Cycle 11 – HSIP Call-for-Projects
May 25, 2022
National Focus Toward Roadway Safety

Maria Bhatti
Safety Program Manager
FHWA California Division

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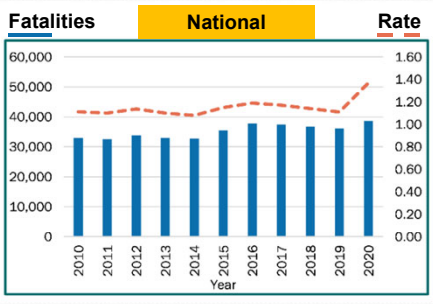
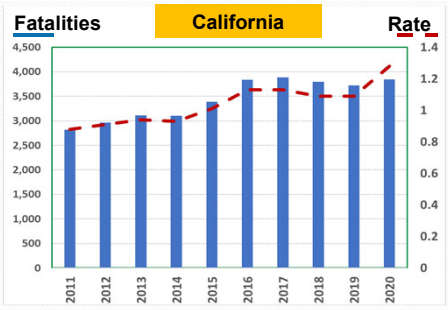
What's Trending





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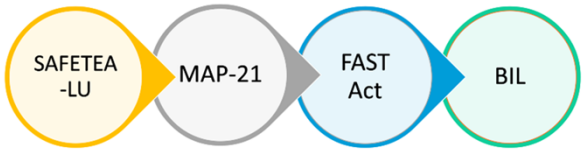
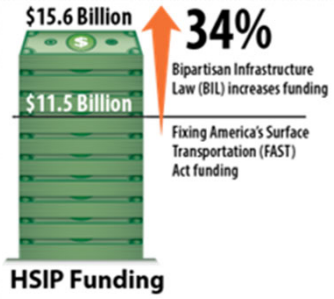
Highway Safety Improvement Program

Legislation History





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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

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HSIP Project Eligibility

- Addresses an SHSP Priority
- Identified through a data driven process
- Targets identified safety issue
- Reduces fatalities and serious injuries

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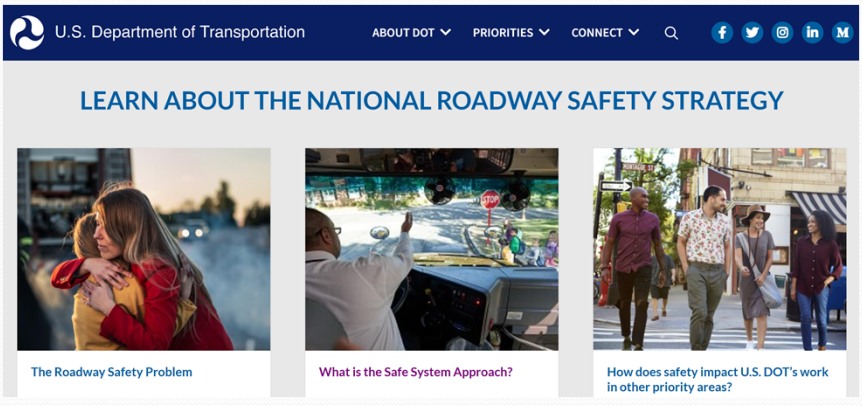
National Roadway Safety Strategy



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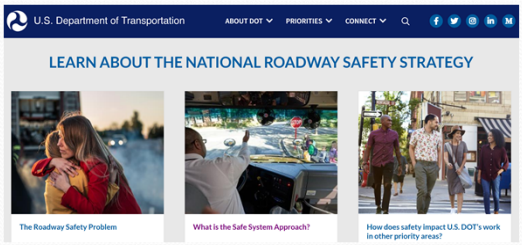
National Roadway Safety Strategy



Safe System Approach

ZERO IS OUR GOAL
A SAFE SYSTEM IS HOW WE GET THERE

https://www.transportation.gov/NRSS

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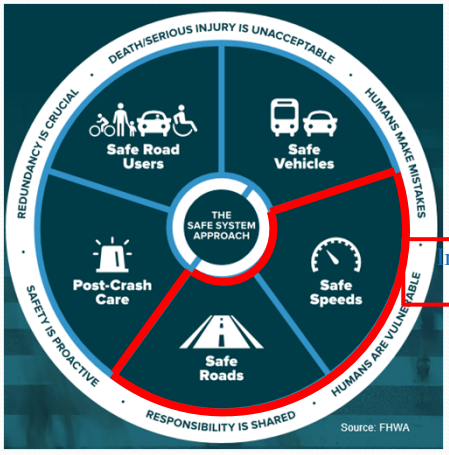
Safe System Concepts

Principles

- Death and Serious Injury is unacceptable
- Humans make mistakes
- Humans are vulnerable
- Safety is proactive
- Redundancy is critical
- Responsibility is shared



Improve Road Safety

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Safe System Approach

Traditional approach		Safe System approach
Prevent crashes	→	Prevent death and serious injuries
Improve human behavior	→	Design for human mistakes/limitations
Control speeding	→	Reduce system kinetic energy
Individuals are responsible	→	Share responsibility
React based on crash history	→	Proactively identify and address risks

Proactive vs. Reactive

ZERO IS OUR GOAL
A SAFE SYSTEM IS HOW WE GET THERE

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Additional Changes & Considerations to HSIP Under BIL

- Vulnerable Road Users
- High Risk Rural Roads
- Automated Traffic Enforcement Systems
- Projects to Maintain minimum levels of Retroreflectivity

Resources

- Technical Assistance/Training to Locals
  - Safe System Approach
  - New 28 Proven Safety Countermeasures
  - Local and Rural Safety Program

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Questions?

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Local HSIP Overview

By Robert Peterson

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

May 25, 2022

Local HSIP Overview

- Past calls for projects;
- HSIP project delivery requirements; and
- Current delivery status of HSIP projects.

Past HSIP Calls for Projects

10 Calls-for-projects so far:

Cycle	1	2	3	4	5
Year	2007	2008	2010	2011	2012
Cycle	6	7	8	9	10
Year	2013	2015	2016	2018	2020

Past HSIP Calls for Projects

Cycles 4 to 10:

$1.13 billion awarded to 1,526 projects. 696 completed/352 in construction.

Expected benefits: $16.5 billion.

Cycle	Release Date	Number of Applications	Number of projects selected	HSIP funds approved ($M)	BCR Cutoff	Average BCR of selected projects
4	2/23/11	357	179	$74.5		7.9
5	10/19/12	276	221	$111.3		14.6
6	11/14/13	389	231	$150.0		10.7
7	11/12/15	212	182	$160.5		16.9
8	11/21/16	247	225	$216.9	3.5	10.3
9	12/12/18	351	220	$180.8	7.5	17.7
10	3/30/21	429	268	$238.3	12.0	24.0
	Total	2,261	1,526	$1,132.3		14.6

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)
  - PE Authorization - within 9 months; and
  - CON Authorization - within 36 months

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, 2022: the DLAE must receive the Request for Authorization package by September 30, 2022 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 4/26/2022)

Status	Number of Projects	Percentage
No Authorization	120	7%
PE or ROW	283	15%
In Construction	357	19%
Completed	1,097	59%
Total	1,857	100%

27 projects delayed (10 on PE; 17 on CON)

QUESTIONS?

