

CALIFORNIA STRATEGIC HIGHWAY SAFETY PLAN



STRATEGIC HIGHWAY SAFETY PLAN
HSP
Create a
Culture of Safety
in California

2015-2019

California Strategic Highway Safety Plan

2015-2019



September 2015



Photo courtesy of Caltrans

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Letter from the Secretary



Californians are fortunate to live in a State with such unmatched beauty and opportunity. We know that to maintain a high quality of life for residents we must have a transportation system that enables people and goods to reach their destinations safely and efficiently. The mission for Caltrans is to “Provide a safe, sustainable, integrated and efficient transportation system to enhance California’s economy and livability.”

That is why the Strategic Highway Safety Plan (SHSP) is so vital to our State. It represents the combined wisdom and knowledge of hundreds of stakeholders from every region and discipline who jointly agreed on a direction that will ensure that California continues to decrease the number of traffic related fatalities and severe injuries.

From 2005 to 2012, California experienced a 30 percent reduction in roadway fatalities. This SHSP update offers the promise of continued progress in saving lives of hundreds of Californians.

This updated plan represents considerable effort from an impressive list of agencies and organizations who devoted their time and attention to developing this update of the previous SHSP. Stakeholders from the 4Es of safety — engineering, enforcement, education, and emergency medical services — met in committees, participated in webinars, attended safety summits, and offered their ideas on ways to improve safety.

We are a large and diverse State. Our geography includes some of the largest urban areas in the U.S. and quiet small towns far removed from the bustling freeways. It is no small achievement to agree on an approach that meets the needs of those diverse areas when it comes to traffic safety.

On behalf of Governor Jerry Brown, the California State Transportation Agency will continue to support the SHSP goal of moving “Toward Zero Deaths.” The only acceptable goal for California is zero fatalities on the roadways and we look forward to this plan helping us get there.



Brian P. Kelly
Secretary
California State Transportation Agency



Executive Summary

The Strategic Highway Safety Plan (SHSP) is a statewide, coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and severe injuries on all public roads.

The plan must be data-driven, which means safety and other significant data are used to help define problems and develop solutions which focus on the 4Es of safety — engineering, enforcement, education, and emergency medical services. The SHSP also must be coordinated with other State safety plans including the Highway Safety Improvement Program (HSIP), the Highway Safety Plan (HSP), the Commercial Vehicle Safety Plan (CVSP), and the 2040 California Transportation Plan.

California developed its first SHSP in 2005, amended it in 2010, and in 2014 decided to update the plan. The update process involved a comprehensive outreach effort involving individual presentations to over 50 agencies and organizations; a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis; a tribal government outreach effort; a review of various other State and regional transportation plans to determine alignment with the SHSP; six webinars on traffic safety topics; and one summit each in northern and southern California. This plan represents the culmination of that six month outreach effort.

California can be proud of the many accomplishments achieved by the hundreds of stakeholders who devoted their time, energy, and ideas to helping the State achieve significant reductions in traffic related deaths and severe injuries. From 2005 to 2012, California experienced a 30.4 percent reduction in fatalities and a 17.5 percent reduction in severe injuries. Vehicle miles

traveled (VMT) remained fairly constant throughout the entire period (VMT went from 327.4 billion in 2005 to 326.5 billion in 2012). Overall, the prior SHSP attained a remarkable level of achievement by completing 177 of the plan's 179 actions as of August 1, 2014. The reason is the active involvement of over 400 safety stakeholders from 170 public and private agencies and organizations who worked together to implement the plan under the direction of the Executive Leadership and the Steering Committee, which are comprised of leaders from the major transportation and health agencies from the State along with other key stakeholders. One of the most prominent strengths of the previous effort was the collaboration across the 4Es of safety. The SWOT analysis of the prior plan, however, did reveal a need to achieve more involvement from regional and local agencies.

In developing a vision, mission, and goal for the SHSP, members of the Executive Leadership and the Steering Committee felt strongly that Toward Zero Deaths (TZD) should be the ultimate aspirational goal for the plan, and that realistic and achievable steps should be set for California to move closer to zero deaths. In establishing measurable objectives for reductions in fatalities and severe injuries, a decision was made to ensure they would be something to strive toward but also attainable. A 3 percent per year reduction for the number and rate of fatalities was set, and 1.5 percent per year reduction was established for the number and rate of severe injuries.

California's Challenge Areas are based on the large number of safety stakeholders who have remained active and involved in the SHSP since the beginning. The Challenge Areas in the updated plan include the following:

- Roadway Departure and Head-On Collisions
- Intersections, Interchanges, and Other Roadway Access
- Work Zones
- Alcohol and Drug Impairment
- Occupant Protection
- Speeding and Aggressive Driving
- Distracted Driving
- Driver Licensing and Competency
- Pedestrians
- Bicycling
- Young Drivers
- Aging Road Users
- Motorcycles
- Commercial Vehicles
- Emergency Medical Services

The former Improve Safety Data Collection, Access, and Analysis Challenge Area Team is now the Data Technical Advisory Team and will serve as a resource to the Executive Leadership, Steering Committee, and Challenge Area Teams. In addition to these Challenge Areas, California will also continue to pursue key policies including the following:

- Increase efforts to create a traffic safety culture;
- Improve traffic safety data; and
- Increase local, regional, and tribal government involvement.

Significant efforts during the update process were also made to engage tribal government audiences, including a dedicated tribal government webinar during the series and input sessions at the Safety Summits. The core issue identified consistently by all groups is the need for increased coordination among the many disparate groups that are involved in traffic safety, particularly as related to the 110 federally recognized tribal governments in California.

The SHSP Update process improved the understanding of California's safety issues and focused on the steps needed to keep the State on track to reduce traffic fatalities and severe injuries. The updated plan and the accompanying action plan document provide a roadmap for effective implementation of the vision, mission, and goals. The Steering Committee and Challenge Area Teams evaluated the safety data and managed the development of performance measures, strategies, and actions for each area. As the plan is implemented, these key safety stakeholders, with oversight from the Executive Leadership and the Steering Committee, will supervise the process. They will do this by tracking progress in each of the Challenge Areas; evaluating the effectiveness of strategies and actions to ensure they are contributing to decreases in fatalities and severe injuries; identifying barriers or problems to implementation; providing regular updates on SHSP-related campaigns, initiatives, training, and programs; providing guidance on future programs and activities; determining the approach to future SHSP Updates; and working with the SHSP Data Technical Advisory Team to identify data needs and improvements.

In addition to the SHSP and the companion Implementation Plan document that is developed immediately following the SHSP Update, California will develop an Evaluation Plan that will assess both process and performance. The process evaluation will examine roles, responsibilities, and process activities as well as establish a timeline for monitoring, evaluating and communicating SHSP update performance data. On the performance side, an SHSP Evaluation Plan will be developed before implementation takes place to ensure all aspects of the SHSP implementation can be properly evaluated and tracked. The measurable objectives for the SHSP will remain the same throughout the five year life of the plan, but will be reviewed annually to see if they track with the annual Highway Safety Improvement Program (HSIP) and Highway Safety Plan (HSP) performance targets.

Executive Leadership

Members of the Executive Leadership play a vital role in ensuring the success of the Strategic Highway Safety Plan (SHSP) by providing guidance, direction, and input into the content of the plan and supporting its implementation. The Executive Leadership are California’s transportation leaders. Their support and commitment to the SHSP demonstrates the importance of this plan to the entire State of California and how it will help the State continue a record of success in traffic safety.

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Steering Committee

Members of the SHSP Steering Committee provide day-to-day guidance on the SHSP to ensure this comprehensive plan is effectively and efficiently managed and implemented. Steering Committee members were an integral part of the update process and made sure the needs and concerns of all stakeholders were addressed. These professionals have shown ongoing dedication to ensuring safety on California's roadways continuously improves for all transportation users.

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Thank You to Highway Safety Partners

The update of the California SHSP required the hard work, dedication, and input of hundreds of safety stakeholders throughout the State. These individuals devoted their time and energy to provide ideas and input into the content of the updated plan. Each of the agencies and organizations listed here works hard to make sure California's roadway system is among the safest in the country. The organizers and managers of the SHSP Update process deeply appreciate the ongoing support of these individuals and look forward to working with them throughout the plan's implementation.

AAA Northern California, Nevada, and Utah
 Able-Disabled Advocacy
 ADEPT Driver
 Airgas USA LLC
 Alcohol Justice
 Alhambra Police Department
 Alta Planning + Design
 Amador County Transportation Commission
 American Medical Response (AMR)
 Arellano Associates
 Association of Monterey Bay Area Governments (AMBAG)
 Auto Club Southern California
 Axis Community Health Inc.
 Bear River Band of Rohnerville Rancheria
 Bike East Bay
 Bike San Diego
 Bike Silicon Valley
 Blue Lake Rancheria
 Brifen USA
 Buffalo Soldiers Motorcycle Club
 Butte County Public Works
 California Association of Safety Education (CASE)
 California Bicycle Coalition

California Chiefs Association, EMS Section
 California Department of Alcoholic Beverage Control (ABC)
 California Department of Health Care Services (DHCS)
 California Department of Motor Vehicles (DMV)
 California Department of Public Health (CDPH)
 California Department of Transportation (Caltrans)
 California District Attorneys Association (CDAA)
 California Emergency Medical Services Authority (EMSA)
 California Farm Bureau Federation
 California Friday Night Live Partnership
 California Highway Patrol (CHP)
 California Office of Emergency Services (OES)
 California Office of Traffic Safety (OTS)
 California Pedestrian Advisory Committee
 California Rural Indian Health Board Inc.
 California State Senate Transportation and Housing Committee

California State Senate, Office of Research
 California State Polytechnic University (Cal-Poly) Pomona
 California Walks
 Cambridge Systematics
 Capitola Police Department



Photo courtesy of Caltrans

Center for Collaborative Policy (CCP), Sacramento State	County of Alameda	Fontana Police Department
Center for Counseling and Education	County of Calaveras	Freeway Insurance Center
Chen Ryan Associates	County of Contra Costa	Fresno Council of Governments
Chico Velo Cycling Club	County of Fresno	Fresno County Public Works and Planning
Circulate San Diego	County of Los Angeles	Giumarra Companies
Citrus Heights Police Department	County of Marin	Health and Social Policy Institute (HASPI)
City of Alameda	County of Mono	Health Care Agency
City of Atwater	County of Monterey	Hoopa Tribal Roads Department
City of Chowchilla	County of Nevada	Humboldt County Association of Governments
City of Chula Vista	County of Sacramento	Humboldt County Department of Public Works
City of Concord	County of San Bernardino	Impact Teen Drivers
City of Costa Mesa	County of San Diego	Inland Empire Biking Alliance
City of Eureka	County of San Joaquin	Insurance/Risk Management
City of Fairfield	County of San Mateo	J.M. Diaz, Inc.
City of Fresno	County of Solano	John Muir Health
City of La Mirada	County of Sutter	Juno
City of Lancaster	County of Trinity	Kaiser Permanente/Safe Kids Greater Sacramento
City of Los Angeles	County of Tuolumne	Ken Pierce
City of Monterey	DDP Schools	Kings County Association of Governments (KCAG)
City of Moreno Valley	Dignity Health MSJMC	Kings View Community Services
City of Mountain View	Disability Resource Agency for Independent Living (DRAIL)	Knife River Construction
City of Novato	Dublin Police Services	LAE Associates
City of Oceanside	DUEYES DMV Consulting	Lake Area Planning Council
City of Oxnard	Eaton	Lindsay Transportation Solutions
City of Rancho Palos Verdes	EDC Public Health	Los Angeles County Bicycle Coalition
City of Redding	El Dorado County Commission on Aging	Los Angeles County Department of Public Works
City of San Diego	El Dorado County District Attorney's Office	Los Angeles County Metropolitan Transportation Authority
City of Santa Barbara	El Dorado County Public Health	Los Angeles Department of Transportation
City of Santa Clarita	El Dorado County Transportation Commission	Los Angeles Police Department
City of Santa Monica	Elk Grove Unified School District	Mainstreet Architects + Planners, Inc.
City of Santa Rosa Public Works	Ennis-Flint	Marin County Public Works
City of Stockton	Environmental Council of Sacramento	Mendocino Council of Governments
City of Vacaville	Federal Highway Administration (FHWA), California Division	Mendocino County Department of Transportation
City of West Covina	Federal Motor Carrier Safety Administration (FMSCA)	Mercy San Juan Medical Center
City of West Hollywood	Federal Railroad Administration (FRA)	Mira Costa College
City of West Sacramento	Federal Transit Administration	Modesto Police Department
City of Yorba Linda	Fehr and Peers	
CLEW Associates	Folsom Fire Department	
Concord Police Department		
Conejo Valley Cyclist		
Cost-U-Less Insurance Center		
County Engineers Association of California (CEAC)		

Monterey County RMA, Public Works	Sacramento County Department of Health and Human Services	Shasta Regional Transportation Planning Agency
Mothers Against Drunk Driving (MADD)	Sacramento Police Department	Sierra Club
Motorcycle Safety Foundation	Sacramento Superior Court	Smith River Rancheria
Mountain View Occupational Health Services	Safe Routes to School National Partnership	Solano Transportation Authority
National Council on Alcoholism and other Drug Addictions (NCADA)	SafeTREC, University of California at Berkeley (UCB)	South Feather Water & Power Agency
National Highway Traffic Safety Administration (NHTSA), Region 9	Safety Center, Inc.	South San Francisco Police Department
National Safety Council	Salinas Police Department	Southern California Association of Governments (SCAG)
NSA Engineers	San Bernardino Department of Behavioral Health	Stantec
Occupational Health Services, DUI Programs, Oakland, CA	San Diego Association of Governments (SANDAG)	Statewide Traffic Safety & Signs, Inc.
Office of Health Services, San Marcos	San Diego Community Action Partnership	STEPS, Inc.
Orange County Bicycle Coalition	San Diego County Sheriff's Department	Strategic Growth Council
Orange County Department of Public Works	San Diego Department of Public Works	Streets Blog
Orange County Health Care Agency	San Diego Police Department	Sycuan Band of the Kumeyaay Nation
Orange County Transportation Agency (OCTA)	San Diego TriClub	Tehama County Public Works (TCPW)
Pacific Safety Center	San Francisco Bicycle Coalition	Thousand Oaks Bicycle Advisory Team
Pasadena Police Department	San Francisco Department of Public Works	The High Road Program
Pinoleville Pomo Nation	San Juan Unified School District	Torres Martinez Desert Cahuilla Indians (TMDCI)
Pit River Tribe	San Luis Obispo Council of Governments (SLOCOG)	Traffic Safety Resource Prosecutor
Placer County Department of Public Works	San Luis Obispo County Behavioral Health Agency	TraFFix Devices, Inc
Placer County Transportation Planning Agency (PCTPA)	San Luis Obispo County Bicycle Coalition	Transportation Agency for Monterey County (TAMC)
PrioriHealth Partners, LLP	San Marcos Occupational Health Services	Trinidad Rancheria
ProProse	San Mateo Occupational Health Services	Twin Palms Recovery Center
PSOMAS	San Mateo Police	University of California Davis Health System
Public Health Behavior Solutions	Santa Barbara Cottage Hospital Trauma Services	University of California, Berkeley
Public Health Institute (PHI)	Santa Barbara County Department of Behavioral Health	University of California, Irvine
Pyramid Alternatives	Santa Cruz County Regional Transportation Commission (SCCRTC)	University of California, San Diego (UCSD)
Rancho Los Amigos Rehabilitation Center	Santa Monica Police Department	URS Corporation
RedFlash Group	Santa Rosa Public Works	Utilitarian Cycling
Reliable Liquid Transport, Inc.	Shasta Living Streets	Ventura County Alcohol and Drug Programs
Rincon Reservation		WA Traffic Safety Commission
River Oak Center For Children		WALKSacramento
Riverside County Transportation Department		Wheeler & Gray, Inc
RKA Consulting Group		Yurok Tribe
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Introduction

The Strategic Highway Safety Plan (SHSP) is a statewide, coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and severe injuries on all public roads. It identifies key safety needs and guides investment decisions towards strategies and countermeasures with the most potential to save lives and prevent injuries.

