

APPENDIX L – Preparation Guidelines for Project Study Report

Table of Contents

APPENDIX L – Preparation Guidelines for Project Study Report.....	L-3
ARTICLE 1 Introduction	L-3
Reference Information	L-3
Project Initiation Documents	L-3
Project Study Report.....	L-4
Applicability	L-4
ARTICLE 2 Project Initiation Document Preparation Procedures	L-4
ARTICLE 3 Outline	L-14
General.....	L-14
Front Matter	L-14
Main Body of Report	L-16
ARTICLE 4 Estimates.....	L-28
Capital Estimate Components.....	L-28
Project Cost Estimate.....	L-28
ARTICLE 5 Scoping Tools.....	L-29
General.....	L-29
Design Scoping Index.....	L-29
Transportation Planning Scoping Information Sheet	L-30
Traffic Forecasting, Analysis and Operations Scoping Checklist.....	L-30
ARTICLE 6 Template.....	L-35

APPENDIX L – Preparation Guidelines for Project Study Report

ARTICLE 1 Introduction

Reference Information

Some of the references found in this appendix have hyperlinks that connect to Caltrans intranet pages which are not displayable to the general public. Until such time that the specific reference becomes available on the internet, the user will have to contact their district liaison, Caltrans project manager, or the appropriate Headquarters division to inquire about the availability of the reference.

Project Initiation Documents

This appendix provides concepts and best practices for the preparation of all project initiation documents (PIDs). This appendix and [Chapter 9](#) – Project Initiation 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. The preparation of the project study report-project development support (PSR-PDS), another type of PID used for projects funded through the State Transportation Improvement Program (STIP) or for projects-funded-by-others, is discussed in [Appendix S](#) – Preparation Guidelines for Project Study Report-Project Development Support Project Initiation Document.

Information about SHOPP PIDs, including long lead SHOPP projects, is located at the Headquarters Division of Transportation Planning-Office of Program and Project Planning [SHOPP Project Initiation Report \(PIR\) Guidance](#) website.

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 STIP projects off the State highway system.

ARTICLE 2 Project Initiation Document Preparation Procedures

This article describes the sequence of key activities and best practices that take place during the project initiation phase. For project teams, the [Project Development Workflow Tasks Manual](#) 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 *Project Development Workflow Tasks Manual* primarily describes design activities performed by the project engineer, it also provides the framework for the flow of tasks by all the functional units.

Guidance on the content of the PSR is discussed in Article 3 “Outline.”

For an overview of where the project initiation phase fits into the project development process, see [Chapter 8](#) – Overview of Project Development.

A graphic overview of the project development process is located at: [Project Phase and WBS Level 5 Flow Chart](#)

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, nonstandard design features may be considered.
- Identify known design deficiencies. The [Design Scoping Index](#) in Article 5 “Scoping Tools” 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 P01 of the [Project Development Workflow Tasks Manual](#).

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 project manager (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 unit. Representatives from other functional units, local and regional entities are added as needed. See [Chapter 8](#) – Overview of Project Development.

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 of the [Project Development Workflow Tasks Manual](#) 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.

Additional information on the development of purpose-and-need statements is located in [Chapter 9](#) – Project Initiation. For additional guidance on project purpose-and-need, refer to Task P02 of the [Project Development Workflow Tasks Manual](#).

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](#) – Nonmotorized Transportation Facilities); 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 \(HDM\)](#) Chapter 1000 – Bicycle Transportation Design, 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 [Design Information Bulletin 82](#) – Pedestrian Accessibility Guidelines for Highway Projects.

See Task P25 and Task P26 of the [Project Development Workflow Tasks Manual](#) 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, current *Ten-Year State Highway Operation and Protection Program Plan (SHOPP Plan)* located at the Headquarters [Division of Transportation Programming-State Highway Operation and Protection Program \(SHOPP\) and Minor Program](#) website, 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 is located in [Chapter 1](#) – Introduction and [Chapter 4](#) – Programming.

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 Task P08 through Task P26 of the [Project Development Workflow Tasks Manual](#) for further guidance on additional data and input.

