CHAPTER 8 – Overview of Project Development

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SECTION 1 General

Reference Information

Some of the references found in this chapter 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 Development Process

The project development process spans that period of time that begins with feasibility studies and ends with the completion of construction. The development process is tied to the legal requirements of environmental laws and regulations; it melds engineering requirements and Caltrans' management approval steps with the environmental process.

Planning

Considerable planning is completed prior to project development. This results in the development of a planning concept and scope identifying the type or mode of the facility as well as other features relating to the location and length of the project, including the number of lanes and general interchange and intersection spacing. See Chapter 1 – Introduction, for definitions of "planning concept" and "planning scope." This planning work focuses on identifying and clarifying the specific transportation system problem, and then looking for practical solutions. Project goals, objectives, and preliminary scoping are established so that preliminary feasibility studies can begin. A feasibility planning estimate may be prepared to validate the proposed project's objectives. For more information, see Chapter 20 – Project Development Cost Estimates, Section 2 "Project Planning Cost Estimates."

The determination of the appropriate transportation mode or modes should occur as part of the planning process for major urban improvements. This results from a corridor study and a major investment study (MIS).

Project development follows system and regional planning or follows the various management systems and master plans that identify the need for a particular project. The planning concept and scope are reviewed, and updated if appropriate, to define the design concept and scope, including basic design features. For definitions of "design concept" and "design scope," as well as "basic design features," see Chapter 9 – Project Initiation, Article 2 "Laws."

Purpose and Need

A good statement of the proposed project's purpose-and-need should flow out of system planning. For more information on the system planning process, see Chapter 1 – Introduction, Section 4 "Transportation Planning Leads to Project Development."

A project must satisfy a clearly defined purpose-and-need. It must meet State, regional, and local goals and objectives. For capacity-increasing projects, this includes air quality goals.

Alternative solutions are evaluated that avoid or reduce significant adverse environmental impacts. The alternative selected is the one that causes the least environmental damage while still serving the essential transportation need.

Decision to Prepare Project Initiation Document

Prior to committing district resources for the preparation of a project initiation document (PID), a district may prepare a one or two-page decision document discussing the feasibility of initiating a project. This decision document may be called a "project proposal report," a "project initiation proposal," etcetera.

The decision document usually includes a strip map and a feasibility planning estimate. It is an internal district document; each district determines its own requirements for initiating projects, subject to various required considerations including the regional agency's project study report (PSR) priority listing.

Project Initiation

The project development process is initiated by the designation of a project manager (PM). The project manager secures an expenditure authorization (EA) and then begins preparing a project work plan (see the *Capital Project Workplan Handbook*). The initial project work plan will usually cover only the project initiation process in any detail; following approval of the PID, further development of the work plan will take place.

The project manager determines the composition of the project development team (PDT) by determining which internal functional disciplines and external representatives are required to plan and carry out the development of the project (see Section 4 "Project Development Team"). At its first meeting, the PDT determines the tentative Project Development Category (see Section 5 "Project Development Categories"). The project manager uses the Project Development Category to prepare the project work plan.

Special Considerations

The following types of projects need concept studies and review prior to inclusion in the project delivery schedule or the programming document:

- State highway projects-funded-by-others, including locally funded, sales tax funded, or privately funded projects affecting State highways. For more information, see Chapter 2 – Roles and Responsibilities.
- Projects for new public road connections to freeways or expressways, requested by local agencies. See Chapter 27 – Access Control Modification.

The various project initiation processes and documents are described in Chapter 9 – Project Initiation.

Programming Precedes Formal Project Studies

Before formal project studies can commence for State funded projects, the PID must be approved and the project must be programmed in a State programming document (see Chapter 4 – Programming) for projects-funded-by-others, an executed cooperative agreement or highway improvement agreement must exist (see Chapter 2 – Roles and Responsibilities, Section 5 "Special Funded Projects and Related Projects").

Exceptions

Formal project studies may begin earlier when an approved PID contains specific language granting exception to the normal procedures.

In addition, long-lead-time projects may commence prior to programming if they meet all seven steps outlined next. The California Transportation Commission (CTC) and Caltrans limit the number of such projects to an absolute minimum, consistent with availability of funds and project development staff available to Caltrans. CTC verifies that all of the following conditions are met.

1. Due to project complexity, estimated project development time exceeds seven years.
2. There are demonstrable practical reasons why certain phases of the project development work should be completed early.
3. Substantial cost savings will be realized as a result of early start on the project development work.
4. Work is limited to what is necessary to make the project eligible for inclusion in a subsequent programming document.
5. The work does not interfere with or delay work on projects included in an adopted programming document.
6. Funding for the work is provided in the budget.
7. A request to perform the project development work is submitted to the CTC, along with supporting documents.