The plan must be data-driven, which means safety and other significant data are used to help define problems and develop solutions which focus on the 4Es of safety — engineering, enforcement, education, and emergency medical services. The SHSP must also be coordinated with other State safety plans including the Highway Safety Improvement Program (HSIP), the Highway Safety Plan (HSP), and the Commercial Vehicle Safety Plan (CVSP).

One of the most important tasks when updating an SHSP is to determine the vision, mission, goal, and objectives for fatalities and severe injuries. The vision helps guide the plan, and the mission statement details how the vision will be achieved.

SHSP Vision:
California will have a safe transportation system for all users.

This plan is designed to address safety on California’s large and complex roadway system with nearly 395,000 lane miles¹ (the total length and lane count) of public roads that accommodate the needs of over 24 million licensed drivers²

¹ FHWA, 2013. *Highway Statistics 2012, Table HM-60, Functional System Lane-Length, October 2013, Federal Highway Administration, Washington, DC.*
² FHWA, 2013. *Highway Statistics 2012, Table DL-22, Licensed Total Drivers, by Age, December 2013, Federal Highway Administration, Washington, DC.*

and millions of pedestrians and bicyclists. This system is the foundation of California’s economy which, in 2014, was the eighth largest in the world. Continued population and economic growth in the State has created increased demand on existing roadways, raising the density of traffic and making safety more critical than ever for the diverse population who use the system on a daily basis.

SHSP Mission:
California will ensure a safe and sustainable transportation system for all motorized and non-motorized users on all public roads in California.

California developed its first SHSP in 2005 and amended it in 2010. Over 400 safety stakeholders from 170 public and private sector agencies and organizations worked together to create and implement the plan under the direction of the

Photo courtesy of the San Francisco Bicycle Coalition



SHSP Executive Leadership and a 13-member Steering Committee. The extent of collaboration on the original SHSP was unprecedented in California's history and remains one of the most successful efforts in the nation. Using data analysis, stakeholders identified 16 safety "Challenge Areas" on which to focus resources and efforts. The Challenge Areas included goals and strategies for each topic. The Distracted Driving Challenge Area was added to the plan in 2010.

SHSP Goal: Toward Zero Deaths.

SHSPs were first mandated under the Safe, Accountable, Flexible, Efficient, Transportation Equity Act — A Legacy for Users (SAFETEA-LU), which established the Highway Safety Improvement Program (HSIP) as a core federal-aid program. The Moving Ahead for Progress in the 21st Century Act (MAP-21) continues the HSIP as a core federal-aid program and the requirement for States to develop, implement, evaluate, and update an SHSP that identifies and analyzes highway safety problems and opportunities on all public roads. MAP-21 strengthened SHSP requirements by adding the following requirements:

- A regular update of the plan (at least every five years);
- Increased stakeholder involvement;
- Consideration of other safety factors e.g., locations with risk factors, high-crash locations, rural roads, and road safety audit findings when updating the SHSP;
- Integration with other State and regional transportation plans;
- Focus on use of proven effective strategies and countermeasures; and
- Identification of methods to evaluate the SHSP.

In 2014, California decided to update the plan in advance of the federal requirement. The update process involved a comprehensive outreach effort involving individual presentations to over 50 agencies and organizations, six webinars on traffic safety topics, and one summit each in northern and southern California. This plan represents the culmination of that six month outreach effort.

Considerable discussion occurred among members of the Executive Leadership and Steering Committee on these items, particularly given MAP-21 requirements on performance measures from the federal government for the SHSP and other related safety plans (HSIP, HSP, and CVSP). Both committees felt strongly that Toward Zero Deaths (TZD) should be the ultimate aspirational goal for the plan, and that realistic and achievable steps should be set for California to move closer to zero deaths.

Photo courtesy of Caltrans



State of Traffic Safety

The impetus for the development and implementation of an SHSP is the number and rate of traffic related fatalities and severe injuries. Before starting an update, it is important to understand the current state of traffic safety. This includes deciding whether trends seen in previous years are continuing or whether there are increases in all or some of the challenge areas identified in the plan.

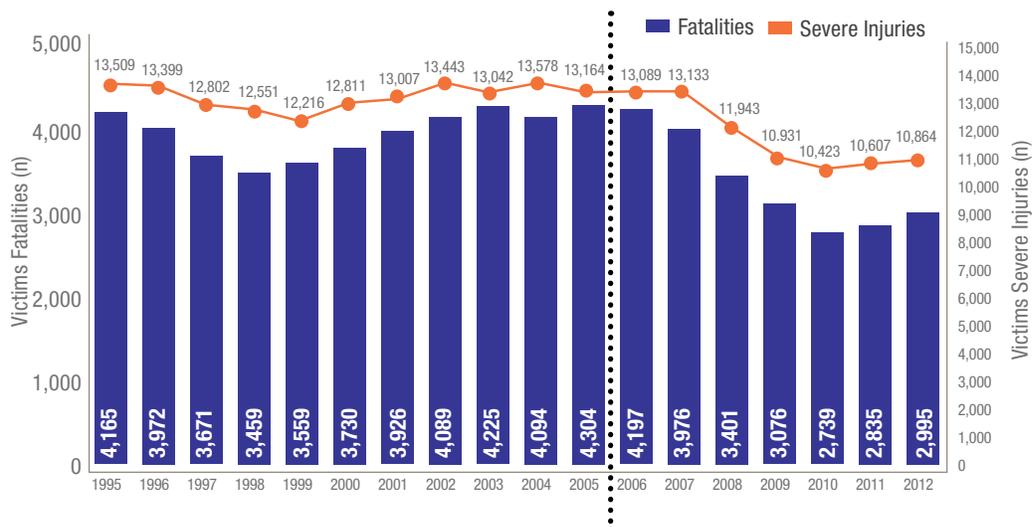
California, like the nation as a whole, has experienced tremendous reductions in traffic related fatalities and severe injuries over the past decade. Figure 1 shows the historical data on fatalities and severe injuries since 1995 and the dramatic downward trend from 2006 to 2010. The dotted line indicates when the first SHSP started. The decline can be attributed to a number of reasons, including the economic recession, safer vehicles, better roadways, reduced drinking and driving, and increased safety belt use. This was also the period when all states, including California, were focused on safety through the development and implementation of their SHSPs. All data in this SHSP document ends at 2012 because that is the most complete data available at the time the plan was updated.

While California has made progress in safety, nearly 3,000 people die each year in traffic crashes and more than 10,000 people are severely injured. Not only is this a tragedy in human terms, there is also an economic cost. According to the National Highway Traffic Safety Administration (NHTSA), traffic crashes cost the State more than \$22 billion per year.³ The appendix includes a breakdown of the cost of traffic crashes for counties in California.

Figure 1 shows traffic crashes have increased the last two years. This prompted California to develop an updated

³ NHTSA, 2014. *The Economic and Societal Impact of Motor Vehicle Crashes, 2010*, DOT HS 812 013, National Highway Traffic Safety Administration, Washington, DC, May 2014.

Figure 1: Fatal and Severe Injury Trends, 1995-2012



Source: Statewide Integrated Traffic Records System (SWITRS)

plan that can meet the challenge by building on the success of the past while incorporating sound and innovative ideas for the future.

Many people attribute the decline in traffic-related fatalities and severe injuries in the past eight years to the economic downturn when fewer jobs and less income led to less driving and therefore reduced exposure. The rate of driving is reflected in vehicle miles traveled (VMT). However, in California, VMT did not decline during the economic downturn, but stayed constant for the last ten years as shown in Figure 2. The line between 2005 and 2006 indicates the date the first SHSP was started. It is reasonable to infer that the SHSP process resulted in increased focus on safety, increased collaboration, and contributed to these reductions. California believes that with renewed energy around the SHSP Update, the State will continue driving the numbers down.

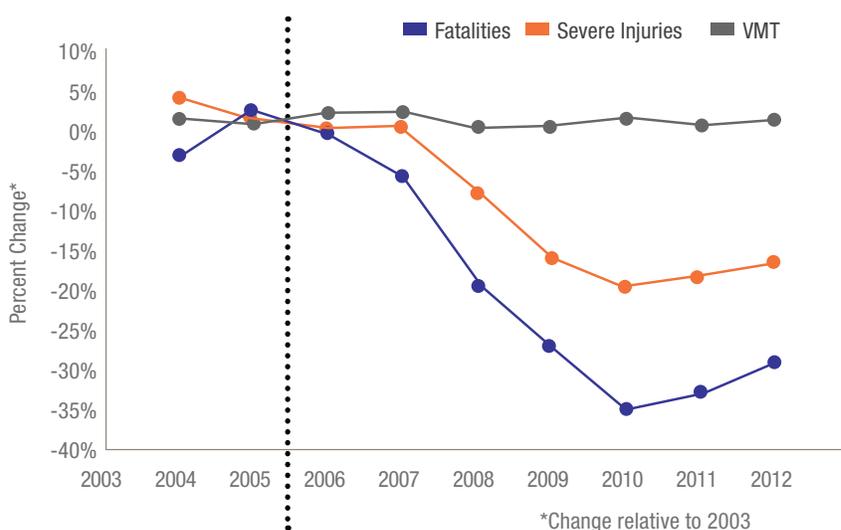
In updating the SHSP, it was important to focus on detailed analysis of the safety problem using crash and other data to develop tailored solutions. For example, stakeholders investigated which population groups were involved in the majority of the crashes along with when and where they were occurring. Figure 3 shows males age 15 to 34 as the group involved in the most fatal and severe injury crashes.

Figure 4 shows the majority of fatalities and severe injuries occur on the Non-State Highway System

(Non-SHS), which includes local and county roads, and not state owned roadways. This is particularly true in urban areas. Therefore, a key imperative for moving forward is ensuring sufficient safety focus is placed on non-state roadways where two-thirds of fatalities and severe injuries occur. A larger number of fatalities and severe injuries occur in urban areas as shown in the urban versus rural comparison. California's statewide database, Statewide Integrated Traffic Records System (SWITRS), defines rural as unincorporated and incorporated areas with a population of fewer than 2,500. Urban is defined as unincorporated and incorporated areas with a population of 2,500 or more.

The State also has a High Risk Rural Roads Program (HR3) which is now part of the Highway Safety Improvement Program (HSIP). Since 2012, Caltrans has combined the call for HSIP and HR3 projects. The term 'high risk rural road' means any roadway functionally classified as a rural major or minor collector or rural local road on which the crash rate for fatalities and severe injuries exceeds the statewide average for those functional classes of roadway; or that will likely have increases in traffic volume that are likely to create a crash rate for fatalities and severe injuries that exceeds the statewide average for those functional classes of roadway.

Figure 2: Percent Change Fatal, Severe Injury & Vehicle Miles Traveled, 2003 to 2012



Source: Statewide Integrated Traffic Records System (SWITRS), HPMS

Figure 3: Fatal & Severe Injury By Gender and Age, 2010 to 2012

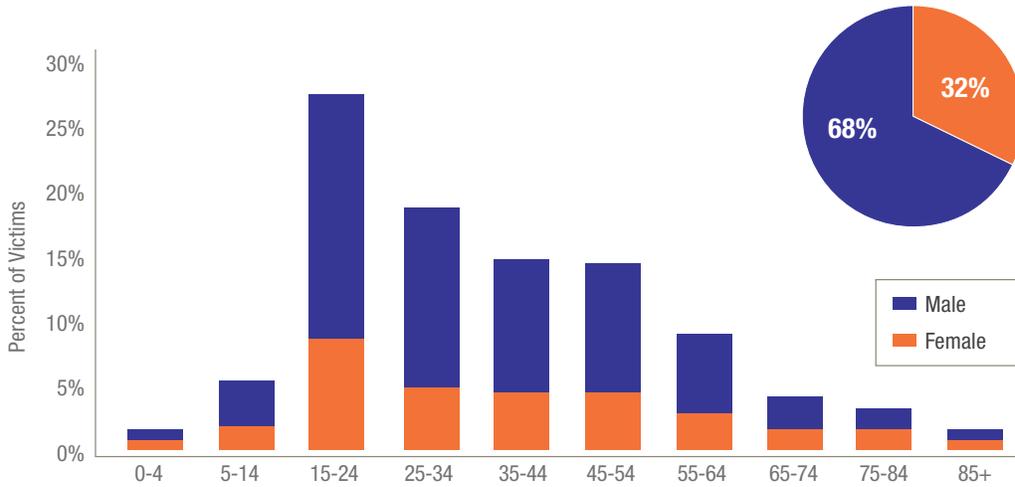
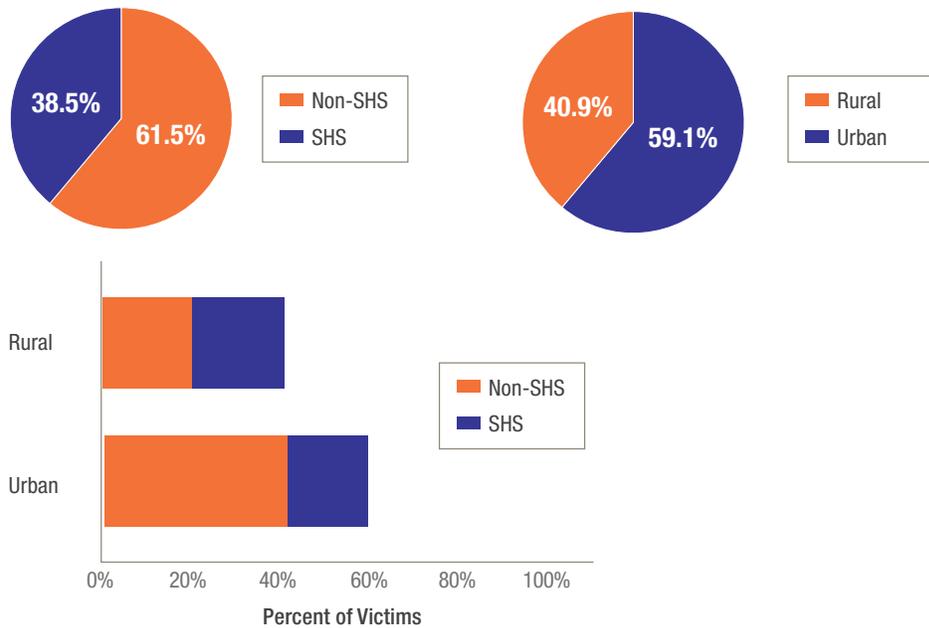


Figure 4: Fatal & Severe Injuries By Roadway Ownership and Type, 2010 to 2012



Source: SWITRS

The Update Process

The SHSP is more than a document in California. It reflects the overall nature of traffic safety in the State and the people, organizations, and agencies that are essential to ensuring California maintains a safe and efficient roadway transportation system.

