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

For STIC Local Roadway Departure Safety Workshops
February 13, 2018   San Diego
February 14, 2018   Riverside

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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;
- Upcoming 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.
National Performance Management Measures for the HSIP


- 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></td>
<td>3.831</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>

- By February 27, 2018, the MPOs must either agree to support the State DOT targets or establish numerical targets specific to their planning areas.
Roadway Departure 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:**
  Caltrans; 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)/ 5years 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!

<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>Total</td>
<td></td>
<td>1,481</td>
<td>1,038</td>
<td>$713.2</td>
<td>12.3</td>
</tr>
</tbody>
</table>
HSIP Calls for Projects

- Most recent call (Cycle 8):
  - Call period: 5/9/2016 to 8/12/2016;
  - Application’s minimum BCR: 3.5;
  - Funding set-asides:
    - Set-aside for guardrail upgrades:
    - Set-aside for crosswalk enhancements and pedestrian countdown heads
HSIP Calls for Projects

Cycle 8 - Application and Project Selection

<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>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>
</tr>
<tr>
<td><strong>Roadway Departure Safety Related</strong></td>
<td>56 (34%)</td>
<td>$47.4 million (25%)</td>
</tr>
</tbody>
</table>
Upcoming HSIP Call for Projects

- Cycle 9 will be announced around April/May, 2018;
- Webinar for the call: within 2 weeks from the announcement;
- Applications due: August 31, 2018;
- Approx. $140-$160 million of HSIP funds;
- Project size: $100k - $10 million;
- Max. $10 million per agency;
- Application’s minimum BCR: 3.5;
- Four funding set-asides (no BCR calculation needed).
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 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 2/5/18)

<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>104 (7%)</td>
<td>8 (1%)</td>
</tr>
<tr>
<td>In Preliminary Engineering / Right of Way</td>
<td>341 (24%)</td>
<td>22 (3%)</td>
</tr>
<tr>
<td>In Construction</td>
<td>398 (29%)</td>
<td>223 (29%)</td>
</tr>
<tr>
<td>Completed</td>
<td>552 (40%)</td>
<td>523 (67%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1395</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
- 107 SSARP projects funded (82 cities/20 counties/5 joint)
- 7/15/2016: 61 funded projects released (41 cities/15 counties/5 joint)
- 5/12/2017: 46 funded projects released (41 cities/5 counties)
- As of 2/8/2018: $13.9 million sub-allocated to 82 projects. Local agency has three years to complete the study/report. 3 projects cancelled ($587,500).
HSIP Website and Contact

- **Local HSIP Website:**
  [http://www.dot.ca.gov/hq/LocalPrograms/hsip.html](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 …