CALTRANS DIVISION OF LOCAL ASSISTANCE

Local HSIP Cycle 11 Call-for-projects

By Richard Ke

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

May 25, 2022

Outline

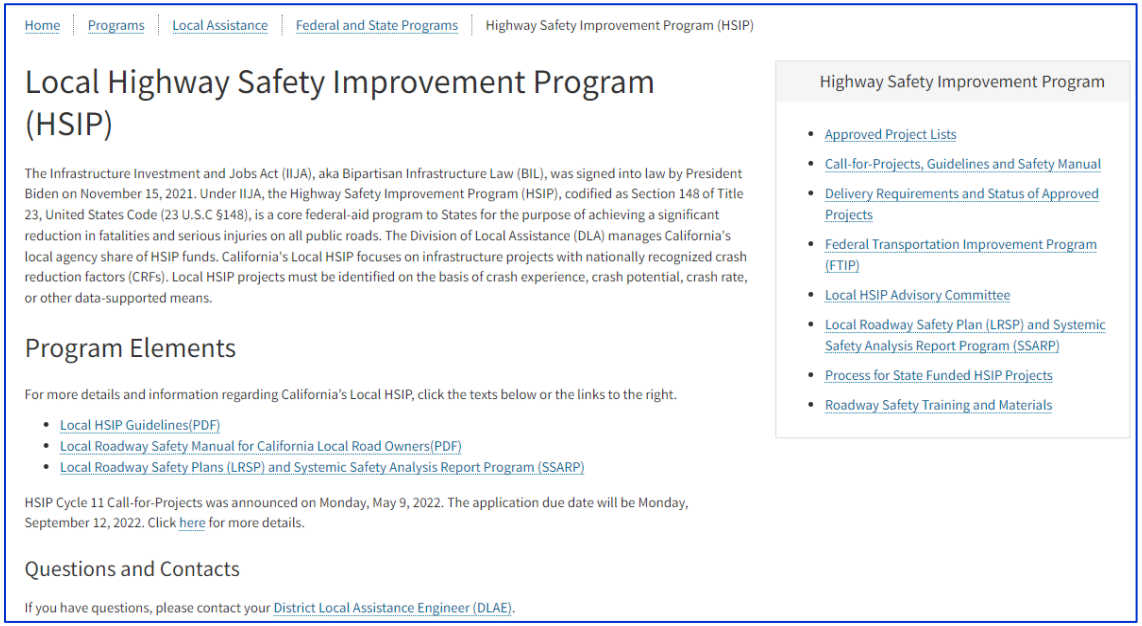
- General information
- Cycle 11 Call-for-projects
- Funding set-asides
- BCR Applications
- Application Form
- HSIP Analyzer

Local HSIP Website

https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/highway-safety-improvement-program

or Google search “CA Local HSIP”

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



Home | Programs | Local Assistance | Federal and State Programs | Highway Safety Improvement Program (HSIP)

Local Highway Safety Improvement Program (HSIP)

The Infrastructure Investment and Jobs Act (IIJA), aka Bipartisan Infrastructure Law (BIL), was signed into law by President Biden on November 15, 2021. Under IIJA, 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 texts below or the links to the right.

- Local 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 Cycle 11 Call-for-Projects was announced on Monday, May 9, 2022. The application due date will be Monday, September 12, 2022. Click here for more details.

Questions and Contacts

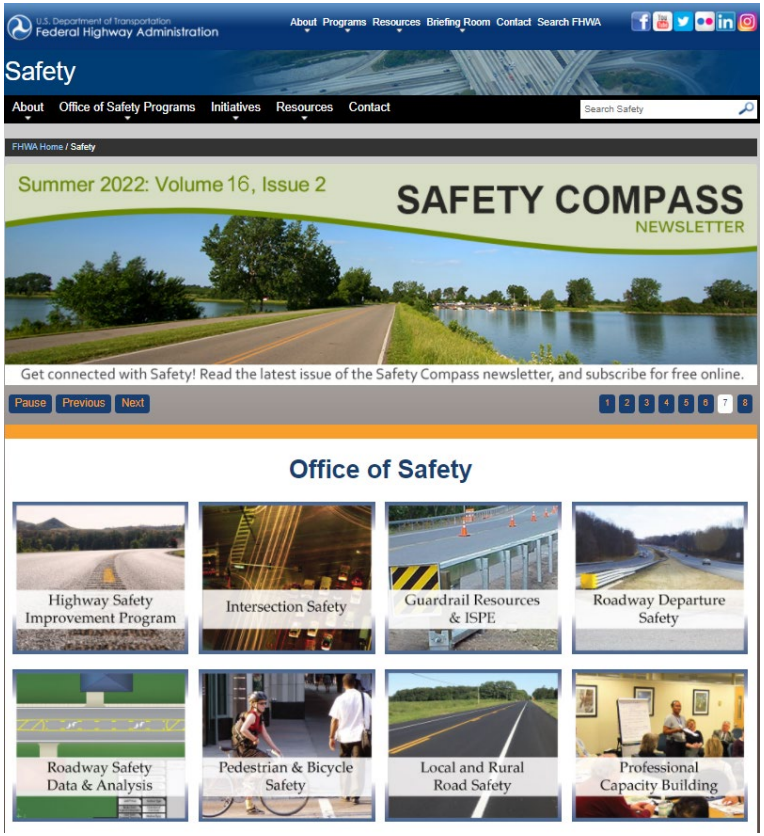
If you have questions, please contact your District Local Assistance Engineer (DLAE).

Highway Safety Improvement Program

- Approved Project Lists
- Call-for-Projects, Guidelines and Safety Manual
- Delivery Requirements and Status of Approved Projects
- Federal Transportation Improvement Program (FTIP)
- Local HSIP Advisory Committee
- Local Roadway Safety Plan (LRSP) and Systemic Safety Analysis Report Program (SSARP)
- Process for State Funded HSIP Projects
- Roadway Safety Training and Materials

FHWA Safety Website

https://safety.fhwa.dot.gov/



Local Roadway Safety Manual (LRSM)

LRSM outlines the basic elements 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

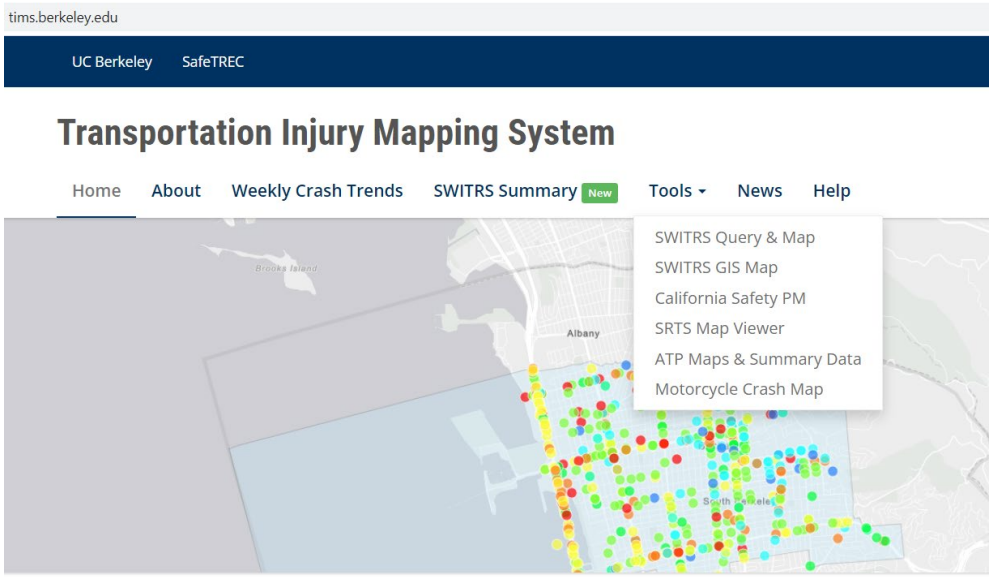
Appendix A through G

- *Appendix B: Details on all countermeasures (where to use & why it works)*

Transportation Injury Mapping System (TIMS)

http://tims.berkeley.edu/

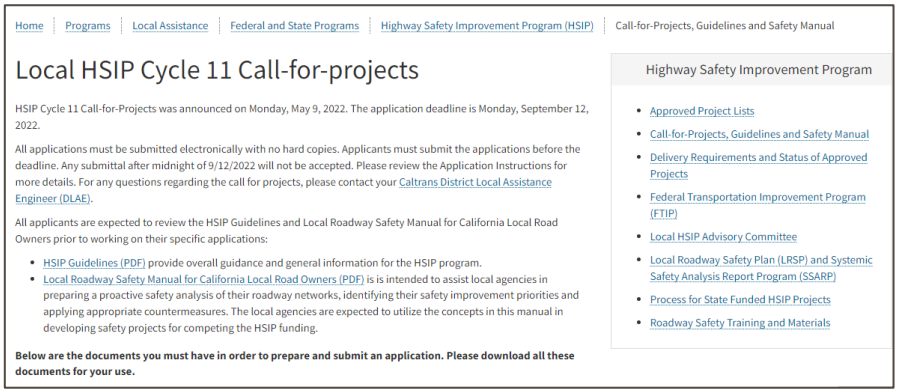
- Developed by UC Berkeley Safe Transportation Research & Education Center (SafeTREC)



- 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

Local HSIP Cycle 11 Timeline

https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/highway-safety-improvement-program/apply-now



Home | Programs | Local Assistance | Federal and State Programs | Highway Safety Improvement Program (HSIP) | Call-for-Projects, Guidelines and Safety Manual

Local HSIP Cycle 11 Call-for-projects

HSIP Cycle 11 Call-for-Projects was announced on Monday, May 9, 2022. The application deadline is Monday, September 12, 2022.