The update of the SHSP presents an opportunity to reflect on how safety can be improved in terms of data analysis, organizational structure, business processes, collaboration, partner engagement, implementation, and evaluation. The desire is for the SHSP document to capture all the opportunities for improvement in a user-friendly resource that will provide guidance for the next five years. The update process involved the following key activities:

- A SWOT analysis;
- Presentations to agencies and organizations throughout the State on the SHSP and why they should be involved;
- A tribal government outreach effort including presentations to the Caltrans Native American

Advisory Committee, distribution of a survey to tribal government leaders, a webinar focusing on tribal government issues, and tribal government workshops at both safety summits;

- A review of various other State and regional plans in the State to determine whether they are currently aligned with the SHSP;
- Six statewide webinars focusing on all of the previous SHSP Challenge Areas to give people who could not travel to the summits an opportunity to provide input into the plan; and
- One summit each in northern and southern California with workshops to allow people to offer their views on the content of the updated plan.

Photo courtesy of Arellano Associates



Accomplishments

As California embarked on the SHSP Update, a critical first step was to understand what has been successful about implementation of the current plan and where there are opportunities for improvement. It was important to the SHSP leadership that the safety stakeholders be able to take the plan to the next level to generate continued improvements in traffic safety and reductions in traffic related fatalities and severe injuries.

California is proud of the many accomplishments achieved by the hundreds of stakeholders who devoted their time, energy, and ideas to helping the State achieve significant reductions in traffic-related deaths and severe injuries. This level of effort resulted in the formation of numerous partnerships that have enabled the SHSP to move forward over the last eight years.

- From 2005 to 2012, California experienced a 30.4 percent reduction in fatalities and a 17.5 reduction in severe injuries. Vehicle miles traveled (VMT) remained fairly constant throughout the entire period (VMT went from 327.4 billion in 2005 to 326.5 billion in 2012).
- Fatalities decreased by 23 percent on urban roadways from 2005 to 2012 and 38.2 percent on rural roadways. For severe injuries during the same time period, there was a decline of 13.6 percent on urban roadways, and 23.2 percent of rural roadways.
- From 2005 to 2012, there was a 40.4 percent decline in fatalities on state roadways and a 21.4 percent reduction on non-state roadways. For severe injuries, the decline on state roadways was 19.5 percent and on non-State roadways it was 16.3 percent.

- Each of the Challenge Areas where data were available experienced a decline in fatalities between 2006 and 2010. Impaired driving had the largest decrease from 2,034 fatalities in 2006 to 1,417 in 2010 — a decline of 30 percent. Both the Leaving the Roadway and the Head-On Collisions Challenge Areas saw a steep drop in fatalities from 1,309 in 2006 to 755 in 2010 — a 42 percent decrease. These areas, however, showed a disturbing increase in 2011 and 2012. Other areas that showed an increase in fatalities and severe injuries include Pedestrians, Bicyclists, and Motorcyclists.
- Eleven of the Challenge Areas (those for which data are available) exceeded their fatality reduction goal. Only three did not reach the goal in the prior SHSP — Pedestrians, Bicyclists, and Motorcyclists.

Overall the SHSP attained a remarkable level of achievement by completing 177 out of 179 of the plan's actions by August 1, 2014. Information on all actions can be found in the [SHSP Status Report document](#) on the SHSP web page. The following chart highlights some of the major multidisciplinary accomplishments achieved by the Challenge Area Teams over the last eight years.

Photo courtesy of California Office of Traffic Safety (OTS)



Accomplishment	Challenge Area	 Engineering	 Enforcement	 EMS	 Education
Obtained support for the passage of a law that separates drug, alcohol, or combined drug and alcohol DUI convictions.	Alcohol and Drug Impairment				
Instituted programs that provide monitoring and intense supervision of repeat DUI probationers.	Alcohol and Drug Impairment				
Developed and distributed materials on Responsible Beverage Service (RBS) training as a community prevention resource and distributed them to City and County Officials, and bar and restaurant alcohol licensees in Orange County, California, to encourage RBS practices, and assess response to the materials.	Alcohol and Drug Impairment				
Implemented the Caltrans Local Roadway Safety Manual and HSIP Project Evaluation Tool which resulted in data-driven project evaluations, and developed the Traffic Injury Mapping System (TIMS) which made local crash data available to all jurisdictions.	Roadway Departure				
Conducted training and outreach on low-cost safety improvements including the use of high-friction surface treatments and road safety audits. Local jurisdictions are now incorporating these improvements as part of their HSIP funded activities.	Roadway Departure				
Local agencies shifted to lower cost/higher benefit improvements which resulted in over 20 miles of HSIP funded projects per \$1 million invested.	Roadway Departure				
Increased the integrity of the written testing process for driver license applicants.	Driver Licensing				

Accomplishment	Challenge Area	 Engineering	 Enforcement	 EMS	 Education
Increased child passenger safety use through education and enforcement after passage of State law raising the child passenger safety (CPS) restraint use to age 8.	Occupant Protection				
Developed a policy that requires the consideration of roundabouts and safety performance analysis findings when adding or expanding access points on the State Highway System. The same also applies to local agencies.	Intersections, Interchanges, and Other Roadway Access				
Produced an engineering policy to identify and address safety performance needs and impacts in the project scope for investments in freeway corridors where severe crashes are concentrated.	Intersections, Interchanges, and Other Roadway Access				
Created the Freeway Safety Performance Demonstration Program which evaluates the use of lighting as a countermeasure along freeway corridors experiencing the highest concentration of fatal collisions on the State Highway System	Intersections, Interchanges, and Other Roadway Access				
Created a Graduated Driver License (GDL) Made Simple program that included an instructional video, brochures, posters, and other information. Materials were widely disseminated and used statewide.	Young Drivers				
DMV developed a new young driver web site with videos and other information.	Young Drivers				
Conducted statewide education on GDL for law enforcement officers through train the trainer programs.	Young Drivers				

Accomplishment	Challenge Area	 Engineering	 Enforcement	 EMS	 Education
<p>Incorporated new language into California’s Manual on Uniform Traffic Control Devices (MUTCD) that provides more positive guidance for new crosswalks at uncontrolled crossing locations and to encourage the use of longitudinal or diagonal markings between the transverse lines (ladder-style crosswalks) at uncontrolled crossing locations.</p>	Pedestrians				
<p>Incorporated new category in the HSIP guidelines that create funding for crosswalk safety measures. These capital improvements are designed to encourage drivers to yield to pedestrians at marked or unmarked crosswalks, shorten crossing distances, enhance driver awareness of crossings, and/or provide active warning of pedestrian presence at crossing locations.</p>	Pedestrians				
<p>Updated methodology to include coding of collisions within crosswalks which increased the data available on the number on overall number of pedestrian fatalities and severe injuries. This gives a more accurate picture of pedestrian safety problems and will help justify systemic pedestrian safety improvements at intersections.</p>	Pedestrians				
<p>Included information in California’s Manual on Uniform Traffic Control Devices (CAMUTCD) on traffic control devices that accommodate older drivers and pedestrians, particularly in areas with senior populations.</p>	Aging Road Users				
<p>Improved left turn options and intersections to meet the needs of older drivers by making changes to the Highway Design Manual.</p>	Aging Road Users				

Accomplishment	Challenge Area	 Engineering	 Enforcement	 EMS	 Education
Implemented a multimedia education campaign to broaden senior awareness of transportation options; increase senior willingness to use these options; and enlist the support of families, friends, and the community in helping seniors transition to alternative forms of transportation.	Aging Road Users				
Implemented and widely disseminated older driver safety and mobility programs of partner organizations.	Aging Road Users				
Defined the term “aggressive driving” for California and conducted educational outreach.	Speeding and Aggressive Driving				
Conducted a judicial survey by the Department of Motor Vehicles to measure the feasibility of a behavior modification course for aggressive drivers.	Speeding and Aggressive Driving				
Implemented a pilot behavior modification program in Sacramento utilizing the National Safety Council’s Attitudinal Dynamics of Driving course.	Speeding and Aggressive Driving				
Enhanced the Commercial Inspection and Education Program (CIEP) to assist the commercial industry with current educational curriculum related to commercial vehicle traffic safety. In 2011 four randomly selected companies ranging in fleet size, showed a 45 percent reduction in enforcement citations issued by the CHP after formal CIEP training and education were conducted.	Commercial Vehicles				
Designed, conducted, and completed a two-year study to collect supplemental, detailed motorcycle collision data.	Motorcycles				

Accomplishment	Challenge Area	 Engineering	 Enforcement	 EMS	 Education
Developed and disseminated lane splitting guidelines based on a statewide lane splitting survey of California drivers and motorcycle riders.	Motorcycles				
Developed and disseminated materials to encourage the use of U.S. Department of Transportation approved helmets, including helmet exchanges.	Motorcycles				
Developed the first in nation traffic control policies to accommodate bicyclists in work zones.	Work Zones				
Evaluated and promoted work zone best practices, including use of full roadway closures, larger letters on temporary signs, and temporary transverse rumble strips for flagging operations.	Work Zones				
Increased work zone awareness to influence driver behavior through changes to DMV handbook and tests, project-specific websites, real-time traffic updates, and work zone safety campaigns.	Work Zones				
Developed and conducted a joint work zone training between Caltrans, contractors, and the California Highway Patrol.	Work Zones				
Developed and implemented a statewide campaign to change social norms related to distracted driving.	Distracted Driving				
Developed a distracted driving curriculum that targets adults employees in the work place.	Distracted Driving				
Documented driver behavior through an annual statewide cell phone/texting observational survey.	Distracted Driving				

Accomplishment	Challenge Area	 Engineering	 Enforcement	 EMS	 Education
<p>Increased the California Emergency Medical Services Information System (CEMSIS) linkage with other data systems. CEMSIS is now accepting pre-hospital and trauma center data from participating local EMS agencies.</p>	<p>Emergency Medical Services (EMS)</p>				
<p>Finalized State Trauma Plan in 2013 and held two Trauma System Educational Summits in 2009, 2010, and 2013. As of 2013, the State has 75 trauma centers; three counties actively working toward the trauma center designation.</p>	<p>Emergency Medical Services (EMS)</p>				
<p>Developed a guide showing communications channels and helpad information for EMS statewide and made available on the EMS website.</p>	<p>Emergency Medical Services (EMS)</p>				
<p>Developed two informational cards now available at DMV Field offices, Caltrans District offices, CHP Area offices, and EMSA providing information on how to identify the location of a crash, the best destination, and the appropriate way to transport injured persons.</p>	<p>Emergency Medical Services (EMS)</p>				
<p>Implemented crash medical outcomes data project to develop a system to link multiple data sources, i.e., CEMSIS, SWITRS, and medical records.</p>	<p>Data Collection, Access, and Analysis</p>				

SWOT Analysis

The SWOT analysis involved a survey of Challenge Area teams, a guided discussion with the Steering Committee at their August 2014 meeting, and individual interviews with key stakeholders, agencies, organization, and SHSP leadership.

Following is a listing of some of the key findings in terms of strengths, weaknesses, opportunities, and threats:

Strengths

- Collaboration across the 4Es;
- Breadth and depth of the partners involved;
- Support and commitment from top level management for not only the plan but also for accountability in completing strategies and actions;
- Number of actions completed; and
- Detailed tracking of progress.

Weaknesses

- Difficulty keeping some busy safety stakeholders active and involved;
- Lack of involvement by regional, local, and tribal government agencies;
- Lack of evaluation of the direct safety impact of specific actions; and
- Lack of succession planning for SHSP leadership.

Opportunities

- Link the SHSP to the current Active Transportation Program, and other plans in the State;
- Address safety concerns for all modes of transportation;
- Develop an orientation for new Challenge Area members; and
- Create a Noteworthy Practices database.

Threats

- Budget limitations;
- Changes in SHSP leadership;
- Potential rule and requirement changes under MAP 21 or another transportation bill;
- Lack of a clear role for local governments.

Photo courtesy of Samir Momani



Public Involvement

Presentations

At the beginning of the update process, the update team contacted a number of agencies and organizations to request an opportunity to give a presentation about the SHSP. The following are the agencies and organizations that participated:

- Active Transportation and Livable Communities (ATLC)
- Association of Monterey Bay Governments (AMBAG)
- Bay Area Congestion Management Agency (CMA)
- California Ambulance Association (CAA) Board Meeting
- California Association of Council of Governments (CALCOG)
- California Bicycle Coalition
- California Emergency Medical Services (CEMS) Authority Commission Meeting
- California Pedestrian Advisory Committee (CalPED)
- California Public Safety Radio Association (CPRA)
- California Trucking Association
- Caltrans Native American Advisory Committee
- Caltrans Planning and Local Assistance Network (PLAN)
- Central Valley Workshop (Fresno)
- Council of Fresno County Governments (COFCG)
- County Engineers Association of California (CEAC)
- Fresno Council of Governments
- Interagency Technical Working Group on Tribal Transportation Issues
- Local Highway Safety Improvement Program (HSIP) Advisory Committee Meeting
- Los Angeles County Department of Public Works (LACDPW), Traffic & Lighting Division
- Los Angeles County Metropolitan Transportation Authority Streets and Freeways Subcommittee
- Los Angeles County Metropolitan Transportation Authority Technical Advisory Committee
- Metropolitan Transportation Commission, Operations Committee (MTC)
- Northern California Association of Public-Safety Communications Officials (NAPCO)
- North State Super Region Safety Session
- Placer County Transportation Planning Agency (PCTPA)
- Public Health Alliance of Southern California Webinar
- Redding and Lemoore CTP Tribal Government Listening Session
- Rural Counties Task Force
- San Diego Association of Governments (SANDAG)
- Santa Barbara County Association of Governments (SBCAG), Technical Transportation Advisory Committee (TTAC)
- Southern California Association of Governments (SCAG), Transportation Committee
- Tahoe Metropolitan Planning Organization (TMPO)
- Transportation Co-Op Committee
- Tribal Transportation Safety Summit

Photo courtesy of Southern California Association of Governments (SCAG)



Over 900 individuals participated in this process, and all comments and suggestions are included in the outreach matrix that forms the basis for the content of the updated SHSP.

Webinars

Six two-hour webinars were held during the last week of October 2014 to give safety stakeholders who could not travel to the summits an opportunity to provide input into the plan. The webinars focused on the following topics:

- Driver Behavior
 - Impaired driving
 - Occupant protection
 - Speeding and aggressive driving
 - Distracted driving
- Tribal government road safety
- Infrastructure and operations
 - Roadway departures
 - Intersections
 - Work zones
- Active Transportation
 - Pedestrians
 - Bicyclists
- Focus Populations
 - Young drivers
 - Older drivers
 - Commercial vehicles
 - Motorcycles
- Emergency Medical Services

To promote the webinars and summits described below, information was distributed to a list of 1,500 stakeholders statewide. A total of 449 people participated in the webinars, and of that number 45 percent had not previously been involved with the SHSP. The following is a breakdown of how many participants attended each session:

- Driver Behavior – 99
- Tribal Government – 47
- Focus Populations – 68
- Active Transportation – 125
- Infrastructure – 74
- Emergency Medical Services – 36

Safety Summits

Safety summits were conducted on November 12, 2014 at California State University Los Angeles and on November 14, 2014 at California State University Sacramento.