Project Delivery Scope, Cost, and Schedule

Schedules for all major projects are listed in the Statewide Delivery Plan developed by the Headquarters Division of Project Management.

Project managers shall ensure that each project has a documented review and update of the project's scope, cost, and schedule, which is not more than one year old, included in the project's permanent project history file (PHF).

SECTION 2 Project Development Overview Using Project Milestones

This section provides an overview of the project development process with respect to the major project milestones. Each of the following chapters in Part 2 describes major events or phases in the project development process and is introduced by a brief explanation illustrating where it fits in the sequence of project milestones.

The individual tasks required to complete a project as it proceeds through the project development process are described in the *Project Development Workflow Tasks Manual*. The *Project Development Workflow Tasks Manual* tasks are based on these same project milestones.

In addition to the *Project Development Procedures Manual (PDPM)* and *Project Development Workflow Tasks Manual*, other manuals are needed for reference throughout the project development process and are listed as a general reference.

The discussion in this section is a general guide through the project development process. This guide, for a specific project, needs to be modified depending on the specific circumstances of the project. To determine the details for completing a specific project, consult other chapters in this manual, the *Project Development Workflow Tasks Manual*, the other manuals referenced in Chapter 1 – Introduction, Section 2 "Related Manuals and Guidelines," and applicable district procedures.

Prior to Milestone 000

System and Regional Transportation Planning

The planning concept and scope for major transportation improvements are developed during the system planning process. The regional transportation plan (RTP) presents the proposed improvements for the region after completing required major investment studies, air quality conformity analysis, and a preliminary environmental evaluation. This is the first phase for screening project alternatives, and it is documented in the California Environmental Quality Act (CEQA) environmental document (ED) that the regional transportation planning agency (RTPA) prepares for the regional transportation

plan. Management systems, master plans, and prioritizing processes identify other project needs.

Chapter 1 – Introduction and Chapter 3 – Involvement of Caltrans Functional Units, describe system and regional transportation planning in further detail. In addition, the following Caltrans manuals and guidance should be referred to: *2010 California Regional Transportation Plan Guidelines*; and *Highway Capacity Manual*.

Milestone 000 to Milestone 020

Determine Project Alternatives and Approve Project Study Report

The project manager begins the project development process by preparing a project work plan for the proposed project and by coordinating the designation of a PDT. The project manager will also request the creation of a project-specific email account. See the Project Delivery memorandum "CEQA Administrative Record and Email Retention" dated April 18, 2022, and as it may be amended. The project engineer (PE) obtains preliminary data for the project engineering work. Projects with potential for significant environmental impacts requiring formal consideration of alternatives usually are initiated by documentation in a PSR. However, other project initiation processes are available, depending upon the project type and specifics. Many of these optional processes provide project approval at this point—which allows the project to bypass subsequent milestones and proceed directly to Milestone 200 and the initiation of project design.

Prior to PID approval (Milestone 010), sufficient information is needed to determine if project alternatives should be formally considered when the environmental document is prepared. If formal consideration is required, additional studies will be necessary to fully document the purpose-and-need and to identify the design concept and scope of the full range of possible project alternatives. A deliberate evaluation of the full range of project alternatives is required, to assure that alternate and multimode options are considered, that feasible avoidance alternatives are identified (if required), and that the costs of alternatives are evaluated. From these alternatives, the viable alternatives are studied in detail and are identified and documented in the PSR. One of the

viable project alternatives is selected for programming the project's cost, design concept and scope, and schedule.

Following PID approval and programming, and prior to initiating the environmental studies (Milestone 020), geometric plans, and right of way maps should be prepared in greater detail to identify the areas of potential effects.

Chapter 9 – Project Initiation, provides details on the project development policies and procedures relating to project alternatives, PSRs, and other PIDs. Other information on project development tasks required between Milestones 000 to 020 are located in the *Project Development Workflow Tasks Manual*. The following Caltrans documents should be referred to: *Standard Environmental Reference*; *Cooperative Agreement Handbook*; *Encroachment Permits Manual*; *Project Management Manual*; *Highway Design Manual (HDM)*; *Transportation Management Plan Guidelines*; and *A Guide to Photogrammetric Mapping Services & Resource Estimating*.

