Local Highway Safety Improvement Program (HSIP)

Webinar for Local HSIP Cycle 10 Call for Projects

Caltrans - Division of Local Assistance
Office of Federal Programs

May 20, 2020
Webinar Information

- 1.5 hour webinar
- Poll questions
- All attendees are muted upon joining
- Please disable your video - so participants cannot see your video feed
- For better viewing, you can maximize your screen, to minimize again, just hit escape
Q&A Discussion

We are taking your important questions via Q&A.

To ask a question:
1. Move mouse toward bottom of screen to enable toolbar
2. Select Q&A to submit your question
3. Type in your question
4. Hit enter
5. Utilize “upvote” option to “vote” on the same question another participant has asked

Some questions will be answered out loud by the presenters during the webinar and some will be answered via Q&A box.

All questions will be answered and posted at the end of the webinar.
Webinar Recording

This presentation is being recorded.

A copy of the webinar recording and the Q&A will be posted on the California LTAP website and the Caltrans HSIP webpage “apply_now”

californialtap.org
dot.ca.gov
Webinar Presenters

- Ken Kochevar, FHWA
  - Safety Program Manager

- Robert Peterson, Caltrans Local Assistance
  - Chief, Office of Federal Programs (OFP)

- Richard Ke, Caltrans Local Assistance
  - HSIP Manager, OFP
HSIP Cycle 10 Webinar Agenda

- FHWA: National Focus Towards Roadway Safety
- Local HSIP Overview
- Local HSIP Cycle 10 Call-for-projects
- Demo: Application Form and HSIP Analyzer
Cycle 10 – HSIP Call-for-Projects
May 20, 2020
National Focus Toward Roadway Safety

Ken Kochevar
FHWA Safety Program Manager
916-498-5853
Ken.kochevar@dot.gov
National Safety Trends
Fixing America’s Surface Transportation (FAST) Act

Apportionments ($41.4 B)

- National Highway Performance Program ($23.3B)
- Surface Transportation Block Grant Program ($11.7B)
- Highway Safety Improvement Program ($2.3B)
- Rail-Highway Crossing Program ($0.33B)
- Congestion Mitigation and Air Quality Improvement Program ($2.4B)
- Metropolitan Planning Program ($0.34B)
- National Highway Freight Program ($1.2B)
Highway Safety Improvement Program

Purpose:
Reduce fatalities and serious injuries on ALL public roads

- Strategic safety planning
- Data-driven roadway safety management process
- Highway safety improvement projects
- Federally-funded, state administered
HSIP Project Eligibility

Addresses an SHSP Priority

Identified through a data-driven process

Targets identified safety issue

Reduces fatalities and serious injuries

The Focus is Results!

In 2008, motor vehicle fatalities reached levels not seen since 1980. Can all of this decline be attributed to the economic downturn leading to less roadway travel? The numbers say “no.” Vehicle miles traveled (VMT) have declined much less than the decrease in fatalities, giving evidence to the fact the increased focus on end commitment to safety is paying off. Legislation in 33 USC 144 and advances in the science of safety have ushered in a different approach for states, regions, and localities to address safety issues and challenges, and the change is clear.

By requiring the states to develop and implement Strategic Highway Safety Plans (SHSP) as part of the Highway Safety Improvement Program (HSIP), HSIPs became part of a broader vision involving multiple stakeholders and integrating into the planning process. The clear purpose is to achieve significant reductions in traffic fatalities and serious injuries on all public roads. The new approach provides direction for achieving the purpose.

A few multi-modal HSIP funds to state departments of transportation (DOTs) to administer, but any public road or pathway, including those owned by local governments, can benefit. The objective is to target resources where they will be most effective, which means the focus is results.

Eligibility Criteria

All transportation projects should include an explicit consideration of safety and can be funded through a variety of federal and state sources. To most effectively and efficiently apply limited HSIP funds, use the criteria below.

- Project addresses priorities in the state’s SHSP.
  - Through collaboration with safety partners, the HSIP process identifies statewide emphasis areas with the greatest potential for reducing fatalities and serious injuries. Linking the DOT with the SHSP ensures HSIP project addresses priority identified through the broader statewide strategic approach. For example, many SHSPs include a roadway departure emphasis area addressed using HSIP funds to implement low-cost safety improvements.

