

# **APPENDIX L - Preparation Guidelines for Project Study Report**

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# APPENDIX L – Preparation Guidelines for Project Study Report

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## SECTION 1 Introduction

### Project Initiation Documents

This appendix provides concepts and best practices for the preparation of all project initiation documents (PIDs). This appendix and [Chapter 9](#) of this manual provide the foundational knowledge and understanding to prepare any PID and should be reviewed before the preparation of any PID.

Presented in this appendix is an overview of the preparation of PIDs, a description of the information that should be contained in a PID, scoping forms to collect and organize information during the project initiation phase and the template for a Project Study Report (PSR). The PSR template presented in this appendix is the foundation template for all PIDs. All other PID documents are a variation of the PSR.

PIDs expressed through these guidelines should be as simple, timely, and workable as practical, given that a PID must be prepared at the front end of the project development process, before environmental evaluation and detailed design are completed. All templates can be modified to meet this goal. As an engineering document, the PID is written to provide stakeholders, decisions-makers, and “next-phase” project team members with a broad understanding of the transportation deficiency and the proposed project. The PID informs the reader of the key issues and assumptions regarding the commitments on the scope, schedule, and estimated cost of the project. The PID must provide a sound basis for commitment of future state funding.

### Project Study Report

This appendix contains specific guidance for one type of PID, the Project Study Report (PSR). The preparation of Project Study Report-Project Development Support (PSR-PDS), another type of PID used for projects funded through the State Transportation Improvement Program (STIP), projects-funded-by-others, or Long Lead

State Highway Operations and Protection Program (SHOPP) projects, can be found in [Appendix S](#).

## **Project Scope Summary Report**

Project Scope Summary Report (PSSR) templates have been developed for specific programs of the State Highway Operations Protection Program (SHOPP). These templates have a fill-in-the-blank format. The templates should be modified as necessary for each SHOPP project. See Figure 9-3 in [Chapter 9](#) of this manual for a list of the appropriate templates to use for SHOPP projects.

## **Applicability**

These guidelines generally apply to all major State and specially funded projects on the State Highway System (SHS) and any segment of a transit project within the State highway right of way. The guidelines are not intended for use on transit projects unrelated to the SHS or on State Transportation Improvement Program (STIP) projects off the State highway system.

## SECTION 2 PID Preparation Procedures

This section describes the sequence of key activities and best practices that take place during the project initiation phase. For project teams, the *PDWT* provides a comprehensive flow of project delivery tasks and can be used as a structured step-by-step guide for project development tasks performed by project engineers. Although the *PDWT* primarily describes design activities performed by the project engineer, it also provides the framework for the flow of tasks by all the functional units.

The *PDWT* can be found on Division of Design's website:

<http://www.caltrans.ca.gov/hq/oppd/pdwt/revised/pdwt.htm>

Guidance on the content of the PSR is discussed in Section 3 of this appendix.

For an overview of where the project initiation phase fits into the project development process, see [Chapter 8](#) of this manual.

*A graphic overview of the project development process can be found at Division of Design's website <http://www.caltrans.ca.gov/hq/oppd/pdwt/revised/fd1.pdf>*

### 1. Pre-PID Meeting

Regardless of who prepares the PID, a meeting with Caltrans and the appropriate local entity (or entities) shall be held. Input from all parties is required at the earliest possible stage and continues throughout the process. The project manager should take the lead in coordination activities.

The purpose of the pre-PID meeting is to communicate a shared view of the project and to establish an understanding of the procedures, roles, and responsibilities before the project initiation process begins:

- Review the PID development process.
- Set the framework for getting consensus of purpose and need.
- Set the framework for agreeing on the design concept and scope. Ideally, the design concept and scope will evolve from the transportation system or regional planning process. The engineering specifics of the design scope should be discussed. These include the major features of work such as the number of lanes (current and future), right of way requirements, and interchange type and location.
- Agree on the basic design standards. When the project is on an existing facility, consideration must be given to improving existing features to current standards. Where justified, there may be cases where exceptions to other design standards may be considered.

- Identify known design deficiencies. The Design Scoping Index found in Section 5 of this appendix can be used to document known deficiencies and highlight areas requiring further investigation. Examples of deficiencies to consider are: structures with nonstandard vertical or horizontal clearances; inadequate bridge railing; pavement in need of rehabilitation; deteriorated or inadequate drainage systems; narrow or deteriorating shoulders; lack of continuity or the deficiencies of bicycle or pedestrian facilities; replacement landscaping; ramp metering; nonstandard guardrail; maintenance worker safety; and seismic retrofit requirements.
- Identify the funding sources, and if appropriate identify the cooperative features of the project.

## **2. Authorization for PID Preparation**

The project initiation phase begins with the opening of an expenditure authorization. The project manager obtains an expenditure authorization to initiate the project initiation process.

See Task [PO1 of the PDWT](#).

## **3. Form the Project Development Team**

The Caltrans District Director concurs on the members of a Project Development Team (PDT) for each project, regardless of who is preparing the PID.

The PDT is comprised of the PM, a representative of the regional transportation planning agency (if involved), and representatives from district design, environmental, traffic, safety, surveys, construction, and maintenance units, and the right of way branch. Representatives from other functional units, local and regional entities are added as needed. See [Chapter 8](#) of this manual.

If the PID is to be prepared by a local entity, the local entity shall furnish Caltrans a list of appropriate PDT members.

See [Task P06 PDWT](#) for further guidance on forming a PDT.

## **4. Develop Consensus on the Project Purpose and Need**

It is crucial for the PDT to build PIDs on the project purpose and need statement early in the project development process. The PDT must identify the transportation deficiencies and describe underlying transportation need. The PDT must agree on the primary objectives that will be fulfilled by constructing the project and define those objectives as the project purpose.

The project sponsor must concur on the purpose and need. Primary stakeholders must have consensus on the project purpose and need. Value

analysis tools may be helpful in developing consensus on purpose and need statements for complex projects.

For more information about developing purpose and need statements refer to: [http://www.dot.ca.gov/ser/downloads/general/PN\\_Report.pdf](http://www.dot.ca.gov/ser/downloads/general/PN_Report.pdf). For additional guidance on project purpose and need, refer to [Task P02 of the PDWT](#) and [http://www.dot.ca.gov/hq/env/emo/purpose\\_need.htm](http://www.dot.ca.gov/hq/env/emo/purpose_need.htm).

## **5. Review of the Project Site in the Field**

It is important that the project team make an initial review of the project in the field. This should be an ongoing activity as needed. Field reviews often identify project features that may otherwise not be noticed. The reviews should focus on factors that could affect the project.

In addition, it is important to consider bicycle and pedestrian travel. Bicycles and pedestrians are permitted on all state highways, except for some freeways (see [Chapter 31](#) of this manual); therefore roadway shoulder and sidewalk geometrics and conditions are a part of the scoping process. The preferred way to assess conditions for bicycling and walking is by conducting a field review while bicycling and walking. See [Highway Design Manual Chapter 1000](#) for bicycle geometric and surface quality guidance.

If pedestrian facilities do not exist, consideration should be given to them if land conditions are such that pedestrians could be expected to regularly move along the highway. If the existing paved shoulders are narrow, worn paths can be an indicator of where pedestrian travel is occurring. If pedestrian facilities exist, they need to be upgraded to comply with [DIB 82](#).

See Tasks [P25](#), and [P26](#) of the *PDWT* for further guidance on field reviews.

## **6. Obtain and review existing reports, studies, mapping or other information**

To adequately prepare a PID, it is essential to obtain appropriate mapping. Ideally, aerial contour mapping (3-D MicroStation design files) should be used. This mapping will be used for the development of preliminary alternatives, horizontal and vertical alignment, and other studies. If aerial contour maps cannot be provided at this stage, other mapping such as Digital Highway Inventory Photography Program (DHIPP) images, aerial photography mosaics or as-built plans may be appropriate. If proposed structures cannot be accurately plotted or located on the aerial contour maps, more accurate maps (or larger scale drawings) should be used to show the location and limits of the proposed structures.

The Transportation Concept Report or Route Concept Report, District System Management Plan, Regional Transportation Plan, Congestion Management Program, 10-Year SHOPP, the State Implementation Plan, and local and regional pedestrian and bicycle plans should be reviewed. Appropriate

information from these reports can serve to document the need and scope of the project. Further discussion on these documents can be found in [Chapter 1](#) – Introduction, and [Chapter 4](#) – Programming, of this manual.

Important background information can often be obtained in previous related or adjacent studies. A search and review of project history files and previously studied but suspended projects can give a historical perspective to the current proposal.

See Tasks [PDWT – P8-P26](#) for further guidance on additional data and input.

## **7. Identify additional data requirements for project scoping**

Refer to the tools in Section 6 of this Appendix to identify data needs and issues that should be considered or studied to properly scope the project. The use of the Design Scoping Index found in this Appendix L can assist the project team in properly scoping a project. The Design Scoping Index can be used to identify facility deficiencies and the concerns of stakeholders. The Design Scoping Index ties together the Planning Scoping Checklist, the Design Checklist, the Traffic Scoping Checklist, the PEAR, the DES Scoping Checklist, and the Right of Way Data Sheet. The PDT should evaluate which deficiencies can be addressed given the purpose and need, program definition, and funding constraints.

The PDT should use risk management processes to establish assumptions that are made until the data is available.

See the *PDWT* [Flow Chart P01-P31](#) and [Flow Chart P32-P62](#) for further guidance on identifying data requirements.

## **8. Perform the Initial Engineering Studies**

### Perform the Initial Engineering Studies – PSR-PDS and Long Lead SHOPP Projects

For PSR-PDS and long lead SHOPP projects, the alternatives may not be well defined. The initial engineering studies may be limited to evaluating the physical characteristics of the project area, major engineering features, and standards. The primary focus of the initial engineering studies for PSR-PDS and long lead SHOPP projects is to establish a reasonable study area for alternative development.

### Perform the Initial Engineering Studies – All Other PIDs

The initial studies should focus on the physical characteristics of the project area, engineering features, and standards required to develop a project.

- Floodplain mapping – include an analysis of the potential flood plain impact due to the proposed improvements.
- Traffic Data – existing and forecasted traffic based on up-to-date studies, the level of service, operation analysis based on the up-to-date studies.
- Hazardous material information – analysis needs to be based on well-defined alternatives and preliminary investigations for high-risk alternatives.
- Preliminary material (geotechnical information) – analysis needs to be based on well-defined alternatives and detailed investigations for high-risk alternatives.

See *PDWT* [Flow Chart P01-P31](#) and [Flow Chart P32-P62](#) for further guidance on engineering studies.

## 9. Develop Alternatives

### Alternatives – General

For alternative development, the perimeter of a study area must be delineated, as well as identifying the major work elements of the alternative.

Develop alternatives that will satisfy the project purpose and need, are cost effective, and will avoid or minimize environmental and right of way impacts. Involve the community early and use context sensitive solution principles to develop project alternatives.