Milestone 020 to Milestone 140

Complete Detailed Environmental and Engineering Studies for Project Alternatives (as needed)

After reviewing the project alternatives, and prior to Milestone 040 (initiation of draft project report [DPR] and draft environmental document [DED]), impact mitigation measures are identified. Upon completion of the appropriate environmental studies and identification of potential significant adverse impacts, the need for additional alternatives should be determined.

When the environmental studies for the viable alternatives are complete, the DPR is completed, approved (Milestone 100), and the draft environmental document is circulated to the public (Milestone 120). A preferred alternative is not recommended at the draft environmental document stage. However, if presented, the discussion of the preferred alternative should document factors considered in its selection.

The least environmentally damaging, practicable alternative (LEDPA) must be identified when a draft environmental impact report (DEIR) is prepared. If the No Build Alternative is identified as the least environmentally damaging, practicable alternative, the draft environmental impact report must identify a

least environmentally damaging, practicable alternative from among the build alternatives.

Chapter 10 – Formal Project Studies, describes the project development policies and procedures relating to the completion of environmental and engineering studies for project alternatives. For the project development tasks required between Milestones 020 to 140, see the *Project Development Workflow Tasks Manual*. In addition, the following Caltrans manuals and guidance should be referred to: *Standard Environmental Reference*; *Project Management Manual*; *HDM*; and *Surveys Manual*.

Milestone 140 to Milestone 160

Conduct Public Hearing (as needed)

Following circulation of the draft environmental document (the public review period), a public hearing is held (Milestone 140). After analyzing the public hearing comments, a preferred alternative is normally selected, which allows the preparation and approval of the final environmental document (FED) (Milestone 160) which is attached to the project report (PR).

Chapter 11 – Public Hearing, describes the project development policies and procedures relating to a public hearing. For the project development tasks required between Milestones 140 to 160, see the *Project Development Workflow Tasks Manual*. In addition, the following Caltrans manuals and guidance should be referred to: *Standard Environmental Reference*; and *Project Management Manual*.

Milestone 160 to Milestone 200

Approve the Preferred Project Alternative

Selection of the preferred alternative authorizes the completion of the PR for project approval. When an environmental impact statement (EIS) has been prepared, an environmentally preferred alternative is identified in the record of decision (ROD) that is published in the Federal Register.

Chapter 12 – Project Approvals and Changes to Approved Projects, describes the project development policies and procedures for selecting and approving the preferred alternative and for project approvals. For the project development

tasks required between Milestones 160 to 200, see the *Project Development Workflow Tasks Manual*. In addition, the following Caltrans manuals and guidance should be referred to: *Standard Environmental Reference* and *Project Management Manual*.

Milestone 200 to Milestone 260

Initiate Project Design

Once the preferred alternative has been chosen and the project has been approved, project design (preparation of plans, specifications, and estimate [PS&E]) can be initiated. Data from the materials report, survey information, preliminary drainage report, geometric base maps, and other sources are used by the project engineer for project design. Skeleton layouts and typical cross sections are developed (Milestone 260). Quantity calculations are started for contract items. Structure site submittals, utility plans for the utility companies, and right of way maps are sent to the appropriate individuals for use in preparing their design contributions to the project.

Chapter 14 – Preparation of Project Plans, describes the project development policies and procedures for initiating the design of a project. For the project development tasks required between Milestones 200 to 260, see the *Project Development Workflow Tasks Manual*. In addition, the following Caltrans manuals and guidance should be referred to: *HDM*; *CADD Users Manual*; *Plans Preparation Manual*; *Standard Plans*; *Standard Specifications*; *Ready to List and Construction Contract Award Guide (RTL Guide)*; *Project Management Manual*; and *Right of Way Manual*.

Milestone 260 to Milestone 300

Conduct Detailed Project Design

During this time frame, design details, plans, quantity calculations, and contract specifications for the project are developed by the involved functional units. The project engineer consolidates the work of functional units into a draft set of plans and specifications. Once all of the project data are consolidated, the project plans are circulated for review and comment in the district (Milestone 300).

Chapter 14 – Preparation of Project Plans, describes the project development policies and procedures relating to project design. For the project development tasks required between Milestones 260 to 300, see the *Project Development Workflow Tasks Manual*.

In addition, the following Caltrans manuals and guidance should be referred to: *HDM*; *CADD Users Manual*; *Plans Preparation Manual*; *California Manual on Uniform Traffic Control Devices (California MUTCD)*; *High-Occupancy Vehicle Guidelines*; *Ramp Metering Design Manual*; *Standard Plans*; *Standard Specifications*; *Ready to List and Construction Contract Award Guide (RTL Guide)*; and *Project Management Manual*.

