLA in conjunction with the University of California, Berkeley, Safe Transportation Research and Education Center. The DLA HSIP also provides the Local Roadway Safety Manual for California local road owners and directly incorporates UC Berkeley's

Transportation Injury Mapping System website to assist applicants applying for local HSIP funds. These tools and resources encourage local agencies to proactively analyze their roadway networks for the highest crash locations and develop and submit applications with the greatest chance of reducing fatalities and serious injuries using low cost proven systemic countermeasures. The DLA HSIP application process is also open and available to the tribes that would like to submit an application for HSIP funds. However, due to lack of time, resources, experience and data at the tribes very few applications if any are submitted.

**Identify which internal partners (e.g., State departments of transportation (DOTs) Bureaus, Divisions) are involved with HSIP planning.**

Traffic Engineering/Safety
Planning
Operations
Districts/Regions
Local Aid Programs Office/Division
Other-Research Innovation and System Information

**Enter additional comments here to clarify your response for this question or add supporting information.**

**Describe coordination with internal partners.**

On the State Highway System, the Traffic Safety and Mobility Program in Headquarters within the Division of Traffic Operations works with the Division of Planning, Division of Programming, Division of Research Innovation and System Information, and 12 Caltrans district offices to develop Project Initiation Documents to program projects. For local roads, Caltrans Division of Local Assistance (DLA) staff manage the local agency share of HSIP funds in conjunction with its local agency partners. The DLA prepares the HSIP guidelines and solicits project applications from local agencies.

Traffic Operations annually provide a list of high collision concentration locations to 12 districts. Each district's traffic investigation is required to investigate and respond with possible safety improvement recommendation and countermeasures. Traffic Operations is to concur with district's response and recommendation before any major safety improvement project can be initiated.

**Identify which external partners are involved with HSIP planning.**

Regional Planning Organizations (e.g. MPOs, RPOs, COGs)
Governors Highway Safety Office
Local Technical Assistance Program
Local Government Agency
Tribal Agency
Academia/University
FHWA

**Enter additional comments here to clarify your response for this question or add supporting information.**

**Describe coordination with external partners.**

Caltrans has been working with 400 stakeholders from 170 public & private agencies including tribal agency, local technical assistance program, and universities to develop CA-SHSP. Projects developed are consistent with SHSP strategies. Caltrans' DLA with local agencies are involved in planning projects on local roads.

Caltrans coordinates with FHWA by asking for guidance and interpretation of HSIP funding criteria and other FHWA legislative requirements.

**Have any program administration practices used to implement the HSIP changed since the last reporting period?**

No

**Are there any other aspects of HSIP Administration on which the State would like to elaborate?**

No

***Program Methodology***

**Does the State have an HSIP manual or similar that clearly describes HSIP planning, implementation and evaluation processes?**

Yes

**To upload a copy of the State processes, attach files below.**

File Name:
2017 STATE HSIP GUIDELINES FINAL.pdf

**Select the programs that are administered under the HSIP.**

Median Barrier
HSIP (no subprograms)
Roadway Departure
Pedestrian Safety
Wrong Way Driving
Other--2 and 3 Ln Cross Centerline Collision Monitoring Pro

**Enter additional comments here to clarify your response for this question or add supporting information.**

HSIP (no subprograms)*- based on benefit/cost analysis in term of safety index greater than 200 and the effective cost of countermeasures.

Wrong Way Driving* - based on minimum collision threshold and effective countermeasures.

Median Barrier - based on minimum collision threshold and effective countermeasures.

Roadway Departure (Run of Road) - based on minimum collision threshold and effective countermeasures.

2-3-lane cross centerline collision monitoring program - based on minimum collision threshold and effective countermeasures.

Pedestrian Safety - based on minimum collision threshold and effective countermeasures.

**Program:** HSIP (no subprograms)

**Date of Program Methodology:** 6/20/2017

**What is the justification for this program? [Check all that apply]**

Addresses SHSP priority or emphasis area

**What is the funding approach for this program? [Check one]**

Funding set-aside

**What data types were used in the program methodology? [Check all that apply]**

| Crashes | Exposure | Roadway |
|---|---|---|
| All crashes | Volume | Median width |
| Fatal and serious injury crashes only | Lane miles | Functional classification |

**What project identification methodology was used for this program? [Check all that apply]**

Crash frequency
Crash rate

**Are local roads (non-state owned and operated) included or addressed in this program?**

No

**Are local road projects identified using the same methodology as state roads?**

**Describe the methodology used to identify local road projects as part of this program.**

**How are projects under this program advanced for implementation?**

Competitive application process
Other-meet minimum criteria

**Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).**

**Rank of Priority Consideration**

Other-meet minimum criteria : 100

**Enter additional comments here to clarify your response for this question or add supporting information.**
At the Division of Local Assistance, there is a competitive application process; however, there is no competitive application process at the State. All HSIP projects are funded when HQ approves and concurs based on if a project meets minimum criteria such as with a minimum collision threshold, effective countermeasures selection, safety index greater than or equal to 200, and all required documents are submitted.

**Program:** Median Barrier

**Date of Program Methodology:** 11/15/1977

**What is the justification for this program? [Check all that apply]**

Addresses SHSP priority or emphasis area

**What is the funding approach for this program? [Check one]**

Funding set-aside

**What data types were used in the program methodology? [Check all that apply]**

| Crashes | Exposure | Roadway |
|---|---|---|
| All crashes<br>Fatal crashes only | Volume | Median width<br>Functional classification |

**What project identification methodology was used for this program? [Check all that apply]**

Crash frequency
Crash rate

**Are local roads (non-state owned and operated) included or addressed in this program?**

No

**Are local road projects identified using the same methodology as state roads?**

**Describe the methodology used to identify local road projects as part of this program.**

**How are projects under this program advanced for implementation?**

Other-Any project that meets the established Median Barrier criteria for project selection can be programmed

**Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).**

**Rank of Priority Consideration**

Other-Collision and volume warrants : 100

**Enter additional comments here to clarify your response for this question or add supporting information.**

**Program:** Pedestrian Safety

**Date of Program Methodology:** 6/20/2017

**What is the justification for this program? [Check all that apply]**

Addresses SHSP priority or emphasis area

**What is the funding approach for this program? [Check one]**

Funding set-aside

**What data types were used in the program methodology? [Check all that apply]**

| Crashes | Exposure | Roadway |
|---|---|---|
| All crashes<br>Fatal and serious injury crashes only | Volume<br>Lane miles | Functional classification |

**What project identification methodology was used for this program? [Check all that apply]**

Crash frequency
Crash rate

**Are local roads (non-state owned and operated) included or addressed in this program?**

No

**Are local road projects identified using the same methodology as state roads?**

**Describe the methodology used to identify local road projects as part of this program.**

**How are projects under this program advanced for implementation?**

Competitive application process

**Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).**

**Rank of Priority Consideration**

Other-meet minimum criteria : 100

**Enter additional comments here to clarify your response for this question or add supporting information.**

**Program:** Roadway Departure

**Date of Program Methodology:** 11/15/2004

**What is the justification for this program? [Check all that apply]**

Addresses SHSP priority or emphasis area

**What is the funding approach for this program? [Check one]**

Funding set-aside

**What data types were used in the program methodology? [Check all that apply]**

**Crashes** **Exposure** **Roadway**

| | | |
|---|---|---|
| Other-see the optional description | Volume<br>Lane miles<br>Other-Fatal and injury crashes on Wet Pavement | Functional classification<br>Roadside features<br>Other-Fatal and injury crashes resulting in Overturned Vehicle |

**What project identification methodology was used for this program? [Check all that apply]**

Crash frequency
Crash rate
Other-see the optional description for this question

**Are local roads (non-state owned and operated) included or addressed in this program?**

No

**Are local road projects identified using the same methodology as state roads?**

**Describe the methodology used to identify local road projects as part of this program.**

**How are projects under this program advanced for implementation?**

Other-see the optional description for this question

**Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).**

**Relative Weight in Scoring**

Other-100% top 25% of run-off-road concentration locations with higher scores +100% of identified long segments selected based on collision frequency, roadway type, geometric characteristics and traffic volume. : 100

Total Relative Weight : 100

**Enter additional comments here to clarify your response for this question or add supporting information.**

**Program:** Wrong Way Driving

**Date of Program Methodology:** 1/15/1985

**What is the justification for this program? [Check all that apply]**

2017 California Highway Safety Improvement Program

Addresses SHSP priority or emphasis area

**What is the funding approach for this program? [Check one]**

Funding set-aside

**What data types were used in the program methodology? [Check all that apply]**

| Crashes | Exposure | Roadway |
|---|---|---|
| All crashes<br>Fatal and serious injury crashes only | Volume<br>Lane miles | Functional classification |

**What project identification methodology was used for this program? [Check all that apply]**

Crash frequency
Crash rate

**Are local roads (non-state owned and operated) included or addressed in this program?**

No

**Are local road projects identified using the same methodology as state roads?**

**Describe the methodology used to identify local road projects as part of this program.**

**How are projects under this program advanced for implementation?**

Competitive application process

**Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).**

**Relative Weight in Scoring**

Other-crash frequency and crash rate : 100

Total Relative Weight : 100

**Enter additional comments here to clarify your response for this question or add supporting information.**

**Program:** Other--2 and 3 Ln Cross Centerline Collision Monitoring Pro

**Date of Program Methodology:** 1/15/1985

**What is the justification for this program? [Check all that apply]**

Addresses SHSP priority or emphasis area

**What is the funding approach for this program? [Check one]**

Funding set-aside

**What data types were used in the program methodology? [Check all that apply]**

| Crashes | Exposure | Roadway |
|---|---|---|
| Fatal crashes only<br>Other-See optional description pertaining to this subprogram | Volume<br>Lane miles | Functional classification |

**What project identification methodology was used for this program? [Check all that apply]**

Crash frequency
Crash rate

**Are local roads (non-state owned and operated) included or addressed in this program?**

No

**Are local road projects identified using the same methodology as state roads?**

**Describe the methodology used to identify local road projects as part of this program.**

**How are projects under this program advanced for implementation?**

Other-All projects meeting established criteria can be programmed

**Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).**

**Relative Weight in Scoring**

Other-Crash frequency and rate : 100

Total Relative Weight : 100

**Enter additional comments here to clarify your response for this question or add supporting information.**

**What percentage of HSIP funds address systemic improvements?**

60.5

**HSIP funds are used to address which of the following systemic improvements? Please check all that apply.**

Cable Median Barriers
Rumble Strips
Traffic Control Device Rehabilitation
Pavement/Shoulder Widening
Install/Improve Signing
Install/Improve Pavement Marking and/or Delineation
Upgrade Guard Rails
Clear Zone Improvements
Safety Edge
Install/Improve Lighting
Add/Upgrade/Modify/Remove Traffic Signal
Horizontal curve signs
High friction surface treatment
Wrong way driving treatments
Other-Median Barrier (see optional description)

**Enter additional comments here to clarify your response for this question or add supporting information.**

**What process is used to identify potential countermeasures? [Check all that apply]**

Engineering Study
Road Safety Assessment
Crash data analysis
SHSP/Local road safety plan
Data-driven safety analysis tools (HSM, CMF Clearinghouse, SafetyAnalyst, usRAP)
Stakeholder input

**Enter additional comments here to clarify your response for this question or add supporting information.**

**Does the State HSIP consider connected vehicles and ITS technologies?**

No

**Enter additional comments here to clarify your response for this question or add supporting information.**

**Does the State use the Highway Safety Manual to support HSIP efforts?**

No

**Enter additional comments here to clarify your response for this question or add supporting information.**

**Currently, we are not using HSM to support HSIP; however, we are trying to integrate the HSM to support HSIP efforts in the future, including identification of investigation locations and cost/benefit analysis.**

**Have any program methodology practices used to implement the HSIP changed since the last reporting period?**

Yes

**Describe program methodology practices that have changed since the last reporting period.**

The 2014 HSIP Guidelines are now updated to 2017 HSIP Guidelines for HSIP implementation. Update of methods of reviewing safety projects and including collisions reduced calculations. Pedestrian safety monitoring program is now also included. A HSIP Program Assessment was completed in 2016 from which a gap analysis was developed and will be tracked until all gaps are filled.

**Are there any other aspects of the HSIP methodology on which the State would like to elaborate?**

No

# Project Implementation

***Funds Programmed***

**Reporting period for HSIP funding.**

State Fiscal Year

**Enter additional comments here to clarify your response for this question or add supporting information.**

Based on state fiscal year calendar - starting from July 1 2016 - June 30, 2017

**Enter the programmed and obligated funding for each applicable funding category.**

| FUNDING CATEGORY | PROGRAMMED | OBLIGATED | % OBLIGATED/PROGRAMMED |
|---|---|---|---|
| **HSIP (23 U.S.C. 148)** | $573,013,200 | $390,723,720 | 68.19% |
| **HRRR Special Rule (23 U.S.C. 148(g)(1))** | $8,161,498 | $8,161,498 | 100% |
| **Penalty Funds (23 U.S.C. 154)** | $24,628,967 | $24,628,967 | 100% |
| **Penalty Funds (23 U.S.C. 164)** | $47,364,675 | $47,364,675 | 100% |
| **RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))** | $15,726,725 | $15,726,725 | 100% |
| **Other Federal-aid Funds (i.e. STBG, NHPP)** | $32,349,217 | $32,349,217 | 100% |
| **State and Local Funds** | $696,513,200 | $220,000,000 | 31.59% |
| **Totals** | $1,397,757,482 | $738,954,802 | 52.87% |

**Enter additional comments here to clarify your response for this question or add supporting information.**

More HSIP funds are expected to be obligated by end of fiscal year, June 30, 2018.