All applications must be submitted electronically with no hard copies. Applicants must submit the applications before the deadline. Any submittal after midnight of 9/12/2022 will not be accepted. Please review the Application Instructions for more details. For any questions regarding the call for projects, please contact your Caltrans District Local Assistance Engineer (DLAE).

All applicants are expected to review the HSIP Guidelines and Local Roadway Safety Manual for California Local Road Owners prior to working on their specific applications:

- HSIP Guidelines (PDF) provide overall guidance and general information for the HSIP program.
- Local Roadway Safety Manual for California Local Road Owners (PDF) is is intended to assist local agencies in preparing a proactive safety analysis of their roadway networks, identifying their safety improvement priorities and applying appropriate countermeasures. The local agencies are expected to utilize the concepts in this manual in developing safety projects for competing the HSIP funding.

Below are the documents you must have in order to prepare and submit an application. Please download all these documents for your use.

Highway Safety Improvement Program

- Approved Project Lists
- Call-for-Projects, Guidelines and Safety Manual
- Delivery Requirements and Status of Approved Projects
- Federal Transportation Improvement Program (FTIP)
- Local HSIP Advisory Committee
- Local Roadway Safety Plan (LRSP) and Systemic Safety Analysis Report Program (SSARP)
- Process for State Funded HSIP Projects
- Roadway Safety Training and Materials

- Announcement - May 9, 2022
- Applications Due - September 12, 2022
- Applications will be reviewed by Caltrans Districts and Headquarters – September/October 2022
- Develop the list of recommended projects and secure approval by Caltrans management - November/Early December 2022
- Applicants will only be notified with final selection results

Local HSIP Cycle 11

- Applicants: Cities, Counties, Tribes and Other
  - Agencies with delivery delays on their current HSIP projects must resolve the delays by 9/30/2022.
  - **Applicants must have completed Local Roadway Safety Plan (LRSP) or equivalent**
- Expected to use state funds (funding exchange based on SB 137)
  - Coordinate between State HSIP and Local HSIP;
  - Approve by CTC;
  - IIJA Special Rules: at least some HRRR/VRU projects may have to use federal funds.
- 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.
- Fund Reimbursement Ratio: 90%

Application Categories

- **BCR Applications**
  - Majority of the applications ($174 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**
  - $36 million for all set-asides
  - No BCR required
  - Funding Reimbursement Ratio = 90%.
  - Number of applications per agency: 1 for each set-aside

Funding Set-asides

Five Set-asides:

- Guardrail Upgrades;
- Pedestrian Crossing Enhancements;
- Installing Edgelines;
- Bike Safety Improvements;
- Tribes

Project selection criteria (priority in the below order):

- Agencies with no funds awarded in Cycles 9&10;
- agencies with no same set-aside funds awarded in Cycles 9&10;
- Agencies with more (F+SI) crashes in the last 3 years.

Funding Set-asides

- Guardrail Upgrades
  - Total $12M; 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.

Funding Set-asides

- Installing Edgelines
  - Total $2M; Max per agency: $250k
  - Installing edgelines along roadways
- Bike Safety Improvements
  - Total $5M; Max per agency: $250k
  - Installing bike lanes (CM No. R32PB) and/or installing separated bike lanes (CM No. R33PB).

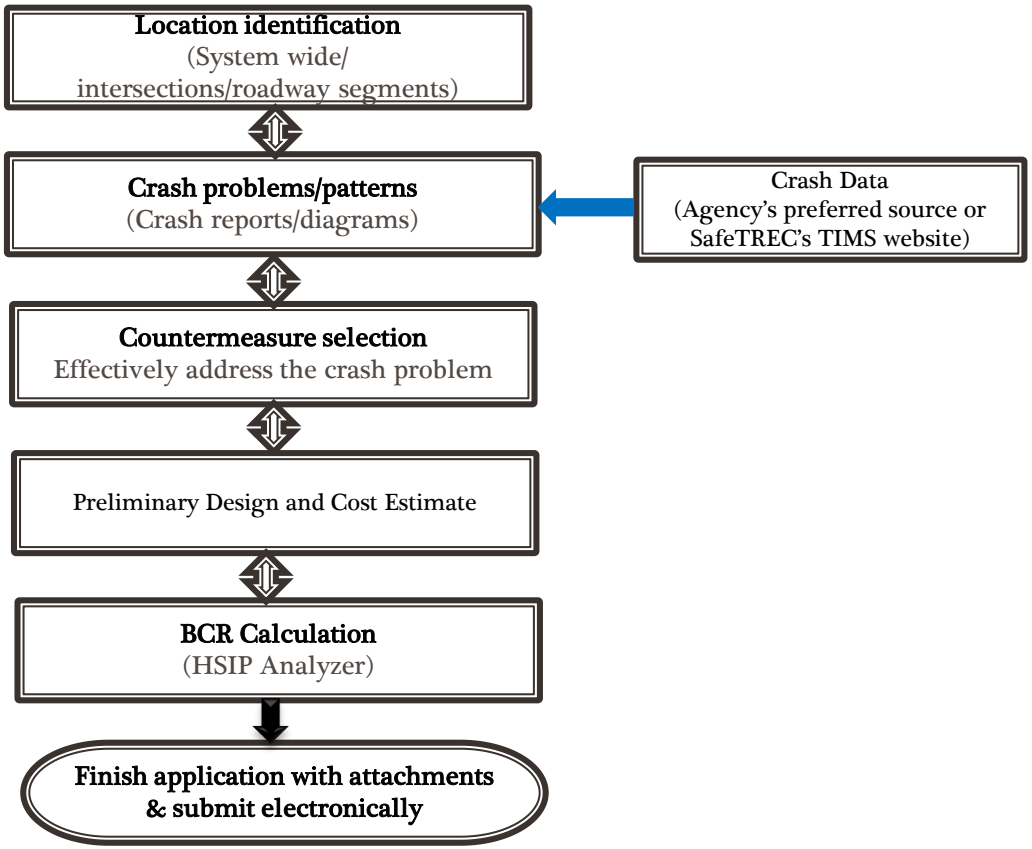
Funding Set-asides

- Tribes
  - Total $2M; Max per agency: $250k
  - Applicants must be federally recognized tribes in California
  - For any work under the other 4 set-asides, and other low-cost roadway safety improvements (signs, pavement delineators, edge-lines, centerlines, rumble strips/stripes, etc.)

BCR Applications

- Work must be related to the safety countermeasures as listed;
- Prefer projects that can be delivered quickly and have minimal ROW and Environmental impacts;
- BCR applications are selected for funding based on the BCRs. Applications will be ranked per BCRs from highest to lowest.
- BCR cutoff is unknown at the time of application submittal.
- BCR must be at least 3.5 for submitting.

BCR Applications - Steps



BCR Applications: Safety Countermeasures

- Safety improvements must be related to the 82 Safety countermeasures (CMs) with established Crash Reduction Factor (CRF)

- CMs by location types
  - Signalized Intersection (S): 20
  - Non-Signalized Intersection (NS): 24
  - Roadway (R): 38

- CMs by Crash types (for applying CRFs)
  - All: 59
  - Pedestrians and Bicyclists: 18
  - Night: 3
  - Emergency vehicle involved: 1
  - Animal involved: 1

BCR Applications: Safety Countermeasures

CM List Example - CMs for Signalized Intersections:

No.	Type	Countermeasure Name	Crash Type	CRF	Expected Life (Years)	HSIP Funding Eligibility	Systemic Approach Opportunity?
S01	Lighting	Add intersection lighting (S.I.)	Night	40%	20	90%	Medium
S02	Signal Mod.	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	All	15%	10	90%	Very High
S03	Signal Mod.	Improve signal timing (coordination, phases, red, yellow, or operation)	All	15%	10	50%	Very High
~~S04*~~	~~Signal Mod.~~	~~Provide Advanced Dilemma Zone Detection for high speed approaches~~	~~All~~	~~40%~~	~~10~~	~~90%~~	~~High~~
S05	Signal Mod.	Install emergency vehicle pre-emption systems	Emergency Vehicle	70%	10	90%	High
S06	Signal Mod.	Install left-turn lane and add turn phase (signal has no left-turn lane or phase before)	All	55%	20	90%	Low
S07	Signal Mod.	Provide protected left turn phase (left turn lane already exists)	All	30%	20	90%	High
S08	Signal Mod.	Convert signal to mast arm (from pedestal-mounted)	All	30%	20	90%	Medium
S09	Operation/ Warning	Install raised pavement markers and striping (Through Intersection)	All	10%	10	90%	Very High
S10	Operation/ Warning	Install flashing beacons as advance warning (S.I.)	All	30%	10	90%	Medium
S11	Operation/ Warning	Improve pavement friction (High Friction Surface Treatments)	All	55%	10	90%	Medium
S12	Geometric Mod.	Install raised median on approaches (S.I.)	All	25%	20	90%	Medium
S13PB	Geometric Mod.	Install pedestrian median fencing on approaches	P & B	35%	20	90%	Low
S14	Geometric Mod.	Create directional median openings to allow (and restrict) left-turns and u-turns (S.I.)	All	50%	20	90%	Medium
S15	Geometric Mod.	Reduced Left-Turn Conflict Intersections (S.I.)	All	50%	20	90%	Medium
S16	Geometric Mod.	Convert intersection to roundabout (from signal)	All	Varies	20	90%	Low
S17PB	Ped and Bike	Install pedestrian countdown signal heads	P & B	25%	20	90%	Very High
S18PB	Ped and Bike	Install pedestrian crossing (S.I.)	P & B	25%	20	90%	High
S19PB	Ped and Bike	Pedestrian Scramble	P & B	40%	20	90%	High
S20PB	Ped and Bike	Install advance stop bar before crosswalk (Bicycle Box)	P & B	15%	10	90%	Very High
S21PB	Ped and Bike	Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	P & B	60%	10	90%	Very High

* CM S04 has been deleted in HSIP Cycle 11 Call-for-projects.

BCR Applications: Safety Countermeasures

- **1 CM Removed:**

  S04: Provide Advanced Dilemma Zone Detection for High Speed Approaches

- **1 new safety CM:**

  NS05mr: Convert Intersection to Mini-Roundabout; CRF = 30%.

- **<u>Incremental approach:</u>**

  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)

BCR Applications: Safety Countermeasures

NS03: 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

S08 and S02 should not be used together

S08: Convert signal to mast arm; S02: Improve signal hardware.

Application Preparation

1) **Engineers prepare the applications**
   - Understand collision patterns and countermeasure effectiveness.
   - Develop project scope and estimate.
   - **Engineer's stamp is required (Engineer's Checklist).**

2) **For set-aside applications**
   - Select project locations systemically.
   - make sure the work is eligible for the respective set-aside.

3) **For BCR applications**
   - Use safety countermeasures that target the crash types at the project locations.
   - Use crashes within the influence area of the CMs.
   - Follow the instructions:

     Incremental approach for certain CMs; Warrant requirement for signals; projects involving state highways, etc.
   - Maximize project benefit:

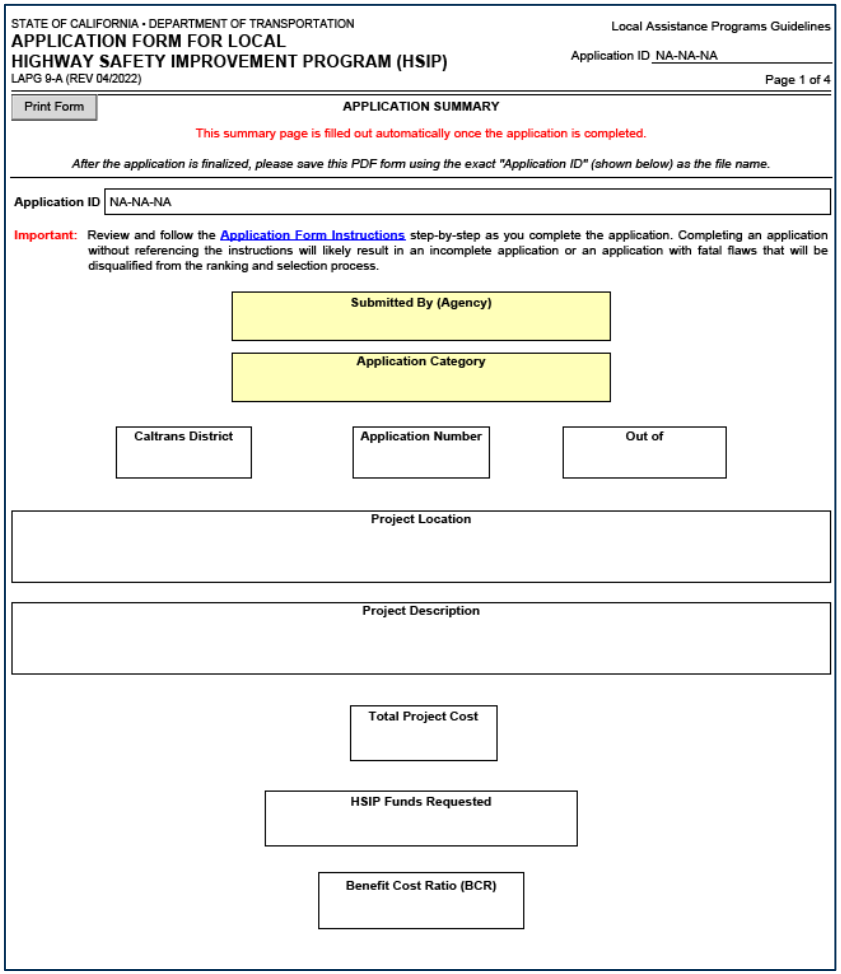
     Select locations with high number of crashes; select effective CMs; Use multiple CMs when applicable.
   - Lower project cost:

     Use low-cost CMs; Minimize non-safety related components.

Application Form

- Application Form is a savable PDF file
  - Adobe Acrobat Reader DC is required (https://www.adobe.com/acrobat/pdf-reader.html to download)
- Will be submitted electronically
  - All required information including attachments must be provided prior to submittal
  - Click “Save and Submit” button (last page)
- An email confirmation will be sent to the email address as provided in application form.

Application Form



STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
APPLICATION FORM FOR LOCAL HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)
LAPG 9-A (REV 04/2022)

Local Assistance Programs Guidelines
Application ID NA-NA-NA
Page 1 of 4

Print Form

APPLICATION SUMMARY

This summary page is filled out automatically once the application is completed.

After the application is finalized, please save this PDF form using the exact "Application ID" (shown below) as the file name.

Application ID NA-NA-NA

Important: Review and follow the Application Form Instructions step-by-step as you complete the application. Completing an application without referencing the instructions will likely result in an incomplete application or an application with fatal flaws that will be disqualified from the ranking and selection process.

Submitted By (Agency)