In the development of alternatives in PIDs, several key areas must be analyzed: environmental compliance, structures, materials, landscaping, permits, local and regional input, right of way, mandatory and advisory design standards, traffic operations, and alternative transportation modes already in place (i.e., mass transit, rail, bicycle and pedestrian facilities).

If developing alternatives for freeway projects, see [Chapter 31](#) of this manual for Streets and Highways Code requirements regarding impacts on pedestrian and bicycle transportation routes.

The environmental unit prepares a preliminary environmental analysis report (PEAR) for each alternative. The PEAR includes:

- A discussion of environmental resources and a description of the potential project issues or impacts, which could delay the project or affect the viability of any project alternative.
- Description of studies that are needed to complete an environmental evaluation (noting as necessary any seasonal constraints for these studies).

- A recommended environmental determination/documentation and a tentative schedule for its completion. If an environmental document is required, specify the lead agency for its preparation.
- An initial site assessment for hazardous waste, if the project includes the purchase of new right of way, excavation, and/or structure demolition or modification.
- Permits or approvals.

Refer to the [Standard Environmental Reference \(SER\)](#) for further guidance on the PEAR. The SER includes information that environmental units need to develop the PEAR.

See *PDWT* [Flow Chart P32 -P62](#) for further guidance on developing alternatives.

#### Alternatives – All PIDs except PSR-PDS’

##### A. Identify Alternatives

Value analysis can be used to develop well-defined alternatives. Value analysis is the systematic application of recognized analytical techniques to identify a project’s function, identify alternatives, and analyze the alternatives to identify the one that fully meets the project’s function at the lowest overall cost. Other methods for developing alternatives can be found on the [SER](#).

##### B. Design Standards

During development of projects, various constraints often require deviation from design standards. Identify and document known mandatory and advisory design exceptions as discussed in [Chapter 21](#) of this manual.

Design standards are applied equally to all projects on the SHS regardless of the sponsoring agency or the type of funding involved.

See Task [P67](#) of the PDWT for further guidance on Design Standards.

##### C. Structures

As soon as conceptual geometrics have been generated, develop Advance Planning Studies (APS) and cost estimates for the various structure alternatives. The APS must show sufficient detail to allow environmental, permit and traffic management costs to be estimated.

The method of providing these preliminary studies shall be discussed with the DES liaison engineer assigned to the district. The liaison engineer will provide recommendations on preparation of the preliminary studies. The

studies will be prepared by DES, or if prepared by others, will be reviewed by DES during the district review process.

See Task [P48 of the PDWT](#) for further guidance on Advance Planning Studies.

#### D. Environmental Compliance

Many agencies require permits before a project can be approved for construction. It is essential to identify potential permit requirements at the earliest stage and to include the cost of these requirements in the cost estimate.

#### E. Materials

Existing materials information (from old projects, etc.) should be obtained from Caltrans or other sources. If critical areas, such as slides, erosion, poor foundations, etc., are noted during field reviews, a preliminary materials investigation should be conducted.

#### F. Highway Planting and Irrigation

Some projects require significant amounts of highway planting and irrigation work. At the PID stage, efforts should be made to identify any new or replacement planting. Planting and irrigation provisions must be in compliance with Caltrans current planting and water conservation policies.

#### G. Roadside Design and Management

Conditions and deficiencies of the roadside should be reviewed and documented, and a cost estimate should be developed at this time for design solutions. This should involve roadside items such as miscellaneous paving, maintenance vehicle pull-outs, etc., requirements at the earliest stage and to include the cost of mitigation in the cost estimate. Identify roadside management issues and permanent vegetation control treatments at this stage. Solutions for vegetation control requirements are available at the Landscape Architecture Program (LAP) toolbox website: <http://www.dot.ca.gov/hq/LandArch/roadside/index.htm>. These techniques when properly incorporated will improve highway safety for maintenance units, minimize reoccurring maintenance activities, reduce life cycle cost, and improve aesthetics.

#### H. Traffic

District traffic provides information related to traffic. See traffic scoping list in Section 6 of this appendix. Transportation Management Plans (TMP) will be required if significant construction delays are anticipated. TMPs develop construction traffic handling practices such as lane closures, detours, and mass

transit enhancements, and work-hour restrictions to minimize delays. As appropriate, address how bicycle and pedestrian traffic will be accommodated during construction. Costs associated with TMPs should be included in the PID Estimate.

Identify existing vehicle detections systems (VDS) within the project limits. Additional staging plans to maintain the VDS will be required if the duration for outages is in the order of a few hours for traffic signals and spacing between traffic monitoring stations is more than one mile on the mainline. Costs associated with maintenance of operations of existing VDS should be included in the PID estimate.

#### I. Right of Way

The Right of Way estimate should be prepared using aerial mapping, mosaics, or as built plans. The mapping for the Right of Way estimate shall show improvements, property ownership, parcel information, proposed right of way lines, access control, easements, utilities, and railroad facilities.

Refer to [Tasks P63 - P66 of the PDWT](#) for further information on Right of Way.

#### J. Local and Regional Input

Local and regional agencies must be given an opportunity to provide input during the preparation of a PID. Local planning (land use) can have a significant effect on the local and regional planning transportation system, which affects the identification of alternatives and project specific features.

If agreement cannot be reached between Caltrans and the local entity on the programmable alternative, the PID needs to include a cost estimate and supporting information for all alternates.

#### Alternatives – PSR-PDS and Long Lead SHOPP Projects

For information regarding developing alternatives for PSR-PDS or long lead SHOPP projects, see [Appendix S](#).

### **10. Develop Cost Estimates**

Cost estimates are developed for:

- The resources needed by Caltrans to either implement or provide independent quality assurance for the remaining project phases, and
- The capital costs needed to acquire right of way and construct the project.

Develop a cost estimate for each alternative. Estimates for programming, although preliminary, should be as accurate as possible.

Resource estimates will be developed per the [Workplan Standards Guide for the delivery of Capital Projects 10.1](#) found on the Headquarters Division of Project Management website.

If federal-aid funds are used on any portion of the project and local agency support costs are used as a "soft" match, then the PID or PR must include local agency support costs.

The PDT and project sponsors should identify funding sources for completing the project. If the project is to be programmed into the STIP or use federal funds, the project sponsor is expected to have reasonable plan for fully funding the project before federal programming can occur. If a project is funded-by-others (as defined in [Chapter 9](#) of this manual), Caltrans must be presented with a reasonable plan for fully funding the project in order to justify expending state resources for independent quality assurance on the project.

Capital costs are to be developed in accordance with Section 4 of this appendix and [Chapter 20](#) – Project Development Cost Estimates of this manual.

See Task [P72 of the PDWT](#) for further information on the development of cost estimates.

## **11. Develop Schedules**

A workplan for the proposed programmed activities shall be developed. To increase confidence in the cost estimate and schedule, perform a risk analysis and develop a risk management plan. The workplan must include a resource cost estimate and schedule for delivery of major components of the project.

## **12. Complete PID**

After developing alternatives and analyzing impacts, prepare the PID in accordance with the outline in Section 3 of this appendix.

## SECTION 3 Outline for Project Study Report

### General

The purpose of this outline is to identify the key elements to document in the PSR. As decision-making documents; PIDs must identify the key issues of the transportation deficiency, any major elements that should be investigated, and the effort and resources needed to complete the studies and implement the project. The outline is designed so that important information can be easily obtained from the document text. The attachments should contain detailed information that is needed to support or clarify information in the body of the report. Summarize information from detailed studies in the PID. Actual studies with raw data (e.g., traffic volumes) and detailed analyses are part of the project files.

Section 6 this appendix has templates that present a guideline for preparation of the PSR. The report should be similar in organization and may contain similar headings and subheadings, but vary based on project factors.

### Outline

Cover Documents

#### Title Sheet

The title sheet provides “at a glance” project identifiers, the primary reason for writing the report, and dated approval signatures.

Project identifiers are the district, county, route, and post miles; as well as the official project description. See the *Plan Preparation Manual, Section 2-2.1B 2* for examples of project identifiers.

Clearly state the reason for the PID on the title sheet. It may be one or a combination of the following bullets. Use “AND” to separate multiple requirements.

- Request for Programming in the (year) STIP for Capital Support of the Project Approval and Environmental Document.
- Request for Programming in the (year) STIP for Capital Support for:
  - Project Approval and Environmental Document.
  - Plans, Specifications, and Estimate.
  - Right of Way Acquisition.

- Construction Management.
- Request for Programming in the (year) STIP for Right of Way and Construction Capital.
- Request for Programming in the (year) SHOPP.
- Request approval to proceed with the formal studies for a SHOPP project.
- Authorize a cooperative agreement.
- Conceptual approval for a project-funded-by-others (as defined in [Chapter 9](#) of this manual).

The following figure shows an example of describing the reason for the PID on the title sheet.

**Figure L-1 Title Sheet Description**

Dist. - Co. - Rte. EP (PM)  
Month/Year  
EA

**PROJECT STUDY REPORT**

To

Request for Programming in the 200X STIP For Capital Support  
for

- Project Approval and Environmental Document
- Plans, Specifications and Estimate
- Right of Way Acquisition
- Construction Management

And

Request for Programming in the 200X STIP For Right of Way and  
Construction Capital

On Route, \_\_\_\_\_

Between \_\_\_\_\_

And \_\_\_\_\_

APPROVAL RECOMMENDED: \_\_\_\_\_  
PROJECT MANAGER

APPROVED: \_\_\_\_\_  
DISTRICT DIRECTOR                      DAYP

PSRs are to include the endorsement of the PM and "APPROVED BY" District Director (or Deputy District Director if identified in Caltrans Delegation of Authority). Edit the signature block as appropriate.

### Vicinity Map (Separate Sheet)

The vicinity map is a district, county, or city map showing all State highways and major local roads when pertinent. It should be placed on a separate page and should

include the study limits, major topographic limits listed in the report, and a north arrow.

### Registered Professional Stamp (Separate Sheet)

The Registered Professional stamp or seal and number with signature shall be placed on a separate sheet, which shall be part of the report. Also included on this sheet shall be a statement indicated that the registered profession is attesting to the technical information contained therein and the engineering data upon which recommendations, conclusions, and decisions are based. This seal does not constitute approval of the project study report.

### Table of Contents (Separate Sheet)

On a separate sheet, place a table of contents that includes all the elements of the PID.

### Main Body of PID

#### 1. Introduction

The introduction is a summary of the information presented in the report. The introduction should be no more than two paragraphs or a brief opening sentence with the information summarized in tables. The template includes an optional table that can be expanded or condensed to fit the individual project.