Funding Category Descriptions: HSIP (23 U.S.C 148) is Federal HSIP Funding for Caltrans State and Local side; State and Local Funds are combination of Federal HSIP Funding and State HSIP Funding, which includes State Highway Operation and Protection Program (SHOPP) funds.

**How much funding is programmed to local (non-state owned and operated) or tribal safety projects?**

$123,500,000

**How much funding is obligated to local or tribal safety projects?**

$97,000,000

**Enter additional comments here to clarify your response for this question or add supporting information.**

**How much funding is programmed to non-infrastructure safety projects?**

$0

**How much funding is obligated to non-infrastructure safety projects?**

$0

**Enter additional comments here to clarify your response for this question or add supporting information.**

There is no Non-Infrastructure Safety Projects from the State; however, Division of Local Assistance has Non-Infrastructure Safety Projects. They are funded by State HSIP but not Federal HSIP.

**How much funding was transferred in to the HSIP from other core program areas during the reporting period under 23 U.S.C. 126?**

$0

**How much funding was transferred out of the HSIP to other core program areas during the reporting period under 23 U.S.C. 126?**

$0

**Enter additional comments here to clarify your response for this question or add supporting information.**

**Discuss impediments to obligating HSIP funds and plans to overcome this challenge in the future.**

In the past year, local HSIP project delivery has been enforced through (1) monthly update of delivery status report posted in the DLA website, (2) HSIP manager's phone calls and emails to district focal-point contacts responsible for monitoring project delivery, (3) the set drop-dead dates for late projects in various previous project cycles, (4) requesting local agencies to send HSIP program an official delivery commitment letter for project delay request, and (5) efforts made by various Local Advisory Committee members. This is proved to be successful and is now a Local HSIP policy that all current projects programmed need to have construction authorization within five years of being programmed. Project delivery delay flags are held in place for PE Authorization and Construction Authorization to alarm local agencies with delayed project flags that they will be ineligible to apply any future HSIP funding until these flags are cleared.

**Does the State want to elaborate on any other aspects of it's progress in implementing HSIP projects?**

Yes

**Describe any other aspects of the State's progress in implementing HSIP projects on which the State would like to elaborate.**

The DLA is investigating with the help of locals and FHWA the delay that is caused by unnecessary environmental requirements in streamlining HSIP projects. Also, we may discuss the set aside program, SSARP, in the next annual report since the SSARP hasn't been completed yet.

***General Listing of Projects***

**List the projects obligated using HSIP funds for the reporting period.**

| | | | | | | | | | | | | | RELATIONSHIP TO SHSP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PROJECT NAME** | **IMPROVEMENT CATEGORY** | **SUBCATEGORY** | **OUTPUTS** | **OUTPUT TYPE** | **HSIP PROJECT COST($)** | **TOTAL PROJECT COST($)** | **FUNDING CATEGORY** | **FUNCTIONAL CLASSIFICATION** | **AADT** | **SPEED** | **OWNERSHIP** | **METHOD FOR SITE SELECTION** | **EMPHASIS AREA** | **STRATEGY** |
| Safety Improvement | Roadway signs and traffic control | Sign sheeting - upgrade or replacement | 33 | Signal heads | $5000000 | $7000000 | HSIP (23 U.S.C. 148) | Urban Local Road or Street | 12,000 | 45 | State Highway Agency | Spot | Intersections | Intersection Safety |

**Enter additional comments here to clarify your response for this question or add supporting information.**

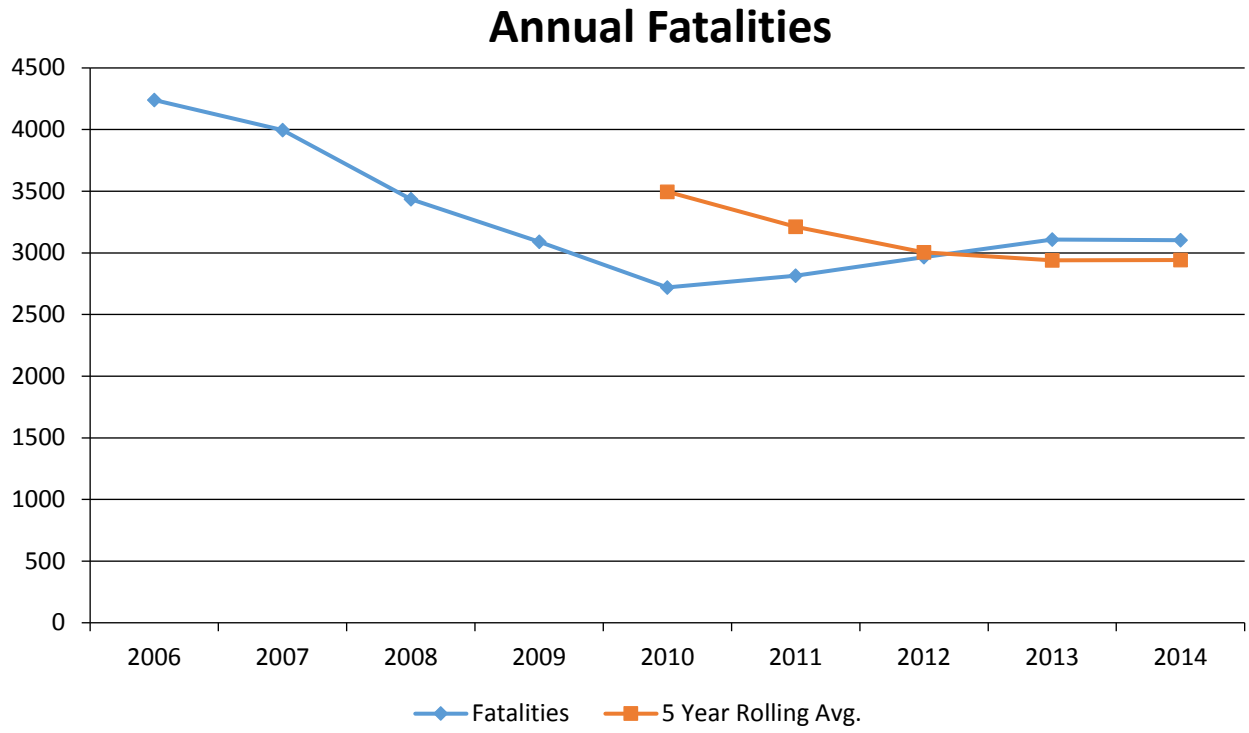
Note: CA Highway Safety Improvement Program list of projects table is different from Division of Local Assistance HSIP list of projects table. For example, CA HSIP keeps track of certain information that are available and pertaining to our programs and operations.