Application Category

Caltrans District | Application Number | Out of

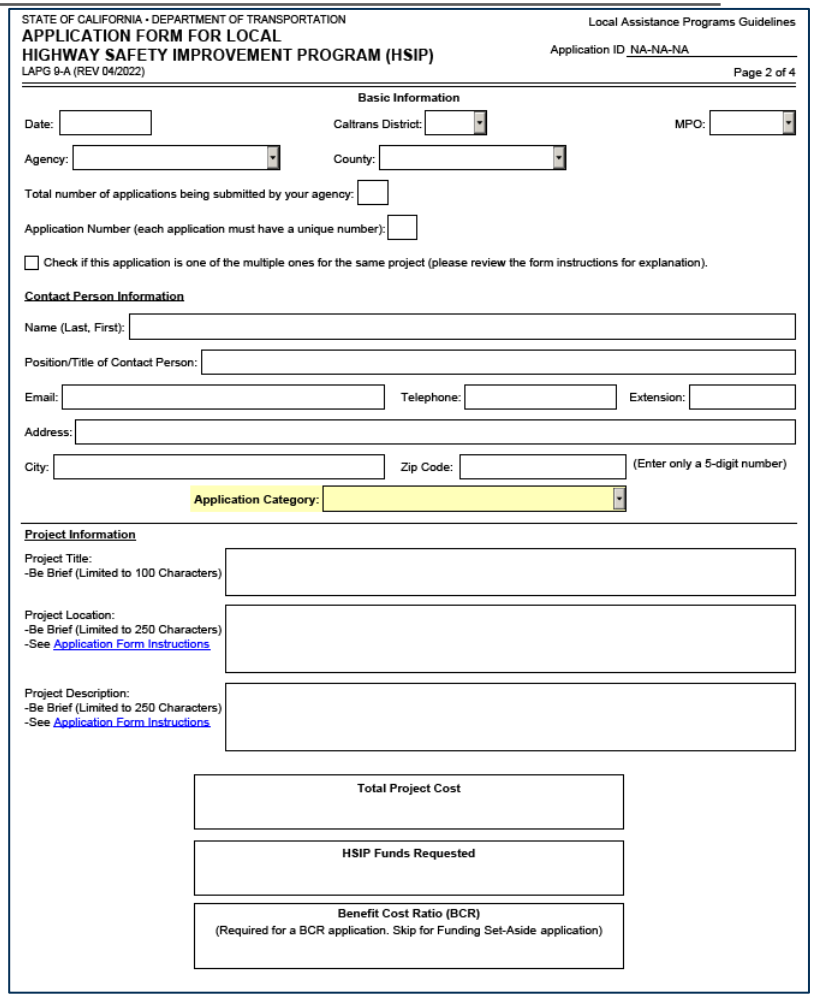
Project Location

Project Description

Total Project Cost

HSIP Funds Requested

Benefit Cost Ratio (BCR)



STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
APPLICATION FORM FOR LOCAL HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)
LAPG 9-A (REV 04/2022)

Local Assistance Programs Guidelines
Application ID NA-NA-NA
Page 2 of 4

Basic Information

Date: | Caltrans District: | MPO:

Agency: | County:

Total number of applications being submitted by your agency:

Application Number (each application must have a unique number):

☐ Check if this application is one of the multiple ones for the same project (please review the form instructions for explanation).

Contact Person Information

Name (Last, First):

Position/Title of Contact Person:

Email: | Telephone: | Extension:

Address:

City: | Zip Code: (Enter only a 5-digit number)

Application Category:

Project Information

Project Title:
-Be Brief (Limited to 100 Characters)

Project Location:
-Be Brief (Limited to 250 Characters)
-See Application Form Instructions

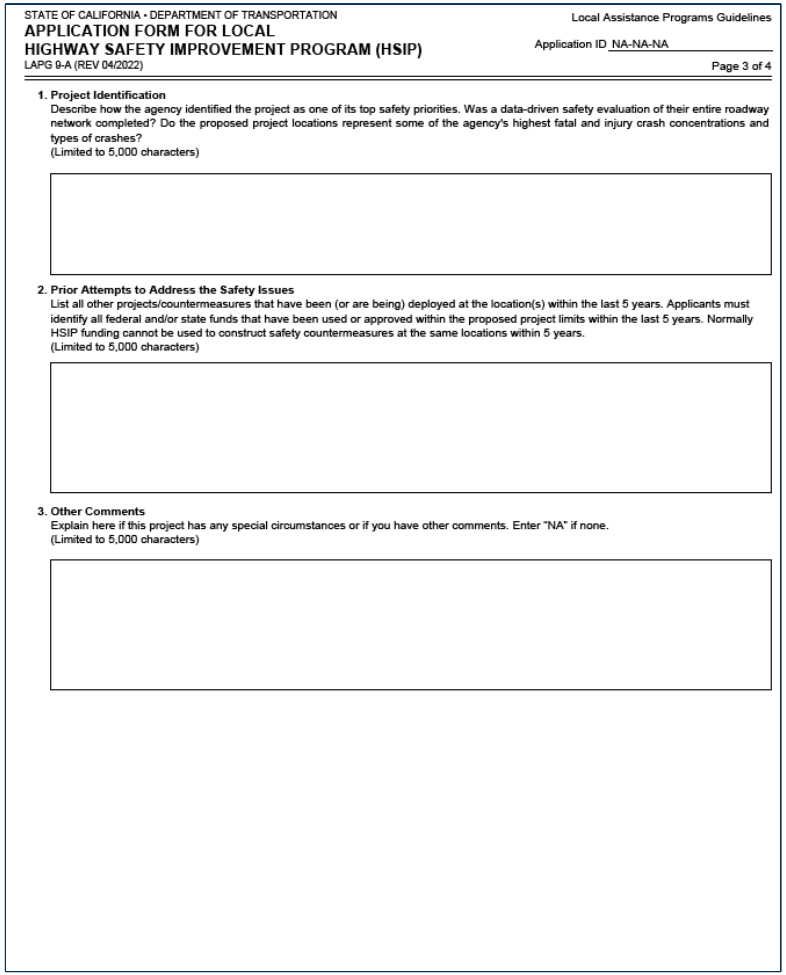
Project Description:
-Be Brief (Limited to 250 Characters)
-See Application Form Instructions

Total Project Cost

HSIP Funds Requested

Benefit Cost Ratio (BCR)
(Required for a BCR application. Skip for Funding Set-Aside application)

Application Form



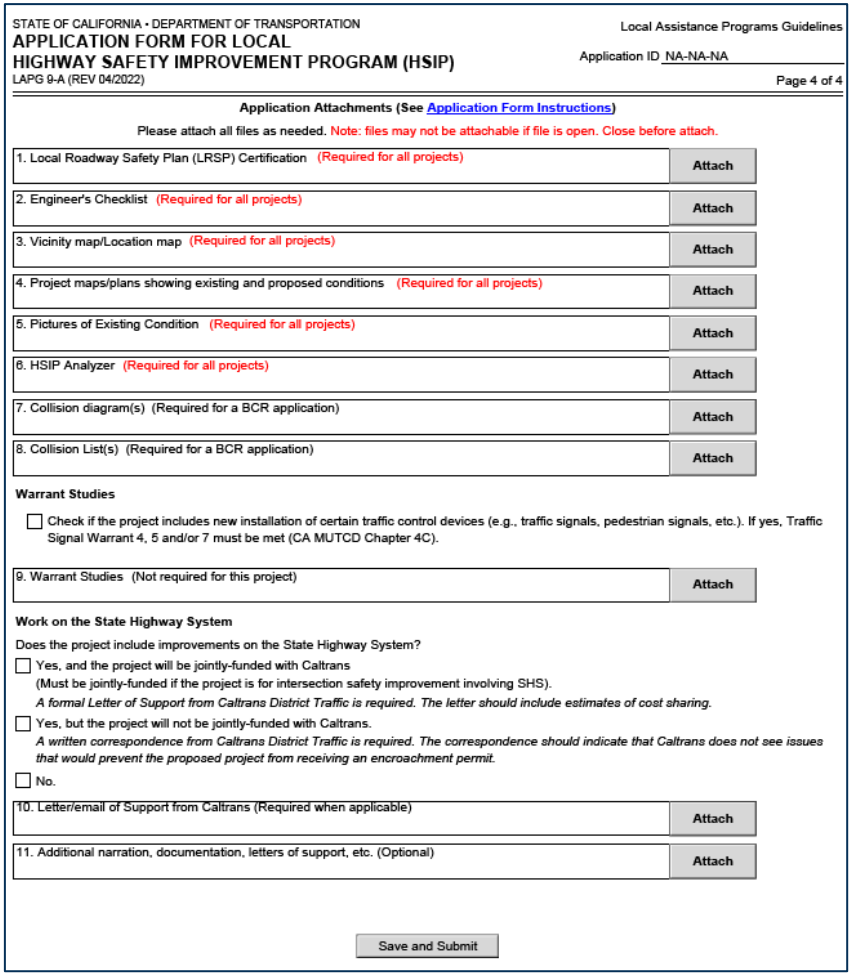
STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
APPLICATION FORM FOR LOCAL HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)
LAPG 9-A (REV 04/2022)

Local Assistance Programs Guidelines
Application ID NA-NA-NA
Page 3 of 4

1. Project Identification
Describe how the agency identified the project as one of its top safety priorities. Was a data-driven safety evaluation of their entire roadway network completed? Do the proposed project locations represent some of the agency's highest fatal and injury crash concentrations and types of crashes?
(Limited to 5,000 characters)

2. Prior Attempts to Address the Safety Issues
List all other projects/countermeasures that have been (or are being) deployed at the location(s) within the last 5 years. Applicants must identify all federal and/or state funds that have been used or approved within the proposed project limits within the last 5 years. Normally HSIP funding cannot be used to construct safety countermeasures at the same locations within 5 years.
(Limited to 5,000 characters)

3. Other Comments
Explain here if this project has any special circumstances or if you have other comments. Enter "NA" if none.
(Limited to 5,000 characters)



STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
APPLICATION FORM FOR LOCAL HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)
LAPG 9-A (REV 04/2022)

Local Assistance Programs Guidelines
Application ID NA-NA-NA
Page 4 of 4

Application Attachments (See Application Form Instructions)

Please attach all files as needed. Note: files may not be attachable if file is open. Close before attach.