In the introduction, identify:

- The proposal.
- The range of alternatives and costs.
- The Caltrans resources needed to complete the proposed components (e.g., project approval and the environmental document phase).
- The schedule for completion of proposed activities.
- The proposed funding sources.
- The initial project category.
- Type of facility as designated on a current or proposed route adoption map.
- Any known project approvals anticipated for each alternative (See [Chapter 12](#) of this manual).

#### 2. Background

The background should briefly describe why this project should go forward at this time.

Information in this section includes:

- A description of the facility.
- Project sponsors and project proponents.
- A discussion on local and regional agency involvement in the development of purpose and need.
- A discussion of any actions or commitments that have taken place to date regarding the proposed project.

### 3. Purpose and Need

These statements together should succinctly answer the question: why this project and why now? The PDT, in conjunction with the project sponsors and key stakeholders, must develop the purpose and the need statement. Additional information on the development of purpose and need statements can be found at [http://www.dot.ca.gov/ser/downloads/general/PN\\_Report.pdf](http://www.dot.ca.gov/ser/downloads/general/PN_Report.pdf)

#### Purpose

The project purpose is the set of project objectives that will be met, which addresses the transportation deficiency (i.e., the project need). It is important to identify the primary and secondary objectives that are met by this project. While the secondary objectives may be a factor in the scoping of the project (e.g., minimizing impacts to the environment, meeting ADA requirements, etc.), the purpose statement should focus on the primary objectives of the project.

#### Need

The project need is an identified underlying transportation deficiency that needs correction. While there may be several associated deficiencies identified in the project area, it is important for the PDT to agree on the primary deficiency or deficiencies that create the need for the project. A need is supported by data that indicates, but is not limited to, a safety issue, reduced mobility, limited capacity for the transportation demand, the lack of reliability, gaps in or between transportation systems, or limited life of the facility. The details of this data are discussed in the following section on “Deficiencies.”

### 4. Deficiencies

This section provides a concise discussion of the data that supports the purpose and need of the project as well as identifying data that is important to the scoping of the project.

This section should refer to attached maps, charts, tables, letters, etc. When appropriate, discuss existing and forecasted traffic, level of service, capacity adequacy, and safety data.

This section may have two subsections. A subsection on the primary deficiencies would discuss deficiencies that relate directly to the purpose and need statements. A subsection on the secondary deficiencies would identify the deficiencies that should be addressed when scoping the project (this subsection would include, but is not limited to: a review of existing roadside area conditions to identify deficiencies and develop a preliminary cost for each improvement, maintenance vehicle pull-outs, access roads, topsoil reapplication, erosion control, slope rounding, non-standard features, architectural features, landscaping features, maintenance items, etc.), but are not related directly to the stated purpose and need for the project.

#### 5. Corridor and System Coordination

This section should address the coordination and consistency of the proposed purpose and need with statewide, regional, and local planning efforts such as:

- District System Management Plan (DSMP).
- Transportation Concept Reports/Route Concept Reports.
- Regional Transportation Plans (RTP).
- Congestion Management Program (CMP).
- State Implementation Plan (SIP).
- Bicycle and pedestrian master plans.

If applicable, identify regional and program objectives, and the project consistency with fulfilling those objectives.

Provide a summary of the information from the Planning Scoping Checklist obtained from the district transportation planning unit to address other State Highway improvements, local improvements or any development projects within the immediate project vicinity.

Identify the date that the route was adopted, the CTC designation of the route or route denominations, and identify any applicable freeway or controlled access agreements, potential freeway or controlled access agreements, and potential relinquishments.

A project that requires a new public road connection must provide a description of the land-use development to be served by the new connection, describe the relationship to

the local agency’s general plan or other specific area plans, and justification per [Chapter 27](#) of this manual that existing interchanges or local road systems cannot be improved to handle the deficiencies.

## 6. Alternatives

### Alternatives - General

Alternatives that should always be considered, as described in [Chapter 9](#) of this manual, are:

- The “No Build” Alternative.
- The alternative that meets current mandatory and advisory design standards.
- The “Minimum Build Alternative” – this alternative must meet the purpose and need for the project. This alternative provides a way of addressing the transportation deficiency if there is a shortage of funding.

The exclusion of any of the above alternatives must be explained. If the alternative that meets current mandatory and advisory design standards is rejected, approval of exceptions to mandatory and advisory design standards must be obtained and referenced. Rejected alternatives and justification for rejection must be discussed.

Summarize information provided in the PEAR. Refer to the Standard Environmental Reference (*SER*) for further guidance on the PEAR or equivalent environmental analysis for each alternative.

Discuss any constructability issues. Summarize the results of the constructability review.

Alternative discussions can refer to attachments including: schematic maps of the study area and typical cross-sections, as appropriate.

### Alternatives – All PIDs except PSR-PDS’

Alternatives for other PIDs are developed and refined to a higher degree than the alternatives for the PSR-PDS and long-lead SHOPP projects. See Appendix S for information on PSR-PDS and long-lead SHOPP projects. The alternative section for all other PIDs must include a discussion of the design scope, describe the boundary of the study area, and define the key activities for PA&ED, PS&E, and construction for each alternative. Discuss capital construction and right of way costs for each alternative.

As appropriate, consider the following topics for each alternative:

- Discuss alternatives in terms of the design scope that will satisfy the project purpose and need.
- Describe the boundary of the study area for the alternatives. During PA&ED functional units will use this information to determine potential impacts in the area. The boundary should not be limited to just the final right of way required for each alternative, but should also include a high level estimate of areas that may be required for construction of the alternative (e.g., haul roads, temporary bicycle or pedestrian facilities, detours, material storage, and cut and fill areas).
- The boundary of the study area must be established to include reasonable modification to the alternative. Improper identification of the project study area can result in unanticipated studies and project delays.
- If applicable, discuss whether some or all of the alternatives were developed through the application of the value analysis process and how this process improved the alternative.
- Discuss the type of information needed to evaluate and estimate the scope, cost, and schedule for each alternative. Identify the resources needed to complete the PA&ED, PS&E, Right of Way and Construction. Specific information on right of way and environmental issues should be discussed in the section on Environmental Compliance and Right of Way.
- Discuss whether the alternative will require approval of one or more design exceptions. Deviations from mandatory and advisory design standards (see [Index 82.3 of the Caltrans Highway Design Manual](#)) shall be discussed and any exceptions shall be approved by the appropriate individuals prior to PID approval. Separate documentation and approval(s) will be required as per [Chapter 21](#) of this manual.
- Discuss which studies and actions are required for approval of each alternative (e.g., FHWA, CTC, route matters, etc.)? For further guidance see [Chapter 12](#) and [13](#) of this manual.
- A summary of the traffic analysis for each alternative is required.
- A Transportation Management Plan (TMP), as described in [Chapter 8](#) of this manual must be considered during the project initiation phase. A TMP provides strategies and actions for minimizing activity-related traffic delays and accidents. It is important to allow for proper cost, scope and scheduling of TMP activities at this early stage of development, therefore prior to PID approval the TMP Manager must sign-off on the TMP DATA sheet. If a TMP is required, identify the TMP elements that would mitigate these traffic impacts and their associated costs. Discuss the need for a TMP for the alternative to be programmed. Summarize the TMP in the PSR.

For further discussion on TMP's see *The Transportation Management Plan Guidelines*, issued by the Division of Traffic Operations.

- Discuss the need for staging plans to maintain VDS during construction for the alternative to be programmed. Identify the temporary VDS elements (generally microwave video detection) that would be required to maintain the VDS and the associated costs.
- A Storm Water Data Report (SWDR) shall be prepared for every project. The SWDR is a report that is prepared by the project engineer to document stormwater decisions for any given project. The SWDR also is used to help identify potential storm water quality issues for the project. The Stormwater Quality Handbook – Project Planning and Design Guide provides guidance on the appropriate forms to use to develop the SWDR. During the project initiation phase, the design district or regional storm water coordinator shall confirm the appropriate SWDR format to use. The PID shall include a summary of key stormwater elements identified in the SWDR. The cover sheet of a signed SWDR shall be circulated with PID for District Review.
- Discuss any constructability issues. Summarize the results of the constructability review.
- Establish a sequence for data needs to manage risks to scope costs and schedule.
- Summarize the right of way impacts for each alternative. At a minimum include the number of parcels for acquisition, the number of relocations and the number of easements. Be sure to include any possible commitment and construction right of way requirements.  
Identify exiting utilities and potential points of conflict, and any potholing and relocation activities that are anticipated.

Identify rail lines in the vicinity of the project and indicate needs for any track relocations, service contracts, or construction and maintenance (C&M) agreements.

- Discuss high-risk issues that can affect an alternative (e.g., local opposition, environmental compliance) or could affect the estimated resources and PA&ED delivery milestone dates.  
For complex projects, there may be limited information at the PID phase. In these cases, it is very important to complete a risk assessment in order to establish the boundary of the study area. If the risks to the delivery commitment are high, it may be prudent to complete some studies during the PID development to increase the confidence in programmed construction estimates. A summary discussing risk management should be discussed in this section.
- For SHOPP Projects, include a listing of the SHOPP Project Output. Contact the appropriate [Headquarters SHOPP manager](#) for the SHOPP Project Output form and guidance on how to complete the form.

## 7. Community Involvement

Discuss the types of public involvement activities that were used to develop the purpose and need statement, and to identify the alternatives to be studied. Discuss community concerns and objectives that were identified during the PID phase.

Discuss the CSS approach that will be used to obtain community involvement in the identification and evaluation of alternatives.

#### 8. Environmental Determination/Documentation

For the alternative to be programmed, describe the type of environmental determination to be obtained for the California Environmental Quality Act (CEQA) and identify who should be the lead agency. Describe the type of environmental determination/document for compliance with the National Environmental Protection Act (NEPA) when involved. If the highway work is to be part of a larger overall local agency development Environmental Impact Report (EIR), discuss the steps that are needed for any required FHWA approvals.

If a local agency EIR or Negative Declaration has been completed, reference should be made to both the environmental document and the Notice of Determination that was filed with the Governor's Office of Planning and Research.

#### 9. Funding

##### Capital Estimate – General

Identify potential or proposed sources of funding and project funding eligibility (e.g., "Federal aid eligible") to fully fund the project. Examples of funding sources are a specific local entity, STIP program, or "future county shares." If necessary, expand the table to allow for multiple funding sources.

Cooperative features should be summarized in this section. Refer to [Chapter 16](#) – Cooperative Agreements, of this manual for policies on cooperative agreements.

Fill out the funding tables based on the programmable alternative. Discuss the assumptions and the risk factors for the programmable alternative cost.

Refer to [Chapter 20](#) – Cost Estimating, of this manual for more information on the PSR cost estimating methodologies.

##### Capital Support Estimate

Estimate the Caltrans resources that will be needed to complete future support components.

If federal dollars are used on any portion of the project and local agency support costs are considered a “soft” match for federal reimbursement, identify and discuss the local agency support cost.