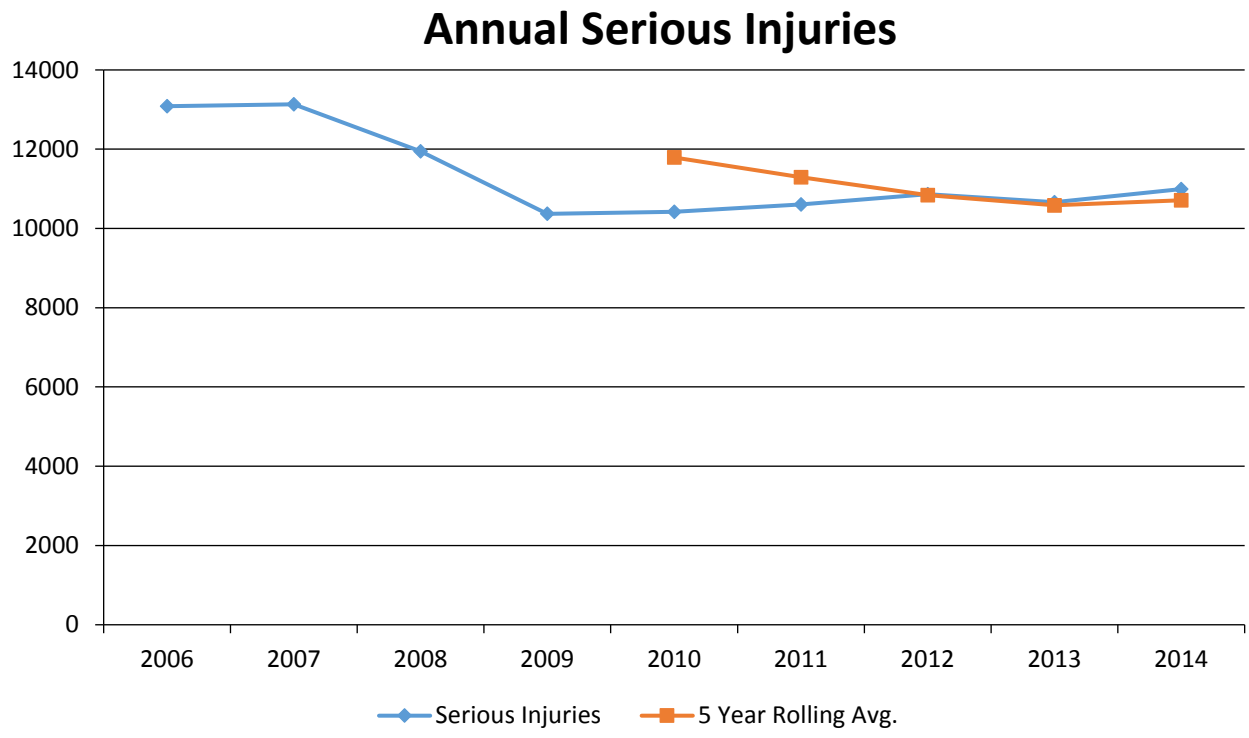
# Safety Performance

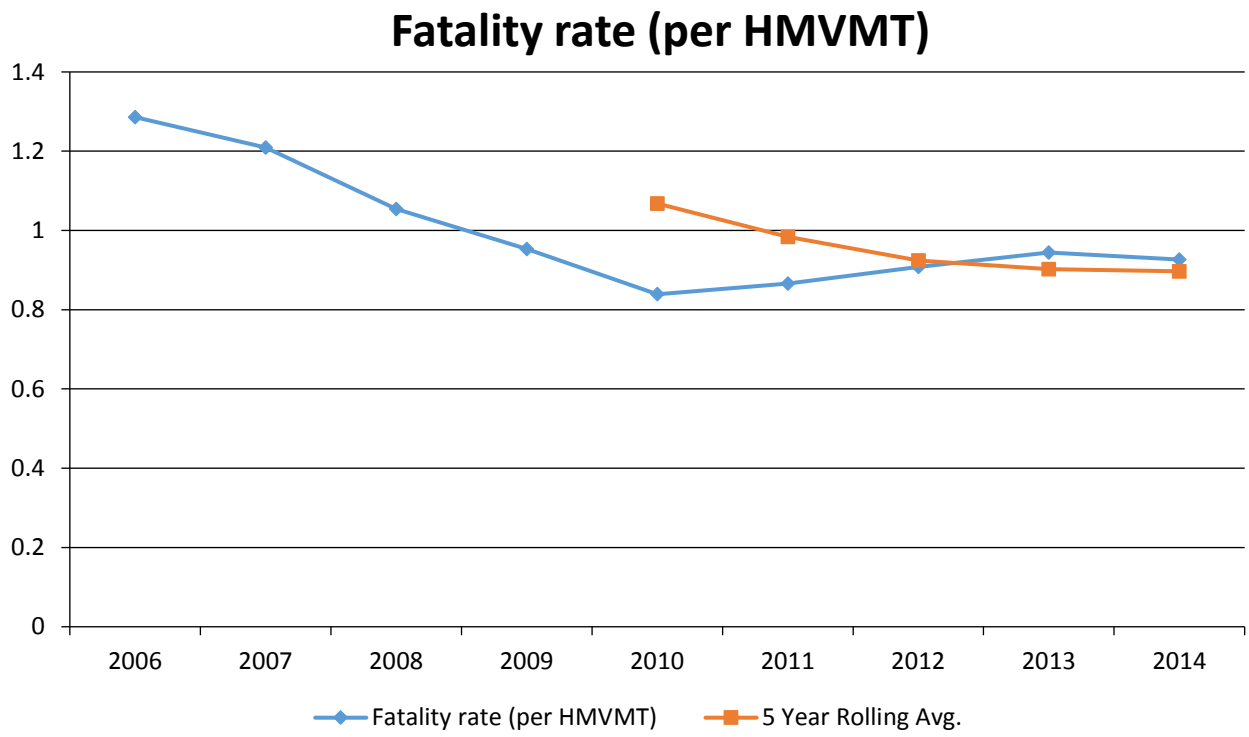
***General Highway Safety Trends***

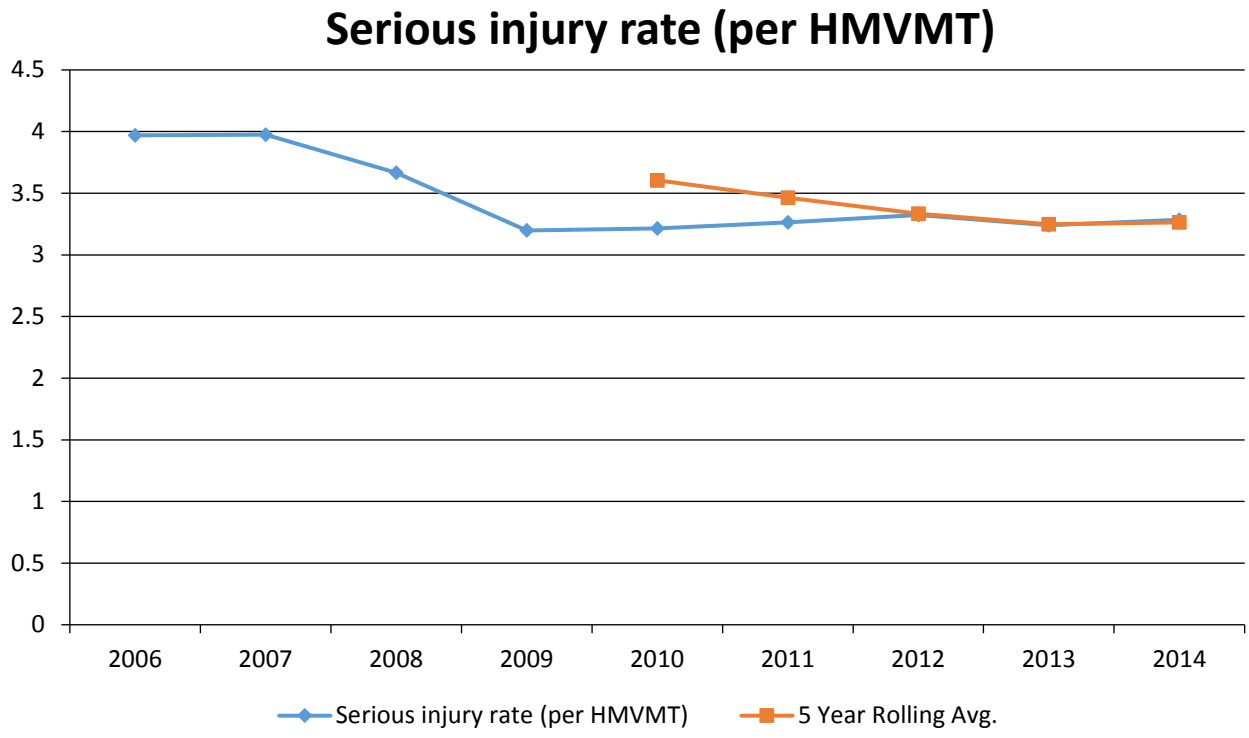
**Present data showing the general highway safety trends in the State for the past five years.**

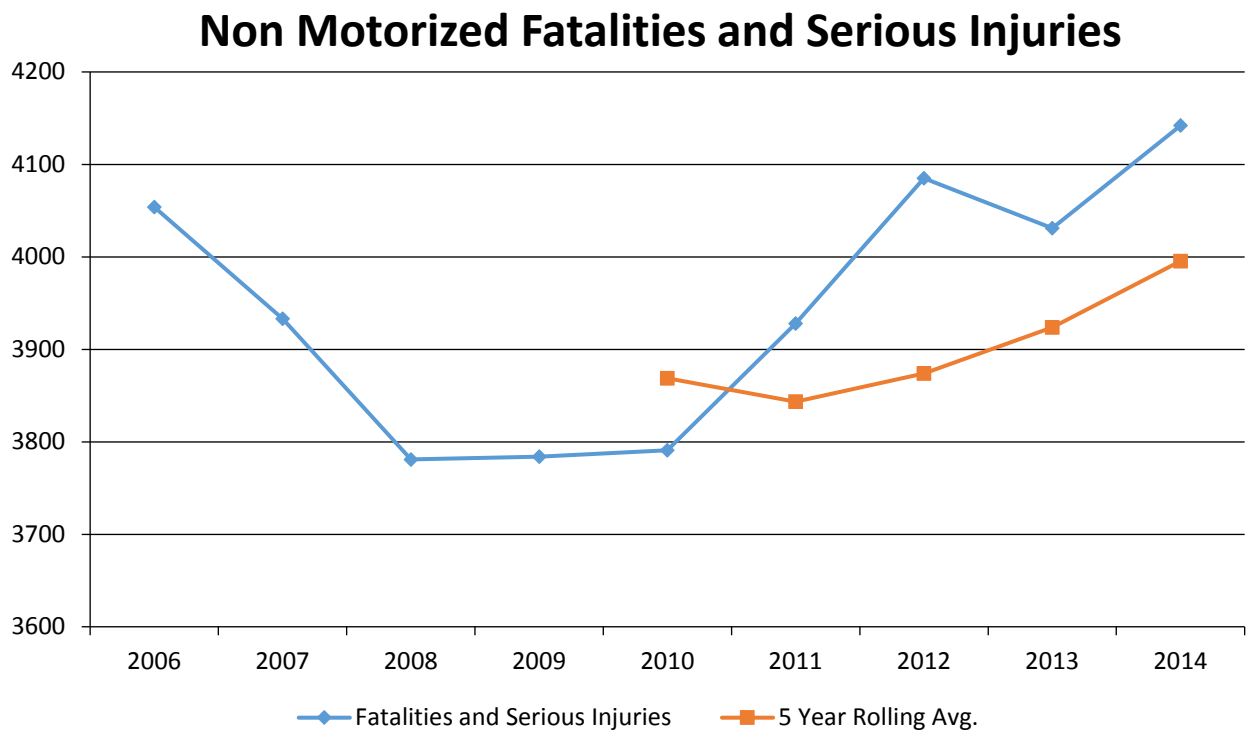
| PERFORMANCE MEASURES | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|
| Fatalities | 4,240 | 3,995 | 3,434 | 3,090 | 2,720 | 2,816 | 2,966 | 3,107 | 3,102 |
| Serious Injuries | 13,089 | 13,133 | 11,943 | 10,369 | 10,423 | 10,607 | 10,864 | 10,664 | 10,995 |
| Fatality rate (per HMVMT) | 1.286 | 1.209 | 1.054 | 0.953 | 0.839 | 0.866 | 0.908 | 0.944 | 0.927 |
| Serious injury rate (per HMVMT) | 3.969 | 3.975 | 3.666 | 3.198 | 3.215 | 3.263 | 3.324 | 3.240 | 3.285 |
| Number non-motorized fatalities | 919 | 823 | 791 | 714 | 760 | 807 | 878 | 951 | 933 |
| Number of non-motorized serious injuries | 3,135 | 3,110 | 2,990 | 3,070 | 3,031 | 3,121 | 3,207 | 3,080 | 3,209 |


Annual Fatalities
4500
4000
3500
3000
2500
2000
1500
1000
500
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
14000
12000
10000
8000
6000
4000
2000
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
Serious injury rate (per HMVMT)
5 Year Rolling Avg.




**Enter additional comments here to clarify your response for this question or add supporting information.**

Dates are preset from 2010 to 2014.

**Describe fatality data source.**

State Motor Vehicle Crash Database

**Enter additional comments here to clarify your response for this question or add supporting information.**

Caltrans requested the latest SWITRS data (raw data that contains all roadway types in CA) available through our external partner - California Highway Patrol. Working on raw data to extract data from Caltrans state highway system has been a challenge to achieve high level of confidence. SWITRS - Statewide Integrated Traffic Records System (Database).We also use FARS to cross check our numbers. Caltrans uses SWITRS data for all their numbers and rates.

**To the maximum extent possible, present this data by functional classification and ownership.**

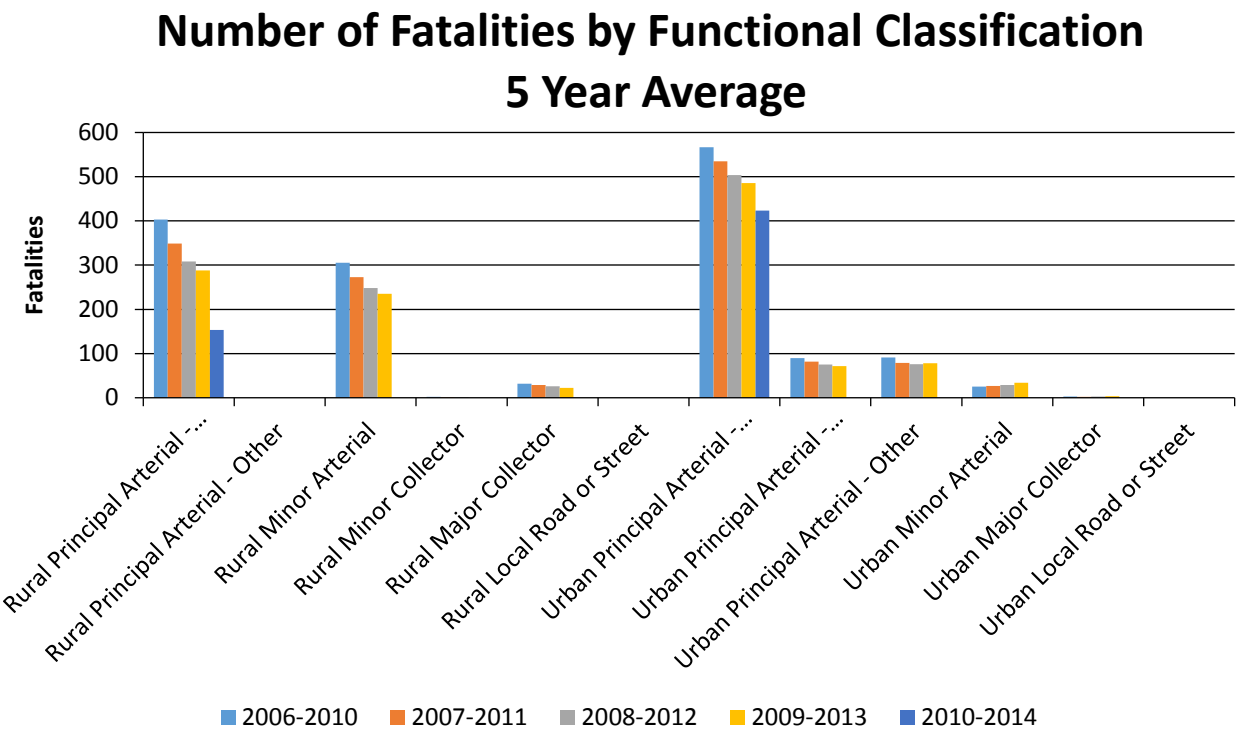
**Year 2014**

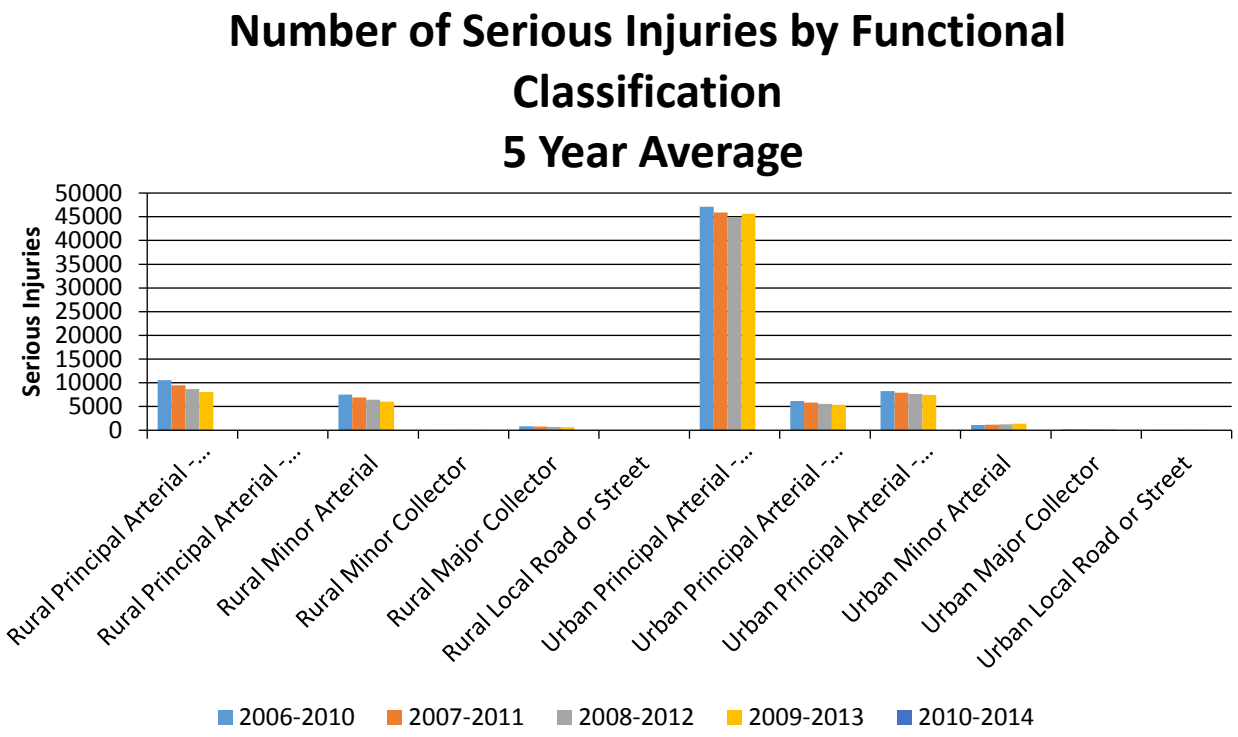
| Functional Classification | Number of Fatalities (5-yr avg) | Number of Serious Injuries (5-yr avg) | Fatality Rate (per HMVMT) (5-yr avg) | Serious Injury Rate (per HMVMT) (5-yr avg) |
|---|---|---|---|---|
| Rural Principal Arterial - Interstate | 153 | | 0.68 | |