- Project or countermeasure selection is based on a data-driven process.
  - Data is the driving force in the decisionmaking process. With good data and analysis tools, states are able to identify systemic or site-specific safety problems, select and prioritize countermeasures, and evaluate impact on reducing fatalities and serious injuries.

- The selected countermeasures address the identified problems.
  - Simple resources and tools are available to help select the most effective projects, which also may include well-designed innovations.

http://safety.fhwa.dot.gov/hsip/resourc

http://www.fhwa.dot.gov/map21
Systemic Approach to Safety

- Systemic Safety Improvement
  - An improvement that is widely implemented based on high-risk roadway features that are correlated with particular severe crash types and not the number of crashes.

- Crashes are Random Occurrences

- Proactive vs. Reactive
Incremental Approach to Safety

- Start with low-cost proven safety countermeasures
- Move to more costly time-consuming countermeasures if needed
- Stretch our safety dollars
Priorities for Performance
Year 2020 - 2021

- Safety Performance Targets
- Strategic Highway Safety Plan
  - 2020 – 2024 SHSP Update
  - Local Road Safety Plans
- Data Improvements
- Ped/Bike Crashes
- 20 Proven Safety Countermeasures
New Resources

- 23 U.S.C. HSIP 409 Exemption Fact Sheet for Local Agencies
- Technical Assistance/Training to Locals
- 20 PSCs
- Systemic/Incremental Approach
- HSIP Application Process
Questions?
Local HSIP Overview

By Robert Peterson
Chief, Office of Federal Programs (OFP)
Caltrans Division of Local Assistance

May 20, 2020
Local HSIP Overview

- HSIP Website
- Previous calls for projects
- Project delivery requirements and current status
Local HSIP Website

or Google search “CA Local HSIP”

- Lists of approved projects
- Current project delivery status
- Call for projects
- LRSP/SSARP

Highway Safety Improvement Program (HSIP)

The Fixing America’s Surface Transportation Act (FAST) was signed into law on December 4, 2015. Under FAST, the Highway Safety Improvement Program (HSIP), codified as Section 148 of Title 23, United States Code (23 U.S.C §148), is a core federal-aid program to States for the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads. The Division of Local Assistance (DLA) manages California’s local agency share of HSIP funds. California’s Local HSIP focuses on infrastructure projects with nationally recognized crash reduction factors (CRFs). Local HSIP projects must be identified on the basis of crash experience, crash potential, crash rate, or other data-supported means.

Program Elements

For more details and information regarding California’s Local HSIP, click the links below or the links to the right.

- HSIP Guidelines (PDF)
- Local Roadway Safety Manual for California Local Road Owners (PDF)
- Local Roadway Safety Plans (LRSP) and Systemic Safety Analysis Report Program (SSARP)

HSIP Calls for Projects

9 Calls-for-projects so far:

<table>
<thead>
<tr>
<th>Cycle</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
</table>
HSIP Calls for Projects

Cycles 4 to 9:

- $894 million awarded to 1,258 projects. 459 completed/372 in construction. Expected benefits: $12 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>2/23/11</td>
<td>357</td>
<td>179</td>
<td>$74.5</td>
<td>7.9</td>
</tr>
<tr>
<td>5</td>
<td>10/19/12</td>
<td>276</td>
<td>221</td>
<td>$111.3</td>
<td>14.6</td>
</tr>
<tr>
<td>6</td>
<td>11/14/13</td>
<td>389</td>
<td>231</td>
<td>$150.0</td>
<td>10.7</td>
</tr>
<tr>
<td>7</td>
<td>11/12/15</td>
<td>212</td>
<td>182</td>
<td>$160.5</td>
<td>16.9</td>
</tr>
<tr>
<td>8</td>
<td>11/21/16</td>
<td>247</td>
<td>225</td>
<td>$216.9</td>
<td>10.3</td>
</tr>
<tr>
<td>9</td>
<td>12/12/18</td>
<td>351</td>
<td>220</td>
<td>$180.8</td>
<td>17.7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1,832</td>
<td>1,258</td>
<td>$894.0</td>
<td>13.4</td>
</tr>
</tbody>
</table>
Project Delivery Requirements

Established to ensure safety projects are delivered in a timely manner:

• 2 Milestones (start date: Jan 1 of the year following the project selection)
  ▪ E-76 with PE - within 9 months; and
  ▪ E-76 with CON - within 36 months

• Use the Expedited Project Selection Procedures (EPSP) in delivering HSIP projects

The agency is not eligible to apply for new HSIP funds if:

(1) an active HSIP project is flagged for not meeting the delivery requirements;
  Resolve the flag by September 30, 2020: the DLAE must receive the Request for Authorization package by September 30, 2020 and verify it is complete; **OR** An extension is granted if justified.