7. Identify additional data requirements for project scoping

Refer to the tools in Article 5 “Scoping Tools” to identify data needs and issues that should be considered or studied to properly scope the project. The use of the [Design Scoping Index](#) 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 Transportation Planning Scoping Information Sheet; [Design Information Bulletin 78](#) – Design Checklist; Traffic Forecasting, Analysis and Operations Scoping Checklist; preliminary environmental analysis report (PEAR); Headquarters Division of Engineering Services PSR-PDS Scoping Checklist; and 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 Flow Chart P01-P31 and Flow Chart P32-P62 of the [Project Development Workflow Tasks Manual](#) 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 Flow Chart P01-P31 and Flow Chart P32-P62 of the [Project Development Workflow Tasks Manual](#) 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, design standards, traffic operations, and alternative transportation modes already in place (such as: mass transit, rail, and bicycle and pedestrian facilities).

If developing alternatives for freeway projects, see [Chapter 31](#) – Nonmotorized Transportation Facilities for the *California Streets and Highways Code* requirements regarding impacts on pedestrian and bicycle transportation routes.

The environmental unit prepares a preliminary environmental analysis report for each alternative. The preliminary environmental analysis report 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 preliminary environmental analysis report. The [Standard Environmental Reference](#) includes information that environmental units need to develop the preliminary environmental analysis report.

See Flow Chart P32-P62 of the [Project Development Workflow Tasks Manual](#) 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 are located in the [Standard Environmental Reference](#).

B. Design Standards

During development of projects, various constraints often require deviation from design standards. Identify and document nonstandard design features as discussed in [Chapter 21](#) – Design Standard Decisions.

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 [Project Development Workflow Tasks Manual](#) for further guidance on design standards.

C. Structures

As soon as conceptual geometrics have been generated, develop advance planning studies and cost estimates for the various structure alternatives. The advance planning study (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 Headquarters Division of Engineering Services technical liaison engineer assigned to the district. The technical liaison engineer will provide recommendations on preparation of the preliminary studies. The studies will be prepared by Headquarters Division of Engineering Services, or if prepared by others, will be reviewed by Headquarters Division of Engineering Services during the district review process.

See Task P48 of the [Project Development Workflow Tasks Manual](#) 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) should be obtained from Caltrans or other sources. If critical areas, such as slides, erosion, poor foundations, etcetera 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, etcetera 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

Headquarters Landscape Architecture Program (LAP) [Roadside Management Toolbox](#) website. 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

Coordinate with the district traffic unit to obtain transportation management plan (TMP) requirements and any other traffic scoping information. See the [Transportation Management Plan Guidelines](#) for information about transportation management plan measures and Article 5 “Scoping Tools” to determine what information is provided in a Traffic Forecasting, Analysis and Operations Scoping Checklist.

If a roadway closure is a possibility, review the [Full Closure Guidelines](#) and coordinate information sharing with the district traffic unit.

Significant items should be discussed in the report and associated costs included in the estimate.

Identify existing vehicle detections systems within the project limits. Additional staging plans to maintain the vehicle detections systems 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 vehicle detections systems 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.

See Task P63 through Task P66 of the [Project Development Workflow Tasks Manual](#) 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 project 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 projects, see [Appendix S](#) – Preparation Guidelines for Project Study Report-Project Development Support Project Initiation Document.

Information regarding development of long lead SHOPP projects is located at the Headquarters Division of Transportation Planning-Office of Program and Project Planning [SHOPP Project Initiation Report \(PIR\) Guidance](#) website.

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, Release 12.0](#).

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](#) – Project Initiation), 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 Article 4 “Estimates” and [Chapter 20](#) – Project Development Cost Estimates.

See Task P72 of the [Project Development Workflow Tasks Manual](#) for further information on the development of cost estimates.

11. Develop schedules

A work plan 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 work plan 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 Article 3 “Project Initiation Document Preparation Procedures.”

ARTICLE 3 Outline

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 (such as traffic volumes) and detailed analyses are part of the project files.