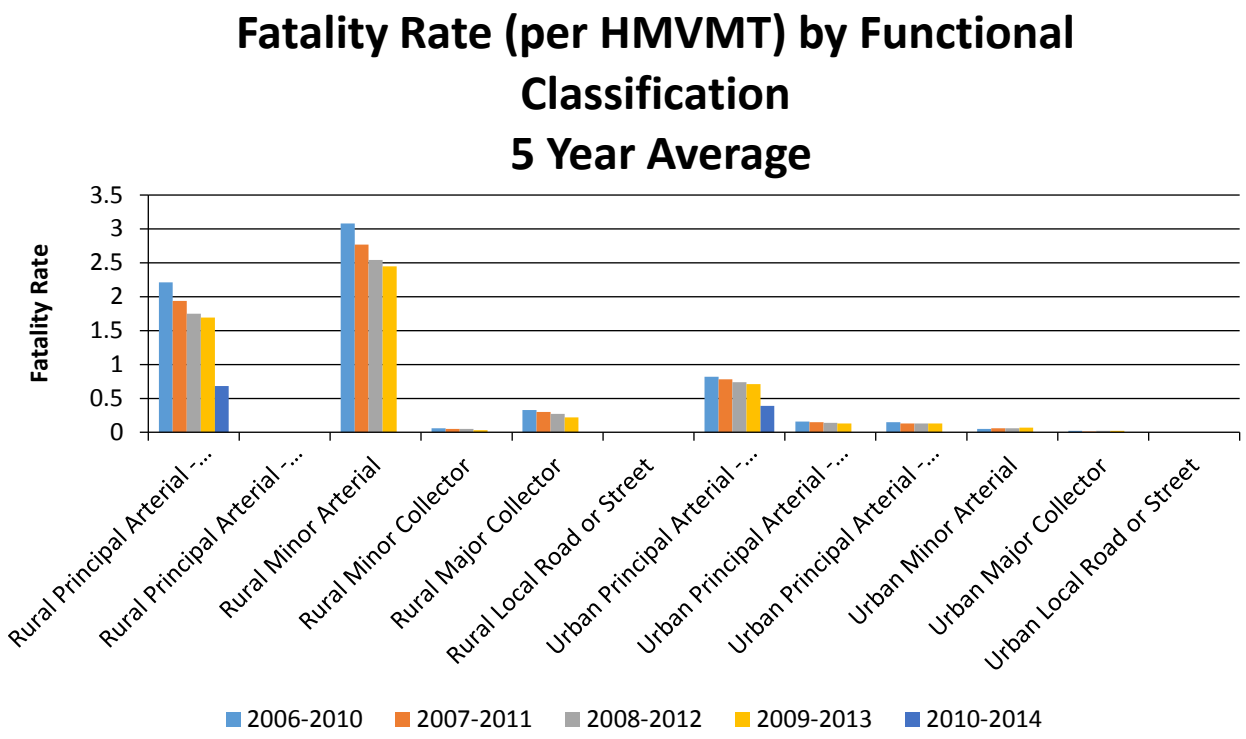
| Functional Classification | Number of Fatalities (5-yr avg) | Number of Serious Injuries (5-yr avg) | Fatality Rate (per HMVMT) (5-yr avg) | Serious Injury Rate (per HMVMT) (5-yr avg) |
|---|---|---|---|---|
| Rural Principal Arterial - Other Freeways and Expressways | | | | |
| Rural Principal Arterial - Other | | | | |
| Rural Minor Arterial | | | | |
| Rural Minor Collector | | | | |
| Rural Major Collector | | | | |
| Rural Local Road or Street | | | | |
| Urban Principal Arterial - Interstate | 423 | | 0.39 | |
| Urban Principal Arterial - Other Freeways and Expressways | | | | |
| Urban Principal Arterial - Other | | | | |
| Urban Minor Arterial | | | | |
| Urban Minor Collector | | | | |
| Urban Major Collector | | | | |
| Urban Local Road or Street | | | | |

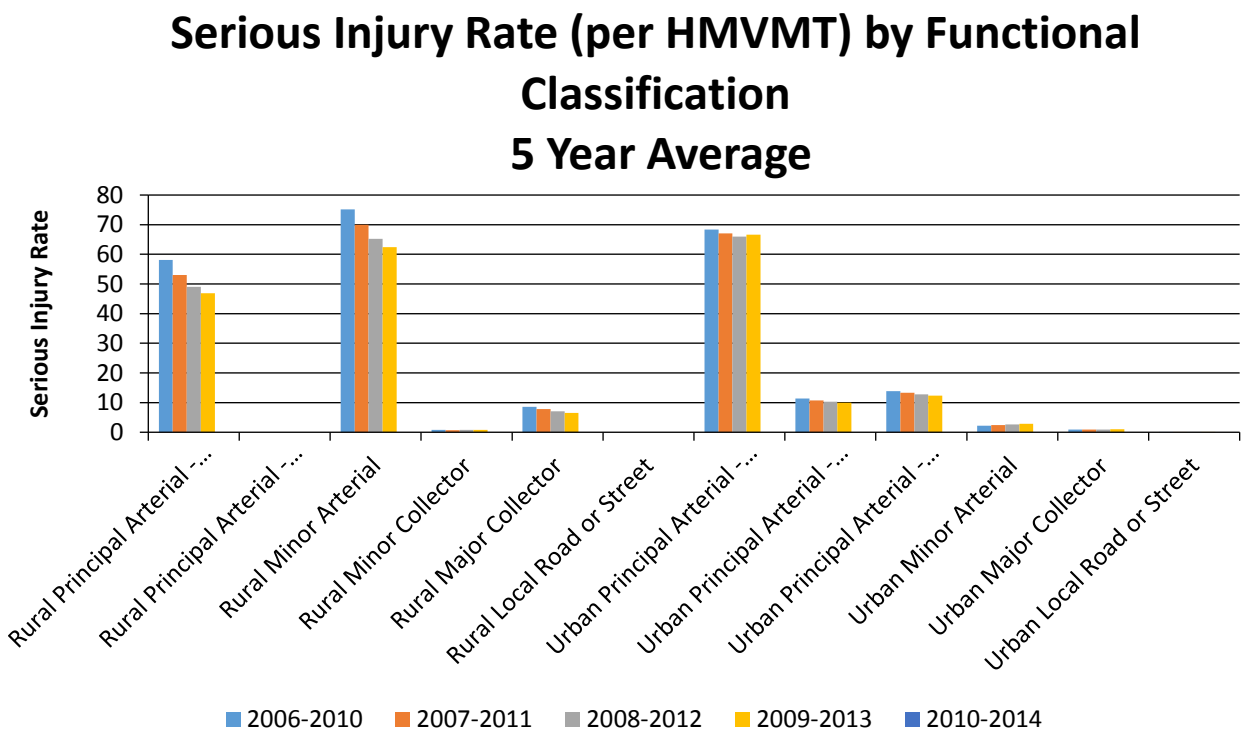
## Year 2014

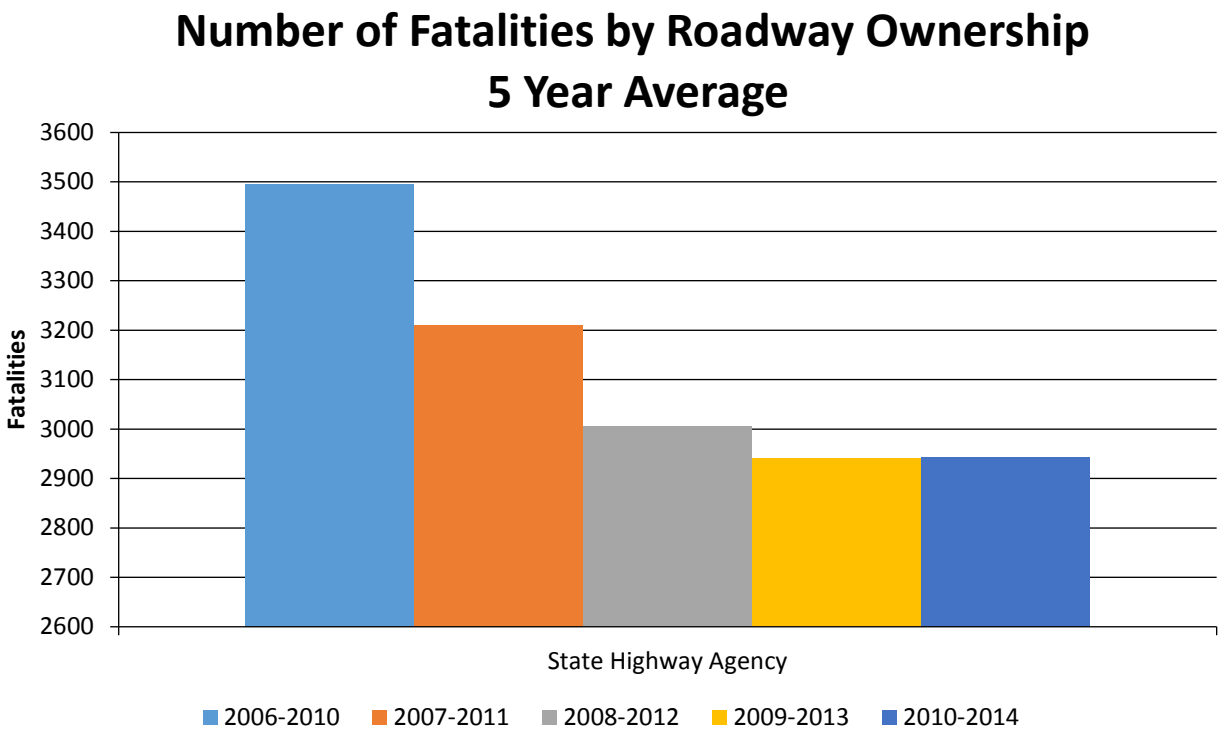
| Roadways | Number of Fatalities (5-yr avg) | Number of Serious Injuries (5-yr avg) | Fatality Rate (per HMVMT) (5-yr avg) | Serious Injury Rate (per HMVMT) (5-yr avg) |
|---|---|---|---|---|
| State Highway Agency | 2,942.2 | 10,710.6 | 0.9 | 3.27 |
| County Highway Agency | | | | |
| Town or Township Highway Agency | | | | |
| City of Municipal Highway Agency | | | | |
| State Park, Forest, or Reservation Agency | | | | |
| Local Park, Forest or Reservation Agency | | | | |
| Other State Agency | | | | |
| Other Local Agency | | | | |
| Private (Other than Railroad) | | | | |
| Railroad | | | | |
| State Toll Authority | | | | |
| Local Toll Authority | | | | |
| Other Public Instrumentality (e.g. Airport, School, University) | | | | |
| Indian Tribe Nation | | | | |

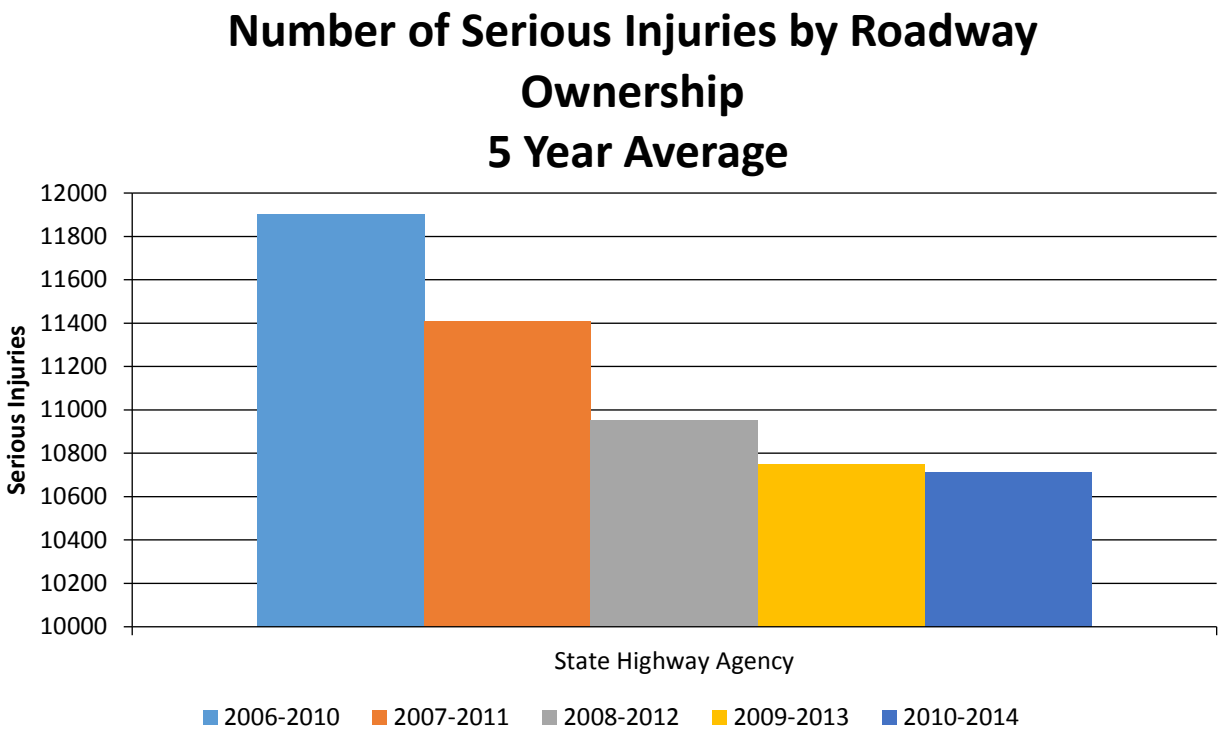

Number of Fatalities by Functional Classification
5 Year Average
Fatalities
600
500
400
300
200
100
0
Rural Principal Arterial -...
Rural Principal Arterial - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial - Other
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2006-2010
2007-2011
2008-2012
2009-2013
2010-2014