Photo courtesy of Cambridge Systematics

The two half-day summits involved a total of 231 participants (81 in Los Angeles and 150 in Sacramento). The summits included presentations from top officials from key federal, State, and local agencies involved in safety. The presenters included:

- **Vincent Mammano**, Division Administrator, Federal Highway Administration, California Division
- **Thomas P. Hallenbeck**, Chief, Division of Traffic Operations, Caltrans
- **Rhonda Craft**, Director, Office of Traffic Safety
- **Steve Dowling**, Assistant Chief, California Highway Patrol
- **Alan Thompson**, Senior Regional Planner, Southern California Association of Governments (SCAG) (Los Angeles only)
- **Dean Lehman**, Assistant Deputy Director, Traffic Division, Los Angeles County Department of Public Works (Los Angeles only)
- **Tom Mattson**, Director of Public Works, Humboldt County (Sacramento only)

The focus of the summit group discussions followed the same organizational structure as the webinars. Individuals chose two discussion groups and offered their ideas and views on what should be included in the updated plan.

Participants at the webinars and summits reviewed statewide and Challenge Area data including fatal and severe injury trends; location, age, and gender information; a breakdown by month, time of day, and day of week; and a listing of the primary collision factors and crash types.

Public Comment

All information collected through the presentations, webinars, summits, and on-line through the SHSP website was compiled into a matrix showing what public comments were received, the proposed or current SHSP strategy, and any actions that were suggested. This information was carefully reviewed by members of the SHSP Steering Committee and each of the Challenge Area Teams who recommended the final list of strategies for the plan. In some cases strategies from the previous SHSP were determined still to be relevant and in others new strategies were proposed based on the knowledge, expertise and current work being conducted by the Challenge Area Teams.

Before selecting the final strategies, the Challenge Area Teams applied the following test to ensure what was included in the plan would be feasible and effective:

- Does the strategy address a defined problem?
- Is the strategy data-driven?
- Can the strategy be achieved?
- Are there sufficient resources to implement?
- Can it be accomplished and evaluated within five years?
- Is there evidence that demonstrates its effectiveness? If not, can evaluation be integrated into the program/projects?

The SHSP was prepared and a draft posted on the SHSP website for further stakeholder review. Further public comments were reviewed and where appropriate included in this plan which only includes the SHSP strategies. A companion Implementation Plan includes action plans to implement the strategies. Action plans include actions, the action lead agency/organization, resources, when the action is to be completed, and the budget needed for implementing the action.



Photo Courtesy of California Office of Traffic Safety (OTS)



Photo Courtesy of California Office of Traffic Safety (OTS)



Photo courtesy of Southern California Council of Governments (SCAG)



CHAIN CONTROL
ON HWY 20
25 MPH MAX

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Planning Alignment Report

Improving safety coordination and linkages among regional and statewide planning processes in California will support a comprehensive approach to transportation safety planning, encouraging every agency to work toward the same goal. It also provides additional opportunities to implement safety programs addressing key priorities throughout the State.

To evaluate the extent of dedicated safety planning at the regional level and the extent to which regional safety plans were aligned with the SHSP, the study team reviewed the available metropolitan transportation plans (MTP) for the State’s Metropolitan Planning Organizations (MPOs), and Regional Transportation Planning Agencies (RTPAs), as well as the HSIP, HSP, CVSP, and the California Transportation Plan 2040 (CTP 2040).

The CTP 2040 is a statewide, long-range transportation plan developed to meet the State’s future travel needs while reducing greenhouse gas (GHG) emissions. The CTP 2040 envisions a sustainable transportation system that improves mobility for all, strengthens our communities, and enhances the quality of life through a set of goals with supporting policies, one of which is to improve public safety and security. Although the CTP 2040 is a high-level transportation planning document that incorporates modeling, it is not solely data-driven. Similar to the SHSP, the CTP 2040 supports and brings awareness to statewide importance in reducing fatalities and severe injuries.

The transportation plans were reviewed for content on safety including the extent of safety analysis, safety inclusion in goals and objectives, existence of safety-oriented performance measures and targets, and inclusion of safety as a project prioritization method. A series of recommendations were developed for how California could improve alignment with the SHSP. Some of these recommendations focused on opportunities to engage and inform MPOs/RTPAs, how to enhance safety data sharing and analysis with regional planners, and how to better align SHSP

and regional safety goals, policies, strategies, and performance measures.

An electronic survey was also distributed by Caltrans to MPO/RTPA leaders and via California Council of Governments (CalCOG) to its membership. The survey evaluated the extent to which agencies conduct safety planning, participated in SHSP development or implementation, conduct safety analysis, and use safety to prioritize projects. The results of the research show that, as part of the SHSP Update implementation, increased engagement with MPOs/RTPAs is needed. A copy of the Planning Alignment Report is available on the SHSP website.

In addition to the study, Challenge Area Teams also considered other transportation plans when developing strategies and actions. Challenge Area Teams that focus primarily on behavioral safety reviewed the HSP developed each year by the Office of Traffic Safety to ensure the SHSP strategies are aligned with the current funding priorities in the HSP. The Commercial Vehicle Challenge Area Team reviewed the CVSP to ensure coordination between both plans. For instance, the CVSP includes efforts to enforce registration requirements which supports the SHSP strategy to increase enforcement of commercial vehicle and operator violations. Projects that are funded through the HSIP must be reflected in the SHSP.

California's long range transportation plan, CTP 2040, also offers an opportunity for alignment. The CTP 2040 is being developed through an extensive public involvement process, government-to-government engagement with tribal government communities, and close work with all levels of local, regional, State, and federal partners. The result is a transportation policy framework designed to serve all of California’s diverse populations and addresses social equity, environmental, and economic interests.

Vision, Mission, Goal, Objectives

The updated SHSP includes a vision, mission, goal, and measurable objectives which enable the State to track progress throughout the five year life of the plan. The vision, mission, and goal are included in the introduction, but restated here for emphasis.

Vision Statement

California will have a safe transportation system for all users.

Mission Statement

The mission is to ensure a safe and sustainable transportation system for all motorized and non-motorized users on all public roads in California. The plan will achieve this mission by utilizing a data-driven 4E approach of engineering, enforcement, education, and emergency medical services to improve infrastructure and assist with behavior change and by focusing efforts in those areas where the greatest opportunity for reductions in traffic-related fatalities and severe injuries exist. This will enhance California's economy and livability.

Goal Statement

The goal of California's Strategic Highway Safety Plan is Toward Zero Deaths.

Measurable Objectives

MAP-21 requires states to develop performance measures on the number and rate for fatalities and severe injuries. A rate is based on the number of fatalities and severe injuries per 100 million VMT. Both the Executive Leadership and the Steering Committee believed that SHSP objectives should be something to strive toward but also should be attainable. Based on a review of all available data the Steering Committee selected the following measurable objectives for the SHSP:

- A 3 percent per year reduction for the number and rate of fatalities; and
- A 1.5 percent per year reduction for the number and rate of severe injuries.

Measurable objectives are shown in Table 1. The base year of 2012 was the last year for which data were available.

Table 1. SHSP Measurable Objectives

	Fatalities	Fatality Rate (fatalities per 100 M VMT)	Severe Injuries	Severe Injury Rate (Severe Injuries per 100 Million VMT)
2012	2,857	0.92	10,864	3.33
2013	2,905	0.89	10,701	3.28
2014	2,818	0.86	10,541	3.23
2015	2,733	0.84	10,382	3.18
2016	2,651	0.81	10,227	3.13
2017	2,572	0.79	10,073	3.09
2018	2,495	0.76	9,922	3.04
2019	2,420	0.74	9,773	3.00
2020	2,347	0.72	9,627	2.95
	Annual reduction of 3%		Annual reduction of 1.5%	

Source: SWITRS

Challenge Area Overview



Photo courtesy of Dan Burden, Pedestrian and Bicycle Information Center

California has a large number of Challenge Areas, more than most states have adopted for SHSPs. There are several factors, however, that make the California process unique.

- The previous effort with 17 Challenge Areas has been very successful as evidenced by the reductions in fatalities and severe injuries;
- There are a large number of committed, active, and involved safety stakeholders who may not stay involved if issue areas are eliminated or absorbed into other areas; and
- The majority of leaders for Challenge Area Teams have a high degree of ownership in the process and have done an outstanding job throughout the previous eight years.

Based on these factors, the Steering Committee and Executive Leadership chose to maintain the current Challenge Areas with the exception of:

- Challenge Area 16 - Improve Safety Data Collection, Access, and Analysis was changed to an advisory group and technical resource that would serve the Executive Leadership, Steering Committee, and Challenge Area teams. The Data Technical Advisory Team will address all data needs and issues as they arise.
- Challenge Area 5 - Improve Driver Decisions with Rights of Way and Turning and Challenge Area 7 - Improve Intersection and Interchange Safety for Roadway Users, are now combined into a new Challenge Area: Intersections, Interchanges, and Other Roadway Access.

The Steering Committee reviewed data on the total percentage of fatalities and severe injuries for each Challenge Area. To make the plan easier to understand, the Steering Committee chose to shorten the names of the Challenge Areas. Following is a list of the Challenge Areas for the updated SHSP:

- Roadway Departure and Head-On Collisions
- Intersections, Interchanges, and Other Roadway Access
- Work Zones
- Alcohol and Drug Impairment
- Occupant Protection
- Speeding and Aggressive Driving
- Distracted Driving
- Driver Licensing and Competency
- Pedestrians
- Bicycling
- Young Drivers
- Aging Road Users
- Motorcycles
- Commercial Vehicles
- Emergency Medical Services

Statewide Policy Directions

The SHSP is a multi-disciplinary effort involving Federal, State, and local representatives from the 4Es of safety who dedicated countless hours to improve safety and partnerships across disciplines. The Executive Leadership, which supported these efforts, met annually to hear about progress and provide future direction for the SHSP. They also proposed overarching policy actions that did not fall under any specific Challenge Area, but rather impacted the larger SHSP picture.

The policy actions involved multi-year efforts led by the Steering Committee or technical experts from Challenge Areas. These actions were targeted to receive special attention and are unique in how they are accomplished and their long term impact on safety in California. These efforts include the following:

- Complete an update of the SHSP;
- Increase efforts to improve a traffic safety culture;
- Improve traffic safety data; and
- Increase local, regional, and tribal government involvement.

The following is a brief summary of the current policy actions identified by Executive Leadership.

SHSP Update – Efforts to update the SHSP began in 2014 with the hiring of Cambridge Systematics and other consultants. With the combined experience and a tight time-line, individual and group meetings, webinars and summits took place to gather information and prepare a draft update. After numerous reviews and refinement a final update of the SHSP was completed in April of 2015. Further work will be conducted to prepare a detailed SHSP Implementation Plan outlining future actions to be completed over the next five years to meet the plan’s measurable objectives for reductions in fatalities and severe injuries.

Traffic Safety Culture – The purpose of the effort is to “Change the way Californians — including individuals, communities, organizations, and government — approach the use of roads, so that safety is a highly-valued and vigorously pursued component of traffic culture.” The Department of Motor Vehicles (DMV) volunteered to lead an SHSP Traffic Safety Culture Task Force which developed the “Draft Recommendations for Improving California’s Traffic Safety Culture.” The document contains 58 strategies for ways to improve California’s traffic safety culture along with four ways to measure progress.

Photo courtesy of the California Highway Patrol (CHP)



Traffic Safety Data – Given the importance of data to the overall SHSP process, the Executive Leadership identified the need to develop a plan for improving the way California collects, manages, stores, compiles, analyzes, and distributes highway safety data including crash, roadway inventory, volume, driver, vehicle, citation/adjudication, and injury surveillance data. The Data Technical Advisory Team, along with the State’s Traffic Records Coordinating Committee (TRCC), developed a Traffic Safety Data Plan which includes six goals. To date, progress has been made to create and implement a base mapping system to support California’s traffic records system, and there has been a reduction in the backlog of existing collision reports into the State’s crash database (SWITRS). In addition, the Crash Medical Outcomes Data (CMOD) Program was established, with funding from OTS, and has been able to link crash (SWITRS), and medical, hospital, and emergency department discharge data. Data from that linkage are available to the public in a user-friendly query format on the CDPH EpiCenter website at <http://epicenter.cdph.ca.gov/>.

Local/Regional/Tribal Governments Involvement – In 2012, Executive Leadership directed that actions to increase communication between the SHSP and local agencies be strengthened. As part of the update process, over 70 stakeholder and partner outreach events were conducted with regional and local agencies and organizations. Presentations were made to a number of MPOs and RTPAs. The presentations provided information on the SHSP, why the plan is important to local and regional agencies and organizations, and how to get involved. A special workshop was also held in the Central Valley at the request of local elected officials.

Significant efforts have been made to engage tribal governments, including a dedicated tribal government webinar during the series and input sessions at the Safety Summits. The core issue identified consistently by all groups is the need

for increased coordination among the many disparate groups that are involved in traffic safety as related to the 110 federally recognized tribal governments in California. Instead of adding a Tribal Government Challenge Area, the decision was made to identify the following overarching strategy that will benefit all Challenge Areas.

Overarching Tribal Governments Strategy

Institutionalize coordination of resources and strategic partnerships among tribal governments, Challenge Areas, local and county governments, law enforcement, and the Native American Advisory Committee (NAAC) with the goal of improving transportation safety in Indian country.

Additional strategies and actions, defined through SHSP outreach, will be addressed, such as improving tribal government crash data and providing technical assistance to tribal governments.

As the SHSP moves forward there may be other policy actions identified by the Executive Leadership. Connected Vehicles (vehicle to infrastructure communication) and Autonomous Vehicles (vehicle to vehicle communication) will affect transportation system management, operations, and safety and may emerge as promising performance benefits that can enhance SHSP efforts.



Photo courtesy of Caltrans

Implementation and Evaluation

California has adopted a two plan approach to the updated SHSP that includes the formal SHSP document which contains the vision, mission, goal, objectives, and strategies for the plan. This document will remain static throughout the life of the plan to enable the State to evaluate progress and performance. A second Implementation Plan document includes the steps that will implement the strategies in the SHSP and achieve the vision, mission, goal and objectives for reductions in fatalities and severe injuries.

Implementation

The SHSP Update process improved the understanding of California’s safety issues and focused on the steps needed to keep the State on track to reduce traffic fatalities and severe injuries. The updated plan and the accompanying action plan document provide a roadmap for effective implementation of the vision, mission, and goal. The Steering Committee and Challenge Area Teams evaluated the safety data and managed the development of performance measures, strategies, and actions for each area. As the plan is implemented, these key safety stakeholders, with oversight from the Executive Leadership and Steering Committee, will supervise the implementation process by doing the following:

- Track implementation progress in each of the Challenge Areas;
- Evaluate the effectiveness of the overall plan;
- Identify barriers or problems to implementation;
- Provide regular updates on SHSP-related campaigns, initiatives, training, and programs;
- Provide guidance on future programs, activities;
- Determine the approach to future SHSP Updates; and
- Work with the SHSP data task force to identify data needs and improvements.