Fill out the Capital Support Table for the remaining project components. For projects-funded-by-others (as defined in [Chapter 9](#) of this manual); identify resource needs for Caltrans personnel to perform independent quality assurance or reimbursed work.

#### 10. Schedule

Provide a delivery schedule for significant milestones. For practical purposes this schedule shows the amount of time needed to complete the project. At a minimum, provide a tentative delivery schedule for milestones that are designated as Headquarters mandatory milestones in [Workplan Standards Guide for the delivery of Capital Projects 10.1](#). Additional milestones, described as optional, may be listed for any significant deliverables. Identify if the schedule is based on an optimistic or worst-case scenario start date.

Discuss all schedule constraints and assumptions for programmed milestones. A tentative schedule is not complete without documentation of the assumptions and constraints. The assumptions and constraints provide decision-makers with the rationale used to develop the schedule and the factors that could have significant impact on the schedule. The assumptions and constraints provide stakeholders with an understanding of critical delivery areas. For example, the schedule may be based on starting the environmental studies in March of 20XX. Funding may not become available until July of 20XX. Due to the seasonal constraints for completing a study, beginning environmental studies after funding is secured in July 20XX, may result in a year delay of the project as the environmental studies would not be able to begin until March 20XX+1. Such a constraint should be clearly identified in the PID.

The schedule, the resource needs, and estimate must be consistent with the workplan that is submitted to HQ Program Project Management.

Fill in the month, year, and day for proposed program delivery milestones.

#### 11. FHWA Coordination

Discuss coordination with FHWA.

If either federal action or the use of federal funds is anticipated, include the following language:

This Report has been reviewed by (*Name and title of the FHWA Liaison Engineer*) reviewing on (*date*). Per (*latest federal Transportation Act*), this project is eligible for federal-aid funding and is considered to be (*STATE-AUTHORIZED or FULL-OVERSIGHT*) under current FHWA-Caltrans Stewardship Agreements. (*If either no federal-aid funding will be used or no FHWA approval required, delete the above statement and replace with the statement: "No federal-aid funding anticipated or no FHWA action required for this project."*).

Discuss whether or not the project is eligible for funding from the federal Congestion Mitigation and Air Quality (CMAQ) Improvement Program. To determine if a project specific emission analysis needs to be made to qualify for CMAQ funding, consult FHWA CMAQ guidance that can be found at:

[http://www.fhwa.dot.gov/environment/air\\_quality/cmaq/](http://www.fhwa.dot.gov/environment/air_quality/cmaq/)

If Interstate access is being added or modified, discuss the process for obtaining FHWA approval.

- For a PSR, a FHWA "engineering and operational acceptability" determination must be obtained prior to approval of the PSR. Give the date that the unsigned draft PSR was transmitted to FHWA and the date of the FHWA "engineering and operational acceptability" determination.

#### 12. District Contact

Give name and phone number of district representative to be contacted concerning questions on the PSR submittal.

#### 13. Project Reviews

Include the completion date of major reviews such as the constructability review and the district safety review. Include the signature of the reviewer and, if applicable, attach a list of the attendees.

The templates include a list of suggested reviews. Each district should modify the template to reflect the district's review procedures.

#### 14. Attachments

The following table provides examples of the appropriate attachments and files. Each project should be evaluated as to the appropriate inclusion of specific reports and

information. Do not include raw data that is used in the analysis in the report or as an attachment. This information should be part of the project file and kept to support engineering recommendations.

<b>Required Attachments</b>	<b>Optional Attachments</b>	<b>Project Files and Supplemental Documents</b> (Note: key issues should be summarized in the PID)
Location and/or vicinity map.	Environmental Study Check List or Equivalent Document.	Design Scoping Index or Equivalent Document.
Schematic maps of the Study Area or Alternatives	Traffic Forecasting, Traffic Analysis and Traffic Operations Scoping Checklist or Equivalent Document.	Planning Scoping Checklist
Other appropriate maps.	Division of Engineering Scoping Checklist	Previous Environmental Determinations/Documents
Approved estimate using the appropriate format.	Caltrans or County/City Bicycle and Pedestrian Maps.	Biotic Assessment –
Project Support Cost Estimate.		Level of Service Calculations
PEAR or equivalent report.		Traffic Data, Table B
Right of Way Data Sheet or equivalent document.		SI Calculation
If applicable, an executable cooperative agreement.		Complete Traffic Study
Advance Planning Study		Initial Site Assessment (Hazardous Waste)
For STIP projects, include a Project Nomination Fact Sheet as described in the STIP Guidelines as an attachment. Template for this Fact Sheet may be found on the Internet at: <a href="http://www.dot.ca.gov/hq/transprog/stip">http://www.dot.ca.gov/hq/transprog/stip</a> .		Appraisal Report
Typical X-sections, if appropriate.		Technical Studies
SHOPP Performance Outputs (Only required for SHOPP Projects).		Detailed Mapping
Life Cycle Cost Analysis (as described in <a href="#">Appendix OO</a> ).		Stormwater Data Report
		Transportation Management Plan
		Rosters of personnel participating in major reviews such as the District Safety Review and the Constructability Review.

Functional scoping checklists are worksheets for collecting pertinent information from specified functional units. Scoping checklists also document reviews by Headquarters' liaisons.

## **SECTION 4 PSR Estimates**

### **ARTICLE 1 PSR Capital Estimate Components**

#### **General**

The PSR Capital Estimate must be as realistic and accurate as possible. The degree of effort and detail in each study is expected to vary depending upon complexity and sensitivity of the issues.

#### **Additional Information**

Additional information that must be obtained includes existing and forecasted traffic, existing and planned bicycle or pedestrian facilities, materials information (particularly where foundation and slope stability problems can be anticipated), advance structure estimates for widening existing structures as well as new facilities, hazardous waste assessment, potential issues related to environmental compliance, right of way and utilities, and traffic handling, etc.

Because the PSR Estimate is used to make Programming decisions for the STIP, the importance of an accurate estimate cannot be overemphasized.

Contingencies should be 25% at this stage; however, a higher or lower percentage may be used if justified. The contingency is expected to cover unanticipated items of work or cost increases.

### **ARTICLE 2 Project Cost Estimate Summary Sheets for a PSR**

The cost estimate should be prepared using the following Preliminary Project Cost Estimate Summary. This will identify items that need to be considered and included in the project. It is very important that all known items of work be identified and estimated. It is recognized that not all projects will have each and every item listed on the Cost Summary Sheets. In some instances, not all of the items can be identified at this stage and an appropriate contingency factor should therefore be applied to reflect other possible items. It is also necessary to periodically review and update cost estimates as the project proceeds through the project development process. Any substantial increase in cost should be discussed, as appropriate, with the funding sponsor and RTPA.

*(Enter Type of Project Cost Estimate as Title)*

District-County-Route \_\_\_\_\_

PM \_\_\_\_\_

EA \_\_\_\_\_

Program Code \_\_\_\_\_

PROJECT DESCRIPTION:

Limits \_\_\_\_\_

Proposed Improvement (Scope) \_\_\_\_\_

Alternate \_\_\_\_\_

**SUMMARY OF PROJECT COST ESTIMATE**

TOTAL ROADWAY ITEMS \$ \_\_\_\_\_

TOTAL STRUCTURE ITEMS \$ \_\_\_\_\_

SUBTOTAL CONSTRUCTION COSTS \$ \_\_\_\_\_

TOTAL RIGHT OF WAY ITEMS \$ \_\_\_\_\_

TOTAL PROJECT CAPITAL OUTLAY COSTS \$ \_\_\_\_\_

Reviewed by District Program Manager \_\_\_\_\_  
(Signature)

Approved by Project Manager \_\_\_\_\_ Date \_\_\_\_\_  
(Signature)

Phone No. \_\_\_\_\_

Page No. \_\_\_\_ of \_\_\_\_

District-County-Route \_\_\_\_\_  
 PM \_\_\_\_\_  
 EA \_\_\_\_\_

I. ROADWAY ITEMS

<u>Section 1 Earthwork</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
Roadway Excavation	_____	_____	\$_____	\$_____	
Imported Borrow	_____	_____	\$_____	\$_____	
Clearing & Grubbing	_____	_____	\$_____	\$_____	
Develop Water Supply	_____	_____	\$_____	\$_____	
Top Soil Reapplication	_____	_____	\$_____	\$_____	
Stepped Slopes and Slope Rounding (Contour Grading)	_____	_____	\$_____	\$_____	
_____	_____	_____	\$_____	\$_____	
Subtotal Earthwork				\$_____	

<u>Section 2 Pavement Structural Section*</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
PCC Pavement (___Depth)	_____	_____	\$_____	\$_____	
PCC Pavement (___Depth)	_____	_____	\$_____	\$_____	
Asphalt Concrete	_____	_____	\$_____	\$_____	
Lean Concrete Base	_____	_____	\$_____	\$_____	
Cement-Treated Base	_____	_____	\$_____	\$_____	
Aggregate Base	_____	_____	\$_____	\$_____	
Treated Permeable Base	_____	_____	\$_____	\$_____	
Aggregate Sub base	_____	_____	\$_____	\$_____	
Pavement Reinforcing Fabric	_____	_____	\$_____	\$_____	
Edge Drains	_____	_____	\$_____	\$_____	
_____	_____	_____	\$_____	\$_____	
Subtotal Pavement Structural Section				\$_____	

<u>Section 3 Drainage</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
Large Drainage Facilities	_____	_____	\$_____	\$_____	
Storm Drains	_____	_____	\$_____	\$_____	
Pumping Plants	_____	_____	\$_____	\$_____	
Project Drainage (X-Drains, overside, etc.)	_____	_____	\$_____	\$_____	
_____	_____	_____	\$_____	\$_____	
Subtotal Drainage				\$_____	

\*Reference sketch showing typical pavement structural section elements of the roadway. Include (if available) T.I., R-Value and date when tests were performed.

NOTE: Extra lines are provided for items not listed; use additional lines as appropriate.

District-County-Route \_\_\_\_\_  
PM \_\_\_\_\_  
EA \_\_\_\_\_

<u>Section 4: Specialty Items</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
Retaining Walls	_____	_____	\$_____	\$_____	
Noise Barriers	_____	_____	\$_____	\$_____	
Barriers and Guardrails	_____	_____	\$_____	\$_____	
Equipment/Animal Passes	_____	_____	\$_____	\$_____	
Water Pollution Control	_____	_____	\$_____	\$_____	
Hazardous Waste Investigation and/or Mitigation Work	_____	_____	\$_____	\$_____	
Environmental Compliance	_____	_____	\$_____	\$_____	
Resident Engineer Office Space	_____	_____	\$_____	\$_____	
_____	_____	_____	\$_____	\$_____	
	Subtotal Specialty Items			\$_____	

<u>Section 5: Traffic Items</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
Lighting	_____	_____	\$_____	\$_____	
Traffic Delineation Items	_____	_____	\$_____	\$_____	
Traffic Signals	_____	_____	\$_____	\$_____	
Overhead Sign Structures	_____	_____	\$_____	\$_____	
Roadside Signs	_____	_____	\$_____	\$_____	
Traffic Control Systems	_____	_____	\$_____	\$_____	
Transportation Management Plan	_____	_____	\$_____	\$_____	
Temporary Detection System Staging	_____	_____	\$_____	\$_____	
	Subtotal Traffic Items			\$_____	

NOTE: Extra lines are provided for items not listed; use additional lines as appropriate.