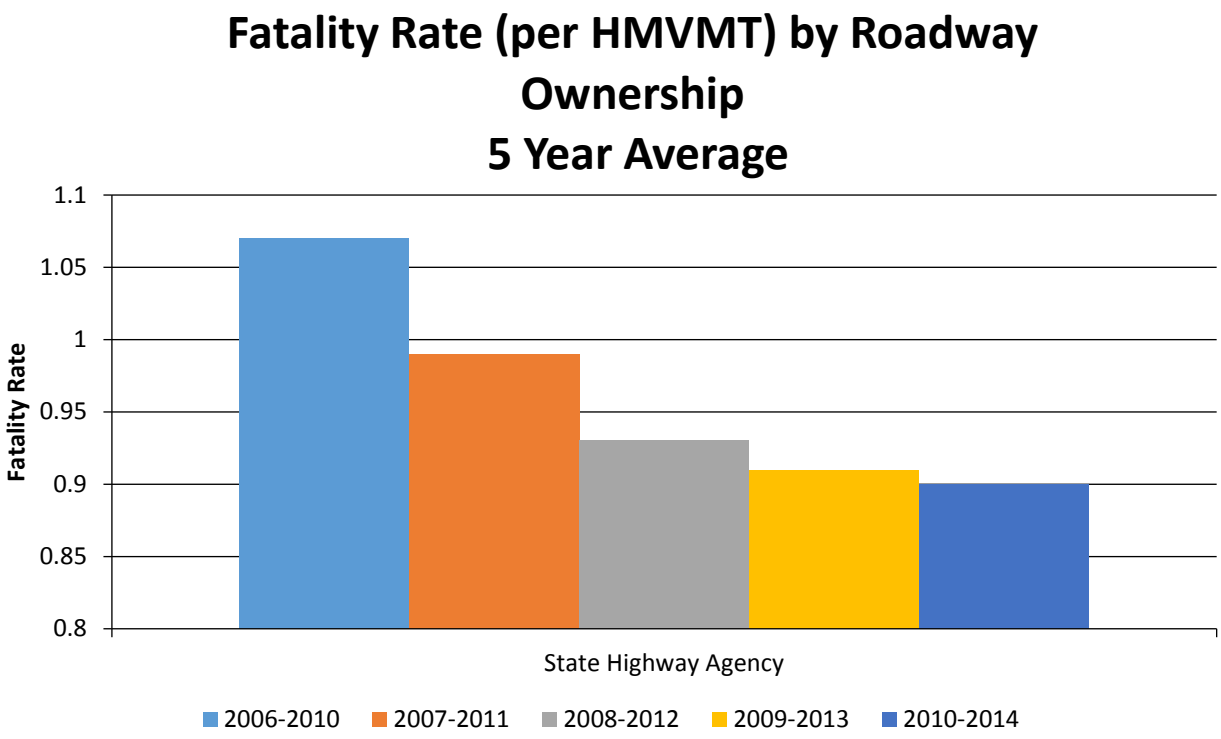

Number of Serious Injuries by Functional Classification
5 Year Average
Serious Injuries
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2006-2010
2007-2011
2008-2012
2009-2013
2010-2014

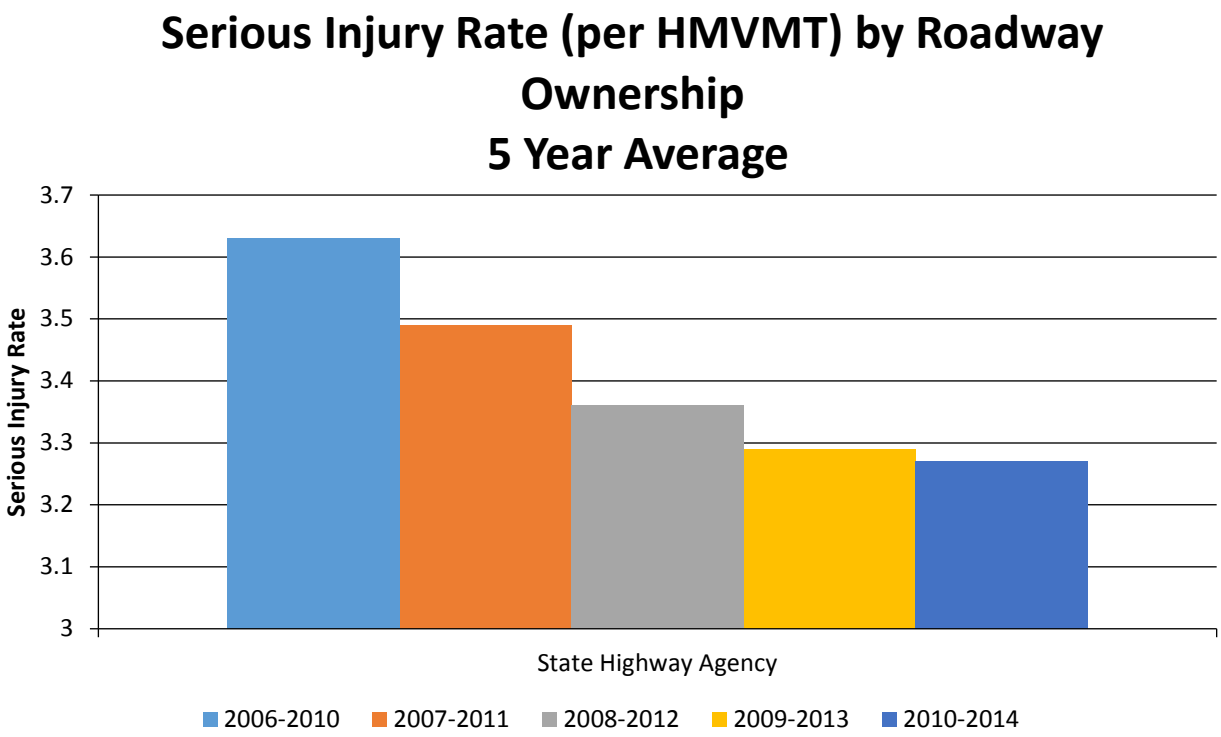

Fatality Rate (per HMVMT) by Functional Classification
5 Year Average
Fatality Rate
3.5
3
2.5
2
1.5
1
0.5
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2006-2010
2007-2011
2008-2012
2009-2013
2010-2014


Serious Injury Rate (per HMVMT) by Functional Classification
5 Year Average
Serious Injury Rate
80
70
60
50
40
30
20
10
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2006-2010
2007-2011
2008-2012
2009-2013
2010-2014


Number of Fatalities by Roadway Ownership
5 Year Average
Fatalities
3600
3500
3400
3300
3200
3100
3000
2900
2800
2700
2600
State Highway Agency
2006-2010
2007-2011
2008-2012
2009-2013
2010-2014


Number of Serious Injuries by Roadway Ownership
5 Year Average
Serious Injuries
12000
11800
11600
11400
11200
11000
10800
10600
10400
10200
10000
State Highway Agency
2006-2010
2007-2011
2008-2012
2009-2013
2010-2014


Fatality Rate (per HMVMT) by Roadway Ownership
5 Year Average
1.1
1.05
1
0.95
0.9
0.85
0.8
Fatality Rate
State Highway Agency
2006-2010
2007-2011
2008-2012
2009-2013
2010-2014




**Enter additional comments here to clarify your response for this question or add supporting information.**

Caltrans has not using Functional Classification as stated above from its TSN Database since 2002. It has its own definition of Functional Classification.

**Are there any other aspects of the general highway safety trends on which the State would like to elaborate?**

Yes

**Provide additional discussion related to general highway safety trends.**

We input annual collision data for the years requested, and the ORT application generates a graph of 5-yr rolling average.

***Safety Performance Targets***

**Safety Performance Targets**

| | **Calendar Year 2018 Targets *** |
|---|---|
| **Number of Fatalities** | 3590.8 |

**Describe the basis for established target, including how it supports SHSP goals.**

2018 performance target is a “vision” based target that is based on a year-year decrease of 7.69% from 2017 and onward. CA Highway System Only = 1,354 Fatalities*. For example, when CA State Highway System collision trend is decreasing, but all CA roadway types collision trend is increasing then SHSP can address and focus on other challenge areas that are not within the CA State Highway System.

**Number of Serious Injuries** 12823.4

**Describe the basis for established target, including how it supports SHSP goals.**

2018 performance target method is a “vision” based target that is based on a year-year decrease of 7.69% from 2017 and onward. CA Highway System Only = 3,521 Serious Injuries*. For example, when CA State Highway System collision trend is decreasing, but all CA roadway types collision trend is increasing then SHSP can address and focus on other challenge areas that are not within the CA State Highway System.

**Fatality Rate** 1.029

**Describe the basis for established target, including how it supports SHSP goals.**

2018 performance target, Fatality Rate, is “vision” based on all roadway types within CA using a 5-yr rolling average and 100M vehicle miles traveled. CA Highway System Only = 0.754 Fatality Rate*. For example, when CA State Highway System collision trend is decreasing, but all CA roadway types collision trend is increasing then SHSP can address and focus on other challenge areas that are not within the CA State Highway System.

**Serious Injury Rate** 3.831

**Describe the basis for established target, including how it supports SHSP goals.**

2018 performance target, Serious Injury Rate, is “vision” based on all roadway types within CA using a 5-yr rolling average and 100M vehicle miles traveled. CA Highway System Only = 3.45 Serious Injury Rate*. For example, when CA State Highway System collision trend is decreasing, but all CA roadway types collision trend is increasing then SHSP can address and focus on other challenge areas that are not within the CA State Highway System.

**Total Number of Non-Motorized Fatalities and Serious Injuries** 4271.1

**Describe the basis for established target, including how it supports SHSP goals.**

2018 performance target method is a “vision” based target that is based on a year-year decrease of 7.69% from 2017 and onwards. CA Highway System Only = 550 both Fatalities* and Serious Injuries*. For example, when CA State Highway System collision trend is decreasing, but all CA roadway types collision trend is increasing

then SHSP can address and focus on other challenge areas that are not within the CA State Highway System.

**Enter additional comments here to clarify your response for this question or add supporting information.**

In order to get to .0 instead of .4 we will have to change a number for one of the five years and then we would no longer match OTS. The .4 is a result of using the identical numbers for the five years that OTS used.

**Describe efforts to coordinate with other stakeholders (e.g. MPOs, SHSO) to establish safety performance targets.**

The State has had training and a series of workshops with MPOs and other stakeholders to set the safety performance targets for 2018.

**Does the State want to report additional optional targets?**

No

**Enter additional comments here to clarify your response for this question or add supporting information.**

***Applicability of Special Rules***

**Does the HRRR special rule apply to the State for this reporting period?**

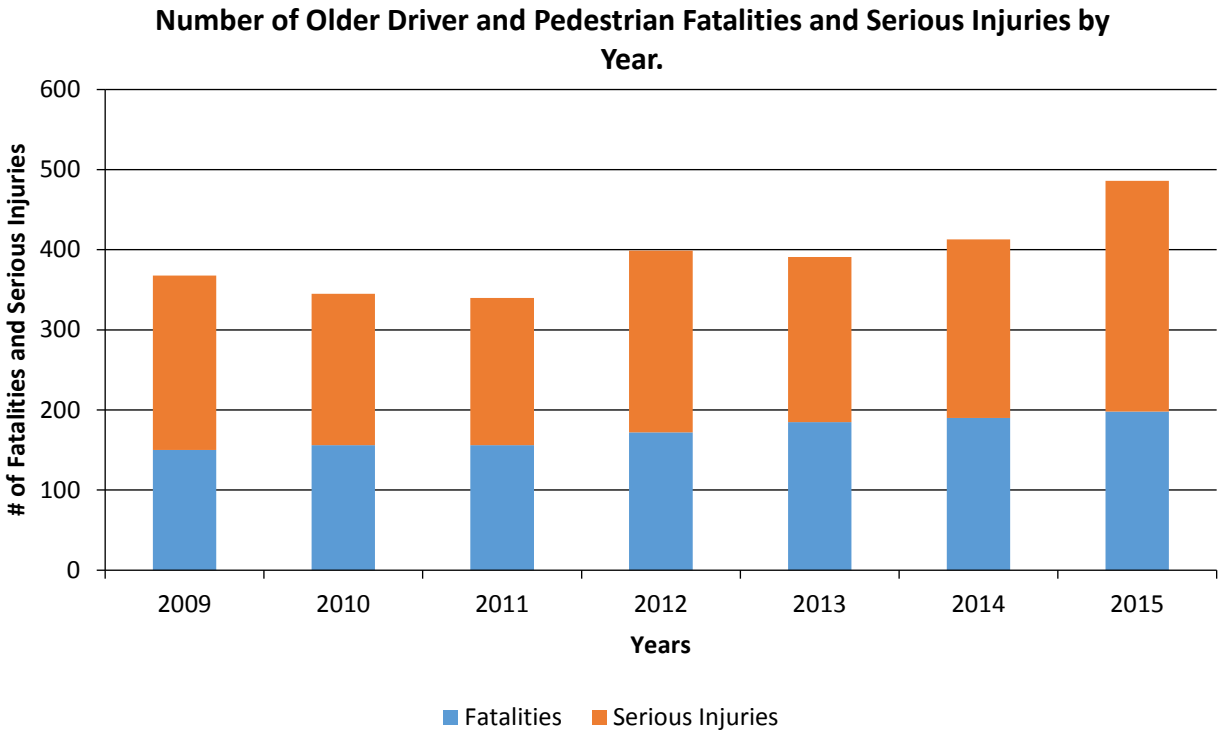
No

**Enter additional comments here to clarify your response for this question or add supporting information.**

The HRRR special rule does not apply to California for this reporting period, as it has been determined that the 5-year average fatality rate on rural roads in California does not increase from 2007-2011 to 2009-2013.