The Steering Committee will meet on a regular basis throughout implementation to provide policy direction and direct assistance to the Challenge Area Teams and to any regional or local efforts, as appropriate. Challenge Area Teams, under the direction of the team co-leads, also will meet regularly to address the following items:

- Discuss action step implementation progress and coordinate next steps;
- Identify problems or barriers and report to the Steering Committee;
- Suggest new actions or modify existing actions as needed;
- Continually track and report progress; and
- Evaluate the effectiveness of strategies and actions to ensure they are contributing to decreases in fatalities and severe injuries.

Given the size and complexity of traffic safety in California, it may also be necessary to develop a regional approach to implementation. This approach could involve the designation of certain

Photo courtesy of the California Highway Patrol



regions, either based on the location of Caltrans District Offices, or by working with the MPOs and RTPAs in California. These regions would review specific data for their region and select those traffic safety problems that are most critical in their area. Once these areas are selected, the regions would consult the statewide SHSP to identify appropriate strategies and actions on which to focus in their region.

The regional approach could be an excellent way to address the Executive Leadership's overarching regional, local, and tribal government policy priorities and a way to incorporate the needs and concerns of tribal government communities. The regional approach would be managed concurrently with the overall statewide effort where Challenge Area Teams continue to meet and work on issues of statewide concern. From time to time, the statewide teams could reach out to regional entities to request their assistance with certain aspects of SHSP implementation. A regional approach to implementation has not been formally adopted by the SHSP Executive Leadership and is currently under advisement and review.

Evaluation

This plan incorporates the 4Es of safety — education, enforcement, engineering and emergency medical services — and will also add a fifth E for evaluation. Evaluation is critical to understand what is working and should continue and what is not working and should be modified or discontinued. In this way, California will ensure its limited resources are focused on the strategies and actions that will generate the best results.

In addition to the SHSP and the companion action plan document, California will develop an evaluation plan that will assess both process and performance. The process evaluation will examine roles, responsibilities, and process activities as well as establish a timeline for monitoring, evaluating and communicating SHSP update performance data. This process evaluation will optimize the data collection and management process to ensure decisions are made with an understanding of the benefits, limitations, and level of effort required.

On the performance side, an SHSP Evaluation Plan will be developed before implementation takes place to ensure all aspects of the SHSP implementation can be properly evaluated and tracked. The measurable objectives for the SHSP will remain the same throughout the five-year life of the plan, but will be reviewed annually to see if they track with the annual HSIP and HSP performance targets.

This plan will define output and outcome measures for each of the Challenge Area Teams. Ensuring each of the strategies and actions in the SHSP are data-driven and evidence-based is a critical factor for success and the SHSP Evaluation Plan will determine at what level this goal was achieved. Additionally, the SHSP Executive Leadership will want to know whether safety partners incorporated elements of the SHSP in their plans, including the HSIP, HSP, and CVSP. The SHSP is a five-year document which will be updated in 2020. It will, however, be reviewed on an annual basis.

Photo courtesy of Samir Momani





Photo courtesy of Shastawheelmen

Challenge Areas

The following section includes a summary of the 15 Challenge Areas. Each description defines the Challenge Area, lists the strategies, and includes a figure on fatality and severe injury trends. The final strategies were selected by the SHSP Challenge Area Teams and approved by the Steering Committee and Executive Leadership. Tribal government strategies are included throughout each of the Challenge Areas and will be monitored separately to ensure they are implemented during the life of the plan. A number of strategies can be cross-cutting and affect more than one Challenge Area. All Challenge Area Teams are encouraged to work collaboratively with all teams. Some of the strategies in the Challenge Area plans carry on the work that was started when the SHSP was first launched in 2005.

CHALLENGE AREA

Roadway Departure & Head-On Collisions



Photo courtesy of Caltrans

Crashes in this Challenge Area include when the collision was head-on or the movement preceding is a roadway departure, e.g., leaving the road or crossing into the opposing lane. Data include all victims in 1) a head-on collision, or 2) a collision where one or more parties' movement preceding the collision is a roadway departure (e.g., leaving the roadway or crossing into the opposing lane).

Leaving the road and head-on collisions represent almost a quarter (23.3 percent) of the total traffic fatalities and severe injuries in California in 2012. Figure 5 shows that in the last ten years (2003 to 2012), there were 10,966 leaving the road and head-on fatalities, and 30,415 people were severely injured.

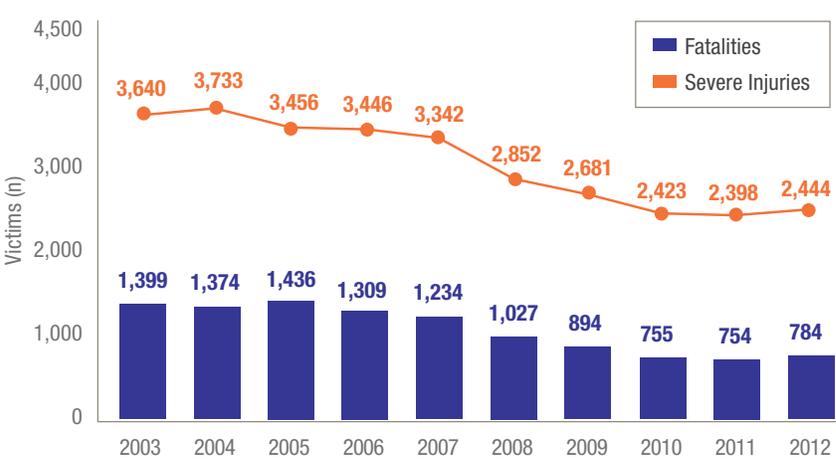
Highlights from most recent data (2010 to 2012): The majority of these crashes happen on local roads and in rural areas with the largest numbers involving males age 15 to 24. They also occur at night (midnight to 3 a.m.) and on weekends with a substantial number happening between noon and 6 p.m. Over 30 percent of these crashes

involve driving or bicycling under the influence of alcohol or other drugs, nearly 25 percent involve improper turning, and more than 12 percent involve speeding. The data shows that there has been a slight increase in both fatalities and severe injuries involving roadway departure and head-on fatal and severe injury crashes.

Roadway Departure Strategies:

- Address systemic risks on non-State roads with low cost safety countermeasures.
- Ensure funding strategies reflect unique local needs.
- Improve the dissemination of crash data at the jurisdictional level.
- Target highest risk jurisdictions for funding and technical assistance.
- Implement an effective, consistent, and coordinated traffic incident management (TIM) program at the state and local level to reduce the duration and impacts of traffic incidents and improve the safety for motorists, crash victims, and emergency responders.

Figure 5 Roadway Departure & Head-On Fatal and Severe Injury Trends, 2003 to 2012



Source: SWITRS



CHALLENGE AREA

Intersections, Interchanges, & Other Roadway Access



Photo courtesy of Caltrans, District 6

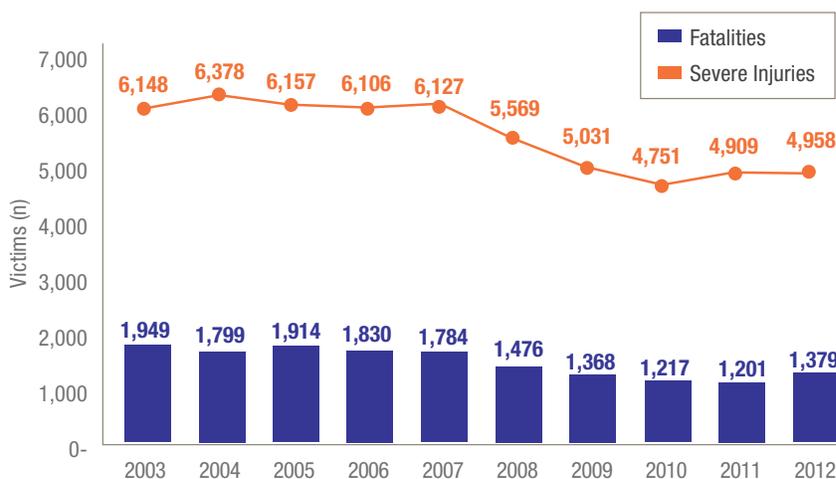
The Intersection, Interchanges, and Other Roadway Access Challenge Area is a combination of two previous Challenge Area Teams that have a common interest and goal: reducing severe crashes that occur because of conflicts at and between closely-spaced roadway access points.

In California in 2012, nearly half (45.7 percent) of all fatalities and severe injuries were related to crossing and left turn movements at intersections and the merging, weaving and lane changing movements generated by freeway, expressway and carpool lane entrances and exits. The primary collision factors included: Improper passing, unsafe lane changing, improper turning, or other improper driving. Over the last ten years (2003 to 2012), 15,917 people have died and 56,134 were severely injured at intersections and between closely-spaced freeway interchanges and other access points as shown in Figure 6.

Intersection, Interchanges, and Other Roadway Access Strategies:

- Mainstream and accelerate the deployment of innovative solutions that have proven to be highly effective and cost-effective.
- Pursue programmatic application of low-cost and high impact strategies, countermeasures, and activities.
- Focus on continuous improvement and collaboration by building on the foundational work products and findings generated by previous strategic safety and other statewide initiatives.
- Emphasize the role and importance of visibility among road users and workers (especially during hours of darkness).
- Minimize or avoid safety performance degradation resulting from land use and highway infrastructure investment proposals.
- Increase understanding and collaboration among transportation system owners, operators, investors, and regional agencies regarding the effect of access-related decisions on safety and overall system performance.

Figure 6 Intersection, Interchanges, and Other Roadway Access Fatal and Severe Injury Trends, 2003 to 2012



Source: SWITRS

CHALLENGE AREA Work Zones

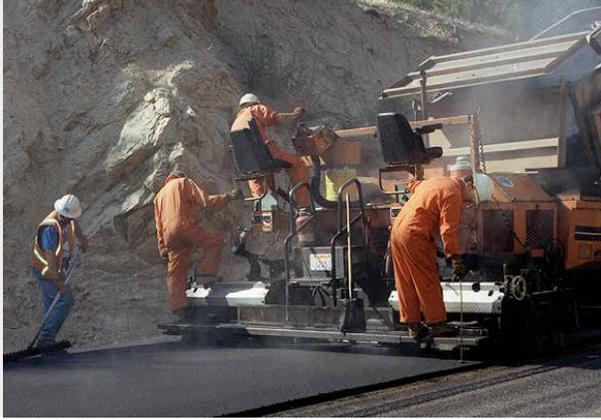


Photo courtesy of Caltrans

One of the most important responsibilities for a transportation agency is to ensure roads and highways are properly maintained. Unfortunately, roadway pavement and surrounding environment does not last forever and, depending on the volume of traffic and other problems, roadways may only last eight to ten years. When Caltrans or a local transportation agency must maintain or make improvements to the roadway and surrounding environment it sets up a work zone. Work zones involve construction workers implementing improvements in areas with lane closures, detours, and moving equipment. The work areas are set up according to the type of road and the work to be done and can last from a few days to years. Data include all victims in collisions occurring in a construction or repair zone.

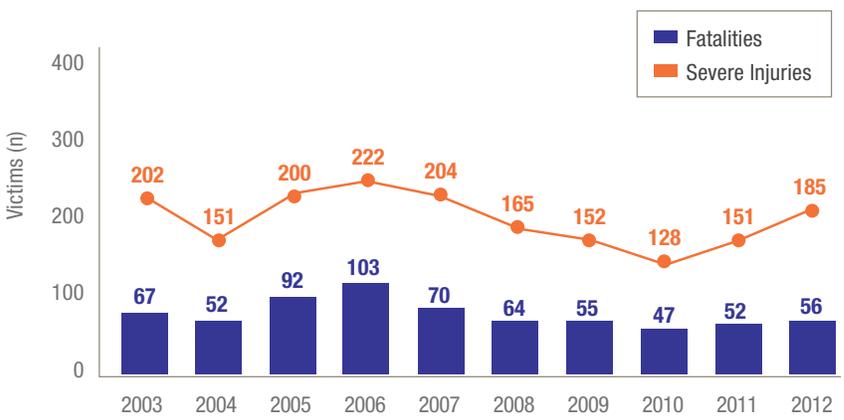
Work zones accounted for 1.7 percent of all traffic fatalities and severe injuries in the State in 2012. Figure 7 shows that in the last ten years (2003 to 2012), 658 people died and 1,760 were severely injured in work zone crashes.

Highlights from most recent data (2010 to 2012): The age group with the largest involvement is 15 to 24, but numbers are also high for individuals age 25 to 34 and 45 to 54. More than two thirds of those involved are male. Work zone fatalities and severe injuries occur primarily on State-owned roadways (75 percent) and in urban areas (58.8 percent). The majority of the fatal and severe injury work zone crashes occur between 9 p.m. and 3 a.m. While fatalities have increased slightly between 2010 and 2012, severe injuries have increased 31 percent.

Work Zone Safety Strategies:

- Evaluate and promote strategies for best work zone practices.
- Improve safe driving through work zones with education and enforcement.
- Apply advanced technology to improve work zone safety.
- Improve work zone data collection and analysis.

Figure 7 Work Zone Fatal and Severe Injury Trends, 2003 to 2012



Source: SWITRS



CHALLENGE AREA

Alcohol and Drug Impairment



Photo courtesy of California Office of Traffic Safety (OTS)

In 2012, over one-third (34.2 percent) of all fatalities and severe injuries in California involved an impaired person. As shown in Figure 8, 17,624 people died in impaired driving crashes and 34,666 were severely injured from 2003 to 2012. Alcohol and drug-related collisions as addressed by this Challenge Area include all instances where a driver, pedestrian, bicyclist, or motorcyclist is under the influence of alcohol, illicit drugs, prescribed, or over-the-counter medication. Data for this Challenge Area includes all victims in collisions involving one or more impaired parties. This would include both alcohol and drug impairment.

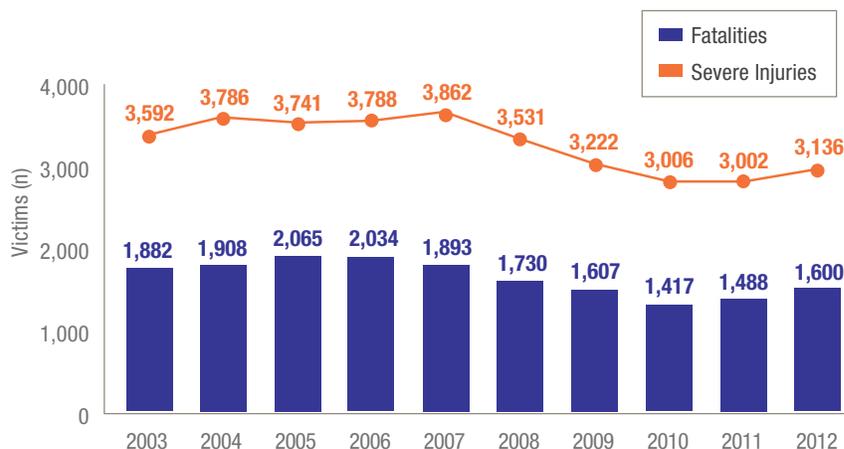
Highlights from most recent data (2010 to 2012):

The age group with the highest involvement in impaired crashes was 15 to 24, with the majority being males. Most impaired fatalities and severe injuries occur on non-State owned roadways in urban areas, and happen on the weekends between midnight and 3 a.m. While alcohol remains the largest contributor to impaired-driving crashes, fatal and severe injuries involving drug-only impairment increased from 554 in 2009 to 705 in 2012. Data from 2010 to 2012 show a steady increase in both fatalities and severe injuries.