Milestone 300 to Milestone 380

Complete Project Design

When all of the district comments are returned to the project engineer, the final design phase for the project begins. These comments are considered, a safety review is conducted, and the project PS&E are completed. An environmental reevaluation should be conducted to confirm that the project design is within the framework of the project approval document, which includes the environmental document for the project. The project PS&E is then submitted to the district office engineer unit. After combining with the structure PS&E, it is sent to the Headquarters Division of Engineering Services-Office Engineer (Milestone 380).

Chapter 14 – Preparation of Project Plans, describes the project development policies and procedures for the completion of project design. For the project development tasks required between Milestones 300 to 380, see the *Project Development Workflow Tasks Manual*. In addition, the following Caltrans manuals and guidance should be referred to: *HDM*; *Standard Environmental Reference*; *CADD Users Manual*; *Plans Preparation Manual*; *Standard Plans*; *Standard Specifications*; *Ready to List and Construction Contract Award Guide (RTL Guide)*; and *Project Management Manual*.

Milestone 380 to Milestone 500

Prepare and Advertise Project Contract

Once the project reaches this stage, the design work should be complete. However, some additional details need to be completed prior to advertising the contract. Right of way certification and a CTC funds request approval must be obtained. The final project documents and bid package are then assembled to prepare the project for advertising. After the project has been advertised and the bids have been opened, the project engineer reviews the bidding process and recommends that the contract be approved (Milestone 500) and awarded, if appropriate.

Chapter 14 – Preparation of Project Plans and Chapter 15 – Final Project Development Procedures, describe the project development policies and procedures concerning the preparation, advertisement, and award of the project contract. For the project development tasks required between Milestones 380 to 500, see the *Project Development Workflow Tasks Manual*. In addition, the following Caltrans manuals and guidance should be referred to: *Ready to List and Construction Contract Award Guide (RTL Guide)*; *Construction Manual*; and *Project Management Manual*.

Milestone 500 to Milestone 700

Conduct and Complete Construction Project

Contract approval authorizes construction of the project. The project is constructed and the contract is administered according to the PS&E that was developed by the project engineer. However, if any design changes are required during the construction of the project, the project engineer will be consulted and usually requested to prepare the engineering details and calculations required to adequately construct the project changes. The resident engineer for the project prepares the final construction project records when the project is complete (Milestone 600). The final contract estimate, project history file, and the as-built plans for the project are completed before the project is complete (Milestone 700).

Chapter 15 – Final Project Development Procedures describes the project development policies and procedures for project construction. For the project development tasks required between Milestones 500 to 700, see the

Project Development Workflow Tasks Manual. In addition, the following Caltrans manuals and guidance should be referred to: *Construction Manual* and *Project Management Manual*.

SECTION 3 Charging Practices

General

Successful project management requires effective and precise exchange of information between all the personnel involved throughout all phases of a project. It is essential that individuals performing project work all charge their time in a consistent manner. This consistency is aided by the use of standards which provide a precisely defined structure used by all involved personnel to plan the project, exchange information, and organize reporting. Caltrans has developed project management standards in the form of a structure that breaks down the capital outlay support process by deliverables and tasks needed to complete them.

The data generated by the use of these standards provides information that is consistent statewide and is needed to:

- Improve charging practices.
- Develop project work plans.
- Accurately report and forecast results.
- Develop standardized reports providing meaningful comparisons.
- Monitor performance in meeting commitments.
- Provide the basis for continuous improvement.

Detailed information on charging practices are located in the *Capital Outlay Support (COS) Charging Practice Guidelines*.

Work Breakdown Structure

Personnel support charges made to projects are to include all project-oriented activities from initiation of studies through close out of the construction project. These activities are known collectively as the work breakdown structure (WBS). The work breakdown structure is simply a formal and systematic way of defining and identifying the component parts of a project and the work needed to complete them. It is a product-oriented structure that organizes and defines the total Caltrans capital outlay project work. See the *Workplan Standards Guide, Release 12.0* for a detailed description of the work breakdown structure and its use. A detailed listing of the activities is also included in the *Coding Manual*, Chapter 6. Many of the work breakdown structure activities used in

project development work also correspond to the individual tasks described in the *Project Development Workflow Tasks Manual*.

Other Accounting Codes

Other accounting codes used for project development activities, include sub-job number, special designation, management system activity code, and object code. For further information, refer to the *Coding Manual*.

SECTION 4 Project Development Team

General

The project development team (PDT) is directly involved with the implementation of a transportation project. The original PDT concept was developed in response to the *National Environmental Policy Act of 1969* (NEPA) which requires public agencies to "utilize a systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on man's environment."