**Provide the number of older driver and pedestrian fatalities and serious injuries for the past seven years.**

| PERFORMANCE MEASURES | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|
| Number of Older Driver and Pedestrian Fatalities | 150 | 156 | 156 | 172 | 185 | 190 | 198 |
| Number of Older Driver and Pedestrian Serious Injuries | 218 | 189 | 184 | 227 | 206 | 223 | 288 |




**Enter additional comments here to clarify your response for this question or add supporting information.**

# Evaluation

***Program Effectiveness***

**How does the State measure effectiveness of the HSIP?**

Benefit/Cost Ratio

**Enter additional comments here to clarify your response for this question or add supporting information.**

**Based on the measures of effectiveness selected previously, describe the results of the State's program level evaluations.**

There are two ways to measure effectiveness such as B/C ratio and Performance Target Values. Safety improvement projects are measured based on performance values (number of collision reduced over the life of the project). For example, determine the number of collisions reduced over the life of the project is an indication of the total number of lives potentially saving over life of the project. Another method is benefit-cost analysis. This method is to measure the effectiveness of the safety improvement project by evaluating the change in number of collisions and crash rate from a 3-yr before and 3-yr after the project completion. Based on B/C ratio, the result are B/C Ratio = 4.25 for 10-yr projects, and B/C Ratio = 8.50 for 20-yr projects that is an indication that the State's program is effective because B/C Ratio is greater than 2.

**What other indicators of success does the State use to demonstrate effectiveness and success of the Highway Safety Improvement Program?**

More systemic programs
# RSAs completed
Increased awareness of safety and data-driven process
Increased focus on local road safety
HSIP Obligations

**Enter additional comments here to clarify your response for this question or add supporting information.**

Division of Local Assistance increases in obligation for local safety projects, HSIP now programs approximately $110 Million dollars per year in the 2017 HSIP-FTIP Backup List, which was refreshed last November. It continued efforts of the Local HSIP Advisory committee on effective implementation of the HSIP program, including the SSARP, and other anticipated set-aside sub-programs. It also increased awareness of safety and data-driven process. This awareness has been discussed in four or five Local Advisory Committee meetings in conjunction with the future MIRE requirement, and SHSP collision-reduction targets associated with traffic fatality and serious injuries in any road networks. HSIP program guidelines was updated in June 2017 and will continue to evolve with the oncoming federal/state requirement. Both State and Division of Local Assistance completed a number of Road Safety Audits (RSA).

**Are there any significant programmatic changes that have occurred since the last reporting period?**

## Describe significant program changes that have occurred since the last reporting period.

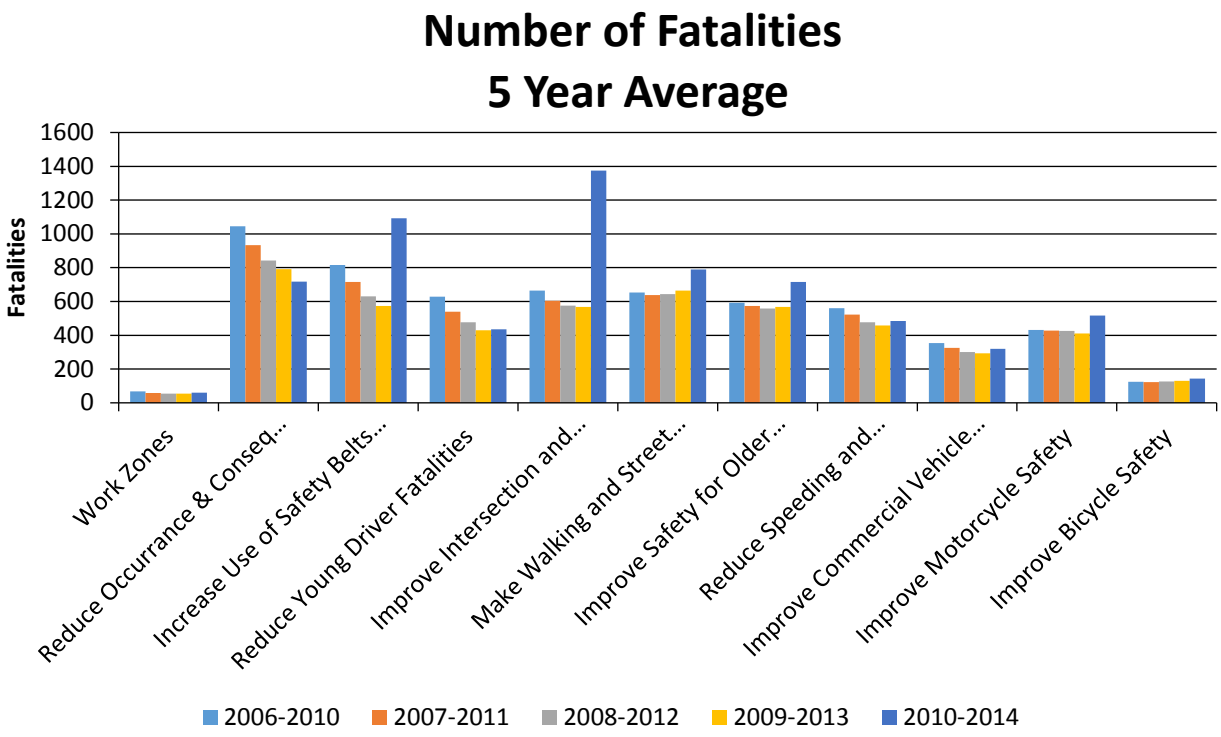
One new monitoring programs of the HSIP sub-program was included. Pedestrian Safety Monitoring Program is now also SHOPP funded and implemented as safety improvement projects.

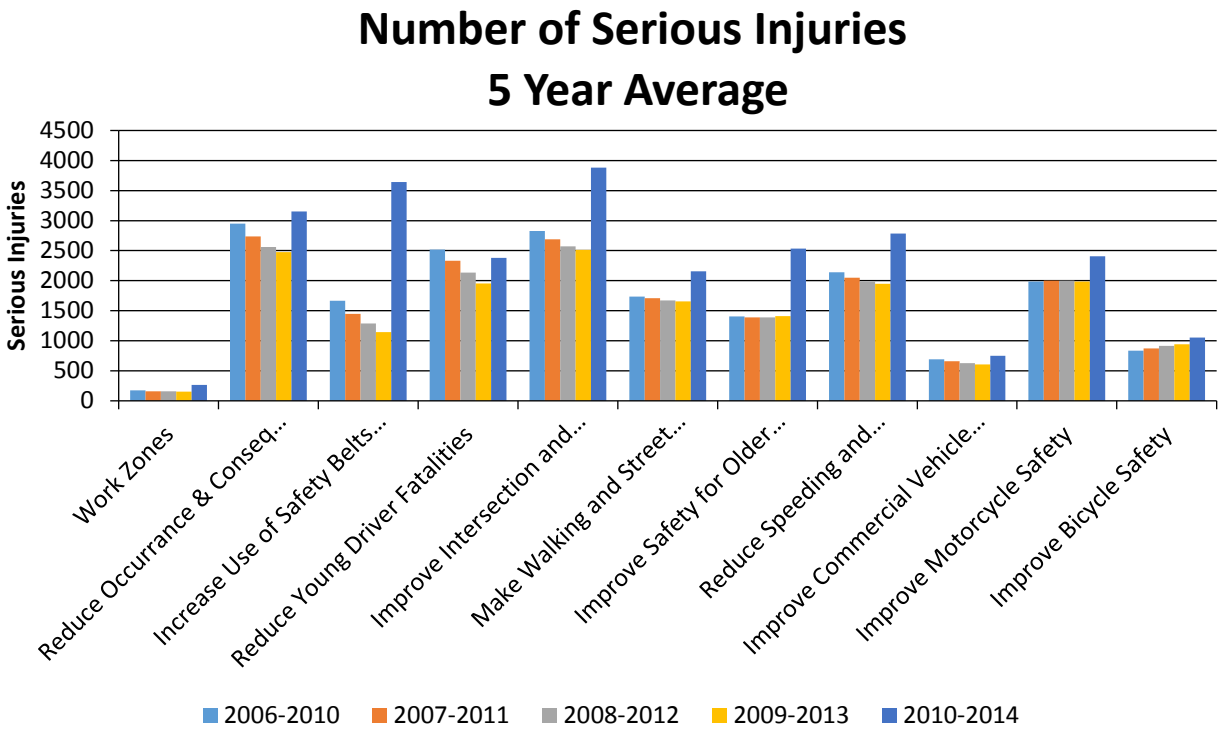
***Effectiveness of Groupings or Similar Types of Improvements***

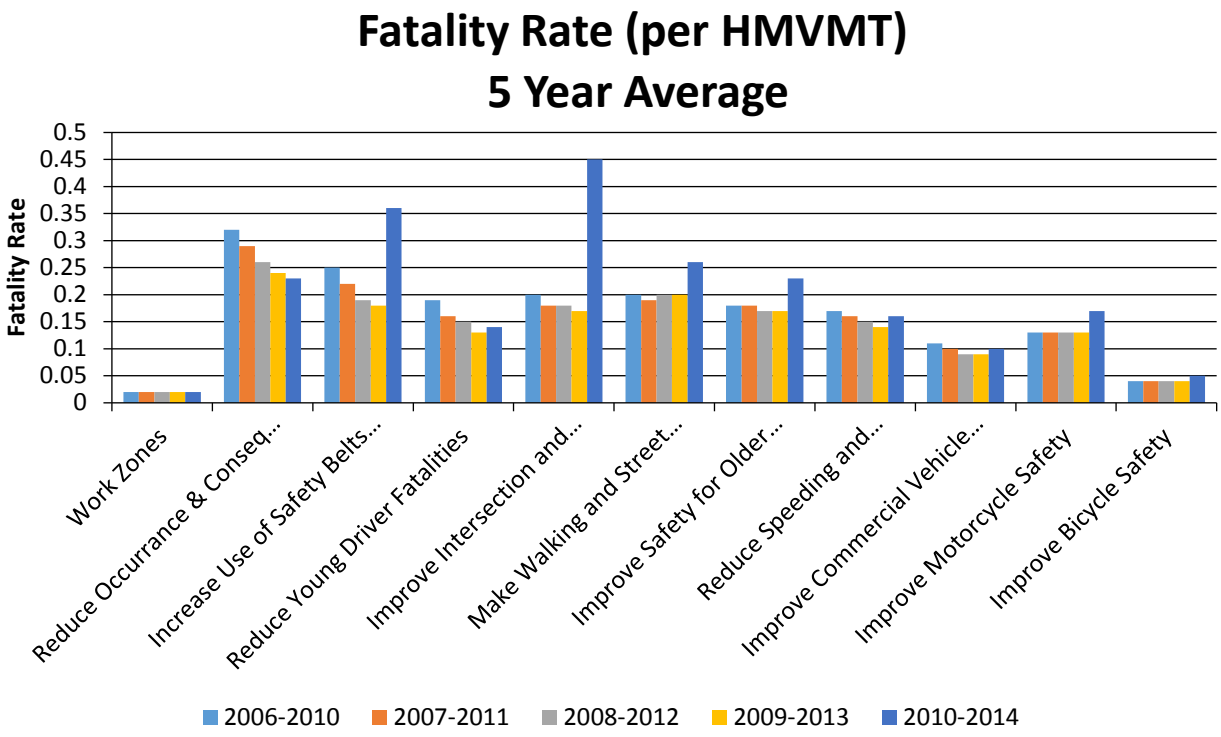
## Present and describe trends in SHSP emphasis area performance measures.