Article 6 “Template” presents the template 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.

Front Matter

Cover Sheet

The cover sheet provides the project identifiers, in the header, such as the district, county, route, and post mile range, as well as the expenditure authorization (EA), project number, planning program number (PPNO), program code, program name, and month and year of report approval.

The beginning and ending post miles should be rounded to the nearest 0.1 mile that encompasses all of the proposed construction. The project location should be listed as a spot location to the nearest 0.1 mile if the project is less than 0.2 mile in length. The report limits should use the limits of the programmable project alternative.

The project number is the 10 digit number used for reporting labor charges.

Enter the program code(s) with program name(s). Information on the program codes and names can be found in the [Coding Manual](#), Chapter 7. The program code is typically presented in the format of “20.XX.201.010” where “XX” is entered in the element location to represent both capital outlay support (XX=10) and capital outlay projects (XX=20) when they are funded from the same funding program. Use specific, separate program codes for multiple funding sources.

Modify the purpose(s) of report as needed. Typical entries for the purpose(s) include:

- To Request Programming in the 20XX STIP for Capital Support of the Project Approval and Environmental Document
- To Request Programming in the 20XX STIP for Capital Support for:
 - Project Approval and Environmental Document
 - Plans, Specifications, and Estimate
 - Right-of-Way Acquisition
 - Construction Management
- To Request Programming in the 20XX STIP for Right-of-Way and Construction Capital
- To Request Programming in the 20XX SHOPP
- To Request Approval to Proceed with the Formal Studies for a SHOPP Project
- To Authorize a Cooperative Agreement
- For Conceptual Approval for a Project-Funded-By-Others (as defined in [Chapter 9](#) – Project Initiation)

See the [Plans Preparation Manual](#), Section 2-2.2 for guidance in developing the project legal description. The project legal description is the same as the title sheet project description, such as: “In Los Angeles County...”

The cover sheet must include endorsement of the project manager.

The District Director or Deputy District Director to whom that authority has been officially delegated approves the recommendations of the report. Edit the signature block as appropriate.

Vicinity Map

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

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 indicating that the registered professional 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 report. Approval of the report is a management decision and is separate from this technical signature of the person in responsible charge.

Table of Contents

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

Main Body of Report

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 (for example: Project Approval and Environmental Document phase)
- The schedule for completion of proposed activities
- The proposed funding sources
- The initial project category
- The type of facility as designated on a current or proposed route adoption map
- Any known project approvals anticipated for each alternative (See [Chapter 12](#) – Project Approvals and Changes to Approved Projects)

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 statement and the need statement. Additional information on the development of purpose-and-need statements is located in [Chapter 9](#) – Project Initiation.

Purpose

The project purpose is the set of project objectives that will be met, which addresses the transportation deficiency (in other words, 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 (for example: minimizing impacts to the environment, meeting *Americans with Disabilities Act of 1990* requirements, etcetera), 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 “Deficiencies” topic.

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, etcetera. 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, nonstandard features, architectural features, landscaping features, maintenance items, etcetera), 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 or 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 Transportation Planning Scoping Information Sheet 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 California Transportation Commission (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](#) – Access Control Modification 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](#) – Project Initiation, are:

- The No Build Alternative
- The alternative that meets current 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 these alternatives must be explained. If the alternative that meets current design standards is rejected, approval of nonstandard design features must be obtained and referenced. Rejected alternatives and justification for rejection must be discussed.

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](#) – Preparation Guidelines for Project Study Report-Project Development Support Project Initiation Document for information on PSR-PDS 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 the Project Approval and Environmental Document (PA&ED) phase, Plans, Specifications, and Estimate