1. Local Roadway Safety Plan (LRSP) Certification (Required for all projects) — Attach
2. Engineer's Checklist (Required for all projects) — Attach
3. Vicinity map/Location map (Required for all projects) — Attach
4. Project maps/plans showing existing and proposed conditions (Required for all projects) — Attach
5. Pictures of Existing Condition (Required for all projects) — Attach
6. HSIP Analyzer (Required for all projects) — Attach
7. Collision diagram(s) (Required for a BCR application) — Attach
8. Collision List(s) (Required for a BCR application) — Attach

Warrant Studies

☐ Check if the project includes new installation of certain traffic control devices (e.g., traffic signals, pedestrian signals, etc.). If yes, Traffic Signal Warrant 4, 5 and/or 7 must be met (CA MUTCD Chapter 4C).

9. Warrant Studies (Not required for this project) — Attach

Work on the State Highway System

Does the project include improvements on the State Highway System?

☐ Yes, and the project will be jointly-funded with Caltrans
(Must be jointly-funded if the project is for intersection safety improvement involving SHS).
A formal Letter of Support from Caltrans District Traffic is required. The letter should include estimates of cost sharing.

☐ Yes, but the project will not be jointly-funded with Caltrans.
A written correspondence from Caltrans District Traffic is required. The correspondence should indicate that Caltrans does not see issues that would prevent the proposed project from receiving an encroachment permit.

☐ No.

10. Letter/email of Support from Caltrans (Required when applicable) — Attach
11. Additional narration, documentation, letters of support, etc. (Optional) — Attach

Save and Submit

Application Form - attachments

Attachments: each box may contain multiple files.

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

HSIP Analyzer

HSIP Analyzer is a PDF form that:

- provides estimated project schedule, project cost estimate and other general information for all applications; and
- estimate project benefit and calculate the BCR for BCR applications.

Adobe Acrobat Reader DC is required

- https://www.adobe.com/acrobat/pdf-reader.html to download.

After completion:

- Enter key data to the Application Form;
- Attach the completed HSIP Analyzer to the HSIP Application Form as Attachment No. 6.

Manual for HSIP Analyzer:

- Go through the manual before you start to use HSIP Analyzer;
- 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.

HSIP Analyzer for Set-aside applications:

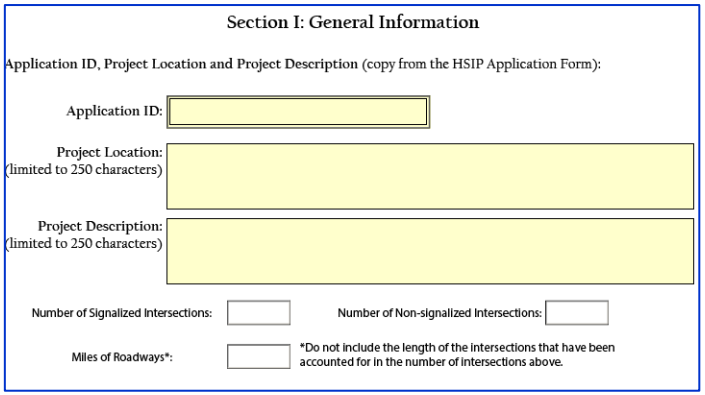
- General Information;
- Project Schedule;
- Engineer's estimate for construction items; and
- Project cost estimate.

HSIP Analyzer for BCR applications:

- General Information;
- Project Schedule;
- Engineer's estimate for construction items; and
- Project cost estimate.
- List of Project Locations;
- Selection of CMs;
- Crash data;
- BCR calculation.

HSIP Analyzer for BCR Applications

Section I. General Information



Section I: General Information

Application ID, Project Location and Project Description (copy from the HSIP Application Form):

Application ID:

Project Location: (limited to 250 characters)

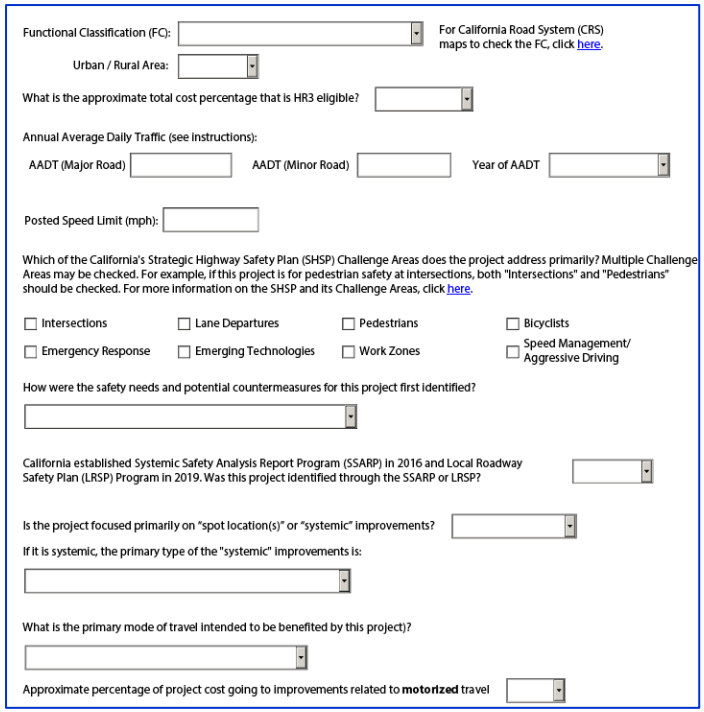
Project Description: (limited to 250 characters)

Number of Signalized Intersections:

Number of Non-signalized Intersections:

Miles of Roadways*:

*Do not include the length of the intersections that have been accounted for in the number of intersections above.



Functional Classification (FC):

For California Road System (CRS) maps to check the FC, click here.

Urban / Rural Area:

What is the approximate total cost percentage that is HR3 eligible?

Annual Average Daily Traffic (see instructions):

AADT (Major Road)

AADT (Minor Road)

Year of AADT

Posted Speed Limit (mph):

Which of the California's Strategic Highway Safety Plan (SHSP) Challenge Areas does the project address primarily? Multiple Challenge Areas may be checked. For example, if this project is for pedestrian safety at intersections, both "Intersections" and "Pedestrians" should be checked. For more information on the SHSP and its Challenge Areas, click here.

☐ Intersections ☐ Lane Departures ☐ Pedestrians ☐ Bicyclists

☐ Emergency Response ☐ Emerging Technologies ☐ Work Zones ☐ Speed Management/ Aggressive Driving

How were the safety needs and potential countermeasures for this project first identified?

California established Systemic Safety Analysis Report Program (SSARP) in 2016 and Local Roadway Safety Plan (LRSP) Program in 2019. Was this project identified through the SSARP or LRSP?

Is the project focused primarily on "spot location(s)" or "systemic" improvements?