Interdisciplinary Approach

The interdisciplinary approach uses interaction of different disciplines in the planning, developing, and evaluating alternatives. Caltrans uses a formal PDT meeting approach for projects in Project Development Categories 1, 2A, 3 and 4A. An informal approach without requiring attendance at meetings is usually used for Categories 2B, 4B and 5. For definitions, see Section 5 "Project Development Categories."

The PDT advises and assists the project manager in directing the course of studies, makes recommendations to the project manager and district management, and works to carry out the project work plan. Members of the PDT participate in major meetings, public hearings, and community involvement. The PDT also serves as the nucleus for a value analysis team (see Chapter 19 – Value Analysis). The PDT is responsible for the conduct of studies and the accumulation of data throughout project development.

Project Development Team Functions

The primary functions of the PDT are listed as follows:

- To assess, at the outset, available preliminary engineering data to confirm that the study should continue. The project manager requests the transportation planning unit to validate previous systems planning recommendations for transportation improvements. The PDT participates in this reevaluation.
- To determine logical project limits.

- To determine the need for local, regional, State, or federal agency members on the PDT, or the need for citizen advisory committees.
- To initiate environmental and material investigations for projects that require significant disposal, staging or borrow.
- To recommend studies, timetables, alternatives, type of environmental documentation, and the feasibility of project impact mitigation measures.
- To ensure thorough analysis of the social, economic, environmental (including visual and aesthetic) and engineering aspects of the project. The PDT calls upon representatives of various disciplines as needed.
- To initiate a program of community involvement to encourage citizen and local agency participation throughout the study, including public meetings and the public hearing. See Chapter 22 – Community Involvement.
- To ensure that State and federal requirements for project development studies have been met.
- To use information in reports (PSR, DPR, draft environmental document, etcetera) together with input from the public hearing when recommending a preferred alternative to district management for project approval.
- To provide the design of a quality project that can be efficiently constructed and maintained within scope and budget and on schedule.
- To ensure that right of way is acquired and cleared on schedule.
- To provide advice during project construction on construction activities, contract changes and mitigation and right of way commitments.
- To ensure that project history is preserved by documenting project decisions and utilizing the Uniform File System. See Chapter 7 – Uniform File System.

Project Development Team - Team Leader Selection

The PDT team leader is typically designated by the Deputy District Director for program/project management. If the team leader is to be from another functional unit, the appropriate functional Deputy District Director will designate the team leader. The person selected to be the team leader will also be the project manager. Project assignments are based on project complexity and the ability, skill level, background, experience, past performance and existing workload of the project manager.

The person selected to be the team leader (the project manager) can be from any of the functional areas. Selection is based on the professional skills required to perform the planning and alternatives analysis that is specific to the

assignments for that PDT. The team leader should have an overall understanding of the project development process, be able to manage a team, and be able to work effectively with communities, groups, and the staff of local agencies.

Formation of the PDT, selection of the team leader (the project manager), and all subsequent modifications to the team must be documented in the project file. See Chapter 7 – Uniform File System.

Project Development Team Meetings

PDT meetings should be held as necessary. Regularly scheduled meetings assist in maintaining group dynamics and communication. More meetings are probably necessary during initial studies, with need decreasing during the technical studies, and increasing again during completion and analysis of results prior to making specific recommendations for the draft environmental document. PDT members should attend meetings when their involvement is necessary.

Meeting Minutes

Minutes of team meetings are prepared and placed in the project file to document decisions. The detail of minutes varies according to the purpose of the meeting.

Project Development Team Formation

Before starting project studies, the core of the PDT is formed for all projects, regardless of size or type of funding. The core PDT guides preliminary studies until the project is defined, which then determines the Project Development Category and the project development process requirements. At a minimum, a PDT is composed of the project manager, 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. The program manager and/or program advisor should also be considered.

This manual uses the term “design unit” to refer to the district functional unit primarily responsible for the development of engineering design features of the project. This includes those units responsible for monitoring or reviewing State

highway project engineering design features that are developed by outside entities or that are directly contracted out.

The PDT should make the most efficient use of member's time. For instance, a PDT may be formed to handle all safety and operational improvement projects. This PDT should be able to act through individual review of reports, by team leader (project manager) telephone contact, or by having one meeting to cover several projects at one time.

Representatives from safety, construction, surveys, traffic, and maintenance are included for all projects to ensure that appropriate consideration is given to design features that limit exposure of employees, contractor personnel, and the traveling public to traffic during construction, maintenance, and all other normal operations.