(PS&E) phase, 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 the Project Approval and Environmental Document (PA&ED) phase 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 (such as: 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 following components: Project Approval and Environmental Document (PA&ED); Plans, Specifications, and Estimate (PS&E); Right-of-Way; and Construction.
- Discuss whether the alternative will require approval of a design standard decision document. Deviations from design standards (see [Highway Design Manual](#) Index 82.2 – Approvals for Nonstandard Design) must be discussed and must be approved by the appropriate individuals prior to PID approval. Design standard decision documents must be approved following the procedures in [Chapter 21](#)– Design Standard Decisions.
- Discuss which studies and actions are required for approval of each alternative (such as: Federal Highway Administration [FHWA], CTC, route matters, etcetera). For further guidance see [Chapter 13](#) – Project Related Permits, Licenses, Agreements, Certifications, and Approvals.
- A summary of the traffic analysis for each alternative is required.
- Transportation Management Plan – Transportation management plan measures must be considered during project initiation and included for project approval to ensure they are incorporated into construction contracts. See discussion of this topic in [Chapter 8](#) – Overview of Project Development and the [Transportation Management Plan Guidelines](#) for more information.

Describe the anticipated transportation management plan requirements for the project. Describe planned detours, rerouting, temporary closures and full closures for roadways and ramps. Discuss any impacts to transit routes, high-occupancy vehicle lanes, school bus routes, emergency vehicle access, and park-and-ride lots. Discuss the bicycle and pedestrian traffic need through the construction area.

- Discuss the need for staging plans to maintain vehicle detections systems during construction for the programmable project alternative. Identify the temporary vehicle detections system elements (generally microwave video detection) that would be required to maintain the vehicle detections systems and the associated costs.
- A storm water data report (SWDR) shall be prepared for every project. The storm water data report is prepared by the project engineer to document stormwater decisions for any given project. The storm water data report is also used to help identify potential stormwater quality issues for the project. The [*Storm Water Quality Handbooks: Project Planning and Design Guide*](#) provides guidance on the appropriate forms to use to develop the storm water data report. The design district or regional stormwater coordinator shall confirm the appropriate storm water data report format to use. The PID shall include a summary of key stormwater elements identified in the storm water data report. The signed cover sheet shall be circulated with the PID for district review and attached to the final PID.
- 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 agreements.

- Discuss high-risk issues that can affect an alternative (for example: local opposition and 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 the SHOPP Project Output form. Contact the appropriate Headquarters SHOPP program manager for the SHOPP Project Output form and guidance on how to complete the form. Descriptions of the SHOPP programs and the corresponding Headquarters SHOPP program managers and advisors is located at the Headquarters [*Division of Maintenance-State Highway Operation and Protection Program \(SHOPP\)*](#) website.

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 context-sensitive-solutions approach that will be used to obtain community involvement in the identification and evaluation of alternatives.

8. ENVIRONMENTAL COMPLIANCE

Identify the type of environmental scoping information prepared for the project and what may be anticipated, such as:

A preliminary environmental assessment report (PEAR) was prepared and included with this report. The PEAR indicates that the project will likely receive an environmental determination of a Categorical Exemption (CE) under the California Environmental Quality Act (CEQA) and Categorical Exclusion (CE) under the National Environmental Policy Act (NEPA).

Briefly discuss the requirements and restrictions enumerated in the environmental scoping information. Information about environmental scoping is in the [*Standard Environmental Reference*](#).

Briefly describe environmental issues that influence the project design, schedule, or cost; include permit requirements, mitigation, and construction work windows. Refer to information in the attached assessment as needed.

Provided for reference:

- California Environmental Quality Act (CEQA)
 - Categorical Exemption (CE) or Statutory Exemption (SE)
 - Initial Study (IS) and Negative Declaration (ND) or Mitigated Negative Declaration (MND)
 - Environmental Impact Report (EIR)
- National Environmental Policy Act (NEPA)
 - Categorical Exclusion (CE)
 - Environmental Assessment (EA) and Finding of No Significant Impact (FONSI)
 - Environmental Impact Statement (EIS)

9. FUNDING, PROGRAMMING AND ESTIMATE

Funding

Discuss the project funding.

Special Funding: If the project has special funding, identify the source of funding, the dollar amount, and when funding will be available.

State-Only Funding: If the project will use State-only funding, fully explain the need for the exception and discuss why the project does not qualify for federal participation.