District-County-Route \_\_\_\_\_  
 PM \_\_\_\_\_  
 EA \_\_\_\_\_

<u>Section 6 Planting and Irrigation</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
Highway Planting	_____	_____	\$_____	\$_____	
Replacement Planting	_____	_____	\$_____	\$_____	
Irrigation Modification	_____	_____	\$_____	\$_____	
Relocate Existing Irrigation Facilities	_____	_____	\$_____	\$_____	
Irrigation Crossovers	_____	_____	\$_____	\$_____	
_____	_____	_____	\$_____	\$_____	
Subtotal Planting and Irrigation Section				\$_____	

<u>Section 7: Roadside Management and Safety Section</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Item Cost</u>	<u>Section Cost</u>
Vegetation Control Treatments	_____	_____	\$_____	\$_____	
Gore Area Pavement	_____	_____	\$_____	\$_____	
Pavement beyond the gore area	_____	_____	\$_____	\$_____	
Miscellaneous Paving	_____	_____	\$_____	\$_____	
Erosion Control					
Slope Protection	_____	_____	\$_____	\$_____	
Side Slopes/Embankment Slopes	_____	_____	\$_____	\$_____	
Maintenance Vehicle Pull outs					
Off-freeway Access (gates, stairways, etc.)					
Roadside Facilities (Vista Points, Transit, Park and Ride, etc.)	_____	_____	\$_____	\$_____	
Relocating roadside facilities/features	_____	_____	\$_____	\$_____	
_____	_____	_____	\$_____	\$_____	
Subtotal Roadside Management and Safety Section				\$_____	

TOTAL SECTIONS: 1 thru 7 \$\_\_\_\_\_

NOTE: Extra lines are provided for items not listed; use additional lines as appropriate.

District-County-Route \_\_\_\_\_  
PM \_\_\_\_\_  
EA \_\_\_\_\_

Section 8: Minor Items

\$ \_\_\_\_\_ x (5 to 10%) = \$ \_\_\_\_\_  
(Subtotal Sections 1 thru 7)

TOTAL MINOR ITEMS \$ \_\_\_\_\_

Section 9: Roadway Mobilization

\$ \_\_\_\_\_ x (10%) = \$ \_\_\_\_\_  
(Subtotal Sections 1 thru 8)

TOTAL ROADWAY MOBILIZATION \$ \_\_\_\_\_

Section 10 Roadway Additions

Supplemental Work

\$ \_\_\_\_\_ x (5 to 10%) = \$ \_\_\_\_\_  
(Subtotal Sections 1 thru 8)

Contingencies

\$ \_\_\_\_\_ x (\*\*%) = \$ \_\_\_\_\_  
(Subtotal Sections 1 thru 8)

TOTAL ROADWAY ADDITIONS \$ \_\_\_\_\_

TOTAL ROADWAY ITEMS \$ \_\_\_\_\_  
(Subtotal Sections 1 thru 10)

Estimate Prepared By \_\_\_\_\_ Phone# \_\_\_\_\_ Date \_\_\_\_\_  
(Print Name)

Estimate Checked By \_\_\_\_\_ Phone# \_\_\_\_\_ Date \_\_\_\_\_  
(Print Name)

\*\* Use appropriate percentage per Chapter 20.

District-County-Route \_\_\_\_\_  
 PM \_\_\_\_\_  
 EA \_\_\_\_\_

II. STRUCTURES ITEMS

	Structure (1)	Structure (2)	Structure (3)
Bridge Name	_____	_____	_____
Structure Type	_____	_____	_____
Width (out to out) - (ft)	_____	_____	_____
Span Lengths - (ft)	_____	_____	_____
Total Area - (ft <sup>2</sup> )	_____	_____	_____
Footing Type (pile/spread)	_____	_____	_____
Cost Per ft <sup>2</sup> (incl. 10% mobilization and 20% contingency)	_____	_____	_____
Total Cost for Structure	_____	_____	_____

SUBTOTAL STRUCTURES ITEMS      \$ \_\_\_\_\_  
 (Sum of Total Cost for Structures)

Railroad Related Costs:	_____	_____	_____	\$ _____
	_____	_____	_____	\$ _____
	_____	_____	_____	\$ _____

SUBTOTAL RAILROAD ITEMS      \$ \_\_\_\_\_

TOTAL STRUCTURES ITEMS      \$ \_\_\_\_\_  
 (Sum of Structures Items plus Railroad Items)

COMMENTS:

Estimate Prepared By \_\_\_\_\_ Phone# \_\_\_\_\_ Date \_\_\_\_\_  
 (Print Name)

NOTE: If appropriate, attach additional pages and backup.

Page No. \_\_\_\_ of \_\_\_\_

District-County-Route \_\_\_\_\_  
PM \_\_\_\_\_  
EA \_\_\_\_\_

III. RIGHT OF WAY ITEMS

ESCALATED VALUE

- A. Acquisition, including excess lands, damages to remainder(s) and Goodwill \$ \_\_\_\_\_
- B. Utility Relocation (State share) \$ \_\_\_\_\_
- C. Relocation Assistance \$ \_\_\_\_\_
- D. Clearance/Demolition \$ \_\_\_\_\_
- E. Title and Escrow Fees \$ \_\_\_\_\_

TOTAL RIGHT OF WAY ITEMS \$ \_\_\_\_\_  
(Escalated Value)

Anticipated Date of Right of Way Certification \$ \_\_\_\_\_  
(Date to which Values are Escalated)

F. Construction Contract Work

Brief Description of Work:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Right of Way Branch Cost Estimate for Work \* \$ \_\_\_\_\_

\* This dollar amount is to be included in the Roadway and/or Structures Items of Work, as appropriate. Do not include in Right of Way Items.

COMMENTS:

Estimate Prepared By \_\_\_\_\_ Phone# \_\_\_\_\_ Date \_\_\_\_\_  
(Print Name)

NOTE: If appropriate, attach additional pages and backup.

## **SECTION 5 Scoping Tools**

### **ARTICLE 1 General**

This section contains some of the tools used by various functional areas to aid the project team in scoping the project. The tools not contained in this section can be obtained from the appropriate functional unit.

Upon receiving a request for project information, each functional unit completes the appropriate scoping tool and transmits the information to the unit responsible for developing the PID.

The Design Scoping Index can either capture or reference project information from various functional units.

The tools not contained in this section list can be obtained from the appropriate functional unit.

### **ARTICLE 2 Design Scoping Index**

#### **General Guidance**

The index can serve as discussion document to help the design units analyze the highway system and identify design issues and strategies that should be addressed during the project initiation phase.

The index can serve to facilitate discussions with other functional units to identify project issues and stakeholder input needed to properly scope the project.

The Design Scoping Index is used in conjunction with the scoping checklists from other functional units. When filling out the index, use some type of notation to indicate if information on the index is based on assumptions. Project information is dynamic and the information in this index should be revised and dated throughout the project initiation process. As the project progresses, information should be verified, updated, and possibly addressed in a risk analysis.

To aid in engineering decision regarding the development of geometric plans, refer to the “Highway Design Manual” and [\*DIB 78 Design Checklist\*](#).

## Design Scoping Index

Attach the project location map to index to show the location of all design improvements.

Today's Date:	
Status (Initial, Update):	

**General Information:**

District:	County:	Route:	Post Mile	Project Number

Project Manager		Phone #	
Task Manager		Phone #	
Project Engineer		Phone #	
Design Functional Manager		Phone #	

General Project Description:	
Project Need:	
Project Purpose:	

Item	Considerations	Yes/No/ Specify	Comments (summarize pertinent information, assumptions and reference location of detailed information):
1. Project Setting (refer to Planning Scoping Checklist)	Rural or Urban?		
	Current Land Uses: (e.g., industrial, light industry, commercial, agricultural residential etc).		
	Adjacent Land Uses:		
	Existing Landscaping:		
	Designated or Eligible Scenic Highway		

The following pages are to be used for each alternative provided that the scope is significantly different. If a route has been adopted as a freeway, a decision must be made as to whether or not the project will address improvements to the existing traversable highway or move to construction of a freeway facility.

Item	Considerations	Yes/No/ Specify	Comments (summarize pertinent information, assumptions and reference location of detailed information):
Design Concept and Route Matters	1. Design Concept?		
	Freeway/Expressway/ Conventional Highway		
	Mixed highway and transit		
	Mixed highway and rail		
	Urban		
	Other		
	2. Existing Route Adoption Date		
	3. New Route Adoption Proposed?		
	4. Existing Freeway Agreement Date		
	5. New Freeway Agreement Proposed?		
6. Public Road Connection Proposed?			
Design Criteria	1. Design speed for highway facilities within the project limit mi/hr?		
	2. Design Period: (10 yr/15 yr/20 yr)		
	Construction Year		
	Design Year		
	3. Design Capacity - Level of Service to be maintained over the design period:		
	Mainline		
	Ramp		
	Local Street		
	Weaving Sections		
	4. Design Vehicle Selection		
	STAA		
	California		
	Bus		

Forecasted Average Daily Traffic volumes	_____
Percent truck volume	_____ %

Proposed Roadbed and Structure Widths

State Highway	Roadbed Width			Structure Width		
	Existing	Proposed	Standard	Existing	Proposed	Standard
Lane widths/#						
Left Shoulder						
Right Shoulder						
Median Width						
Bicycle lane						
Sidewalk						
Planting strip						
Local Streets						
Lane widths/#						
Left Shoulder						
Right Shoulder						
Median Width						
Bicycle lane						
Sidewalk						
Planting strip						

Item	Considerations		Yes/No/ Specify	Comments (summarize pertinent information, assumptions and reference location of detailed information):
Roadway Design Scoping	1. Mainline Operations	Main lane highway widening?		
		Existing pavement to be rehabilitated with Asphalt Concrete/Rubberized AC/PCC?		
		Widen existing facility from <u>    </u> lanes to <u>    </u> lanes.		
		Local street structures to span <u>    </u> lanes.		
		Curb extensions		
		Shoulder improvements		
		Bicycle lanes		
		Pedestrian refuge islands		
		Sidewalks		
		Right of Way acquisition required for <u>    </u> lanes.		
		Upgrade existing facility to: Expressway/Freeway/Controlled Access Highway/ Traversable Highway Standards?		
		Improve Vertical Clearance		
		Adequate Falsework Clearance		
	Traffic calming features			

Item	Considerations	Yes/No/ Specify	Comments (summarize pertinent information, assumptions and reference location of detailed information):
Roadway Design Scoping	2. Ramp/Street Intersection Improvements	New Signals?	
		Modify Existing Signals?	
		Right Turn Lanes	
		Widening for Localized Through lanes?	
		Merging Lanes?	
		Deceleration/ Acceleration lanes?	
		Left Turn Lanes?	
		>300 VPH Left Turn (Requires Double Left Turn Lane)	
		Interchange Spacing?	
		Ramps Intersect Local Street < 4% grade?	
		Intersection Spacing?	
		Exit Ramps >1,500 VPH (Requires two lane exit)	
		Single lane ramps exceeding 1000' widened to Two lanes	
		Curb Ramps?	
Pedestrian Facilities?			
Other?			
Operational Improvements	Truck Climbing Lane	Sustained Grade exceeding 2% and Total Rise Exceeds 50'?	
		Other?	
	Auxiliary Lanes	2000' between Successive On-Ramps?	
		Two lane Exit Ramps have 1300' Auxiliary Lane?	
		Weaving < 2000' between off-ramp and on-ramp?	
Other?			