OR (2) two or more active HSIP projects are still not in construction after 5 years from project selection.
# Project Delivery Status (as of 4/3/2020)

<table>
<thead>
<tr>
<th>Status</th>
<th>Number of Projects</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Authorization</td>
<td>94</td>
<td>6%</td>
</tr>
<tr>
<td>In Construction</td>
<td>383</td>
<td>24%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1598</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

42 projects delayed (10 on PE; 32 on CON)
QUESTIONS?
Local HSIP Cycle 10
Call-for-projects

By Richard Ke
HSIP Manager
Office of Federal Programs (OFP)
Caltrans Division of Local Assistance

May 20, 2020
Outline

- General information
- Funding set-asides
- BCR Applications
  - Safety countermeasures
  - Tips for a good BCR application
  - Available Tools/Documents
- Application Form
- HSIP Analyzer
Local HSIP Cycle 10


- Announcement - May 5, 2020
- Applications Due - September 4, 2020
- Applications will be reviewed by Districts and Headquarters – September/October, 2020
- Develop the list of recommended projects and secure approval by Caltrans management - November/Early December, 2020
- Applicants will only be notified with final selection results
Local HSIP Cycle 10

- Applicants: Cities, Counties, Tribes and Other
  - Agencies with delivery delays on their current HSIP projects must resolve the delays by 9/30/2020.

- From Cycle 11, applicants must have completed Local Roadway Safety Plan (LRSP). Not required yet in this Cycle 10;

- Expected to use state funds (funding exchange based on SB 137)

- Multiple applications may be submitted for the same project:
  - For a “systemic approach” project (i.e. locations with similar characteristics and crash types): include less/more number of locations thus have higher/lower BCRs; or
  - Two applications one as BCR, the other applying for a funding set-aside.
Local HSIP Cycle 10: Application Categories

- **BCR Application**
  - Majority of the applications ($178 million)
  - Benefit Cost Ratio (BCR) is required. Project selection based on BCR.
  - Funding Reimbursement Ratio is based on safety countermeasures.
  - Application minimum BCR: 3.5
  - Maximum $10 million per agency.
  - Number of applications per agency: no limit

- **Funding Set-asides**
  - $42 million for all set-asides
  - No BCR required
  - Funding Reimbursement Ratio = 100%.
  - Number of applications per agency: 1 for each set-aside
Local HSIP Cycle 10: Funding Set-asides

Four Set-asides:
- Guardrail Upgrades;
- Pedestrian Crossing Enhancements;
- Installing Edgelines;
- Tribes

Project selection criteria (priority in the below order):
- Agencies with no funds awarded in Cycles 8&9;
- agencies with no set-aside funds awarded in Cycles 8&9;
- Agencies who completed LRSP;
- Agencies with more (F+SI) crashes in the last 3 years.
Local HSIP Cycle 10: Funding Set-asides

Set-asides: Guardrail Upgrades; Pedestrian Crossing Enhancements; Installing Edgelines; Tribes

- **Guardrail Upgrades**
  - Total $20M; Max per agency: $1M
  - For upgrades of existing guardrails and end treatments; bridge rails are not eligible

- **Pedestrian Crossing Enhancements**
  - Total $15M; Max per agency: $250k
  - Install pedestrian countdown signal heads, Rectangular Rapid Flashing Beacons (RRFB) and other flashing beacons, pedestrian crossing/signs, advanced yield lines/signs, and other signs/striping.
Local HSIP Cycle 10: Funding Set-asides

**Set-asides:** Guardrail Upgrades; Pedestrian Crossing Enhancements; Installing Edgelines; Tribes

- **Installing Edgelines**
  - Total $5M; Max per agency: $250k
  - Installing edgelines along roadways

- **Tribes**
  - Total $2M; Max per agency: $250k
  - Applicants must be federally recognized tribes in California
  - For any work under the other 3 set-asides, and other low cost roadway safety improvements (signs, pavement delineators, edge-lines, centerlines, rumble strips/stripes, etc.)
Local HSIP Cycle 10: BCR Applications

- Prefer projects that can be delivered quickly and have minimal ROW and Environmental impacts
- Safety countermeasures (CM’s) must have an established Crash Reduction Factor (CRF).