Full or Part-Time

Team members may be full-time or part-time, depending on the magnitude of the impacts or the fields in which they specialize.

Additional Project Development Team Members

The selection of additional team members depends on the scope and complexity of the proposed project. The interdisciplinary skills of the district, Headquarters, the Federal Highway Administration (FHWA), and local and regional agencies are requested as needed to ensure that engineering, social, economic, and environmental aspects are adequately assessed, and reasonable evaluations and decisions are made.

On locally funded projects, representatives from the project sponsor should be included on the PDT, as appropriate. The Caltrans project manager should be provided a list of names from the project sponsor indicating the external participants they would like as PDT members (typically their project manager and functional specialists or consultants). The Caltrans project manager will then determine the appropriate composition of internal functional disciplines to complete the PDT.

The California Highway Patrol (CHP) division commander should be requested to assign a representative whenever the project could have an impact on CHP enforcement of public safety. Example projects include: striping right or left

shoulders as auxiliary lanes, narrowing shoulders, or lanes, striping any section of freeway or expressway for high-occupancy vehicle (HOV) operation, noise barriers adjacent to shoulders, ramp meters, weigh stations, or paving a truck brake check area at the summit of a grade.

If significant utility investigation and relocation are involved, a representative of the right of way utilities unit may be used on the PDT.

For a project with extensive structure involvement, a representative of the Headquarters Office of Structure Design should be on the PDT to assist in development and analysis of alternatives.

To ensure that aesthetics, visual impacts, conservation and management of roadside vegetation, and site planning are appropriately addressed, the district landscape architect (LA) or project landscape architect should be a member of the PDT for all projects which involve or affect planting, access and safe working conditions for vegetation management, roadside rest areas, noise barriers, and scenic highways; also the opportunity to participate on all other types of projects should be offered.

For projects with noise barriers or unique structures, a bridge architect should be considered for membership on the PDT to assist in development of architectural treatments. Assistance in the selection should be requested from the Headquarters Office of Structure Design.

Include the district bicycle, pedestrian and transit coordinators on the PDT whenever users of these modes of transportation are present or if there are multimodal needs to address.

In addition, existing advisory groups established by local agencies should be consulted to ensure due consideration of aesthetic issues. Examples of such groups include: architectural review boards, design review committees, community advisory boards, etcetera. Where such groups do not exist, consult the local agency as to the appropriate method for obtaining citizen participation on aesthetic issues.

The district community involvement coordinator or public information officer should be invited to participate on the PDT, as appropriate, to assist in

developing an appropriate public participation and citizen involvement program. See Chapter 22 – Community Involvement.

Additional members may be selected from, but are not limited to, the following:

- Public members: may represent a particular expertise, geographic area, or affected group, etcetera.
- Local and Regional Agencies: When a proposed Caltrans project affects local and regional agencies, members of their staff should be included on the PDT.
- FHWA: The FHWA should be considered for team membership on non-exempt major Federal-aid projects or projects that need coordination between federal agencies.
- Legal: Any legal problem, existing or anticipated, requires a representative from the Headquarters Legal Division. Requests should be directed to the appropriate legal office.
- Ride Sharing: For major projects, the PDT consults with the district ride sharing coordinator and may include the coordinator on the team.
- Consultants: When consultants have been retained by Caltrans to provide specialized technical skills unavailable within Caltrans, they should participate on the PDT as necessary.

Representatives from district real property asset management are normally not members of the PDT but should be invited to the PDT meetings. The district asset manager will attend team meetings on those projects with potential for multiple use or special uses of right of way.

The Headquarters Project Delivery Coordinator and the environmental coordinator (from the Headquarters Division of Environmental Analysis), while usually not official members of the PDT, should be called upon as needed to provide liaison between the district and Caltrans' Headquarters units and FHWA.

Caltrans Advisory Committees

On projects that may potentially have environmental impacts, advisory committees may be used to obtain semi-formal, specialized community interaction. They serve as adjunct committees to the PDT. Committee types and typical roles are described as follows:

- A committee of elected or appointed officials provides overall policy guidance and direction.

- A committee of professional staff members of State, regional, or local agencies provide advice on technical aspects of studies being proposed or conducted.
- A committee of citizens provides representative views of special interests or community concerns.

Example of a Caltrans Advisory Committee

An example of an advisory committee might be an aesthetic advisory committee composed of representatives from the local community's architectural review board, design review committee, other interested advisory boards, etcetera and individual citizens.