Item	Considerations	Yes/No/ Specify	Comments (summarize pertinent information, assumptions and reference location of detailed information):
Right of Way Access Control	Existing access control extends at least 50 ft beyond end of curb return, radius or taper?		
	New construction access control extends at least 100' (urban areas) or 300' (rural areas) beyond end of curb returns, radius or taper?		
	Other?		
Highway Planting and Irrigation	Clearing and Grubbing?		
	Relocate Existing Irrigation Facilities? Highway Planting and Irrigation (including median and roadside)		
Roadside Management	Vegetation control treatments (road edge, guardrails, signs, drainage facilities, miscellaneous pavement narrow areas, etc.)		
	Modernization and clustering of facilities and hardware (removing and replacing other items), gore area pavement		
	Rehabilitate gore area pavement and pavement beyond gore areas (remove and replace miscellaneous pavement and curbs)		
	Contour grading, slope rounding, stepped slopes and topsoil reapplication Side slopes/embankment slope		
Safety	Off-Freeway Access (gate, access road, and stairways)		
	Maintenance Vehicle Pull-Out		
	Adequate safety working conditions		
	Relocate roadside facilities/features (cabinets, poles, pull boxes and vaults) away from traffic		
Hydraulics/ Stormwater (Refer to the Stormwater data sheet)	Erosion Control?		
	Drainage?		
	Slope Design?		
Structures (Refer to Structures Scoping Checklist or APS)	New Bridge? Providing public access for recreational purposes must be fully considered for new bridges over navigable rivers.		
	Bridge Rehabilitation?		
	Retaining Wall		
	Bicycle or Pedestrian		
	Overcrossing/Undercrossing		
	Other		
Other	On STRAIN list for: Class I Bikeway (bicycle path)		

## **Environmental Compliance**

Attach the appropriate environmental checklist.

## **Additional Studies**

Identify additional studies that may be required including resources and schedules.

# **ARTICLE 3      Transportation Planning Scoping Information Sheet**

The majority of the data requested for the transportation planning scoping information sheet is compiled at two separate time periods. The initial information is collected by the Transportation Planning PDT representative at the start of Project Initiation Document (PID) development to ensure appropriate stakeholders are included in the process and all pre-planning efforts and commitments are reviewed before any project decisions are made. Explanations of how the requirements were met will need to be finalized by the end of the PID. Initial information required for each section of the planning information sheet is identified as INITIAL PID INFORMATION and the concluding information is identified as FINAL PID INFORMATION.

Guidance to assist the transportation planner in completing this information sheet is located at: [http://www.dot.ca.gov/hq/tpp/offices/opp/opp/project\\_scoping.html](http://www.dot.ca.gov/hq/tpp/offices/opp/opp/project_scoping.html).

## Transportation Planning Scoping Information Sheet

### PROJECT INFORMATION

<i>District</i>	<i>County</i>	<i>Route</i>	<i>Post Miles</i>	<b>Project ID No/ <i>Expenditure Authorization No.</i></b>
<b>Project Name and Description:</b>				

**Prepared by:**

District Information Sheet Point of Contact*:	Name:	Functional Unit:	
--	-------	---------------------	--

\* The District Information Sheet Point of Contact is responsible for completing Project Information, PDT Team and Stakeholder Information, and coordinating the completion of project-related information with the Transportation Planning Stakeholders. Upon completion, provides the Transportation Planning PDT Representative and Project Manager with a copy of the Information Sheet.

<b>Project Development Team (PDT) Information</b>		
Title	Name	Phone Number
Project Manager		
Project Engineer		
Transportation Planning PDT Representative**		

<b>Transportation Planning Stakeholder Information</b>		
Title	Name	Phone Number
Regional Planner		
System Planner		
Local Development- Intergovernmental Review (LD-IGR) Planner		
Community Planner		
Goods Movement Planner		
Transit Planner		
Bicycle and Pedestrian Coordinator		
Park and Ride Coordinator		
Native American Liaison		
Other Coordinators:		

<b>Project Purpose and Need** –</b>
-------------------------------------

\*\* The Transportation Planning PDT Representative is responsible for providing the PDT with the system-wide and corridor level deficiencies identified by Transportation Planning. The PDT uses the information provided by Transportation Planning to develop the purpose and need with contributions from other Caltrans functional units and external stakeholders at the initiation of the PID and is refined throughout the PID process. As the project moves past the project initiation stage and more data becomes available, the purpose and need is refined. For additional information on purpose and need see: [www.dot.ca.gov/hq/env/emo/purpose\\_need.htm](http://www.dot.ca.gov/hq/env/emo/purpose_need.htm)

**1. Project Funding:**

a	List all known and potential funding sources and percent splits: (ie. State Transportation Improvement Program (STIP)/State Highway Operations and Protection Program (SHOPP)/Transportation Enhancement (TE)/Environmental Enhancement and Mitigation (EEM)/Safe Routes to School (SR2S)/etc.).
b	Is this a measure project? Yes ___/No ___. If yes, name and describe the measure.

**2. Regional Planning:**

a	Name of and contact information for Metropolitan Planning Organization (MPO) or Regional Transportation Planning Agency (RTPA).
b	Name of and contact information for local jurisdiction (City or County)
c	Provide the page number and project description as identified in the Regional Transportation Plan (RTP) and the date of adoption, or provide an explanation if not in RTP.
d	Provide nexus between the RTP objectives and the project to establish the basis for the project purpose and need.
e	Is the project located in an area susceptible to sea-level rise?
f	Name of Air Quality Management District (AQMD)
g	If the project is located in a federal non-attainment or attainment-maintenance area is the project: <ul style="list-style-type: none"> <li>• Regionally Significant? (per 40 (Code of Federal Regulations (CFR) 93.101) Y___/N___</li> <li>• Exempt from conformity? (per 40 CFR 93.126 and 93.128) Y___/N___</li> <li>• Exempt from regional analysis? (per 40 CFR 93.127) Y___/N___</li> <li>• Not exempt from conformity (must meet all requirements)? Y___/N___</li> </ul>

**3. Native American Consultation and Coordination:**

a	If project is within or near an Indian Reservation or Rancheria? If so, provide the name of Tribe.
---	--

b	Has/have the Tribal Government(s) been consulted? Y___/N___. If no, why not?
c	If the project requires Caltrans to use right-of-way on trust or allotted lands, this information needs to be included as soon as possible as a key topic in the consultation with the Tribe(s). Has the Tribe been consulted on this topic? Y___/N___. If no, why not?
d	Has the Bureau of Indian Affairs (BIA) been notified? Y___/N__
e	Have all applicable Tribal laws, ordinances and regulations [Tribal Employment Rights Ordinances (TERO), etc.] been reviewed for required contract language and coordination?
f	If the Tribe has a TERO, is there a related Memorandum of Understanding between the District and the Tribe?
g	Has the area surrounding the project been checked for prehistoric, archeological, cultural, spiritual, or ceremonial sites, or areas of potentially high sensitivity? If such areas exist, has the Tribe, Native American Heritage Commission or other applicable persons or entities been consulted?
h	If a Native American monitor is required for this project, will this cost be reflected in cost estimates?
i	In the event of project redesign, will the changes impact a Native American community as described above in d, e, or h?

**4. System Planning:**

a	Is the project consistent with the DSMP? Y___/N___. If yes document approval date. If no, explain.
b	Is the project identified in the TSDP? Y___/N__? If yes, document approval date____. If no, explain.
c	Is the project identified in the TCR/RCR or CSMP? Y___/N___. If yes, document approval date____. If no, explain. Is the project consistent with the future route concept? Y___/N___. If no, explain.
d	Provide the Concept Level of Service (LOS) through project area.
e	Provide the Concept Facility – include the number of lanes. Does the Concept Facility include High Occupancy Vehicle lanes? Y___/N__.
f	Provide the Ultimate Transportation Corridor (UTC) – include the number of lanes.

	Does the UTC include High Occupancy Vehicle Lanes? Y__/N__.
g	Describe the physical characteristics of the corridor through the project area (i.e. flat, rolling or mountainous terrain...).
h	Is the highway in an urban or rural area? Urban__/Rural__. Provide Functional Classification.
i	Is facility a freeway, expressway or conventional highway?
j	Provide Route Designations: (i.e. Interregional Transportation Strategic Plan (ITSP) High Emphasis or Focus Route, Surface Transportation Assistance Act (STAA) Route, Scenic Route...).
k	Describe the land uses adjacent to project limits (i.e. agricultural, industrial...).
l	Describe any park and ride facility needs identified in the TCR/CSMP, local plans, and RTP.
m	Describe the Forecasted 10 and 20-year Vehicle Miles Traveled (VMT), Annual Average Daily Traffic (AADT), and Peak Hour truck data in the TCR. Include the source and year of Forecast, and names and types of traffic and travel demand analysis tools used.
n	Has analysis on Daily Vehicle Hours of Delay (DVHD) from the Highway Congestion Monitoring Program (HICOMP) been completed and included? Y__/N__.

**5. Local Development – Intergovernmental Review (LD-IGR) :**

List LD-IGR projects that may directly or indirectly impact the proposed Caltrans project or that the proposed Caltrans project may impact. (Attach additional project information if needed.)

	<b>LD-IGR Project Information</b>	<b>Project</b>
a	County-Route-Postmile & Distance to Development.	
b	Development name, type, and size.	
c	Local agency and/or private sponsor, and contact information.	
d	California Environmental Quality Act (CEQA) status and Implementation Date.	
e	If project includes federal funding, National Environmental Policy Act (NEPA) status.	
f	All vehicular and non-vehicular unmitigated impacts and planned	

	mitigation measures including Transportation Demand Management (TDM) and Transportation System Management (TSM) that would affect Caltrans facilities.	
g	Approved mitigation measures and implementing party.	
h	Value of constructed mitigation and/or amount of funds provided.	
i	Encroachment Permit, Transportation Permit, Traffic Management Plan, or California Transportation Commission (CTC) Access approvals needed.	
j	Describe relationship to Regional Blueprint, General Plans, or County Congestion Management Plans.	
k	Inclusion in a Regional Transportation Plan Sustainable Community Strategy or Alternative Planning Strategy?	
l	Regional or local mitigation fee program in place?	