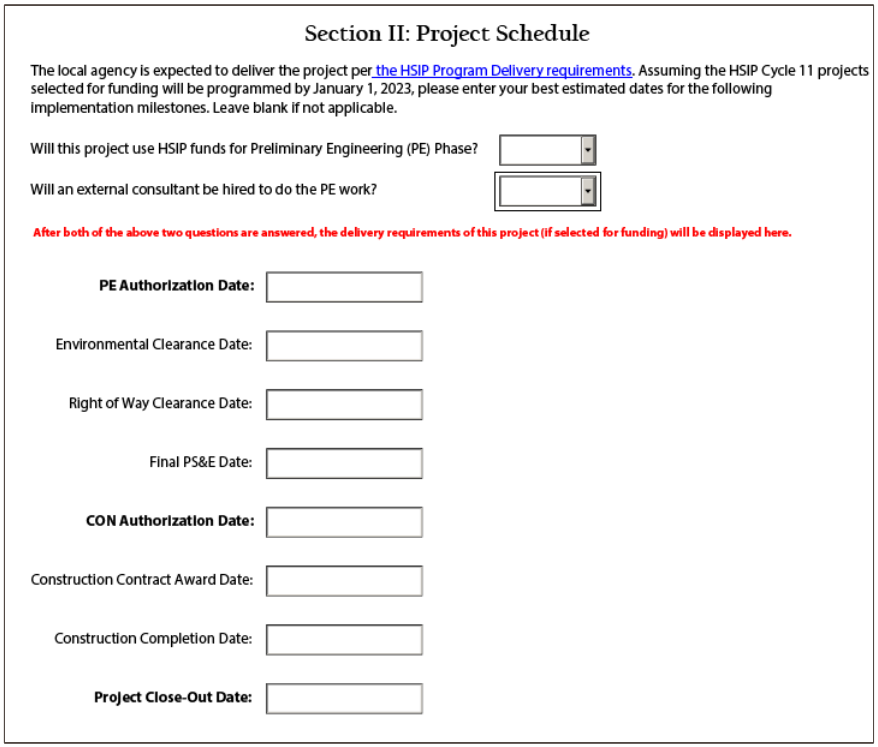
If it is systemic, the primary type of the "systemic" improvements is:

What is the primary mode of travel intended to be benefited by this project)?

Approximate percentage of project cost going to improvements related to **motorized** travel

HSIP Analyzer for BCR Applications

Section II: Project Schedule



Section II: Project Schedule

The local agency is expected to deliver the project per the HSIP Program Delivery requirements. Assuming the HSIP Cycle 11 projects selected for funding will be programmed by January 1, 2023, please enter your best estimated dates for the following implementation milestones. Leave blank if not applicable.

Will this project use HSIP funds for Preliminary Engineering (PE) Phase?

Will an external consultant be hired to do the PE work?

After both of the above two questions are answered, the delivery requirements of this project (if selected for funding) will be displayed here.

PE Authorization Date:

Environmental Clearance Date:

Right of Way Clearance Date:

Final PS&E Date:

CON Authorization Date:

Construction Contract Award Date:

Construction Completion Date:

Project Close-Out Date:

HSIP Analyzer for BCR Applications

Section III: Safety Countermeasures, Crash Data and Project Benefit Calculation

Step 1: Select safety countermeasures

Does this application include Signalized Intersections (SI)? Yes

Does this application include Non-signalized Intersections (NS)?

Does this application include Roadway Segments (R)?

** Normally a BCR application only includes locations of one of the above 3 categories (SI, NS or R). Multiple categories may be selected if the application proposes corridor safety improvements or uses a systemic approach, or the applicant chooses to bundle multiple locations in the same vicinity together.*

Signalized Intersections (SI):

Click the check box in the 1st column to select up to 3 countermeasures.

Hide unselected countermeasures | View all countermeasures

Select	No.	Countermeasure Name
	1	S01: Add intersection lighting (S.I.) (CRF=0.4 for Night crashes; Life=20 yrs; FE=90%)
	2	S02: Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number (CRF=0.15 for All crashes; Life=10 yrs; FE=90%)
	3	S03: Improve signal timing (coordination, phases, red, yellow, or operation) (CRF=0.15 for All crashes; Life=10 yrs; FE=50%)
	4	S05: Install emergency vehicle pre-emption systems (CRF=0.7 for Emergency vehicle crashes; Life=10 yrs; FE=90%)
✓	5	S06: Install left-turn lane and add turn phase (signal has no left-turn lane or phase before) (CRF=0.55 for All crashes; Life=20 yrs; FE=90%)
	6	S07: Provide protected left turn phase (left turn lane already exists) (CRF=0.3 for All crashes; Life=20 yrs; FE=90%)
	7	S08: Convert signal to mast arm (from pedestal-mounted) (CRF=0.3 for All crashes; Life=20 yrs; FE=90%)
	8	S09: Install raised pavement markers and striping (through intersection) (CRF=0.1 for All crashes; Life=10 yrs; FE=90%)
	9	S10: Install flashing beacons as advance warning (S.I.) (CRF=0.3 for All crashes; Life=10 yrs; FE=90%)
	10	S11: Improve pavement friction (High Friction Surface Treatments) (CRF=0.55 for All crashes; Life=10 yrs; FE=90%)
	11	S12: Install raised median on approaches (S.I.) (CRF=0.25 for All crashes; Life=20 yrs; FE=90%)
	12	S13PB: Install pedestrian median fencing on approaches (CRF=0.35 for Ped & Bike crashes; Life=20 yrs; FE=90%)
	13	S14: Create directional median openings to allow (and restrict) left-turns and u-turns (S.I.) (CRF=0.5 for All crashes; Life=20 yrs; FE=90%)
	14	S15: Reduced Left-Turn Conflict Intersections (S.I.) (CRF=0.5 for All crashes; Life=20 yrs; FE=90%)
	15	S16: Convert intersection to roundabout (from signal) (CRF varies for All crashes; Life=20 yrs; FE=90%)
	16	S17PB: Install pedestrian countdown signal heads (CRF=0.25 for Ped & Bike crashes; Life=20 yrs; FE=90%)
	17	S18PB: Install pedestrian crossing (S.I.) (CRF=0.25 for Ped & Bike crashes; Life=20 yrs; FE=90%)
	18	S19PB: Pedestrian Scramble (CRF=0.4 for Ped & Bike crashes; Life=20 yrs; FE=90%)
	19	S20PB: Install advance stop bar before crosswalk (Bicycle Box) (CRF=0.15 for Ped & Bike crashes; Life=10 yrs; FE=90%)
	20	S21PB: Modify signal phasing to implement a Leading Pedestrian Interval (LPI) (CRF=0.6 for Ped & Bike crashes; Life=10 yrs; FE=90%)

HSIP Analyzer for BCR Applications

Section III: Safety Countermeasures, Crash Data and Project Benefit Calculation

Step 2: Click to generate table for project locations, enter the project locations and select countermeasures for each location. If any of the selections have been changed, you must re-click the below button to refresh.

Click to Generate Table for Project Locations Entry

CMs have been selected. Ok to proceed.

	+/- Line	Location No.	Location Description (Intersection Name or Road Limit or General Description)	Click to select Countermeasures		Error Messages (must resolve)
		(Signalized Intersections)				
2				S06		
	+ -	SI_1	Intersection of A Street and B Street	●		
	+ -	SI_2	Intersection of A Street and C Street	●		

HSIP Analyzer for BCR Applications

Section III: Safety Countermeasures, Crash Data and Project Benefit Calculation

Step 3: Click to generate tables for crash data and provide crash data. If any changes have been made in the previous two steps, you must re-click to refresh.

Click to Generate Tables for Crash Data Entry

Crash Data Period: must be between 3 and 5 years.

from (MM/DD/YYYY): 01/01/2017 To (MM/DD/YYYY): 12/31/2020 Crash Data Period (years) = 4

Fill out the crash data table(s) for the crash type(s) as required by the selected countermeasure(s) in Step 2.

Based on the countermeasures selected in Step 2 , the crash data types to be provided are:

Crash Data Table for Crash Type: ALL

No.	Location No : Description (from Step 2)	Fatal (ALL)	Severe Injury (ALL)	Other Visible Injury (ALL)	Complaint of Pain (ALL)	PDO (ALL)	Total	ID
1	SI_1: Intersection of A Street and B Street		1		1		2	
2	SI_2: Intersection of A Street and C Street		2	2		1	5	
	Total		3	2	1	1	7	

HSIP Analyzer for BCR Applications

Section III: Safety Countermeasures, Crash Data and Project Benefit Calculation

Step 4: Calculate the project benefit.

Automatic error-checking. Detect possible errors such as:

- Crash data period is not between 3 and 5 years
- Num of crashes in a sub-dataset > the num in All dataset
- CM NS03 should not be used with any other CM
- Roundabout, when selected, should be the only CM
- CMs S08 and S02 should not be used together

Step 4: Click to Calculate the project benefit. If any changes have been made in the previous two steps, you must re-click to refresh.