Alcohol and Drug Impairment Strategies:

- Enhance State laws, local ordinances, and programs intended to reduce alcohol and/or drug impaired driving.
- Enhance the utilization of DUI treatment programs, emerging innovations, and system monitoring to reduce DUI offenses among highest risk offenders, including repeat or high-BAC (Blood Alcohol Content) offenders, and in areas where the risk of DUI is highest.
- Improve consistent, timely DUI adjudication and broaden and/or improve application of administrative sanctions of impaired drivers.
- Conduct education/social norming and other programs to change behaviors related to impaired driving.
- Enhance knowledge of the impacts of legal and illegal drug use on safe driving using empirical evidence and implement effective, data-driven methods to identify and reduce drug-impaired driving or roadway use.
- Enhance DUI enforcement, training, and tools for improved detection and enforcement of impaired roadway users.
- Enhance the collection, management, and accessibility of data related to the consequences of impaired driving and the effectiveness of the DUI countermeasure system.

Figure 8 Alcohol and Drug Impairment Fatal and Severe Injury Trends, 2003 to 2012



Source: SWITRS

CHALLENGE AREA

Occupant Protection



Photo courtesy of Kate Bernacki, California Department of Public Health

From 2003 to 2012, 8,263 people died in unrestrained crashes and 16,623 were severely injured as shown in Figure 9. Data include all victims in collisions that did not use or improperly used a safety belt or child restraint. In 2012, these crashes represented over 12 percent of the total traffic fatal and severe injuries in California. Research and statistics show the best defense in a crash is a seat belt or a properly installed child safety restraint.

Highlights from most recent data (2010 to 2012):

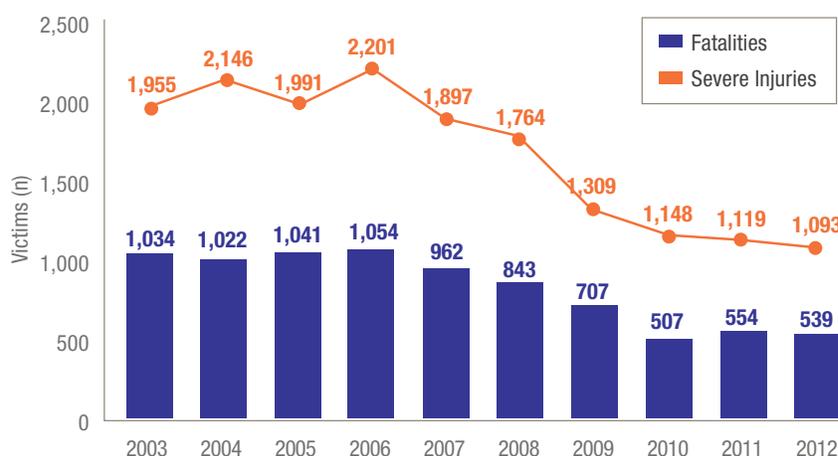
In California, the age group with the largest number of unbelted fatalities and severe injuries is age 15 to 24, of which the majority are male. The majority of unrestrained crashes occur on local (non-state owned) roadways and are split between rural and urban areas. Like impaired driving, the majority of the unbelted fatal and severe injury crashes happen on the weekend between midnight and 3 a.m. Unlike many

Challenge Areas, unrestrained severe injuries continued to decline from 2010 to 2012 and there was a slight increase in the number of fatalities during the same time period.

Occupant Protection Strategies:

- Target high risk populations with education and enforcement to increase occupant protection use.
- Improve occupant protection educational outreach.
- Increase occupant protection enforcement and improve adjudication of violations.
- Improve occupant protection data collection processes.

Figure 9 Occupant Protection Fatal & Severe Injury Trends, 2003 to 2012

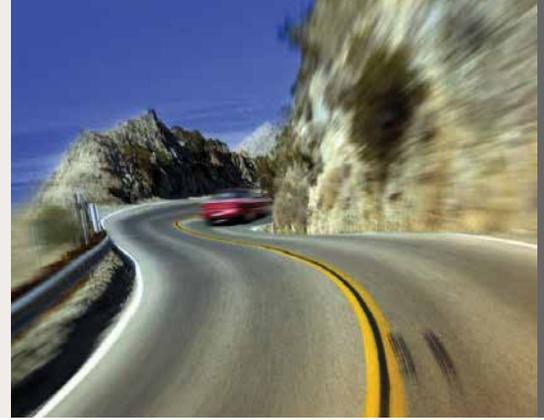


Source: SWITRS



CHALLENGE AREA

Speeding & Aggressive Driving



Shutterstock

Speeding is reported as a contributing factor on the crash report when a motorist exceeds the speed limit or is driving too fast for conditions. In 2012, nearly 20 percent of traffic-related fatalities and severe injuries were speed-related in California. As shown in Figure 10, 5,675 people died in speed-related crashes and 21,330 were severely injured between 2003 and 2012.

Highlights from most recent data (2010 to 2012): The age group with the highest representation in speed-related crashes is age 15 to 24 with the majority being male. Slightly over half of fatal and severe injuries (52.8 percent) happen on non-State owned roadways and the majority are in urban areas. The deadliest time for speeding fatalities and severe injuries is on Fridays between 3 p.m. and 6 p.m.

There has been a slight increase in speed-related fatalities and severe injuries between 2010 and 2012.

Speeding & Aggressive Driving Strategies:

- Increase targeted enforcement at locations prone to speeding and other forms of aggressive driving.
- Improve the consistency of adjudication of drivers cited for speeding and other forms of aggressive driving.
- Increase use of technology and engineering methods to reduce speeding and other forms of aggressive driving.
- Conduct outreach and education about the safety risks of speeding.

Figure 10 Speeding & Aggressive Driving Fatal & Severe Injury Trends, 2003 to 2012



CHALLENGE AREA

Distracted Driving



Photo courtesy of California Office of Traffic Safety (OTS)

Any activity that diverts a driver's attention away from the task of driving is distracting. This includes taking eyes off the road, hands off the wheel, or one's mind off the task of driving. California, like many states, does not have reliable data on distracted driving. The issue is gaining greater attention given the technology available to road users including cell phones, tablets, televisions, navigation devices, etc. Currently California has a law that only allows for hands free use of mobile devices except by young drivers. All hand-held text-based communication including email and instant messaging is prohibited. Given the lack of detailed distracted driving data, the actual number of fatalities and severe injuries is hard to quantify but anecdotal information indicates the number is high.

Distracted Driving Strategies:

- Improve data quality on distracted driving.
- Increase enforcement and improve adjudication of current distracted driving laws.
- Conduct education on the risks of distracted driving using evidence-based strategies to create a culture of traffic safety.
- Strengthen laws on distracted driving.



Photo courtesy of Cambridge Systematics

CHALLENGE AREA

Driver Licensing & Competency



Photo courtesy of Cambridge Systematics

Improper licensing remains an issue in California with large numbers of drivers continuing to drive after their privileges have been suspended or revoked. The State will undergo a transition as it implements a law which grants eligible immigrants access to apply for a driver's license. Data for this team includes only fatalities in collisions involving a driver who is unlicensed or does not possess a valid license for the vehicle class. No other injury data is reported for this Challenge Area Team because it is defined using the Fatality Analysis Reporting System (FARS) data.

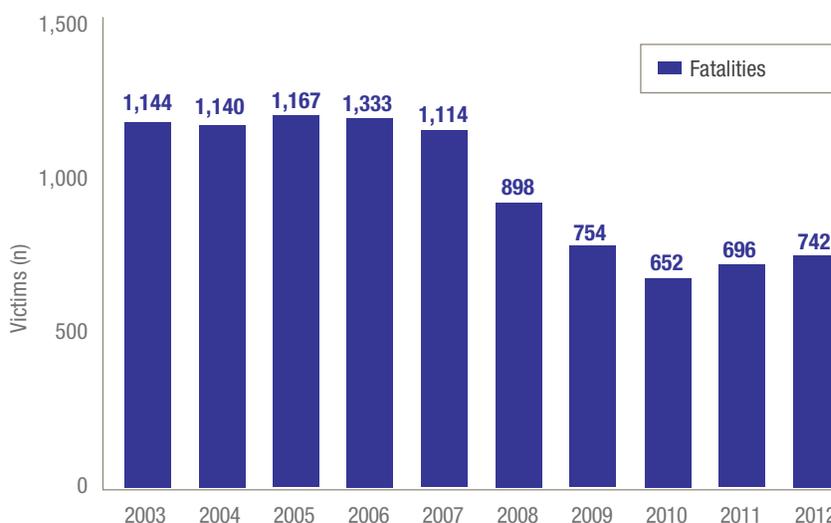
According to the California DMV, suspended or revoked drivers are three times more likely to be involved in or cause a fatal crash. The loss of driving privileges often stems from the individual's inability to drive safely which is one of the reasons attention to this issue is needed. Between 2003 and 2012, 9,397 individuals died in crashes involving

an unlicensed driver as shown in Figure 11. As shown there has been a slight increase in fatalities between 2010 and 2012.

Driver Licensing Strategies:

- Improve the initial driver licensing process.
- Improve the competency of licensed drivers.
- Assess and improve policies for managing unlicensed drivers, negligent operators, and suspended/revoked drivers.
- Improve data systems, including quality control measures, for driver and vehicle records, citations issued, court adjudication reporting, and DMV license actions.
- Improve training of law enforcement and related local agencies regarding licensing, DMV license actions, and DMV data systems.

Figure 11 Driver Licensing and Competency Fatal Injury Trends, 2003 to 2012



Source: FARS

CHALLENGE AREA Pedestrians



Photo courtesy of Dan Burden, Pedestrian and Bicycle Information Center

The number of pedestrian fatalities and severe injuries has been increasing in California as shown in Figure 12. Data include only pedestrians, and not any other injured road users. Between 2003 and 2012, 6,775 pedestrians were killed and 17,504 were severely injured. Pedestrian fatalities and severe injuries represent 17.32 percent of the total number of traffic fatalities and severe injuries in California in 2012.

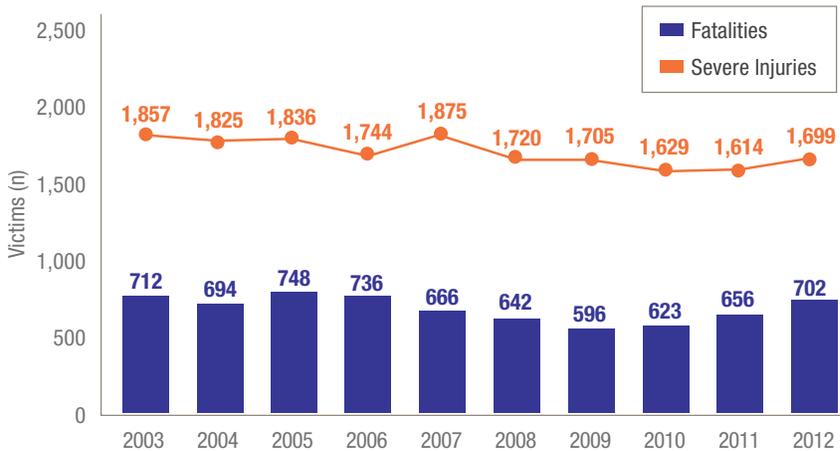
Highlights from most recent data (2010 to 2012): The majority of pedestrian fatalities and severe injuries involve people ages 15 to 24, with the majority of those in that age category being male. However, the numbers are also high for ages 45 to 54 and 55 to 64. The overwhelming majority (over 80 percent) of fatal and severe pedestrian crashes happen on local roads and in urban areas with most happening between 6 p.m. and 9 p.m. As more communities promote active transportation initiatives that get people walking and bicycling, it will be a challenge to ensure this does not increase

pedestrian fatalities and severe injuries. There have been slight increases from 2010 to 2012, but no clear pattern.

Pedestrians Strategies

- Improve the safety of pedestrian crossings by using proven effective countermeasures.
- Expand effective enforcement and education of all roadway users to improve pedestrian safety based on known risk factors and data trends.
- Increase funding for pedestrian safety infrastructure and non-infrastructure projects.
- Improve collection, use, and analysis of data needed for pedestrian safety planning and programming.
- Increase pedestrian safety-focused coordination among State, regional, and local agencies including on transportation planning and land use efforts.

Figure 12 Pedestrian Fatal and Severe Injury Trends, 2003 to 2012



Source: SWITRS



CHALLENGE AREA

Bicycling



Photo courtesy of Cambridge Systematics

Bicycling is a popular means of transportation in California with its temperate climate. The addition of bike lanes and well-maintained bike paths has also increased the number of people using this mode of transportation. However, when bicycles and motor vehicles meet, the result can be disastrous for the bicyclist who is no match for a heavy vehicle. The data presented here on fatalities and severe injuries include only bicyclists and passengers on a bicycle, but not any other injured road users.

Figure 13 shows that in the last 10 years (2003 to 2012) 1,294 bicyclists were killed and 8,421 were severely injured. Fatalities and severe injuries involving bicyclists have increased since 2006. Fatalities have almost reached the high in 2006 of 155 (147 in 2012) and severe injuries have surpassed the previous high number of 816 with 978 severe injuries in 2012.

Highlights from most recent data (2010 to 2012):
Bicyclist fatalities and severe injuries are highest among ages 15 to 24 followed closely by ages 45 to 54, with

the age groups dominated by males. The majority of severe and fatal injuries happen on local roads (over 85 percent) in urban areas (over 75 percent) and occur on weekdays between 3 p.m. and 6 p.m. The largest number of bicycle fatalities and severe injuries on a particular day, however, happen on Saturday between 9 a.m. and 12 noon, which may be due to recreational weekend cycling activities at that time.

Bicycling Strategies:

- Improve roadway and bikeway planning, design, operations, and connectivity to enhance bicycling safety and mobility to all destinations.
- Improve data collection regarding bicyclist trips, injuries, and fatalities on California roadways and bicycle paths.
- Improve education and enforcement to promote safe multi-modal travel.
- Encourage more bicycle travel by improving public attitudes about bicycling as a safe mode of transportation.
- Develop safe, direct, and connected routes for bicycling.

Figure 13 Bicyclists Fatal and Severe Injury Trends, 2003 to 2012



Source: SWITRS

CHALLENGE AREA Young Drivers



Photo courtesy of Cambridge Systematics

Young drivers have less driving experience, may be less likely to identify hazardous conditions and react to them, and are disproportionately involved in risky driving behaviors that directly result in more crashes than experienced drivers. The data presented here on fatalities and severe injuries includes all victims in collisions involving one or more young drivers between the ages of 15 and 20. Fatalities and severe injuries among this age group made almost 15 percent of all fatalities and severe injuries in 2012. In the last ten years (2003 to 2012), 6,000 young drivers died and 22,726 were severely injured as shown in Figure 14.

