HSIP Cycle 13 Application – Engineer's Checklist
(For BCR Applications)

This application checklist is to be used by the engineer in "responsible charge" of the preparation of this HSIP application, based on the final application and application attachments as submitted to Caltrans. The engineer's initials and stamp should not be placed until the application has been finalized.

The purpose of this checklist is to ensure all of the primary elements of the application are included and the application is free of errors, allowing the application to be accurately ranked in the statewide selection process. Applications with errors in the supporting data will not be considered in the project selection process.

Special Considerations for Engineers before signing and stamping this document attesting to the accuracy of the application:

Chapter 7; Article 3; Section 6735 of the Professional Engineer's Act of the State of California requires engineering calculations or reports be either prepared by or under the responsible charge of a licensed civil engineer. Since the corresponding HSIP application defines the scope of work of a future civil construction project and requires complex engineering principles and calculations which are based on the best data available at the time of the application, the application must be signed and stamped by a licensed civil engineer. By signing and stamping this document, the engineer is attesting to this application's technical information and engineering data upon which local agency's recommendations, conclusions, and decisions are made. This action is governed by the Professional Engineer's Act and the corresponding Code of Professional Conduct, under Sections 6775 and 6735.

1. **Vicinity map /Location map**

   Engineer's Initials: _____

   a. The project limits must be clearly depicted in relation to the overall agency boundary

2. **Project layout-plan** showing existing and proposed conditions must:

   Engineer's Initials: _____

   a. Be to a scale which allows the visual verification of the overall project limits and the construction limits of the safety countermeasures (CMs) included in the application's benefit calculation
   b. Show the full scope of the proposed project, including any non-safety construction items
   c. Show the "Influence Area" for each safety CM included in the application's benefit calculation
   d. Show all changes to existing lanes and shoulder widths. Label the proposed widths
   e. Show limits of all roadway excavation/demolition
   f. Show agency's right of way (ROW) lines. (Also show ROW of the State, Railroad, and all other government agencies if applicable)

3. **Project cross-section** showing existing and proposed conditions.

   (Only required for projects with roadway excavation, cut/fill slopes, and changes to lane widths)

   ☐ **Check if not applicable (no initials required when not applicable)**

   Engineer's Initials: _____

   a. Show dimension, changes, ROW lines, safety CMs, etc.

4. **Countermeasure Selection**:

Engineer's Initials: _____

   a. The CMs used are appropriate and reasonable based on the application instructions and the Local Roadway Safety Manual.

5. **Crash Data** used in the Benefit Cost Ratio (BCR) calculations:

Engineer's Initials: _____

   a. Must be from a reliable and well documented source
   b. Must be within influence area of CMs and must be applied to CMs using generally accepted traffic engineering principles
   (Example: If the CM only addresses the northbound lanes of a divided roadway, then southbound crashes should be excluded.)
   c. Must be accurately shown in collision diagrams and collision lists attached to this application
   d. Must be presented in terms of the number of crashes (**not** the number of injuries and fatalities)
   e. Should be based on the most recent data available and must have a minimum 3 years and maximum 5 years of data (Note: COVID pandemic may have impacted traffic volumes and crash patterns at the project sites. Applicants are allowed to use crash data prior to COVID pandemic if desired)

6. **Collision Diagrams** (Shown separately by CM or combined)

Engineer's Initials: _____

   a. Should be to scale with crash locations accurately plotted
   b. Reveal collision patterns necessary to justify CMs
   c. The influence area for each CM is shown separately on the diagrams (unless the areas are identical)
   d. All crashes included in the BCR Calculation must be clearly shown within the influence area of that CM
   e. Totals for each Location and/or CM are shown with crashes segregated based on Crash Severity
   f. The totals shown match the data in the Collision Lists and the crash data tables in the HSIP Analyzer

7. **Collision Lists** (Shown separately by CM or combined)

Engineer's Initials: _____

   a. Totals for each Location and/or CM are shown with crashes segregated based on Crash Severity
   b. If the Lists includes crashes that were not appropriate to include in the BCR calculations, these crashes must be crossed through or removed and not included in the totals
   c. The totals shown match the data in the Collision Diagrams and the crash data tables in the HSIP Analyzer
   d. Each crash is only counted as one, even if there were multiple victims and/or vehicles involved

8. **Detailed Engineer's Estimate and Project Cost Estimate (HSIP Analyzer – Sections IV & V)**

Engineer's Initials: _____

   a. All likely construction costs associated with the project are identified and included in Section IV (Construction Cost Estimate and Cost Breakdown)
   b. Each of the main project elements are broken out into separate construction items. The costs for the construction items are based on calculated quantities and appropriate corresponding unit costs
   c. For each non-general construction item, the "Countermeasure(s)", "Other Safety" and "Non-safety" components must be properly identified and accounted for
   d. The Total Construction Cost in Section IV must match the "Construction Items – Total Cost" in Section V (Project Cost Estimate) (automatic in the HSIP Analyzer)
   e. The project costs of all phases must be properly accounted for in Section V

9. **Benefit Calculation (HSIP Analyzer – Sections III)**

Engineer's Initials: _____

a. The CMs applied are selected properly based on the proposed work for safety improvements;
b. The crash data time period should be a minimum of 3 years and a maximum of 5 years and the most recent available crash data should be used (Note: COVID pandemic may have impacted traffic volumes and crash patterns at the project sites. Applicants are allowed to use crash data prior to COVID pandemic if desired).
c. The data in the crash data tables for each location must include only the crashes for the specified crash types and must match those in the Collision Diagrams and the Collison Lists.
d. The totals for each Location match the totals shown in the Collision Diagrams and Collision Lists
e. The data transferred to the application form must match the data in the HSIP Analyzer

10. **Warrant studies/guidance (Check if not applicable)**

☐ **Check if not applicable (no initials required when not applicable)**

Engineer's Initials: _____

a. For new signals, Warrant 4, 5 or 7 must be documented as having been met based on the CA MUTCD. For pedestrian signals (including Pedestrian Hybrid Beacon (HAWK)), the justification may be Warrant 4, 5 or 7, or passing the test in Figure 4F-1/4F-2 in Chapter 4F of CA MUTCD.

11. **Additional narration, documentation, letters of support:**

Engineer's Initials: _____

a. The answers to the "Narrative Questions" in the application form and the HSIP Analyzer are consistent with and support the engineering logic and the calculations in the development of the application's BCR
b. When needed, clarify non-standard application of countermeasures, crashes and/or costs; appropriate documentation is attached to the application to document the engineering decisions and calculations.

Signature and Stamp Page

Licensed Engineer:

Engineer's Stamp:

Name: _____

Title: _____

Engineer License Number: _____

Signature: _____

Date: _____

Email: _____

Phone: _____

To ensure the application's quality and the agency's commitment to deliver the safety project in an expedited manner, the application must be signed by the Agency's Transportation/Traffic Engineering Manager.

By signing this application, the manager is attesting to:

1. All data in the application is accurate and represents the total scope of the planned project;

2. The agency understands the Project Delivery Requirements for the HSIP Program and is prepared to deliver the project per these requirements; and

3. The agency understands if Caltrans staff determine that any of the above requirements are not met, or data is inaccurate, or the application fails to meet the program guidelines and application instructions, the application will be rejected and will not be eligible to receive HSIP funding. Due to time constraints in the evaluation process, applicants will not be notified until after the selection process is complete. Refer to the Application Instructions for more information.

Transportation Manager:

Name: _____

Title: _____

Signature: _____

Date: _____