Local Highway Safety Improvement Program (HSIP) and How It Works

For 8th STIC Local Roadway Departure Safety Workshop

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Division of Local Assistance
California Department of Transportation
(CALTRANS)
This presentation covers:

- Federal Legislation, SHSP and Performance Measures;
- Local HSIP Advisory Committee;
- Eligible applicants and eligible projects;
- Safety countermeasures and Benefit/Cost Ratio;
- Funding and Project Selection;
- HSIP Call for Projects (Cycle 9);
- Project delivery requirements and status; and
- Systemic Safety Analysis Report Program (SSARP).
Federal Legislation


- The purpose of the HSIP program is “to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal land.” (23 USC § 148 (b)(2))

- HSIP projects:
  - must be based on elements of the Strategic Highway Safety Plan (SHSP);
  - Are identified through a data-driven process;
  - Target identified safety issue;
  - Reduce fatalities and serious injuries.
California Strategic Highway Safety Plan (SHSP)

- First developed in 2005, amended in 2010, and updated in 2014;
- Statewide, coordinated safety plan;
- Focus on 4Es: Engineering, Enforcement, Education and Emergency Medical Services;
- Identified 15 Challenge Areas:

<table>
<thead>
<tr>
<th>Roadway Departure and Head-On collisions</th>
<th>Intersections, Interchanges, and other Roadway Access</th>
<th>Work Zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol and Drug Impairment</td>
<td>Occupant Protection</td>
<td>Speeding and Aggressive Driving</td>
</tr>
<tr>
<td>Distracted Driving</td>
<td>Driver Licensing and Competency</td>
<td>Pedestrians</td>
</tr>
<tr>
<td>Bicycling</td>
<td>Young Drivers</td>
<td>Aging Road Users</td>
</tr>
<tr>
<td>Motorcycles</td>
<td>Commercial Vehicles</td>
<td>Emergency Medical Services</td>
</tr>
</tbody>
</table>

Visit [http://www.dot.ca.gov/trafficops/shsp](http://www.dot.ca.gov/trafficops/shsp) for more info.
Five Performance Measures and Target-setting:

<table>
<thead>
<tr>
<th>Performance Measure (5-Year Rolling Average)</th>
<th>California’s Goal</th>
<th>2018 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Fatalities</td>
<td>-7.69% per year “Toward Zero Death”)</td>
<td>3,590.8</td>
</tr>
<tr>
<td>Rate of Fatalities per 100 million VMT</td>
<td>1.029</td>
<td></td>
</tr>
<tr>
<td>Number of Serious Injuries</td>
<td>-1.5% per year</td>
<td>12,823.4</td>
</tr>
<tr>
<td>Rate of Serious Injuries per 100 million VMT</td>
<td>3.831</td>
<td></td>
</tr>
<tr>
<td>Number of Non-motorized Fatalities and Non-motorized Serious Injuries</td>
<td>-10% per year</td>
<td>4,271.1</td>
</tr>
</tbody>
</table>

The MPOs must either agree to support the State DOT targets or establish numerical targets specific to their planning areas.
### Roadway Departure Fatalities

#### California Traffic Fatalities (2011 to 2015)

<table>
<thead>
<tr>
<th>Traffic Fatalities</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>2,816</td>
<td>2,966</td>
<td>3,107</td>
<td>3,102</td>
<td>3,176</td>
<td>15,167</td>
</tr>
<tr>
<td>Involving a Roadway Departure</td>
<td>1,337 (47%)</td>
<td>1,399 (47%)</td>
<td>1,442 (46%)</td>
<td>1,374 (44%)</td>
<td>1,458 (46%)</td>
<td>7,010 (46%)</td>
</tr>
</tbody>
</table>

From 2011 to 2015, 46% of the traffic fatalities in California involved a roadway departure!
Local HSIP Advisory Committee

- **Members from:**
  - FHWA and State (Caltrans);
  - Local Agencies:
    - California Transportation Cooperative Committee;
    - California State Association of Counties;
    - League of California Cities;
    - Rural County Task Force;
    - RTPAs;
    - MPOs

- Provides high-level balanced strategic guidance to California’s Local HSIP and other safety programs and efforts regarding safety on California local roadways.