Federal-Aid Funding: Determine if the project is eligible for Federal-aid funding and include one of the following statements:

“It has been determined that this project is eligible for Federal-aid funding.”

Or

“It has been determined that this project is not eligible for Federal-aid funding.”

Congestion Mitigation and Air Quality Program Funding: Discuss whether or not the project is eligible for Congestion Mitigation and Air Quality Program funding. Review the current Congestion Mitigation and Air Quality Program guidance to determine if an emission reduction analysis must be completed; the California Air Resources Board and Caltrans’ approved methodologies for completing the

emission reduction analysis can be obtained from the Headquarters Transportation Programming website at: [Congestion Mitigation and Air Quality](#) website.

Programming

Proposal Programming Data: If the project is already programmed, include data from the appropriate, latest, official programming document: State Transportation Improvement Program (STIP) or State Highway Operation and Protection Program (SHOPP).

If the project is already programmed, compare the current capital outlay project right-of-way and construction estimates to the programming figures in the current STIP or SHOPP.

If the project was previously initiated with a PSR-PDS, discuss programming the remaining capital outlay support and the capital outlay project right-of-way and construction estimates.

Multiple Counties: Where work is proposed in multiple counties, an entry is required for each of the counties, so that county minimums can be accurately determined.

Support Estimate: Enter the escalated capital outlay support estimates in the table, in the appropriate fiscal funding year column, in thousands of dollars, for the following components: Project Approval and Environmental Document (PA&ED); Plans, Specifications, and Estimate (PS&E); Right-of-Way; and Construction. Consult with the project manager to determine the fiscal funding year, the escalated support estimates, and the escalation rates.

Project Estimate: Enter the escalated capital outlay support estimates in the table, in the appropriate fiscal funding year column, in thousands of dollars, for the Right-of-Way and Construction components. Consult with the project manager to determine the fiscal funding year, the escalated project estimates, and the escalation rates.

Support Cost Ratio: State the support cost ratio. Consult with the project manager to determine the support cost ratio.

Estimate

Discuss significant aspects of the construction estimate. See [Chapter 20](#) – Project Development Cost Estimates for further details on estimating.

10. DELIVERY SCHEDULE

Enter the milestone dates in the table and discuss any schedule issues and constraints. The project schedule should be based on functional unit input, available resources, and funding constraints. Consult with the project manager to determine the project schedule. The milestones shown in the table are mandatory except as follows: M030 is only required when there is an environmental impact report environmental document; M035 is only required when there is an environmental impact statement environmental document; M120 is only required if there is a draft environmental document that will be released to the public; and M378 is not required, but optional if there are structures involved, delete rows as needed. Indicate if the milestone date is an actual date or target date, delete column as needed.

11. RISKS

Refer to the [Project Risk Management Handbook: A Scalable Approach](#) for the requirements and procedures. Discuss the risks and include the risk register as an attachment.

12. EXTERNAL AGENCY COORDINATION

See the latest [Stewardship and Oversight Agreement on Project Assumption and Program Oversight](#) between the FHWA, California Division and Caltrans for the project actions assumed by Caltrans and the project actions where FHWA has retained their authority as well as the detail associated with the various oversight responsibilities. Project actions are identified in the “Project Action Responsibility Matrix” within the stewardship agreement.

Discuss if the project has been identified as a “Project of Division Interest.”

Discuss project actions, as appropriate, assumed by Caltrans and any coordination with the FHWA for review and approval of project actions.

If the project proposes new or modified Interstate access, include a discussion of any issues and the proposed or actual dates for the Determination of Engineering and Operational Acceptability and Final Approval. See [Chapter 27](#) – Access Control Modification, for more information.

Identify potential involvement with outside agencies for necessary coordination, agreements, or permits required for the project. The district environmental division is a resource for determining some of the required permits. The list of agencies and permits in the template is not comprehensive; see [Chapter 13](#) – Project Related Permits, Licenses, Agreements, Certifications, and Approvals for more information.

External agency coordination that causes uncertainty for delivering the project must be included in the risk register.