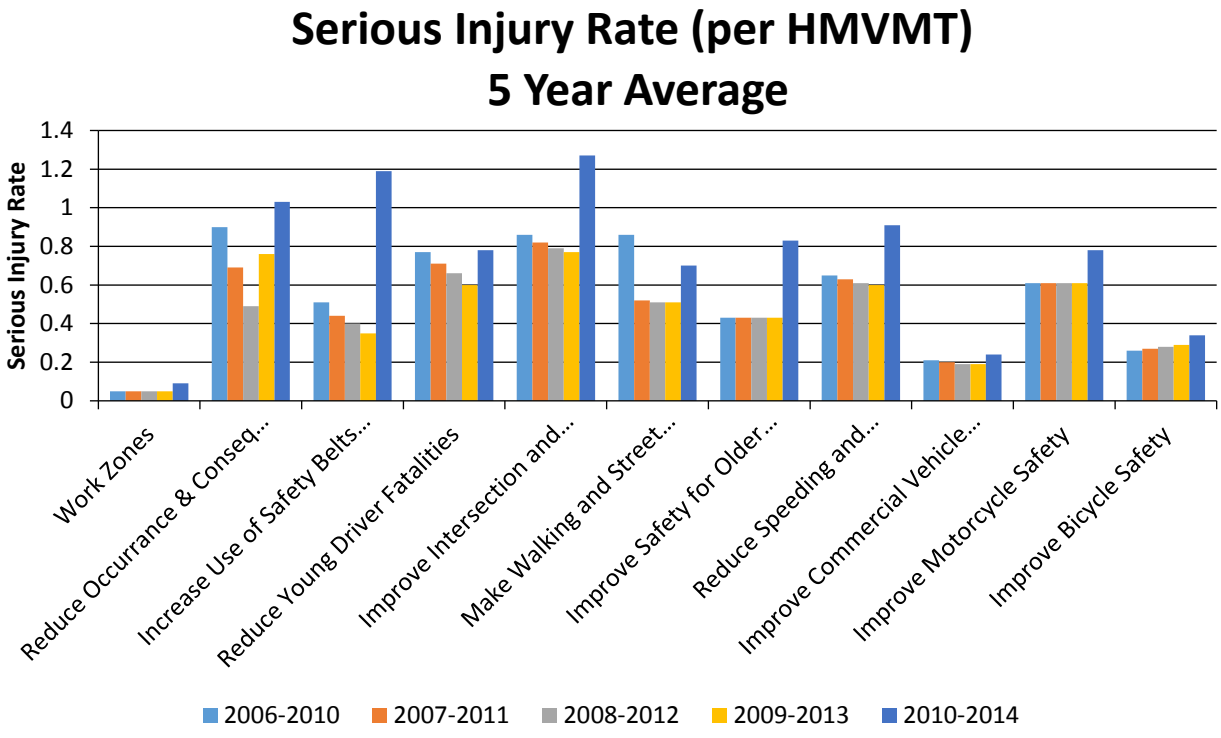
### Year 2014

| SHSP Emphasis Area | Targeted Crash Type | Number of Fatalities (5-yr avg) | Number of Serious Injuries (5-yr avg) | Fatality Rate (per HMVMT) (5-yr avg) | Serious Injury Rate (per HMVMT) (5-yr avg) | Other 1 | Other 2 | Other 3 |
|---|---|---|---|---|---|---|---|---|
| Work Zones | Construction Zone | 60 | 266 | 0.02 | 0.09 | | | |
| Reduce Occurrance & Conseq of Leaving Roadway & Head-On Colli | Head on | 717 | 3,151 | 0.23 | 1.03 | | | |
| Increase Use of Safety Belts and Child Safety Seats | Safety Belts | 1,092 | 3,643 | 0.36 | 1.19 | | | |
| Reduce Young Driver Fatalities | Young Driver | 435 | 2,381 | 0.14 | 0.78 | | | |
| Improve Intersection and Interchange Safety | Intersections | 1,374 | 3,880 | 0.45 | 1.27 | | | |
| Make Walking and Street Crossing Safer | Vehicle/pedestrian | 789 | 2,156 | 0.26 | 0.7 | | | |
| Improve Safety for Older Roadway Users | Older Roadway Users | 716 | 2,536 | 0.23 | 0.83 | | | |
| Reduce Speeding and Aggressive Driving | Speed-related | 484 | 2,783 | 0.16 | 0.91 | | | |
| Improve Commercial Vehicle Safety | Truck-related | 320 | 747 | 0.1 | 0.24 | | | |
| Improve Motorcycle Safety | Motorcycle Safety | 517 | 2,406 | 0.17 | 0.78 | | | |
| Improve Bicycle Safety | Vehicle/bicycle | 144 | 1,053 | 0.05 | 0.34 | | | |


Number of Fatalities
5 Year Average
Fatalities
1600
1400
1200
1000
800
600
400
200
0
Work Zones
Reduce Occurrance & Conseq...
Increase Use of Safety Belts...
Reduce Young Driver Fatalities
Improve Intersection and...
Make Walking and Street...
Improve Safety for Older ...
Reduce Speeding and...
Improve Commercial Vehicle...
Improve Motorcycle Safety
Improve Bicycle Safety
2006-2010
2007-2011
2008-2012
2009-2013
2010-2014


Number of Serious Injuries
5 Year Average
Serious Injuries
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Work Zones
Reduce Occurrance & Conseq...
Increase Use of Safety Belts...
Reduce Young Driver Fatalities
Improve Intersection and...
Make Walking and Street...
Improve Safety for Older ...
Reduce Speeding and...
Improve Commercial Vehicle...
Improve Motorcycle Safety
Improve Bicycle Safety
2006-2010
2007-2011
2008-2012
2009-2013
2010-2014




**Enter additional comments here to clarify your response for this question or add supporting information.**

For other SHSP emphasis areas such as Emergency Medical Services, Driver Licensing and Competency, and Distracted Driving, we don't have data.

**Has the State completed any countermeasure effectiveness evaluations during the reporting period?**

No

**Enter additional comments here to clarify your response for this question or add supporting information.**

Caltrans has not completed any countermeasure effectiveness evaluations during the reporting period. Caltrans seldom conducts countermeasure effectiveness evaluations and typically refers to the CMF Clearinghouse for countermeasure effectiveness.

**Provide the following information for previously implemented projects that the State evaluated this reporting period.**

| LOCATION | FUNCTIONAL CLASS | IMPROVEMENT CATEGORY | IMPROVEMENT TYPE | PDO BEFORE | PDO AFTER | FATALITY BEFORE | FATALITY AFTER | SERIOUS INJURY BEFORE | SERIOUS INJURY AFTER | ALL INJURY BEFORE | ALL INJURY AFTER | TOTAL BEFORE | TOTAL AFTER | EVALUATION RESULTS (BENEFIT/COST RATIO) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12-ORA-241 | Urban Principal Arterial - Other Freeways and Expressways | Roadside | Roadside - other | | | 3.00 | 3.00 | | | 74.00 | 56.00 | 77.00 | 59.00 | |
| 06-MAD-99 | Rural Principal Arterial - Other Freeways and Expressways | Roadside | Barrier- metal | | | 1.00 | | | | 22.00 | 8.00 | 23.00 | 8.00 | |
| 10-MPA-49 | Rural Principal Arterial - Other Freeways and Expressways | Intersection geometry | Auxiliary lanes - add left-turn lane | | | | | | | | 1.00 | | 1.00 | |
| 08-SBD-010 | Rural Principal Arterial - Other Freeways and Expressways | Roadway | Pavement surface - miscellaneous | | | 5.00 | 5.00 | | | 133.00 | 101.00 | 138.00 | 106.00 | |
| 5-SLO-166 | Rural Principal Arterial - Other Freeways and Expressways | Roadway | Rumble strips - center | | | 1.00 | | | | 1.00 | | 2.00 | | |
| 08-SBD-018 | Rural Principal Arterial - Other | Intersection geometry | Intersection geometry - other | | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | |
| 08-RIV-015 | Rural Principal Arterial - Other Freeways and Expressways | Roadside | Barrier - concrete | | | | | | | 19.00 | 12.00 | 19.00 | 12.00 | |
| 05-SLO-101 | Rural Principal Arterial - Interstate | Roadside | Barrier - concrete | | | | | | | 6.00 | 4.00 | 6.00 | 4.00 | |
| 01-HUM-101 | Rural Principal Arterial - Other Freeways and Expressways | Roadway | Pavement surface - high friction surface | | | | | | | 1.00 | | 1.00 | | |
| 02-TRI-299 | Rural Principal Arterial - Other Freeways and Expressways | Alignment | Vertical alignment or elevation change | | | | | | | 1.00 | | 1.00 | | |
| 06-KIN-041 | Rural Principal Arterial - Other Freeways and Expressways | Intersection geometry | Intersection geometry - other | | | 1.00 | | | | 3.00 | 1.00 | 4.00 | 1.00 | |
| 04-ALA-084 | Urban Principal Arterial - Other Freeways and Expressways | Shoulder treatments | Widen shoulder - paved or other | | | 1.00 | 1.00 | | | 10.00 | 9.00 | 11.00 | 10.00 | |

| LOCATION | FUNCTIONAL CLASS | IMPROVEMENT CATEGORY | IMPROVEMENT TYPE | PDO BEFORE | PDO AFTER | FATALITY BEFORE | FATALITY AFTER | SERIOUS INJURY BEFORE | SERIOUS INJURY AFTER | ALL INJURY BEFORE | ALL INJURY AFTER | TOTAL BEFORE | TOTAL AFTER | EVALUATION RESULTS (BENEFIT/COST RATIO) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 04-SOL-080 | Rural Principal Arterial - Other Freeways and Expressways | Roadside | Barrier- metal | | | 11.00 | 21.00 | | | 630.00 | 703.00 | 641.00 | 724.00 | |
| 08-RIV-074 | Urban Principal Arterial - Other | Intersection traffic control | Intersection traffic control - other | | | | 1.00 | | | 2.00 | 2.00 | 2.00 | 3.00 | |
| 12-ORA-005 | Urban Principal Arterial - Interstate | Intersection traffic control | Intersection traffic control - other | | | | | | | 5.00 | | 5.00 | | |
| 07-LA-134 | Urban Principal Arterial - Other Freeways and Expressways | Roadside | Barrier- metal | | | 8.00 | 9.00 | | | 577.00 | 619.00 | 585.00 | 628.00 | |
| 08-SBD-015 | Urban Principal Arterial - Other Freeways and Expressways | Intersection traffic control | Intersection traffic control - other | | | | | | | 2.00 | | 2.00 | | |
| 12-ORA-039 | Urban Principal Arterial - Other Freeways and Expressways | Lighting | Intersection lighting | | | | | | | 3.00 | 4.00 | 3.00 | 4.00 | |
| 05-SCR-017 | Urban Principal Arterial - Other Freeways and Expressways | Roadside | Barrier- metal | | | 1.00 | | | | 30.00 | 4.00 | 31.00 | 4.00 | |
| 05-MON-101 | Rural Principal Arterial - Other Freeways and Expressways | Roadside | Barrier - concrete | | | | | | | 22.00 | 32.00 | 22.00 | 32.00 | |
| 01-LAK-020 | Rural Principal Arterial - Other | Intersection traffic control | Modify control - modifications to roundabout | | | | | | | | 2.00 | | 2.00 | |
| 01-DN-HUM-101 | Rural Principal Arterial - Other Freeways and Expressways | Roadway | Pavement surface - high friction surface | | | | | | | 2.00 | 1.00 | 2.00 | 1.00 | |
| 02-TEH-005 | Rural Principal Arterial - Other Freeways and Expressways | Roadside | Barrier - concrete | | | | | | | 3.00 | 1.00 | 3.00 | 1.00 | |
| 08-RIV-SBD-062 | Rural Principal Arterial - Other Freeways and Expressways | Roadway delineation | Roadway delineation - other | | | | 3.00 | | | 22.00 | 20.00 | 22.00 | 23.00 | |
| 06-KER-033 | Rural Principal Arterial - Other Freeways and Expressways | Roadway | Pavement surface - miscellaneous | | | | | | | 9.00 | 8.00 | 9.00 | 8.00 | |
| 03-NEV-080 | Rural Principal Arterial - Other Freeways and Expressways | Roadside | Barrier - concrete | | | | | | | | 1.00 | | 1.00 | |

| LOCATION | FUNCTIONAL CLASS | IMPROVEMENT CATEGORY | IMPROVEMENT TYPE | PDO BEFORE | PDO AFTER | FATALITY BEFORE | FATALITY AFTER | SERIOUS INJURY BEFORE | SERIOUS INJURY AFTER | ALL INJURY BEFORE | ALL INJURY AFTER | TOTAL BEFORE | TOTAL AFTER | EVALUATION RESULTS (BENEFIT/COST RATIO) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 06-TUL/MAD-099 | Rural Principal Arterial - Other Freeways and Expressways | Roadside | Barrier- metal | | | 1.00 | | | | 6.00 | 2.00 | 7.00 | 2.00 | |
| 04-ALA-880 | Urban Principal Arterial - Other Freeways and Expressways | Roadway | Pavement surface - miscellaneous | | | | | | | | 1.00 | | 1.00 | |
| 06-FRE-005 | Rural Principal Arterial - Other Freeways and Expressways | Roadside | Barrier- metal | | | | | | | 5.00 | 8.00 | 5.00 | 8.00 | |
| 05-SLO-046 | Rural Principal Arterial - Other Freeways and Expressways | Roadway | Rumble strips - center | | | 1.00 | | | | 6.00 | 7.00 | 7.00 | 7.00 | |
| 05-SCR-017 | Rural Principal Arterial - Other Freeways and Expressways | Roadside | Barrier- metal | | | | | | | | 4.00 | | 4.00 | |
| 07-LA-090 | Rural Principal Arterial - Other Freeways and Expressways | Roadside | Barrier - concrete | | | | | | | 7.00 | 6.00 | 7.00 | 6.00 | |
| 04-SCL-082 | Urban Principal Arterial - Other Freeways and Expressways | Intersection traffic control | Intersection traffic control - other | | | | | | | | 1.00 | | 1.00 | |
| 07-LA-405 | Urban Principal Arterial - Other Freeways and Expressways | Roadside | Barrier - concrete | | | | | | | 2.00 | 6.00 | 2.00 | 6.00 | |
| 12-ORA-005 | Urban Principal Arterial - Other Freeways and Expressways | Intersection traffic control | Intersection traffic control - other | | | | | | | 21.00 | 21.00 | 21.00 | 21.00 | |
| 03-SAC/ED-005 | Urban Principal Arterial - Interstate | Roadway | Pavement surface - miscellaneous | | | | | | | 38.00 | 21.00 | 38.00 | 21.00 | |
| 08-RIV-010 | Rural Principal Arterial - Other Freeways and Expressways | Roadside | Barrier - concrete | | | | | | | 9.00 | 8.00 | 9.00 | 8.00 | |
| 08-RIV-010 | Rural Principal Arterial - Other Freeways and Expressways | Roadside | Barrier - other | | | 1.00 | 2.00 | | | 16.00 | 24.00 | 17.00 | 26.00 | |
| 10-SJ-005 | Rural Principal Arterial - Other Freeways and Expressways | Roadway | Rumble strips - edge or shoulder | | | 9.00 | 9.00 | | | 9.00 | 17.00 | 18.00 | 26.00 | |
| 02-LAS-395 | Rural Principal Arterial - Other | Roadway | Rumble strips - center | | | 4.00 | 2.00 | | | 45.00 | 38.00 | 49.00 | 40.00 | |