**6. Community Planning:**

<b>INITIAL PID INFORMATION</b>	
a	Has lead agency staff worked with any neighborhood/community groups in the area of the proposed improvements? Y__/N__. If yes, summarize the process and its results including any commitments made to the community. If no, why not?
b	Are any active/completed/proposed Environmental Justice (EJ) or Community-Based Transportation (CBTP) Planning Grants in the project area? Y__/N__. If yes, summarize the project, its location, and whether/how it may interact with the proposed project.
c	Describe any community participation plans for this PID including how recommendations will be incorporated and/or addressed. Has a context sensitive solutions (CSS) approach been applied? Y__/N__
<b>FINAL PID INFORMATION</b>	
d	How will the proposed transportation improvements impact the local community? Is the project likely to create or exacerbate existing environmental or other issues, including public health and safety, air quality, water quality, noise, environmental justice or social equity? Y__/N__. Describe issues, concerns, and recommendations (from sources including neighborhood/community groups) and what measures will be taken to reduce existing or potential negative effects.
e	Does this highway serve as a main street? Y__/N__. If yes, what main street functions and features need to be protected or preserved?

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**7. Freight Planning:**

<b>INITIAL PID INFORMATION</b>	
a	Identify all modal and intermodal facilities that may affect or be affected by the project.
<b>FINAL PID INFORMATION</b>	
b	Describe how the design of this project could facilitate or impede Goods Movement and relieve choke points both locally and statewide through grade separations, lane separations, or other measures (e.g., special features to accommodate truck traffic and at-grade railroad crossings).
c	Describe how the project integrates and interconnects with other modes (rail, maritime, air, etc.). Do possibilities exist for an intermodal facility or other features to improve long-distance hauling, farm-to-market transportation and/or accessibility between warehouses, storage facilities, and terminals?
d	Is the project located in a high priority goods movement area, included in the Goods Movement Action Plan (GMAP) or on a Global Gateways Development Program (GGDP) route? Y__/N__. If yes, describe.
e	Is the project on a current and/or projected high truck volume route [e.g., Average Annual Daily Truck Traffic (AADTT) of 5 axle trucks is greater than 3000]? Yes__/N__. If yes, describe how the project addresses this demand.
f	If the project is located near an airport, seaport, or railroad depot, describe how circulation (including truck parking) needs are addressed.
g	Describe any other freight issues.

**8. Transit (bus, light rail, commuter rail, intercity rail, high speed rail):**

<b>INITIAL PID INFORMATION</b>	
a	List all local transit providers that operate within the corridor.
b	Have transit agencies been contacted for possible project coordination? Y__/N__. If no, why not?
c	Describe existing transit services and transit features (bus stops, train crossings, and transit lines) within the corridor.
d	Describe transit facility needs identified in short- and long-range transit plans and RTP. Describe how these future plans affect the corridor.

<b>FINAL PID INFORMATION</b>	
e	Describe how the proposed project integrates transit and addresses impacts to transit services and transit facilities.
f	Have transit alternatives and improvement features been considered in this project? Y__/N__ If yes, describe. If no, why not?

**9. Bicycle:**

<b>INITIAL PID INFORMATION</b>	
a	Does the facility provide for bicyclist safety and mobility needs? If no, please explain.
b	Are any improvements for bicyclist safety and mobility proposed for this facility by any local agencies or included in bicycle master plans? If yes, describe (including location, time frame, funding, etc.).
c	Are there any external bicycle advocacy groups and bicycle advisory committees that should be included in the project stakeholder list? If so, provide contact information.
<b>FINAL PID INFORMATION</b>	
d	Will bicycle travel deficiencies be corrected? How or why not?
e	How will this project affect local agency plans for bicycle safety and mobility improvements?
f	If the project is the construction of a new freeway or modification to an existing freeway, will it sever or destroy existing provisions for bicycle travel? If yes, describe how bicycle travel provisions will be included in this project.

**10. Pedestrian including Americans with Disabilities Act (ADA):**

<b>INITIAL PID INFORMATION</b>	
a	Does this facility provide for pedestrian safety and mobility needs? If so, describe pedestrian facilities. Do continuous and well-maintained sidewalks exist? Are pedestrians forced to walk in the roadway at any locations due to lack of adequate pedestrian facilities? Please explain.
b	Are pedestrian crossings located at reasonable intervals?
c	Are all pedestrian facilities within the corridor ADA accessible and in compliance with Federal and State ADA laws and regulations?
<b>FINAL PID INFORMATION</b>	
d	Will pedestrian travel deficiencies be corrected? How or why not?

e	How will this project affect local agency plans for pedestrian safety and mobility improvements?
f	If the project is the construction of a new freeway or modification to an existing freeway, will it sever or destroy existing provisions for pedestrian travel? If yes, describe how pedestrian travel provisions will be included in this project.
g	Are there any external pedestrian advocacy groups and advisory committees that should be included in the project stakeholder list? If so, provide contact information.
h	Have ADA barriers as noted in the District's ADA Transition Plan been identified within the project limits? If not included in the project, provide justification and indicate whether District Design coordinator approval was obtained.

**11. Equestrian:**

	<b>INITIAL PID INFORMATION</b>
a	If this corridor accommodates equestrian traffic, describe any project features that are being considered to improve safety for equestrian and vehicular traffic?
	<b>FINAL PID INFORMATION</b>
b	Have features that accommodate equestrian traffic been identified? If so, are they included a part of this project? Describe. If no, why not?

**12. Intelligent Transportation Systems (ITS):**

	<b>INITIAL PID INFORMATION</b>
a	Have ITS features such as closed-circuit television cameras, signal timing, multi-jurisdictional or multimodal system coordination been considered in the project? Y__/N__. If yes, describe. If no, explain.
	<b>FINAL PID INFORMATION</b>
b	Have ITS features been identified? If so, are they included a part of this project? Describe. If no, why not?

## **ARTICLE 4      Traffic Forecasting, Analysis and Operations Scoping**

## Traffic Forecasting, Analysis and Operations Scoping Checklist

### Project Information

District \_\_\_\_\_ County \_\_\_\_\_ Route \_\_\_\_\_ Post Mile \_\_\_\_\_ EA \_\_\_\_\_

Description (include how project was identified: system planning, safety investigation, highway and freeway surveillance, etc.)

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Project Manager \_\_\_\_\_

Phone # \_\_\_\_\_

Project Engineer \_\_\_\_\_

Phone # \_\_\_\_\_

Traffic Forecasting Functional Manager \_\_\_\_\_

Phone # \_\_\_\_\_

Traffic Operations Functional Manager \_\_\_\_\_

Phone # \_\_\_\_\_

### Traffic Forecasting, Traffic Analysis Scoping

Describe and identify in the following sections a general description of the existing traffic and forecasted traffic (using existing data and transportation concept reports). Analyze traffic data and determine what traffic operational conditions are anticipated. Identify any additional studies needed to accurately forecast and fully analyze the traffic operations as part of the preparation of the environmental determination/document. Consult with the District Local Development-Intergovernmental Review Planner for applicable local agency studies of land development proposals.

Under traffic modeling assumptions, traffic models should be validated and calibrated. The general plan buildout should be used to incorporate potential land use changes that are probable in the future. An interim year may be selected to incorporate a significant land use change or development.

At the PSR stage, the traffic forecasting and analysis tasks are intended to utilize readily available information and traffic models. At this stage of the project development process, it is not intended that extensive effort be devoted to the generation of traffic data and to the significant updating of traffic models. If necessary, these tasks will occur at later stages of the process. However, exceptions may be necessary in cases where the traffic data or models are highly suspect.

## Traffic Operations Scoping

Based on the traffic analysis, describe and identify in the following sections a general description of the traffic operational improvements required (auxiliary lanes, signalized intersections, etc.) to address the traffic operational conditions and applicable warrants. The traffic operation improvements should be discussed in sufficient detail to identify the project's major geometric features and operations issues. Also discuss in detail traffic management system improvements (ramp metering, CMS, HOV lanes, etc.) to be incorporated. Discuss any components of the traffic management system that may be controversial during development of the environmental determination/document.

## Project Screening

1. Project Features: New R/W? \_\_\_\_\_ Excavation or fill? \_\_\_\_\_

2. Project Setting

\_\_\_\_\_

Rural or Urban

\_\_\_\_\_

Current land uses

\_\_\_\_\_

Adjacent land uses

\_\_\_\_\_

(industrial, light industry, commercial, agricultural, residential, etc.)

## Existing Traffic Operational Conditions and Warrants Supporting the Need for the Improvement

Mainline highway

\_\_\_\_\_  
\_\_\_\_\_

Ramp intersection

\_\_\_\_\_  
\_\_\_\_\_

Merge / diverge

\_\_\_\_\_  
\_\_\_\_\_

Street intersection

\_\_\_\_\_  
\_\_\_\_\_

Weaving / merging (spacing)

---

---

Describe facilities for pedestrians and bicycles (e.g., marked non-intersection pedestrian crosswalks, intersections with bicycle paths, etc.)

---

---

Traffic Study and Analysis Anticipated

**Traffic Modeling Assumptions**

- o Use Local Model
  - o Update New Model
  - o New Model
- o Existing Traffic Counts
  - o New Traffic Counts
  - o Historical Growth
- o General Plan (GP) Buildout
  - o Pro-Rate GP Growth
- o Existing Year ( )
  - o Design Year ( )
  - o Interim Year ( )

Other

---

---

**Traffic Analysis**

- o Mainline LOS
  - o Merge/Diverge LOS
  - o Ramp Int. LOS
- o Adjacent IC LOS
  - o Ramp Metering (open)
  - o Ramp Metering (later)
- o Left/Right Turn Storage
  - o Accident / Safety Analysis
  - o Intersection Queues
- o Construction Staging
  - o Project Staging
  - o TMP Staging
  - o VDS Staging (temporary microwave monitoring stations)

Other

---

*References: Guide for the Preparation of Traffic Impact Studies, Caltrans January 2001; Highway Capacity Manual: Transportation Research Board*

## **Traffic Operations Scoping**

### **Traffic Operational Improvements**

Attach the project location map to this checklist to show location of all traffic operations improvements anticipated.

- o Auxiliary Lanes
    - o Intersection Improvements
    - o Truck Climbing Lane
  - o New Signals
    - o Modify Signals
    - o Merging Improvements
  - o Weaving Improvements
    - o Deceleration / Acceleration Lanes
  - Other
- 
- 

### **Traffic Management Systems**

Attach the project location map to this checklist to show location of all traffic management systems identified.