### Safety countermeasures

<table>
<thead>
<tr>
<th>CM Location</th>
<th>Funding Eligibility</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td>90%</td>
</tr>
<tr>
<td>Signalized Intersection (S)</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Non-Signalized Intersection (NS)</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>Roadway (R)</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>36</td>
</tr>
</tbody>
</table>
## Local HSIP Cycle 10: Safety Countermeasures

### CM List Example - CMs for Signalized Intersections:

<table>
<thead>
<tr>
<th>No.</th>
<th>Type</th>
<th>Countermeasure Name</th>
<th>Crash Type</th>
<th>CRF</th>
<th>Expected Life (Years)</th>
<th>HSIP Funding Eligibility</th>
<th>Systemic Approach Opportunity?</th>
</tr>
</thead>
<tbody>
<tr>
<td>501</td>
<td>Lighting</td>
<td>Add intersection lighting (S.I.)</td>
<td>Night</td>
<td>40%</td>
<td>20</td>
<td>100%</td>
<td>Medium</td>
</tr>
<tr>
<td>502</td>
<td>Signal Mod.</td>
<td>Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number</td>
<td>All</td>
<td>15%</td>
<td>10</td>
<td>100%</td>
<td>Very High</td>
</tr>
<tr>
<td>503</td>
<td>Signal Mod.</td>
<td>Improve signal timing (coordination, phases, red, yellow, or operation)</td>
<td>All</td>
<td>15%</td>
<td>10</td>
<td>50%</td>
<td>Very High</td>
</tr>
<tr>
<td>504</td>
<td>Signal Mod.</td>
<td>Provide Advanced Dilemma Zone Detection for high speed approaches</td>
<td>All</td>
<td>40%</td>
<td>10</td>
<td>100%</td>
<td>High</td>
</tr>
<tr>
<td>505</td>
<td>Signal Mod.</td>
<td>Install emergency vehicle pre-emption systems</td>
<td>Emergency Vehicle</td>
<td>70%</td>
<td>10</td>
<td>100%</td>
<td>High</td>
</tr>
<tr>
<td>506</td>
<td>Signal Mod.</td>
<td>Install left-turn lane and add turn phase (signal has no left-turn lane or phase before)</td>
<td>All</td>
<td>55%</td>
<td>20</td>
<td>90%</td>
<td>Low</td>
</tr>
<tr>
<td>507</td>
<td>Signal Mod.</td>
<td>Provide protected left turn phase (left turn lane already exists)</td>
<td>All</td>
<td>30%</td>
<td>20</td>
<td>100%</td>
<td>High</td>
</tr>
<tr>
<td>508</td>
<td>Signal Mod.</td>
<td>Convert signal to mast arm (from pedestal-mounted)</td>
<td>All</td>
<td>30%</td>
<td>20</td>
<td>100%</td>
<td>Medium</td>
</tr>
<tr>
<td>509</td>
<td>Operation/Warning</td>
<td>Install raised pavement markers and striping (Through Intersection)</td>
<td>All</td>
<td>10%</td>
<td>10</td>
<td>100%</td>
<td>Very High</td>
</tr>
<tr>
<td>510</td>
<td>Operation/Warning</td>
<td>Install flashing beacons as advance warning (S.I.)</td>
<td>All</td>
<td>30%</td>
<td>10</td>
<td>100%</td>
<td>Medium</td>
</tr>
<tr>
<td>511</td>
<td>Operation/Warning</td>
<td>Improve pavement friction (High Friction Surface Treatments)</td>
<td>All</td>
<td>55%</td>
<td>10</td>
<td>100%</td>
<td>Medium</td>
</tr>
<tr>
<td>512</td>
<td>Geometric Mod.</td>
<td>Install raised median on approaches (S.I.)</td>
<td>All</td>
<td>25%</td>
<td>20</td>
<td>90%</td>
<td>Medium</td>
</tr>
<tr>
<td>513PB</td>
<td>Geometric Mod.</td>
<td>Install pedestrian median fencing on approaches</td>
<td>P &amp; B</td>
<td>35%</td>
<td>20</td>
<td>90%</td>
<td>Low</td>
</tr>
<tr>
<td>514</td>
<td>Geometric Mod.</td>
<td>Create directional median openings to allow (and restrict) left-turns and u-turns (S.I.)</td>
<td>All</td>
<td>50%</td>
<td>20</td>
<td>90%</td>
<td>Medium</td>
</tr>
<tr>
<td>515</td>
<td>Geometric Mod.</td>
<td>Reduced Left-Turn Conflict Intersections (S.I.)</td>
<td>All</td>
<td>50%</td>
<td>20</td>
<td>90%</td>
<td>Medium</td>
</tr>
<tr>
<td>516</td>
<td>Geometric Mod.</td>
<td>Convert intersection to roundabout (from signal)</td>
<td>All</td>
<td>Varies</td>
<td>20</td>
<td>100%</td>
<td>Low</td>
</tr>
<tr>
<td>517PB</td>
<td>Ped and Bike</td>
<td>Install pedestrian countdown signal heads</td>
<td>P &amp; B</td>
<td>25%</td>
<td>20</td>
<td>100%</td>
<td>Very High</td>
</tr>
<tr>
<td>518PB</td>
<td>Ped and Bike</td>
<td>Install pedestrian crossing (S.I.)</td>
<td>P &amp; B</td>
<td>25%</td>
<td>20</td>
<td>100%</td>
<td>High</td>
</tr>
<tr>
<td>519PB</td>
<td>Ped and Bike</td>
<td>Pedestrian Scramble</td>
<td>P &amp; B</td>
<td>40%</td>
<td>20</td>
<td>100%</td>
<td>High</td>
</tr>
<tr>
<td>520PB</td>
<td>Ped and Bike</td>
<td>Install advance stop bar before crosswalk (Bicycle Box)</td>
<td>P &amp; B</td>
<td>15%</td>
<td>10</td>
<td>100%</td>
<td>Very High</td>
</tr>
<tr>
<td>521PB</td>
<td>Ped and Bike</td>
<td>Modify signal phasing to implement a Leading Pedestrian Interval (LPI)</td>
<td>P &amp; B</td>
<td>60%</td>
<td>10</td>
<td>100%</td>
<td>Very High</td>
</tr>
</tbody>
</table>
Local HSIP Cycle 10: Safety Countermeasures