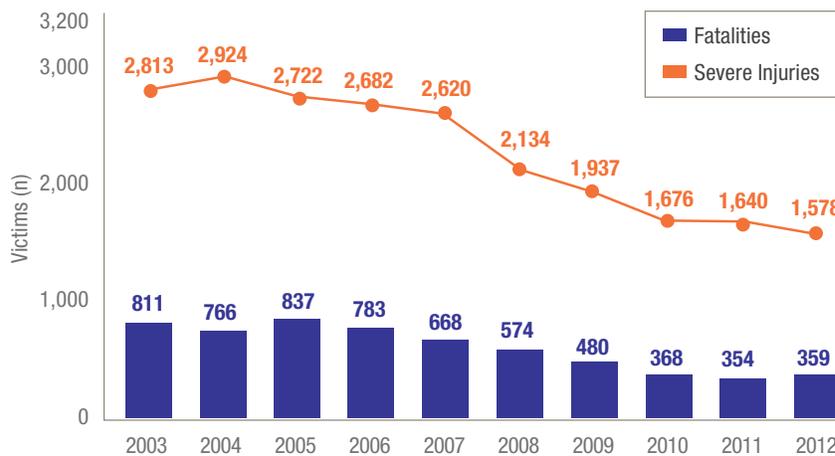
Highlights from most recent data (2010 to 2012):
The majority of young driver crashes involve males. Individuals age 18-20, the years right after the graduated driver license restrictions cease, have the highest representation in fatal and injury crashes. Nearly 70 percent of young driver fatalities and severe injuries take place

on local roads in urban areas, and occur mainly on the weekends from 12 midnight to 3 a.m. In the United States, motor vehicle crashes remain the leading cause of death for people ages five through 24. Unlike other Challenge Areas, young driver fatalities have decreased since 2010 and severe injuries have gone down even more.

Young Drivers Strategies:

- Increase awareness of and compliance with graduated driver licensing laws.
- Promote social norming and behavior change on youth related traffic safety issues.
- Promote the use of evidenced-based programs and outreach methods.
- Improve school policies and procedures relating to young driver safety.
- Improve enforcement and adjudication of young offenders.

Figure 14 Young Driver Fatal & Severe Injury Trends, 2003 to 2012



Source: SWITRS



CHALLENGE AREA

Aging Road Users



Photo courtesy of Cambridge Systematics

Aging road users are defined as those drivers, pedestrians, bicyclists, and motorcyclists age 65 or older. Data displayed below involves all fatalities and severe injuries in collisions in which one or more aging roadway users were involved. According to 2010 census data, people age 65 and older make up 12.5 percent of the population in California, as compared to 14.1 percent nationally. Aging affects all aspects of driving from eyesight to judging time and distance to having the necessary strength and flexibility to operate a vehicle. While aging does affect driving, it does not do so at the same rate for every individual. Thus, the goal is to keep individuals driving for as long as it is safe to do so. In California, aging roadway users accounted for nearly 15 percent of all traffic fatalities and severe injuries in 2012. Figure 15 shows that between 2003 and 2012, 6,172 aging road users died and 14,034 were severely injured.

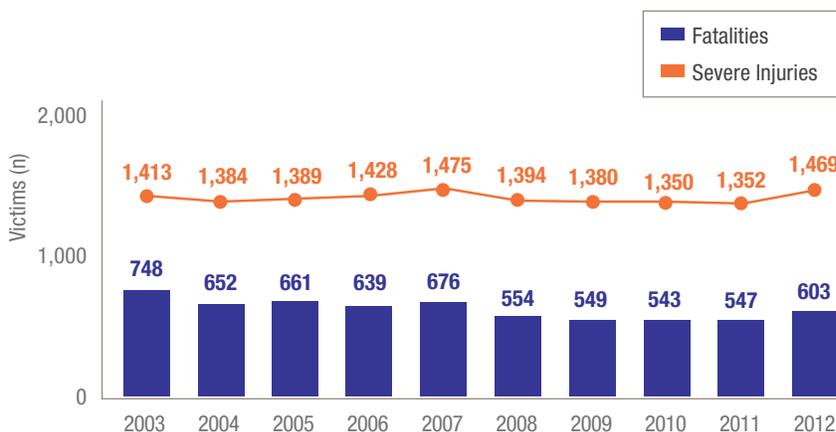
Highlights from most recent data (2010 to 2012):
These crashes occur mainly on local roads (66.6

percent) and in urban areas (63.7 percent). A large proportion occur between 12 noon and 6 p.m., with Fridays showing the highest numbers. There have been slight increases in fatalities and severe injuries among aging road users from 2010 to 2012.

Aging Road User Strategies:

- Develop and disseminate education materials, programs and tools that explain how the aging process may affect safe driving.
- Promote awareness of the impact of prescription and non-prescription medications and supplements on the safety of aging road users.
- Promote implementation of multi-modal guidance for aging road users, which is included in the California Manual on Uniform Traffic Control Devices.
- Promote knowledge and increased application by transportation professionals of preferred roadway design elements friendly to aging road users.

Figure 15 Aging Road Users: Fatal & Severe Injury Trends, 2003 to 2012



Source: SWITRS

CHALLENGE AREA Motorcycles



Photo courtesy of California Highway Patrol (CHP)

Motorcycle riding has increased considerably over recent years, which has resulted in an increase in fatalities and severe injuries. Motorcycles, except for riders wearing helmets, offer no protection in a crash, unlike a passenger vehicle, where the occupants are afforded some measure of protection from the vehicle body. Data include all victims in collisions involving a motorcycle or moped. Victims do not have to be a driver or passenger of a motorcycle or moped.

Motorcyclist fatalities and severe injuries constituted nearly twenty (18.3) percent of the total traffic fatalities and severe injuries in the state in 2012.

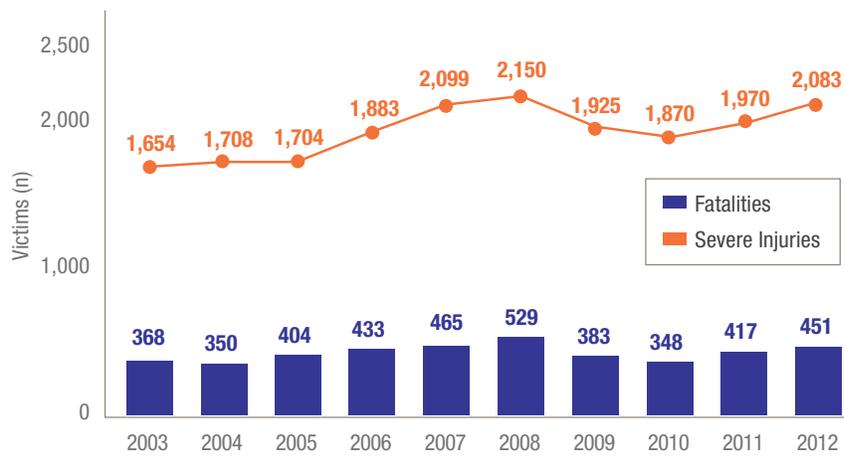
Highlights from most recent data (2010 to 2012): Males overwhelmingly experience the highest number of fatalities and severe injuries in all age groups. Fatalities and severe injuries are fairly high for most age groups 15 to 64 with ages 25 to 34 showing the highest numbers. Riders (45 to 64

years old) who return to riding after taking a number of years off from riding and not participating in a refresher motorcycle training course are also vulnerable. The majority of these crashes happen on local roadways (59.3 percent) and in urban areas (55.7 percent) and occur mainly on the weekends between 12 noon and 6 p.m. The trend does show motorcyclist fatalities and severe injuries have increased between 2010 and 2012. Figure 16 shows that between 2003 and 2012 4,148 motorcyclists were killed and 19,046 were severely injured.

Motorcycles Strategies:

- Improve education on motorcycle safety.
- Improve motorcycle licensure.
- Improve motorcycle exposure and crash data.
- Improve motorcycle rider training.
- Enhance roadway design to improve motorcycle safety.

Figure 16 Motorcyclists Fatal and Severe Injury Trends, 2003 to 2012



Source: SWITRS



CHALLENGE AREA

Commercial Vehicles



Photo courtesy of Cambridge Systematics

Commercial vehicle crashes include all victims involved in a crash involving a heavy truck, school bus, or other bus. Victims do not have to be a driver or passenger of a truck, school bus, or other bus.

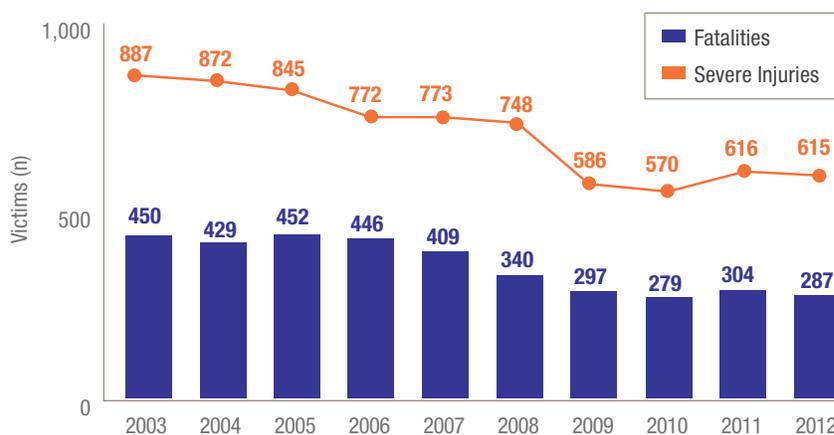
California has considerable commercial vehicle traffic as goods bound for the rest of the nation leave the State ports or travel through from Mexico. While the number of fatalities and severe injuries involving commercial vehicles is low, the impact on traffic safety can be substantial given the severity of the crashes, many of which are caused by passenger vehicles. To continue improving safety, the traveling public must be educated on sharing the road with these vehicles. In California 6.5 percent of traffic fatalities and severe injuries involve commercial vehicle drivers. Figure 17 shows that from 2003 to 2012, 3,693 deaths have resulted from commercial driver crashes and there have been 7,284 severe injuries.

Highlights from most recent data (2010 to 2012): The trend for fatalities and severe injuries is moving downward. Males age 15 to 34 experience the largest number of fatalities and severe injuries, but numbers are also high for other age groups (35 to 54). These crashes happen mainly on State roads (61.1 percent), are evenly split between urban (51.2 percent) and rural areas (48.8 percent), and occur mainly from 12 noon to 3 p.m. during weekdays.

Commercial Vehicles Strategies:

- Improve training and education of commercial vehicle safety stakeholders.
- Increase the use of effective enforcement strategies to improve commercial vehicle safety.
- Identify and implement engineering features that reduce commercial vehicle-related crashes.
- Improve commercial vehicle safety data.
- Identify and promote use of technology for improving commercial vehicle safety.

Figure 17 Commercial Vehicle Drivers: Fatal and Severe Injury Trends, 2003 to 2012



Source: SWITRS

CHALLENGE AREA

Emergency Medical Services



Photo courtesy of the California Highway Patrol (CHP)

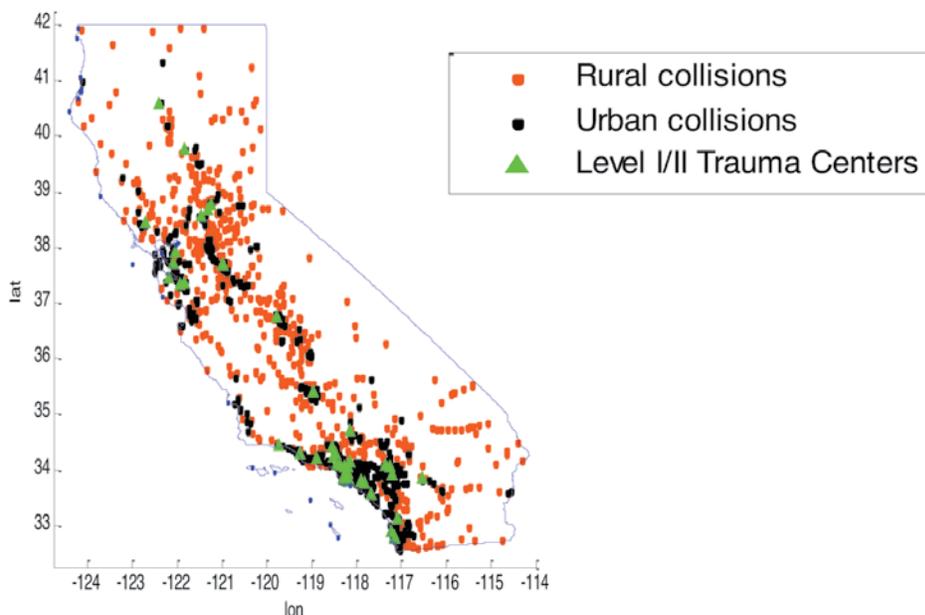
Emergency Medical Services (EMS) help reduce crash-related injuries and fatalities through high-quality medical care at the scene and during transport to a trauma center. Many other factors are involved, such as detecting a crash quickly, accurately determining the location and nature of injuries so the right responders can be sent to the right place, providing pre-arrival instructions to 911 callers who can assist the injured, rapidly and accurately assessing injuries at the scene, and transporting the patient to the appropriate type of trauma center to address the injuries sustained. One of the reasons fatalities have decreased over the last 20 years is due to the advancements in emergency services, which focuses on getting severely injured patients to a trauma center within the first hour, commonly called the “golden hour”. This practice has greatly increased survival rates. Figure 18 shows the location of fatal traffic collisions in rural and urban areas and how close these crash sites were to State’s trauma centers. In the towns that are close to neighboring Oregon and Nevada, the trauma centers may be in another state.

Figures 19 and 20 show the distance to the trauma centers for rural and urban crashes in California. Thirty-seven percent of fatal collisions were 30 or more miles from a Level I/II trauma center in rural areas, while in urban areas only eight percent were 30 or more miles away.

Emergency Medical Services Strategies:

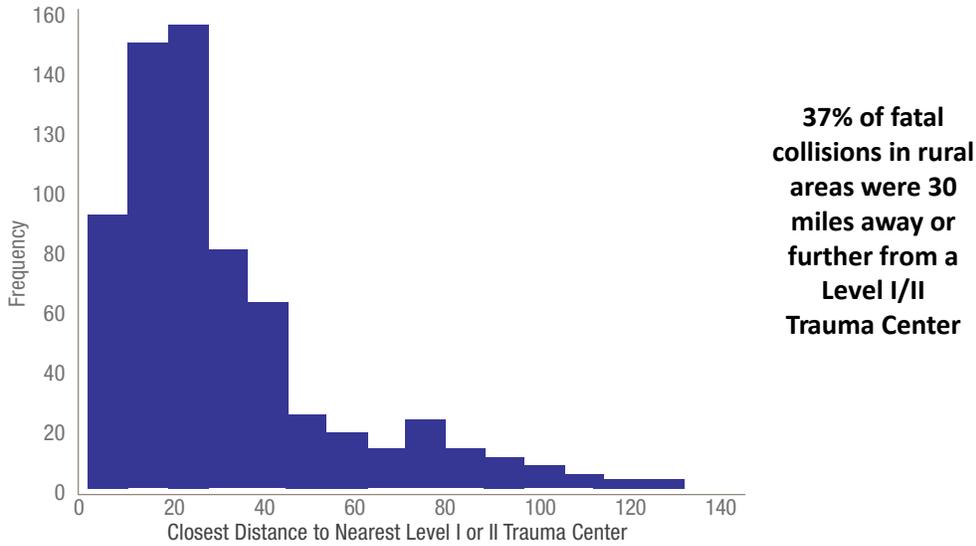
- Increase involvement by EMS leaders in the California SHSP.
- Develop strategies to improve the time to definitive care.
- Improve data from the time of the crash.
- Improve access to information to enable interoperability of communications systems between all responders to crash sites.
- Develop guidance documents to share with EMS responders to increase crash scene safety.