- Meet about 6 times per year.
Eligible Applicants:

Any local agency that owns, operates, and maintains the public roadways

- City and County agencies
- Tribal Governments
- Others (reviewed on a case-by-case basis)

Eligible Projects:

Work on publicly owned roadway or bicycle/pedestrian pathway that corrects or improves the safety for users

- Prefer projects that can be delivered quickly and have minimal ROW and Environmental impacts.
- Work must be tied to safety countermeasures in the pre-defined lists.
Safety Countermeasures

76 countermeasures (CMs) are pre-defined:

- Signalized intersections: 18
- Non-signalized intersections: 20
- Roadways: 38

Refer to Local Roadway Safety Manual for California Local Road Owners
(http://www.dot.ca.gov/hq/LocalPrograms/HSIP/2016/CA-LRSM.pdf)
Safety Countermeasures (cont.)

Each CM is associated with:

- A crash type (all; Ped & Bike; Night; etc.);
- A Crash Reduction Factor (CRF): 10% to 80%; and
- A Service Life: 10 or 20 years.

<table>
<thead>
<tr>
<th>No.</th>
<th>Type</th>
<th>Countermeasure Name</th>
<th>Crash Type</th>
<th>Crash Reduction Factor (CRF)</th>
<th>Expected Life (Years)</th>
<th>Federal Funding Eligibility</th>
<th>Systemic Approach Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>R9</td>
<td>Geometric Mod.</td>
<td>Install raised median</td>
<td>All</td>
<td>25%</td>
<td>20</td>
<td>90%</td>
<td>Medium</td>
</tr>
</tbody>
</table>
Benefit Cost Ratio (BCR) Calculation

Construction Cost Estimate (CON only) → Project Cost Estimate (PE+ROW+CON+CE) → Project Cost ($)

Safety Countermeasures (CRF and Life) → Crash Data (most recent 3-5 years) → Project Benefit ($)

Benefit Cost Ratio (BCR) = Project Benefit/Project Cost
BCR Calculation - Example

- **Project:** Install raised median (CRF=25%; Expected life = 20 years)
- **Crash history:**
  1 fatal crash and 2 severe injury crashes in the last 5 years;
- **Cost Estimate:** PE $105,000 + CON $620,000 + CE 45,000
  = $770,000
- **Benefit:**
  3 (F/SI crashes)/ 5 years x 25% x $1,730,000 x 20 years
  =$5,190,000
- **BCR** = \( \frac{\text{Benefits}}{\text{Costs}} = \frac{$5,190,000}{$770,000} = 6.7 \)
Local HSIP Funding

Local HSIP apportionments: approx. $81 million per year (2016-2020 average)

<table>
<thead>
<tr>
<th>National</th>
<th>California</th>
<th>California Local HSIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2.317 billion/year</td>
<td>$204 million/year</td>
<td>$81 million/year</td>
</tr>
</tbody>
</table>
# HSIP Calls for Projects

- **Cycles 4 to 8:** project selection – data-driven.

$713$ million awarded to 1038 projects. 194 completed/343 in construction. Expected benefits: $8.8$ billion!

## Summary of each cycle

<table>
<thead>
<tr>
<th>Cycle</th>
<th>Release Date</th>
<th>Number of Applications</th>
<th>Number of projects selected</th>
<th>Federal funds approved ($M)</th>
<th>Average BCR of selected projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2/23/2011</td>
<td>357</td>
<td>179</td>
<td>$74.5</td>
<td>7.9</td>
</tr>
<tr>
<td>5</td>
<td>10/19/2012</td>
<td>276</td>
<td>221</td>
<td>$111.3</td>
<td>14.6</td>
</tr>
<tr>
<td>6</td>
<td>11/14/2013</td>
<td>389</td>
<td>231</td>
<td>$150.0</td>
<td>10.7</td>
</tr>
<tr>
<td>7</td>
<td>11/12/2015</td>
<td>212</td>
<td>182</td>
<td>$160.5</td>
<td>16.9</td>
</tr>
<tr>
<td>8</td>
<td>11/21/2016</td>
<td>247</td>
<td>225</td>
<td>$216.9</td>
<td>10.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1,481</strong></td>
<td><strong>1,038</strong></td>
<td><strong>$713.2</strong></td>
<td>12.3</td>
</tr>
</tbody>
</table>
HSIP Calls for Projects

Cycle 8 – Project selection released 11/21/2016

<table>
<thead>
<tr>
<th>Applications</th>
<th>Selected Projects</th>
<th>% Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>247</td>
<td>225</td>
<td>91%</td>
</tr>
<tr>
<td>Federal Funds</td>
<td>$252 million</td>
<td>$216.9 million</td>
</tr>
</tbody>
</table>

Selected Projects:

- BCR: $187.6 million /167 projects;
- Set-aside – Guardrail upgrade: $21.9 million/24 projects;
- Set-aside – Crosswalk Enhancements: $7.4 million/34 projects.
## HSIP Calls for Projects