Appointment of Caltrans Advisory Committee Members

When a timely study is needed, and when project funding appears to be available, advisory committees may be appointed by the local government. Such a committee is responsible to the appointing local government. The local government should be encouraged to appoint members that represent a broad spectrum of community interest, including those of the physically challenged and minorities. The local government should also devote adequate staff time to the committee. A subcommittee can be appointed for specific phases, such as traffic studies, analysis of project alternatives, etcetera.

Functions of a Caltrans Advisory Committee

Advisory committees, if used properly, can help to identify problems and clarify key issues. They are not and should not be considered decision-making bodies. They can be used to:

- Test public acceptance of the project
- Check the appropriateness of problem solutions
- Build a constituency for the project
- Reduce conflict between opposing interests

Any PDT contemplating use of an advisory committee should develop a written charter for the committee. The charter should indicate that the advisory committee's role is to provide advice to the PDT. The PDT should always consider this advice. Ignoring the advice risks creating a hostile relationship between the PDT and the advisory committee.

Advisory committees may attempt to assume a role beyond their role described in the charter. If this happens, it may be necessary to have the committee review its charter and refocus on its role and purpose. See Chapter 22 – Community Involvement for more information on Caltrans' citizen advisory committees.

Need to Develop Working Relationship

When using an advisory committee, a close working relationship should be developed with the chair and members individually. Controversies and differences should be informally resolved (one-on-one) so that the advisory committee operates as smoothly as possible. An action contrary to the advice given by the committee may reflect badly on the project or compromise Caltrans' future relationship with the whole community.

Proper Use of Caltrans Advisory Committees

Advisory committees should be used properly. For instance, an advisory committee should not be used to inform the public of project activities and plans. A more practical method to inform the public of project activities, plans, and schedules is to use a project newsletter or a strong media program. See Chapter 22 – Community Involvement for more details on providing the public project information.

SECTION 5 Project Development Categories

General

It is recognized that all projects are not of the same magnitude, nor will they have similar effects due to differing geographic location, population densities, and other unique characteristics. The project development process must provide a methodology to address these economic, social, environmental, and transportation differences. It must also address applicable federal and State legal requirements.

Similar Projects Equal Similar Process

Project Development Categories have been established to assure that project-related differences and State and federal requirements are addressed in the project development process. Each category consists of groups of projects having similar characteristics and therefore similar development procedures. The following characteristics were selected for categorizing highway projects:

1. Whether or not there is access control
2. Whether or not the project is on new alignment
3. Whether or not substantial new right of way is required
4. Whether or not there is substantial increase in traffic capacity
5. Whether or not the project is initiated by, and is under the jurisdiction of, a local agency

Category Descriptions

By definition, Categories 1 through 4 apply only to State highways; Categories 5 and 6 apply to either State or local highways; Category 7 is limited to local highways.

Category 1 Projects

Projects requiring access control, new right of way, adoption of a route location by the CTC, and freeway agreements.

Examples: New freeways, expressways, and controlled access highways on new alignment—conversion of conventional highways (with no

access control) to freeways—expressways or controlled access highways.

Category 2 Projects

Projects that require a route location adoption by the CTC, and new right of way, but do not require access control or freeway agreements.

Examples: New conventional highways or realignments of conventional highways.

For purposes of determining whether or not an initial PDT meeting will be scheduled, Category 2 projects will be informally classified as "2A" or "2B." The proper classification will be determined by the PDT. Guidelines for these classifications are not specific, but would generally be described as follows:

2A Projects:

A major project which would normally be one of substantial realignment or providing a substantial increase in traffic capacity. Also, the project would be one of particular significance physically or environmentally, or may be located in an area of critical concern.

2B Projects:

A minor project which would not meet any of the requirements for a major project. Examples include minor safety curve corrections, temporary connections, and other small realignments requiring a route adoption.

Category 3 Projects

Projects on previously constructed controlled access routes requiring a new or revised freeway agreement, but not a route adoption. New right of way may or may not be required. This category does not apply to the subsequent stages of multistage projects. A Category 3 project may be categorically exempt.

Examples: New or modified interchanges—new connections—conversion of expressway to freeway—widening an existing expressway, freeway, or controlled access highway, if they involve changes to local roads.

Category 4 Projects

Projects that do not require a location adoption or a freeway agreement and do not meet the criteria of Categories 5 or 6.

Because a wide variety of projects will be classified as Category 4, a further classification is made into 4A projects and 4B projects. The purpose of this distinction is to make an early tentative identification of projects whose potential impacts are most likely to be of interest or concern to regional and local jurisdictions.

4A Projects:

Projects requiring substantial new right of way or substantially increasing traffic capacity.