Click to Perform Benefit Calculation

Benefit Summary:

Benefit by Locations

Location No : Description	[CM1] Benefit	[CM2] Benefit	[CM3] Benefit	Total Benefit
SI_1: Intersection of A Street and B Street	[S06] $5,164,225	[None] $0	[None] $0	$5,164,225
SI_2: Intersection of A Street and C Street	[S06] $10,748,925	[None] $0	[None] $0	$10,748,925
Sum	$15,913,150	$0	$0	$15,913,150

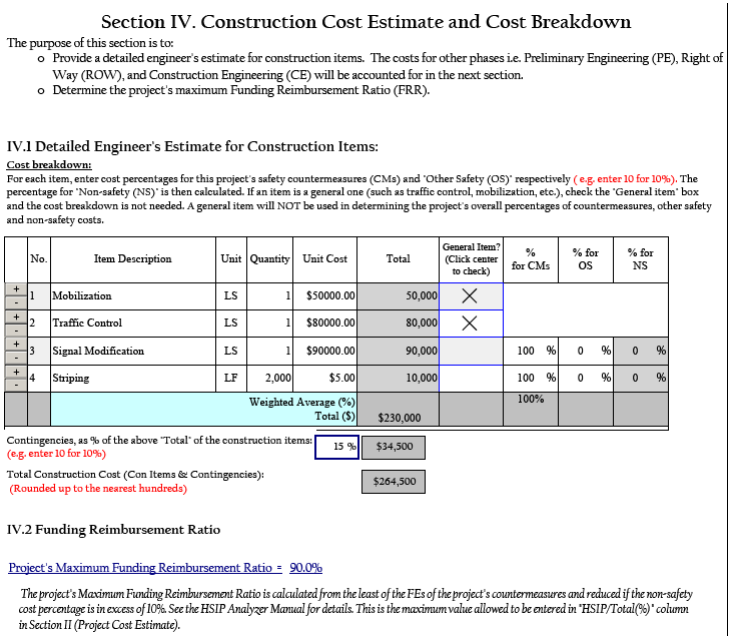
Benefit by Countermeasures

No.	Countermeasure	Benefit
1	S06: Install left-turn lane and add turn phase (signal has no left-turn lane or phase before)	$15,913,150
	TOTAL	$15,913,150

HSIP Analyzer for BCR Applications

Section IV. Construction Cost Estimate and Cost Breakdown

- For construction costs only
- Distribute the cost of each item among CMs, other safety-related (OS) and non-safety-related (NS) components. Check “General Item” such as Mobilization and Traffic Control.
- Calculate the max Funding Reimbursement Ratio (FRR) of the project. The FRR will be used in Section V.



Section IV. Construction Cost Estimate and Cost Breakdown

The purpose of this section is to:

- Provide a detailed engineer's estimate for construction items. The costs for other phases i.e. Preliminary Engineering (PE), Right of Way (ROW), and Construction Engineering (CE) will be accounted for in the next section.
- Determine the project's maximum Funding Reimbursement Ratio (FRR).

IV.1 Detailed Engineer's Estimate for Construction Items:

Cost breakdown:

For each item, enter cost percentages for this project's safety countermeasures (CMs) and 'Other Safety (OS)' respectively (e.g. enter 10 for 10%). The percentage for 'Non-safety (NS)' is then calculated. If an item is a general one (such as traffic control, mobilization, etc.), check the 'General item' box and the cost breakdown is not needed. A general item will NOT be used in determining the project's overall percentages of countermeasures, other safety and non-safety costs.

	No.	Item Description	Unit	Quantity	Unit Cost	Total	General Item? (Click center to check)	% for CMs	% for OS	% for NS
+ -	1	Mobilization	LS	1	$50000.00	50,000	X			
+ -	2	Traffic Control	LS	1	$80000.00	80,000	X			
+ -	3	Signal Modification	LS	1	$90000.00	90,000		100 %	0 %	0 %
+ -	4	Striping	LF	2,000	$5.00	10,000		100 %	0 %	0 %
					Weighted Average (%)			100%		
					Total ($)	$230,000				

Contingencies, as % of the above 'Total' of the construction items: 15 % $34,500
(e.g. enter 10 for 10%)

Total Construction Cost (Con Items & Contingencies): $264,500
(Rounded up to the nearest hundreds)

IV.2 Funding Reimbursement Ratio

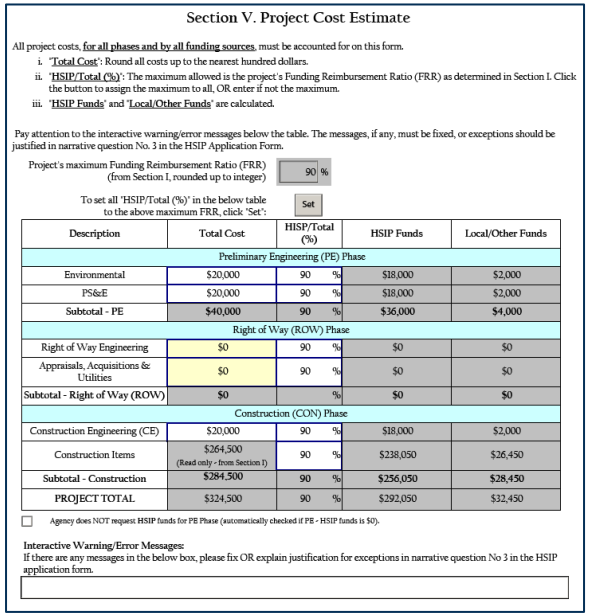
Project's Maximum Funding Reimbursement Ratio = 90.0%

The project's Maximum Funding Reimbursement Ratio is calculated from the least of the FEs of the project's countermeasures and reduced if the non-safety cost percentage is in excess of 10%. See the HSIP Analyzer Manual for details. This is the maximum value allowed to be entered in 'HSIP/Total(%)' column in Section II (Project Cost Estimate).

HSIP Analyzer for BCR Applications

Section V. 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 V. Project Cost Estimate

All project costs, for all phases and by all funding sources, must be accounted for on this form.

i. 'Total Cost': Round all costs up to the nearest hundred dollars.
ii. 'HSIP/Total (%)': The maximum allowed is the project's Funding Reimbursement Ratio (FRR) as determined in Section I. Click the button to assign the maximum to all, OR enter if not the maximum.
iii. 'HSIP Funds' and 'Local/Other Funds' are calculated.

Pay attention to the interactive warning/error messages below the table. The messages, if any, must be fixed, or exceptions should be justified in narrative question No. 3 in the HSIP Application Form.

Project's maximum Funding Reimbursement Ratio (FRR) (from Section I, rounded up to integer): 90 %

To set all 'HSIP/Total (%)' in the below table to the above maximum FRR, click 'Set': Set

Description	Total Cost	HISP/Total (%)	HSIP Funds	Local/Other Funds
Preliminary Engineering (PE) Phase				
Environmental	$20,000	90 %	$18,000	$2,000
PS&E	$20,000	90 %	$18,000	$2,000
Subtotal - PE	$40,000	90 %	$36,000	$4,000
Right of Way (ROW) Phase				
Right of Way Engineering	$0	90 %	$0	$0
Appraisals, Acquisitions & Utilities	$0	90 %	$0	$0
Subtotal - Right of Way (ROW)	$0	%	$0	$0
Construction (CON) Phase				
Construction Engineering (CE)	$20,000	90 %	$18,000	$2,000
Construction Items	$264,500 (Read only - from Section I)	90 %	$238,050	$26,450
Subtotal - Construction	$284,500	90 %	$256,050	$28,450
PROJECT TOTAL	$324,500	90 %	$292,050	$32,450

☐ Agency does NOT request HSIP funds for PE Phase (automatically checked if PE - HSIP funds is $0).

Interactive Warning/Error Messages:
If there are any messages in the below box, please fix OR explain justification for exceptions in narrative question No 3 in the HSIP application form.

HSIP Analyzer for BCR Applications

Section VI. Summary

Section VI. Summary

Transfer the "Total Project Cost" , "HSIP Funds Requested" and the BCR to Page 2 of the HSIP Application Form.

Cost, FRR, Benefit and BCR:

Total Project Cost	HSIP Funds Requested	Max. FRR
$324,500	$292,050	90%

Total Expected Benefit	Benefit Cost Ratio (BCR)
15,913,150	49.04

Thanks for Attending

Your direct contact:

Caltrans District DLAEs:

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

CALTRANS DIVISION OF LOCAL ASSISTANCE