| LOCATION | FUNCTIONAL CLASS | IMPROVEMENT CATEGORY | IMPROVEMENT TYPE | PDO BEFORE | PDO AFTER | FATALITY BEFORE | FATALITY AFTER | SERIOUS INJURY BEFORE | SERIOUS INJURY AFTER | ALL INJURY BEFORE | ALL INJURY AFTER | TOTAL BEFORE | TOTAL AFTER | EVALUATION RESULTS (BENEFIT/COST RATIO) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 112-ORA-055 | Urban Principal Arterial - Interstate | Roadway | Pavement surface - miscellaneous | | | | | | | 2.00 | 2.00 | 2.00 | 2.00 | |
| 07-LA-014 | Urban Principal Arterial - Other Freeways and Expressways | Roadside | Barrier- metal | | | 4.00 | | | | 93.00 | 106.00 | 97.00 | 106.00 | |

**Enter additional comments here to clarify your response for this question or add supporting information.**

These projects were completed on state highway system. Benefit/Cost analysis was done based on all of these completed projects rather than as an individually project. For the life of the project of 10-year, the B/C = 4.25 with about 291.5 collisions reduce per year. For the life of the project of 20-year, the B/C = 8.50 with about 145.75 collisions reduce per year.

Note: A safety improvement project at a location reduces a collision pattern depending on the countermeasure, but sometime it may also increase another type of collision pattern.

For example at the location 04-SOL-080, Rural Principal Arterial - Other Freeways and Expressways, Roadside, the countermeasure was to install a barrier-metal (metal beam guardrail). Overall collisions of 3 years before were 11 fatal collisions; however, after 3 years of project completion, overall collisions were 21 fatal collisions. The cross median head-on collision pattern was reduced, but other types of collision patterns increased. Therefore; this location may need another investigation to reduce other types of collision patterns.

**Are there any other aspects of the overall HSIP effectiveness on which the State would like to elaborate?**

Yes

**Describe any other aspects of HSIP effectiveness on which the State would like to elaborate.**

Sub-programs such as multi-lane cross median collision monitoring program, 2&3-lane cross center-line collision monitoring program, and wrong way collision monitoring program have shown that from 2009 to 2014, the total number of collisions have been decreasing.

# Compliance Assessment

**What date was the State's current SHSP approved by the Governor or designated State representative?**

09/01/2015

**What are the years being covered by the current SHSP?**

From: 2015 To: 2019

**When does the State anticipate completing it's next SHSP update?**

2020

**Enter additional comments here to clarify your response for this question or add supporting information.**

**Provide the current status (percent complete) of MIRE fundamental data elements collection efforts using the table below.**

| | NON LOCAL PAVED ROADS - SEGMENT | | NON LOCAL PAVED ROADS - INTERSECTION | | NON LOCAL PAVED ROADS - RAMPS | | LOCAL PAVED ROADS | | UNPAVED ROADS | |
|---|---|---|---|---|---|---|---|---|---|---|
| MIRE NAME (MIRE NO.) | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE |
| **ROADWAY SEGMENT** | | | | | | | | | | |
| Segment Identifier (12) | 23.6 | 76.4 | | | | | 0 | 100 | 0 | 100 |
| Route Number (8) | 23.6 | 76.4 | | | | | | | | |
| Route/Street Name (9) | 23.6 | 76.4 | | | | | | | | |
| Federal Aid/Route Type (21) | 23.6 | 76.4 | | | | | | | | |
| Rural/Urban Designation (20) | 23.6 | 76.4 | | | | | 0 | 100 | | |
| Surface Type (23) | 23.6 | 76.4 | | | | | 0 | 100 | | |
| Begin Point Segment Descriptor (10) | 23.6 | 76.4 | | | | | 0 | 100 | 0 | 100 |
| End Point Segment Descriptor (11) | 23.6 | 76.4 | | | | | 0 | 100 | 0 | 100 |
| Segment Length (13) | 23.6 | 76.4 | | | | | | | | |
| Direction of Inventory (18) | 23.6 | 76.4 | | | | | | | | |
| Functional Class (19) | 23.6 | 76.4 | | | | | 0 | 100 | 0 | 100 |
| Median Type (54) | 23.6 | 76.4 | | | | | | | | |

| MIRE NAME (MIRE NO.) | NON LOCAL PAVED ROADS - SEGMENT | | NON LOCAL PAVED ROADS - INTERSECTION | | NON LOCAL PAVED ROADS - RAMPS | | LOCAL PAVED ROADS | | UNPAVED ROADS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE |
| Access Control (22) | 23.6 | 76.4 | | | | | | | | |
| One/Two Way Operations (91) | 23.6 | 76.4 | | | | | | | | |
| Number of Through Lanes (31) | 23.6 | 76.4 | | | | | 0 | 100 | | |
| Average Annual Daily Traffic (79) | 23.6 | 76.4 | | | | | 0 | 100 | | |
| AADT Year (80) | 23.6 | 76.4 | | | | | | | | |
| Type of Governmental Ownership (4) | 23.6 | 76.4 | | | | | 0 | 100 | 0 | 100 |
| **INTERSECTION** | | | | | | | | | | |
| Unique Junction Identifier (120) | | | 0 | 0 | | | | | | |
| Location Identifier for Road 1 Crossing Point (122) | | | 0 | 0 | | | | | | |
| Location Identifier for Road 2 Crossing Point (123) | | | 0 | 0 | | | | | | |
| Intersection/Junction Geometry (126) | | | 0 | 0 | | | | | | |
| Intersection/Junction Traffic Control (131) | | | 0 | 0 | | | | | | |
| AADT for Each Intersecting Road (79) | | | 0 | 0 | | | | | | |
| AADT Year (80) | | | 0 | 0 | | | | | | |
| Unique Approach Identifier (139) | | | 0 | 0 | | | | | | |
| **INTERCHANGE/RAMP** | | | | | | | | | | |
| Unique Interchange Identifier (178) | | | | | 100 | 0 | | | | |
| Location Identifier for Roadway at Beginning of Ramp Terminal (197) | | | | | 100 | 0 | | | | |
| Location Identifier for Roadway at Ending Ramp Terminal (201) | | | | | 100 | 0 | | | | |
| Ramp Length (187) | | | | | 100 | 0 | | | | |
| Roadway Type at Beginning of Ramp Terminal (195) | | | | | 100 | 0 | | | | |

| MIRE NAME (MIRE NO.) | NON LOCAL PAVED ROADS - SEGMENT | | NON LOCAL PAVED ROADS - INTERSECTION | | NON LOCAL PAVED ROADS - RAMPS | | LOCAL PAVED ROADS | | UNPAVED ROADS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE | STATE | NON-STATE |
| Roadway Type at End Ramp Terminal (199) | | | | | 100 | 0 | | | | |
| Interchange Type (182) | | | | | 100 | 0 | | | | |
| Ramp AADT (191) | | | | | 100 | 0 | | | | |
| Year of Ramp AADT (192) | | | | | 100 | 0 | | | | |
| Functional Class (19) | | | | | 100 | 0 | | | | |
| Type of Governmental Ownership (4) | | | | | 100 | 0 | | | | |
| **Totals (Average Percent Complete):** | **23.60** | **76.40** | **0.00** | **0.00** | **100.00** | **0.00** | **0.00** | **100.00** | **0.00** | **100.00** |

**Enter additional comments here to clarify your response for this question or add supporting information.**

For Non Local Paved Roads - Segment, State is completed 23.6% and Non-State is completed 76.4%. For other Roadway Types such as Intersection, Ramp, Local Paved Roads and Unpaved Roads, State is either completed 100% and Non-State is completed 0% or State is completed 0% and Non-State is completed 100%.

**Describe actions the State will take moving forward to meet the requirement to have complete access to the MIRE fundamental data elements on all public roads by September 30, 2026.**

Executive (TRCC) Traffic Records Coordinating Committee adopted a plan on how to collect MIRE fundamental data elements on all public roads. A team was formed on how to implement the plan and had an initial kick-off meeting on August 29, 2017.

**Provide the suspected serious injury identifier, definition and attributes used by the State for both the crash report form and the crash database using the table below. Please also indicate whether or not these elements are compliant with the MMUCC 4th edition criteria for data element P5. Injury Status, suspected serious injury.**

| CRITERIA | SUSPECTED SERIOUS INJURY IDENTIFIER(NAME) | MMUCC 4TH EDITION COMPLIANT * | SUSPECTED SERIOUS INJURY DEFINITION | MMUCC 4TH EDITION COMPLIANT * | SUSPECTED SERIOUS INJURY ATTRIBUTES(DESCRIPTORS) | MMUCC 4TH EDITION COMPLIANT * |
|---|---|---|---|---|---|---|
| Crash Report Form | CHP 555 Collision Report Form | Yes | N/A | Yes | N/A | Yes |
| Crash Report Form Instruction Manual | TASAS Coding Manual | Yes | (TASAS) Traffic Accident Surveillance and Analysis System Coding Manual Definition | Yes | (TASAS) Traffic Accident Surveillance and Analysis System Coding Manual Definition | Yes |
| Crash Database | Statewide Integrated Traffic Record System | Yes | N/A | Yes | N/A | Yes |
| Crash Database Data Dictionary | TSAR Reference Card | Yes | TSAR Reference Card | Yes | TSAR Reference Card | Yes |

**Enter additional comments here to clarify your response for this question or add supporting information.**

Currently, States use different definitions and coding conventions to report serious injuries in their motor vehicle crash databases. However, by April 14, 2019, all States will be required to use the definition for “Suspected Serious Injury (A)” verbatim from the Model Minimum Uniform Crash Criteria (MMUCC), 4th Edition. Source: http://www.dot.ca.gov/trafficops/hsip/docs/ca-hsip-2017.pdf

**Did the State conduct an HSIP program assessment during the reporting period?**

Yes

**Describe the purpose and outcomes of the State's HSIP program assessment.**

Assessment was done by reviewing and updating the HSIP Guidelines. Result of HSIP assessment was to update the 2014 HSIP Guidelines to 2017 HSIP Guidelines including contents to better explain eligible criteria, options, limitations, countermeasures, and other recommendations.

## Optional Attachments

Program Structure:

2017 STATE HSIP GUIDELINES FINAL.pdf

Project Implementation:

LOCAL_HSIP_ORT_Data_2017_Report.xlsx
Caltrans-Approved-Projects-Fiscal-16-17-HSIP-Report.xlsx

Safety Performance:

Evaluation:

Compliance Assessment:

## Glossary

| | |
|---|---|
| **5 year rolling average** | means the average of five individuals, consecutive annual points of data (e.g. annual fatality rate). |
| **Emphasis area** | means a highway safety priority in a State's SHSP, identified through a data-driven, collaborative process. |
| **Highway safety improvement project** | means strategies, activities and projects on a public road that are consistent with a State strategic highway safety plan and corrects or improves a hazardous road location or feature or addresses a highway safety problem. |
| **HMVMT** | means hundred million vehicle miles traveled. |
| **Non-infrastructure projects** | are projects that do not result in construction. Examples of non-infrastructure projects include road safety audits, transportation safety planning activities, improvements in the collection and analysis of data, education and outreach, and enforcement activities. |
| **Older driver special rule** | applies if traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65 in a State increases during the most recent 2-year period for which data are available, as defined in the Older Driver and Pedestrian Special Rule Interim Guidance dated February 13, 2013. |
| **Performance measure** | means indicators that enable decision-makers and other stakeholders to monitor changes in system condition and performance against established visions, goals, and objectives. |
| **Programmed funds** | mean those funds that have been programmed in the Statewide Transportation Improvement Program (STIP) to be expended on highway safety improvement projects. |
| **Roadway Functional Classification** | means the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide. |
| **Strategic Highway Safety Plan (SHSP)** | means a comprehensive, multi-disciplinary plan, based on safety data developed by a State Department of Transportation in accordance with 23 U.S.C. 148. |
| **Systematic** | refers to an approach where an agency deploys countermeasures at all locations across a system. |
| **Systemic safety improvement** | means an improvement that is widely implemented based on high risk roadway features that are correlated with specific severe crash types. |
| **Transfer** | means, in accordance with provisions of 23 U.S.C. 126, a State may transfer from an apportionment under section 104(b) not to exceed 50 percent of the amount apportioned for the fiscal year to any other apportionment of the State under that section. |