- Ineligible CMs removed; Eligible CMs renumbered;
- Removed 15% cost requirement (in order for a CM to be used);
- New safety CMs:

<table>
<thead>
<tr>
<th>CM ID</th>
<th>Countermeasure Name</th>
<th>Crash Type</th>
<th>CRF</th>
<th>Funding Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>S15/NS16</td>
<td>Reduced Left-Turn Conflict Intersections</td>
<td>All</td>
<td>50%</td>
<td>90%</td>
</tr>
<tr>
<td>S19PB</td>
<td>Pedestrian Scramble</td>
<td>Ped &amp; Bike</td>
<td>40%</td>
<td>100%</td>
</tr>
<tr>
<td>NS22PB/R37PB</td>
<td>Install Rectangular Rapid Flashing Beacon (RRFB)</td>
<td>Ped &amp; Bike</td>
<td>35%</td>
<td>100%</td>
</tr>
<tr>
<td>R16</td>
<td>Curve Shoulder widening (Outside Only)</td>
<td>All</td>
<td>45%</td>
<td>90%</td>
</tr>
<tr>
<td>R33PB</td>
<td>Install Separated Bike Lanes</td>
<td>Ped &amp; Bike</td>
<td>45%</td>
<td>90%</td>
</tr>
<tr>
<td>NS12/R21</td>
<td>Improve pavement friction (High Friction Surface Treatments)</td>
<td>All</td>
<td>55%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Local HSIP Cycle 10: Safety Countermeasures

New traffic signals:

- Other CMs such as intersection lighting should not be counted;

- Signal Warrant calculation sheet is required as an attachment to the application for installing new traffic signals and must meet warrant (4) Pedestrian Volume, (5) School Crossing or (7) Crash Experience

- Consideration of a roundabout is required if state highways are involved (recommended to consider if not state highways):