13. PROJECT REVIEWS

The template includes a list of possible reviews. Modify the list to reflect district review procedures. Include “Completed” or “Not applicable” or the reviewer’s name along with the review completion date. Depending on the project aspects and phase, some of the reviews are mandatory.

14. PROJECT PERSONNEL

To facilitate contacts with the project development team members, include their names and telephone numbers in the following general format of:

Name, Title Phone number

15. 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. List each attachment with the corresponding number of pages in parentheses.

Required Attachments	Optional Attachments	Project Files and Supplemental Documents (Note: key issues should be summarized in the PID)
Location and/or vicinity map	Environmental study checklist 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	Transportation Planning Scoping Information Sheet
Other appropriate maps	Headquarters Division of Engineering Services PSR-PDS 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
Preliminary environmental analysis report or equivalent report		Collision diagrams, collision data and reports, and safety index calculations
Right-of-way data sheet or equivalent document		Appraisal report
If applicable, an executable cooperative agreement		Complete traffic study
Advance planning study		Initial site assessment (hazardous waste)
For STIP projects, include a project programming request (located at the Headquarters <i>Division of Transportation Programming-Office of Capital Improvement Programming</i> website) as an attachment.		Rosters of personnel participating in major reviews such as the district safety review and the constructability review
Typical X-sections, if appropriate		Technical studies
SHOPP Project Output form (only required for SHOPP projects)		Detailed mapping
Storm water data report-signed cover sheet		Storm water data report
Life-cycle cost analysis		Transportation management plan
Risk register		

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

ARTICLE 4 Estimates

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, etcetera.

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 percent 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.

Project Cost Estimate

The cost estimate should be prepared using the instructions and procedures located in [Chapter 20](#) – Project Development Cost Estimates. 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 in the estimate template. 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 regional transportation planning agency (RTPA).

ARTICLE 5 **Scoping Tools**

General

This article 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 article can be obtained from the appropriate functional unit. Also see the [Scoping Tools](#) website for the tools developed for use with the PSR-PDS.

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.

Design Scoping Index

The [Design Scoping Index](#) can serve as discussion document to help the design units analyze the highway system and identify design issues 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. It can also facilitate discussions with Headquarter liaisons to identify potential issues and nonstandard design features.

The [Design Scoping Index](#) is used with the scoping checklists from other functional units. When filling out the index, 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 [Design Information Bulletin 78](#) – Design Checklist.

Transportation Planning Scoping Information Sheet

The PDT should use the Transportation Planning Scoping Information Sheet to verify that the project remains consistent with the planning level purpose-and-need and is consistent with planning concepts, statewide goals, and planning decisions.

The majority of the data requested for the information sheet is compiled at two separate time periods. The initial information is collected by the transportation planning PDT representative at the start of 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.

The current Transportation Planning Scoping Information Sheet is located at the [Scoping Tools](#) website.

Traffic Forecasting, Analysis and Operations Scoping Checklist

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, etcetera.)

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, etcetera) 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, etcetera) 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 right-of-way? _____ Excavation or fill? _____

2. Project Setting

Rural or Urban

Current land uses

Adjacent land uses

(industrial, light industry, commercial, agricultural, residential, etcetera)

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 (such as: marked non-intersection pedestrian crosswalks, intersections with bicycle paths, etcetera)

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

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, etcetera)
 - o Closed Circuit Television
 - o Changeable Message Sign
 - o Highway Advisory Radio
 - Other
-
-

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

Transportation Management Plan

- o Construction Staging
 - o Full Closure Checklist
 - o TMP Strategies Identified
 - Other
-
-

Preliminary Traffic Forecasting Evaluation provided by:

Traffic Forecasting _____ Date _____

Preliminary Traffic Operations Evaluation provided by:

Traffic Operation Engineer _____ Date _____

Traffic Electrical Engineer _____ Date _____

ARTICLE 6 Template

This article is a template for the project study report. When using the template, delete any italicized text within the body of the document. The italicized text provides instructions for template users and does not provide any value to the final document.

[Appendix L Template](#)