- o Ramp Meters
    - o HOV Ramp Bypass
    - o Mainline HOV Lanes
  - o Detector Systems
    - o Detector Loops
    - o Detector Lead-in-cables
    - o VDS Staging (temporary microwave monitoring stations)
  - o Communication Networks (fiber optics, telephones, etc.)
  - o Closed Circuit Television
    - o Changeable Message Sign
    - o Highway Advisory Radio
  - Other
- 
-

Discuss strategies (technical analysis, public outreach, etc.) to secure local agency and public support to implement HOV lanes and ramp metering:

---

---

**Preliminary Traffic Forecasting Evaluation provided by:**

Traffic Forecasting \_\_\_\_\_ Date \_\_\_\_\_

**Preliminary Traffic Operations Evaluation provided by:**

Traffic Operation Engineer \_\_\_\_\_ Date \_\_\_\_\_

Traffic Electrical Engineer \_\_\_\_\_ Date \_\_\_\_\_

Download a copy in Microsoft Word (Word 97) format Traffick.doc

## **SECTION 6 Templates**

### **ARTICLE 1      Template for Project Study Report**

This article is a template for the PSR. Guidance for completing this template is located in Section 3 of this appendix.

This template should be modified to include or exclude any applicable deficiencies or issues. If appropriate, the tables used in templates from Appendices A-Q can be used to present project information.

When using any template, delete any italicized text. The italicized text provides instructions for users of the templates and does not provide any value to the report.

Dist – Co - Rte, PM  
Program Code  
EA  
Month/Year

## PROJECT STUDY REPORT

To

**Request for** \_\_\_\_\_

On Route \_\_\_\_\_

Between \_\_\_\_\_

And \_\_\_\_\_

APPROVAL RECOMMENDED:

\_\_\_\_\_  
*PROJECT MANAGER*

APPROVED:

\_\_\_\_\_  
*DISTRICT DIRECTOR*

\_\_\_\_\_  
*DATE*

Dist. - Co. - Rte. PM.  
Program Code  
EA  
Month/Year

## Vicinity Map

Show:

- Project limits
- Topographical Features Listed in Report
- North Arrow

On Route \_\_\_\_\_

Between \_\_\_\_\_

And \_\_\_\_\_

Dist. - Co. - Rte. - P.M.

This Project Study Report has been prepared under the direction of the following Registered Engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

---

REGISTERED CIVIL ENGINEER

DATE



## **Table of Contents**

1. **INTRODUCTION**

Brief Project Description:

See the Cost estimate for specific work items included in this project.

<b>Project Limits</b> (Dist., Co., Rte., PM)	
<b>Number of Alternatives:</b>	
<b>Alternative Recommended for Programming:</b>	
<b>Programmed or Proposed Capital Construction Costs</b>	
<b>Programmed or Proposal Capital Right of Way Costs:</b>	
<b>Funding Source:</b>	
<b>Type of Facility (conventional, expressway, freeway):</b>	
<b>Number of Structures:</b>	
<b>Anticipated Environmental Determination/Document</b>	
<b>Legal Description</b>	
<b>Project Category</b>	

A project report will serve as approval of the “selected” alternative.

Other approvals required are:

2. **BACKGROUND**

3. **PURPOSE AND NEED STATEMENT**

**Need:**

**Purpose:**

4. **DEFICIENCIES**

- 5. **CORRIDOR AND SYSTEM COORDINATION**
- 6. **ALTERNATIVES**
- 7. **COMMUNITY INVOLVEMENT**
- 8. **ENVIRONMENTAL DETERMINATION/DOCUMENT**
- 9. **FUNDING**

**A. Capital Cost**

**Capital Cost Estimate for the Alternative Identified for  
Programming in the 20XX STIP**

<b>Fiscal Year</b>	<b>Right of Way Capital</b>	<b>Construction Capital</b>
<b>FY01 - STIP</b>		
<b>FY01 - Source 2</b>		
<b>FY02 STIP</b>		
<b>FY02 Source 2</b>		
<b>FY03 –STIP</b>		
<b>FY03 - Source 2</b>		
<b>FY04 – STIP</b>		
<b>FY04 - Source2</b>		
<b>FY05 – STIP</b>		
<b>FY05 - Source2</b>		
<b>Total</b>		

See attached “ready to sign” cooperative agreement for cooperative features.  
*(Delete this statement if the project does not have cooperative features)*

**B. Capital Support Estimate for the Programmable Alternative in the 20XX STIP**

	PROJECT SUPPORT COMPONENTS								
	PA&ED 0 Phase		Design 1 Phase		Right of Way 2 Phase		Construction 3 Phase		Total
	Dist	DES	Dist	DES	Dist	DES	Dist	DES	
Estimated PY's									
Estimated PS \$'s									
Estimated PYE \$' (\$1000's)									
Total \$'s									

**10. SCHEDULE**

HQ Milestones	Delivery Date (Month, Day, Year)
Begin Environmental Notice of Intent (NOI)	
Circulate DED	
PA & ED	
Regular Right of Way	
Project PS&E	
Right of Way Certification	
Ready to List	
Approve Contract	
Contract Acceptance	
End Project	

**11. FHWA COORDINATION**

This Report has been reviewed by *(Name and title of the FHWA Liaison Engineer)* reviewing on *(date)*. Per *(latest federal Transportation Act)*, this project is eligible for federal-aid funding and is considered to be *(STATE-AUTHORIZED or FULL-OVERSIGHT)* under current FHWA-Caltrans Stewardship Agreements. *(If either no federal-aid funding will be used or no FHWA approval required, delete the above statement and replace with the statement: "No federal-aid funding anticipated or no FHWA action required for this project.")*.

Federal "engineering and operational acceptability" determination was received on \_\_\_\_\_. *(Delete this statement if not applicable.)*

CMAQ Eligibility \_\_\_\_\_ *(Delete this statement if not applicable.)*

**12. DISTRICT CONTACTS**

**13. PROJECT REVIEWS**

Field Review _____	Date _____
District Maintenance _____	Date _____
District Safety Review _____	Date _____
Constructability Review _____	Date _____
HQ Design Coordinator _____	Date _____

Project Manager District Safety Review \_\_\_\_\_  
Date \_\_\_\_\_

*For SHOPP Projects Only- Delete if not applicable:*

District SHOPP Program Advisor \_\_\_\_\_

Date \_\_\_\_\_

HQ SHOPP Program Advisor \_\_\_\_\_

Date \_\_\_\_\_

## **ARTICLE 2      Template for Project Study Report for Conceptual Approval**

This article is a template for the PSR for conceptual acceptance of a project-funded-by-others. Guidance for completing this template is located in Section 3 of this appendix.

Dist – Co - Rte, PM  
EA  
Month/Year

# PROJECT STUDY REPORT

To

## Request Conceptual Approval

On Route \_\_\_\_\_

Between \_\_\_\_\_

And \_\_\_\_\_

APPROVAL RECOMMENDED:

\_\_\_\_\_  
*PROJECT MANAGER*

APPROVED:

\_\_\_\_\_  
*DISTRICT DIRECTOR*

\_\_\_\_\_  
*DATE*

Dist. - Co. - Rte. PM.  
Month/Year

## Vicinity Map

Show:

- Project limits
- Topographical Features Listed in Report
- North Arrow

On Route \_\_\_\_\_

Between \_\_\_\_\_

And \_\_\_\_\_

Dist. - Co. - Rte. - PM.

This Project Study Report has been prepared under the direction of the following Registered Engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

---

REGISTERED CIVIL ENGINEER

---

DATE



# Table of Contents

**1. INTRODUCTION**

Brief Project Description:

---

---

See the Cost estimate for specific work items included in this project.

<b>Project Limits</b> [Dist., Co., Rte., PM]	
<b>Applicant:</b>	
<b>Funding Source:</b>	
<b>Capital Costs:</b>	
<b>Right of Way Costs:</b>	
<b>Number of Alternatives:</b>	
<b>Proposed Alternative</b>	
<b>Type of Facility (conventional, expressway, freeway):</b>	
<b>Number of Structures:</b>	
<b>Anticipated Environmental Document</b>	
<b>Legal Description</b>	

A project report will serve as approval of the “selected” alternative.

**2. BACKGROUND**

**3. PURPOSE AND NEED STATEMENT**

**Need:**

**Purpose:**

**4. DEFICIENCIES**

**5. CORRIDOR AND SYSTEM COORDINATION**

**6. ALTERNATIVES**

**7. COMMUNITY INVOLVEMENT**

**8. ENVIRONMENTAL DETERMINATION/DOCUMENT**

**9. FUNDING**

**A. Capital Cost**

**Capital Cost Estimate for the Proposal**

Fiscal Year	Right of Way Capital	Construction Capital
<b>Total</b>		

See attached “ready to sign” cooperative agreement for cooperative features.

**B. Capital Support Estimate for the Caltrans Resources**

	PROJECT SUPPORT COMPONENTS								Total
	PA&ED 0 Phase		Design 1 Phase		Right of Way 2 Phase		Construction 3 Phase		
	Dist	DES	Dist	DES	Dist	DES	Dist	DES	
Estimated PY's									
Estimated PS \$'s									
Estimated PYE \$'s (\$1000's)									
Total \$'s									

**10. SCHEDULE**

HQ Milestones	Delivery Date (Month, Day, Year)
Begin Environmental Notice of Intent (NOI)	
Circulate DED	
PA & ED	

**11. FHWA COORDINATION**

This Report has been reviewed by *(Name and title of the FHWA Liaison Engineer)* reviewing on *(date)*. Per *(latest federal Transportation Act)*, this project is eligible for federal-aid funding and is considered to be (STATE-AUTHORIZED or FULL-OVERSIGHT) under current FHWA-Caltrans Stewardship Agreements. *(If either no federal-aid funding will be used or no FHWA approval required, delete the above statement and replace with the statement: "No federal-aid funding anticipated or no FHWA action required for this project.")*.

Federal "engineering and operational acceptability" determination was received on \_\_\_\_\_. *(Delete this statement if not applicable.)*

CMAQ Eligibility \_\_\_\_\_ *(Delete this statement if not applicable.)*

**12. LOCAL ENTITY CONTACTS/DISTRICT CONTACTS**

**13. DISTRICT REVIEWS**

Field Review \_\_\_\_\_ Date \_\_\_\_\_

District Maintenance \_\_\_\_\_ Date \_\_\_\_\_

District Safety Review \_\_\_\_\_ Date \_\_\_\_\_

DES Review \_\_\_\_\_ Date \_\_\_\_\_

HQ Design Coordinator \_\_\_\_\_ Date \_\_\_\_\_

Project Manager District Safety Review \_\_\_\_\_

Date \_\_\_\_\_