  If a traffic signal is being proposed, an engineering study should include consideration of a roundabout (yield control). If a roundabout is determined to provide a viable and practical solution, it should be studied in lieu of, or in addition to a traffic signal
Local HSIP Cycle 10: Safety Countermeasures

- **Incremental approach** for certain high-cost safety improvements: Need to show that low-cost improvements (e.g., new curve signing or additional signs, or HFST) have been tried
  - R15 (Widen shoulder),
  - R16 (Curve shoulder widening (outside only)),
  - R17 (Improve horizontal alignment (flatten curves)) and
  - R18 (Flatten crest vertical curve)
Local HSIP Cycle 10: BCR Applications

Steps to prepare a BCR application

1. Location identification
   (System wide/intersections/roadway segments)

2. Crash problems/patterns
   (Crash reports/diagrams)

3. Countermeasure selection
   Effectively address the crash problem

4. Preliminary Design and Cost Estimate

5. BCR Calculation
   (HSIP Analyzer)

6. Finish application with attachments & submit electronically

Crash Data
(Agency’s preferred source or SafeTREC’s TIMS website)
Local HSIP Cycle 10: BCR Applications

**Application Preparation:**

This is a technical process. The HSIP program relies on the integrity of the BCRs

- Review, analysis, and application of crash data
- Understanding of collision patterns and countermeasure effectiveness
- Developing project scope and estimate

Who completes the applications?

- Traffic and Transportation Engineers; Other traffic-safety professionals
- **Engineer’s stamp is required** (Engineer’s Checklist)
Local HSIP Cycle 10: BCR Applications

Tips for a Good BCR Application (1):

No flaws in the BCR calculation

1. The BCR is key for a project to be selected for funding. It is critical to make sure the BCR is calculated correctly. Please read through Manual for HSIP Analyzer before you start any calculation.

2. Do the safety countermeasures (CMs) selected target the particular crash types at the project locations? Are collisions used in the benefit calculation within the influence area of the CMs? The majority of the rejected applications in the previous cycles were due to:
   a. Misuse of CMs
   b. The use of crashes not in CM’s influence area

3. For an application proposing shoulder widening or roadway realignments, documentation is required to show that an incremental approach has been tried but failed to reduce crashes. Incremental approach would entail installing/adding/upgrading warning signs, delineation, flashing beacons, installing high friction surface treatment, etc.

4. Have you reviewed the specific requirements that some CMs have in Appendix B of the Local Roadway Safety Manual? For example, before a traffic signal can be considered for HSIP funding, it will need to satisfy warrant 4, 5 or 7.
Local HSIP Cycle 10: BCR Applications

Tips for a Good BCR Application (2):

**Maximize the project benefit**

5. Select locations & corridors with highest numbers of crashes. Identify highest crash corridors first and then look for projects in those corridors. Do not identify projects first and then look for collisions to justify the project.

6. Select CMs with high Crash Reduction Factors (CRFs) when applicable.

7. Combine multiple CMs or multiple locations with similar characteristics into one application to improve safety effectiveness and project delivery efficiencies. Use multiple solutions in high crash corridors. Apply other CMs (e.g. rumble strips/signing upgrades/high visibility striping). If the BCR is very high (e.g. 30), consider adding other locations that have similar characteristics, face similar safety issues but have no high number of crashes.

**Lower the project cost**

8. Focus on low-cost, quick-delivery projects – rumble strips, High Friction Surface Treatments, Pedestrian Crossings, warning signs, etc.

9. Minimize adding non-safety-related components into the project scope – Non-safety-related components will make the project harder to deliver and lower the project’s BCR.
Local HSIP Cycle 10: BCR Applications

Available Tools/Documents (1)

Local HSIP Cycle 10: BCR Applications

Available Tools/Documents (2)

Local Roadway Safety Manual for California Local Road Owners (LRSM)

LRSM outlines the basic elements of a proven process for Crash Analysis & Project Identification:

1. Introduction and Purpose
2. Identifying Safety Issues
3. Safety Data Analysis
4. Countermeasure Selection
5. Calculating the B/C ratio and Comparing Projects
6. Identifying Funding and Construct Improvements
7. Evaluation of Improvements

Appendix A through G

- Appendix B: Details on all countermeasures (where to use & why it works)
Local HSIP Cycle 10: BCR Applications

Available Tools/Documents (3)