Figure 18 Fatal Crashes & Trauma Center Locations



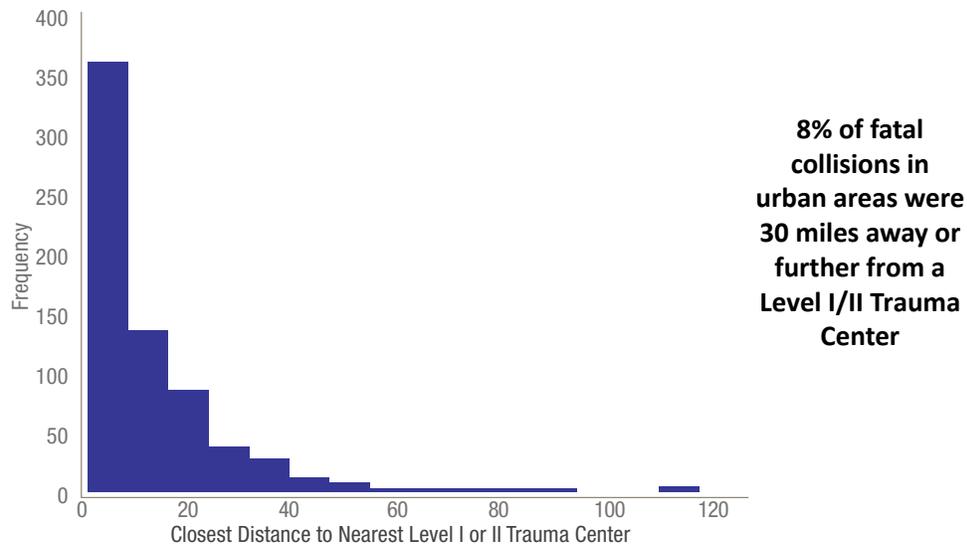
Source: SWITRS (2011), Healthcare Atlas, State of California (as of November 2013), and Caltrans file with urban area polygons based on 2010 Census data

Figure 19 Rural Crashes-Distance to Trauma Center



Source: SWITRS (2011), Healthcare Atlas, State of California (as of November 2013), and Caltrans file with urban area polygons based on 2010 Census data

Figure 20 Urban Crashes-Distance to Trauma Center



Source: SWITRS (2011), Healthcare Atlas, State of California (as of November 2013), and Caltrans file with urban area polygons based on 2010 Census data

Conclusion

This SHSP document represents the combined wisdom of hundreds of safety stakeholders and professionals from every part of California and addresses all major traffic safety problems on all public roads.

The six month update process resulted in an unprecedented outreach effort to individuals who had not previously been involved in the SHSP process particularly regional, local, and tribal government partners. California was also fortunate to obtain input from individuals who have continued to be involved in the SHSP since it was first started in 2005.

Updating the SHSP, however, is only the beginning of the process. For California to achieve a safe and sustainable transportation system for all motorized and non-motorized users on all public roads, it will take the active involvement and support of all safety stakeholders.

The Implementation Plan that accompanies this SHSP document details how California will achieve the SHSP mission and move the State “Toward Zero Deaths.” There are opportunities for engineers, transportation planners, data analysts, law enforcement officers, prevention and education specialists, and emergency medical services personnel to get involved. Over the next five years, California will be implementing the plan and evaluating whether the proposed actions are achieving reductions in traffic related fatalities and severe injuries.

We can use your help! If you are interested in participating in the SHSP implementation process, there are opportunities to be part of one of the 15 Challenge Area Teams who will be meeting regularly to discuss implementation and track progress. We also expect to conduct meetings in various parts of

the State to check in with partners on how they are moving forward on SHSP implementation.

If you would like to participate, visit the SHSP website at <http://www.dot.ca.gov/hq/traffops/shsp/>. Sign up for a team or register to get regular SHSP updates. Traffic safety is everyone’s responsibility. Be part of this exciting journey that will help California maintain “a safe transportation system for all users.”

Photo courtesy of Arellano Associates



Acronyms

ABC – California Department of Alcoholic Beverage Control
BAC - Blood Alcohol Content
CalCOG – California Council of Governments
CalSTA – California State Transportation Agency
Caltrans – California Department of Transportation
CDPH – California Department of Public Health
CEAC – County Engineers Association of California
CHP – California Highway Patrol
CTP – California Transportation Plan
CSAC – California State Association of Counties
CVSP – Commercial Vehicle Safety Plan
DMV – California Department of Motor Vehicles
EMSA – Emergency Medical Services Authority
EMS – Emergency Medical Services
FARS - Fatality Analysis Reporting System
FHWA – Federal Highway Administration
FMCSA – Federal Motor Carrier Safety Administration
GDL – Graduated Driver License
GHG – Green House Gas
HPMS – Highway Performance Monitoring System
HSIP – Highway Safety Improvement Program
HSP – Highway Safety Plan
MAP-21 – Moving Ahead for Progress in the 21st Century
MPO – Metropolitan Planning Organization
MTP – Metropolitan Transportation Plan
NAAC – Native American Advisory Committee
NHTSA – National Highway Traffic Safety Administration
OTS – Office of Traffic Safety
RTPA – Regional Transportation Planning Agency
SHS – State Highway System
SHSP – Strategic Highway Safety Plan
SWITRS – Statewide Integrated Traffic Records System
SWOT – Strengths, Weaknesses, Opportunities, Threats
TZD – Toward Zero Deaths
VMT – Vehicle Miles Traveled

Appendix

The Economic Cost of Traffic Crashes in California

Traffic crashes cause a tremendous amount of damage and hardship in both human and economic terms. The following chart shows the economic cost of traffic-related fatalities and severe injuries in each county in California. The costs are based on the figures used by the National Highway Traffic Safety Administration in their publication, *The Economic and Societal Impact of Motor Vehicle Crashes, 2010*, DOT HS 812 013.

County	Fatality ^a	Severe Injury ^a	Economic Cost (in 2012 dollars) ^{a,b,c}
ALAMEDA	77	309	167,033,952
ALPINE	1	8	2,878,831
AMADOR	6	30	14,069,570
BUTTE	24	117	55,744,377
CALAVERAS	10	25	19,000,096
COLUSA	5	14	9,766,999
CONTRA COSTA	61	253	133,786,318
DEL NORTE	9	17	16,121,266
EL DORADO	23	65	45,034,978
FRESNO	118	247	215,658,698
GLENN	4	12	7,955,973
HUMBOLDT	30	82	58,246,061
IMPERIAL	32	74	59,732,503
INYO	6	31	14,247,537
KERN	128	260	232,523,184
KINGS	22	72	44,825,659
LAKE	17	47	33,101,017
LASSEN	9	25	17,545,005
LOS ANGELES	628	2573	1,371,707,421
MADERA	29	75	55,545,198
MARIN	10	103	32,881,559
MARIPOSA	6	20	12,289,895
MENDOCINO	24	75	48,269,743
MERCED	46	109	86,332,638
MODOC	1	8	2,878,831



Photo courtesy of the California Highway Patrol (CHP)



Photo courtesy of the California Highway Patrol (CHP)

County	Fatality ^a	Severe Injury ^a	Economic Cost (in 2012 dollars) ^{a,b,c}
MONO	5	10	9,055,129
MONTEREY	28	140	65,657,993
NAPA	7	59	20,685,717
NEVADA	17	49	33,456,952
ORANGE	153	686	344,714,601
PLACER	27	96	56,372,333
PLUMAS	8	29	16,801,784
RIVERSIDE	209	599	410,716,524
SACRAMENTO	110	420	234,806,343
SAN BENITO	10	27	19,356,031
SAN BERNARDINO	244	608	463,246,415
SAN DIEGO	223	856	476,825,438
SAN FRANCISCO	31	222	84,616,598
SAN JOAQUIN	62	208	127,232,873
SAN LUIS OBISPO	28	112	60,674,903
SAN MATEO	40	177	89,703,880
SANTA BARBARA	31	162	73,938,550
SANTA CLARA	87	397	197,245,999
SANTA CRUZ	11	128	38,785,837
SHASTA	27	82	53,880,788
SIERRA	4	4	6,532,234
SISKIYOU	14	36	26,778,102
SOLANO	20	109	48,500,273
SONOMA	37	156	81,601,291
STANISLAUS	44	180	96,058,147
SUTTER	8	37	18,225,524
TEHAMA	10	34	20,601,804
TRINITY	1	14	3,946,636
TULARE	69	158	128,520,136
TUOLUMNE	6	47	17,095,017
VENTURA	49	274	120,062,544
YOLO	24	45	42,930,719
YUBA	19	20	31,206,078
UNKNOWN	6	32	14,425,505
STATEWIDE TOTAL	2,995	10,864	6,291,436,010



Photo courtesy of Cambridge Systematics

a California Highway Patrol. Statewide Integrated Traffic Records System (SWITRS), 2012.
 b NHTSA. The Economic and Societal Impact of Motor Vehicle Crashes, 2010.
 c United States Department of Labor, Bureau of Labor Statistics. CPI Inflation Calculator.

NOTES

1. The average unit cost per serious injury (MAIS 2-5) is based on the distribution of total injuries tabulated in Table 1-3 of *The Economic and Societal Impact of Motor Vehicle Crashes*, 2010. The weights used were 0.695, 0.247, 0.044, and 0.015 respectively for MAIS2, MAIS3, MAIS4, MAIS5.
2. The costs used for calculating economic cost were \$169,026 per severe injury and \$1,381,984 per fatality.
3. The costs were converted to 2012 dollars using the CPI Inflation Calculator for an inflation rate of 5.29 percent.
4. A median county median household income of \$53,679 was used to develop a weight to correct for costs across counties.
5. The statewide total shown here is different than the \$22 billion referenced on page 15 because this figure does not include lost quality of life costs.

Data Definitions

SHSP Challenge Area	Injuries Queried	File	Variables
Aging Road Users	Victims in crash	Party	Party age = 65-997 Note: The age 997 is something that is used in SWITRS.
Alcohol and Drug Impairment	Victims in crash	Party	Party sobriety = B (HBD – under influence) C (HBD – not under influence) D (HBD – impairment unknown) Party drug physical = E (under drug influence)
Bicycling	Bicyclists and bicyclists' passengers	Party Victim	Victim type = 4 (bicyclist) OR Party type = 4 (bicycle) Victim type = 2 (passenger) or 4 (bicyclist)
Commercial Vehicles	Victims in crash	Collision Party	Truck collision = Y (yes) OR Vehicle type = H (school bus) I (other bus)
Driver Licensing and Competency	Victims in crash	FARS	From FARS – L_comp1 = 0 (not licensed) OR L_comp1 = 2 (no valid license for this class vehicle)
Intersections, Interchanges, and other Roadway Access	Victims in crash	Collision	Intersection = Y (yes) OR Involved=F (train) OR ramp=1 (ramp exit, last 50 ft) OR ramp=2 (mid-ramp) OR ramp=3 (ramp entry, first 50 ft) OR ramp=4 (not SHS, ramp-related, within 100 ft) OR ramp=5 (intersection) OR ramp=6 (not SHS, intersection-related, within 250 ft) OR violcat=06 (improper passing) OR violcat=07 (unsafe lane changing) OR violcat=08 (improper turning) OR violcat=22 (other improper driving)
Motorcycles	Victims in crash	Party	Vehicle type = C (motorcycle) O (moped)

SHSP Challenge Area	Injuries Queried	File	Variables
Occupant Protection	Victims in crash	Victim	Victim safety equipment (vsafety1 OR vsafety2)= A (None in the vehicle) D (Lap belt not used) F (Shoulder harness not used) H (Lap/shoulder harness not used) K (Passive restraint not used) R (Child restraint in vehicle not used) T (Child restraint in vehicle, improper use) U (No child restraint in vehicle)
Pedestrians	Pedestrians	Victim	Victim type = 3 (pedestrian)
Roadway Departures and Head-On Collisions	Victims in crash	Party	Movement preceding collision = C (vehicle left roadway) N (crossed into opposing lane) OR Type of collision = A (head-on)
Speeding and Aggressive Driving	Victims in crash	Collision	Primary collision violation category = 03 (unsafe speed) 04 (following too closely)
Work Zone	Victims in crash	Collision	Road condition 1 = D (construction or repair zone) OR Road condition 2 = D (construction or repair zone)
Young Drivers	Victims in crash	Party	Party type = 1 (driver) Party age = 15-20

Source: The data definitions are from SWITRS where party means individual.

The Process for Selecting the Measurable Objectives

In developing the measurable objectives, the SHSP Steering Committee (Committee) considered the following information:

- A simple trend line based on the reductions over the last ten years (2003 to 2012);
- A trend projection based on data from the past five years (2008 to 2012); and
- A trend line projection based on five year rolling averages from 2007 to 2012.

The group felt these numbers were too high for several reasons:

- Over fifty percent of fatalities and serious injuries happen on local roads;
- The external factor of the economy can have a dramatic impact as evidenced by the consistent drop in traffic crashes during each recession;
- The change in the mode mix on roadways;
- The impact of less discretionary travel;
- The effect of California’s push toward active transportation; and
- The continued growth in the State which still is approximately 400,000 new residents each year.

The Committee also examined several other factors including:

- The average percentage decline over the past ten years (fatalities decreased 32 percent from 2003 to 2012 and severe injuries decreased a little over 17 percent);

- The average drop in fatalities when looking at a fewer number of years (fatalities decreased 13 percent from 2005 to 2012 which averages out to be approximately two percent per year);
- A target between the high and low ranges;
- The Toward Zero Deaths (TZD) goal of reducing fatalities and severe injuries by half by 2030 which comes out to be approximately 3.2 percent per year; and
- Goals in other safety plans such as the Highway Safety Plan (HSP). (The goal for the HSP in fiscal year 2014 was 1 percent per year.)

The Committee felt it was important that the objectives set for the SHSP be something to stretch toward but also be attainable. Based on that requirement, the group felt the 3.2 percent per year reduction set by TZD was not unreasonable. That same level, however, was not appropriate for severe injuries given the amount of shown in the options in Table 2. The average annual change for severe injuries based on data from 2008 to 2012 is 2.6 percent. When all this information was taken into consideration, the group decided on the following for the measurable objectives:

- A three percent per year reduction for the number and rate of fatalities; and
- A 1.5 percent per year reduction for the number and rate of severe injuries.

Table 2. Forecasted Reductions

Measure	2012 Baseline	2003-2012 Trend Projection			2008-2012 Trend Projection			2007-2012 Five-Year Rolling Average Projection		
		Annual Change	Average Annual % Change	2020 Prediction	Annual Change	Average Annual % Change	2020 Prediction	Annual Change	Average Annual % Change	2020 Prediction
Annual Fatalities	2,857	-203	-11.5%	1,044	-143	-6.8%	1,555	-250	-13.4%	992
Annual Serious Injuries	10,864	-374	-4.2%	7,398	-248	-2.6%	8,472	-472	-5.2%	7197
Fatality Rate	0.88	-0.06	-11.4%	0.32	-0.04	-7.0%	0.47	-0.08	-13.0%	0.32
Serious Injury Rate	3.33	-0.11	-4.2%	2.28	-0.08	-2.7%	2.58	-0.14	-5.0%	2.25



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