Cycle 8 - Projects with Roadway Departure Safety Related Components

<table>
<thead>
<tr>
<th></th>
<th>Number of Projects</th>
<th>Federal Funds</th>
<th>Benefit/Cost Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All BCR Projects</strong></td>
<td>167</td>
<td>$187.6 million</td>
<td>10.3</td>
</tr>
<tr>
<td><strong>Roadway Departure Safety Related</strong></td>
<td>56 (34%)</td>
<td>$47.4 million (25%)</td>
<td>12.9 (25% higher)</td>
</tr>
</tbody>
</table>

8th STIC Local Roadway Departure Safety Workshop
Upcoming HSIP Call for Projects

- Cycle 9 announced on April 30, 2018; Applications due: August 31, 2018;
- Webinar for the call: May 16, 2018;
- Approx. $140-$160 million of HSIP funds;
- Project size: $100k - $10 million;
- Max. $10 million per agency;
- Application’s minimum BCR: 3.5 (2.5 for HFST);
- Four funding set-asides (no BCR calculation needed).
Upcoming HSIP Call for Projects

No more than 25% of the funds will be used as set-asides:

- **Guardrail upgrades (<=$20 M)**
  - Upgrades of existing guardrail and end treatments;
  - Max. $1 M per agency;

- **Horizontal Curve Signing (<=$5 M)**
  - Horizontal alignment warning signs;
  - Max. $250k per agency;

- **Pedestrian Crossing Enhancements (<=$8 M)**
  - Pedestrian countdown signal heads; Pedestrian crossings; Signs and markings.
  - Max. $250k per agency.

- **Tribes ($2M).**
  - Any of the above; and Low cost roadway safety improvements (CM# R26-R35).
  - Max. $250k per agency.
Upcoming HSIP Call for Projects

Key to Successful Applications:

1. Develop good projects:
   - Select locations where safety improvements are most needed (high crash-concentration spots vs. systemic approach).
   - Apply effective safety countermeasures.

2. Prepare your applications – no fatal flaws.
   - A technical process not grant writing – engineer’s work.
   - Collect/verify data and use data correctly.
Local HSIP: Project Delivery Requirements

- Need to follow federal-aid process;
- Requirements established to ensure safety projects are delivered in a timely manner
  - PE Authorization - within 9 months; and
  - CON Authorization - within 36 months
- Can not apply for new HSIP funds if either milestone is not met
- If there is still no CON authorization within 5 years, project will be removed from the program.
Local HSIP Project Delivery Status

Status of Local HSIP Projects (as of 4/6/18)

<table>
<thead>
<tr>
<th>Status</th>
<th>Number of Projects (all 8 cycles)</th>
<th>Number of Projects (cycles 1 to 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Authorization</td>
<td>96 (7%)</td>
<td>8 (1%)</td>
</tr>
<tr>
<td>In Preliminary Engineering / Right of Way</td>
<td>321 (23%)</td>
<td>14 (2%)</td>
</tr>
<tr>
<td>In Construction</td>
<td>389 (28%)</td>
<td>204 (26%)</td>
</tr>
<tr>
<td>Completed</td>
<td>587 (42%)</td>
<td>550 (71%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1393</strong></td>
<td><strong>776</strong></td>
</tr>
</tbody>
</table>
Systemic Safety Analysis Report Program (SSARP)

- Provides state funds to do a comprehensive systemic safety analysis on roadway networks.
- Assists local agencies that do not have safety analysis expertise.
- Up to $250,000 for one agency; up to $500,000 for a joint application (two or more agencies).
Systemic Safety Analysis Report Program (SSARP)

Oct. 2015: CTC Allocated $10 million

Jan. 2017: CTC Allocated another $7.7 million

7/15/2016:
61 funded projects released
(41 cities/15 counties/5 joint)

5/12/2017:
46 funded projects released
(41 cities/5 counties)

107 projects funded
- 82 cities;
- 20 counties; and
- 5 joint;

Implementation:
- As of 4/1/18, $15 million sub-allocated to 90 projects. 3 projects cancelled ($587,500).
- Local agency has three years to complete the study/report.
- Allocation deadline: 5/30/18
HSIP Website and Contact

- Local HSIP Website: http://www.dot.ca.gov/hq/LocalPrograms/hsip.html
- Or
- Google search: “CA Local HSIP”

Contact: richard.ke@dot.ca.gov; (916)653-4727
Questions?

Thank you …