Transportation Injury Mapping System (TIMS)

http://tims.berkeley.edu/

Developed by UC Berkeley Safe Transportation Research & Education Center (SafeTREC)

![Screen capture of Transportation Injury Mapping System (TIMS)](https://tims.berkeley.edu)
Local HSIP Cycle 10: BCR Applications

Available Tools/Documents (3)

Transportation Injury Mapping System (TIMS)

- TIMS provides crash data and mapping analysis tools and information for traffic safety related research, policy and planning

- All Local Agencies have access to California Statewide Integrated Traffic Records System (SWITRS) Crash Data
  
  • Agencies may use their locally preferred crash data analysis tools (e.g. Crossroads)
  
  • A great option for agencies without own traffic crash database
DEMO

- HSIP Application Form
- HSIP Analyzer
Local HSIP Cycle 10 Application Form

- Application Form is a savable PDF file
  - Adobe Acrobat Reader DC is required

- Will be submitted electronically
  - All required information including attachments must be provided prior to submittal

- An email confirmation will be sent to the email address as provided in application form.
Local HSIP Cycle 10 Application Form

Attachments: each box may contain multiple files.

1. Engineer’s Checklist (required) *(template pre-attached)*
2. Vicinity map/Location map (required)
3. Project maps/plans showing existing and proposed conditions (required)
4. Pictures of existing condition (required)
5. HSIP Analyzer (required) *(Blank HSIP Analyzer pre-attached)*
6. Collision Diagram(s) (required for BCR applications)
7. Collision List(s) (required for BCR applications)
8. Warrant studies (required for new signals)
9. Letter/email of Support from Caltrans (required for applications involving State Highways)
10. Additional narration, documentation, letters of support, etc. (Optional)
HSIP Analyzer

A PDF form-based software that streamlines the project cost estimate, safety improvement countermeasure evaluation, crash data input and Benefit Cost Ratio (BCR) calculation.


After completion:
- Enter key data to the Application Form;
- Attach the completed HSIP Analyzer to the HSIP Application Form as Attachment No. 5.

Manual for HSIP Analyzer: provides detailed explanations.
- Print and read the manual before entering data;
- Refer to the manual while using the HSIP Analyzer;
- Completing the analysis without referring to the manual could lead to errors and fatal flaws
HSIP Analyzer

HSIP Analyzer is required to use for all applications.

For BCR applications

Engineer’s estimate for construction items; Project cost estimate; Selection of CMs; Crash data; BCR calculation

For Funding Set-aside applications

Engineer’s estimate for construction items; Project cost estimate
HSIP Analyzer

Section I. Construction Cost Estimate and Cost Breakdown

- For construction costs only
- For a BCR application:
  - Distribute the cost of each item among CMs, other safety-related (OS) and non-safety-related (NS) components.
- For a Non-BCR application:
  - Distribute the cost of each item between safety-related and non-safety-related components.
- Calculate the max Funding Reimbursement Ratio (FRR) of the project. The FRR will be used in Section II
HSIP Analyzer

Section II. Project Cost Estimate

- Include all phases (PE, ROW, CON & CE) and all funding sources
- Automatic data-checking:
  - Minimum HSIP amount: $100K
  - Maximum HSIP amount: $10M
  - PE (HSIP$): <=25% of Construction
  - ROW (HSIP$): <=10% of Construction
  - CE (HSIP$): <=15% of Construction
- Exceptions to the above rules should be explained in narrative question No. 3 in the HSIP Application Form
Section III. Crash Data

- All locations are of the same location type (Signalized Intersection, OR Non-Signalized Intersection OR Roadway).
- All locations will have the same safety improvements, i.e. CMs.
- Provide crash data (most recent 3-5 years)
HSIP Analyzer

Section IV. Calculation and Results

Automatic error-checking. Possible errors:

- No location type (S/NS/R) is provided
- CMs S08 and S02 should not be used together
- CM NS03 should not be used with any other CM
- Roundabout, when selected, should be the only CM
- Roundabout is the proposed work but roundabout information is not provided
- Crash data period is not between 3 and 5 years
- Num of crashes in a sub-dataset > the num in All dataset
Thanks for Attending

QUESTIONS?

Contact your DLAEs:

https://dot.ca.gov/programs/local-assistance/other-important-issues/local-assistance-contacts