Examples: Widening conventional highway—addition of freeway lanes—interchange reconstruction not requiring a revised freeway agreement—separate safety roadside rest areas

4B Projects:

Projects that do not require substantial new right of way and do not substantially increase traffic capacity.

Examples: Projects that could probably be Category 5 projects except for the fact that they require a negative declaration rather than being categorically exempt under CEQA.

Category 5 Projects

Projects of minimal economic, social, or environmental significance. These projects would include those categorically exempt under CEQA. The *Standard Environmental Reference* contains a complete listing of categorical exemptions, along with guidelines for their applicability to a project.

Category 6 Projects

Projects urgently needed because of a national emergency, natural disaster, catastrophic failure, or immediate threat to life or property. Caution should be exercised for projects lasting over 30 days that have potential Section 106 (National Historic Preservation Act) involvement.

Even though there are no specified procedures for State administered emergency restorative work, projects should involve interested local agencies when practicable. For major permanent replacement work involving studies of alternative locations, development of plans, right of way acquisition,

betterments, etcetera, the procedures of the appropriate Project Development Category will apply, unless otherwise approved by the FHWA.

For additional guidance on environmental approval for emergency projects see the Division of Environmental Analysis *Emergency Projects Environmental Process and Requirements* guidance.

Category 7 Projects

Federal-aid projects initiated by local agencies on highways under their jurisdiction, not classified as Category 5 or 6.

Category Assignments

The assignment of a particular Project Development Category is usually a PDT function, but the responsibility rests with the District Director, or in the case of locally initiated projects, with the local agency.

As further data is gathered, the category assignment is subject to change. Input into the determination will be provided by both the design and environmental units.

As soon as the category assignment is made, a comment should be entered in the next status of projects in the “remarks” column.

It is possible that different project alternatives will call for different categories; for example, a new alignment alternative would be Category 1 or 2, whereas a “fix-the existing” alternative for the same study might be Category 4A or 4B. In these cases, the highest-order category will be selected to assure that recycling of the process will not be required later should the higher-order project be selected. The category assignment is always subject to change as project alternatives are added or dropped. However, dropping down in order should only be done after very careful consideration.

Matrix to Project Planning Steps

The relationship between the Project Development Category and the key steps in the project planning portion of the project development process are shown on Figure 8-1. This figure summarizes the requirements for each Caltrans Project Development Category as stated in other chapters, and relates them to the various program types. In addition, Figure 8-2 relates the various program codes to the different types of project initiation and project approval documents.

ATTENTION! The information presented in the following figures for program components, program codes, and report types is not current. For current information, please see the detailed listing of program codes in the *Coding Manual*. Most of the special report formats for project initiation are no longer valid, see Chapter 9 – Project Initiation.

Figure 8-1 Project Development Categories Matrixed to Key Project Planning Steps

KEY PROJECT PLANNING STEPS	PROJECT DEVELOPMENT CATEGORY[7]							
	1	2		3	4		5	6
		A	B		A	B		
Designate project manager (Chapter 8 Section 1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Develop project work plan (Chapter 8 Section 1)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Project development team (Chapter 8 Section 1)	Formal	Formal	Formal	Formal	Formal	Informal[1]	Informal[1]	No
Preliminary environmental evaluation (Chapter 10 Section 2)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Project initiation document (Chapter 9)	PSR	PSR	PSR	PSR	PSR	PSR	PSR[5]	PSR[5]
Initial public meeting (Chapter 10 Section 3 and Chapter 22 Article 5)	Yes	Yes	Optional	Optional	Optional	Only if requested	No	No
Written notice of studies (Chapter 10 Section 3 and Chapter 22 Section 10)	Yes	Yes	Yes	Yes	Yes	Rarely[3]	No	No
Initiate formal environmental studies (Chapter 10 Section 3)	Yes	Yes	Normally[2]	Normally[2]	Yes	Yes	No	No
Draft project report (Chapter 10 Section 5)	Yes	Yes	Normally[2]	Normally[2]	Yes	Yes	No	No
Environmental document	Yes	Yes	Normally[2]	Normally[2]	Yes	Yes	No	No
Public hearing (Chapter 11)	Yes or opportunity	Yes or opportunity	Yes[2] or opportunity	Normally[2,4]	Yes or opportunity	Rarely[4]	No	No
Preferred alternative selection (Chapter 12 Section 2)	Yes	Yes	Normally[3]	Normally[3]	Normally[3]	Normally[3]	No	No
Project approval document (Chapter 12)	PR	PR	PR	PR	PR	PR	PR[6]	PR[6]
CTC route adoption (Chapters 13 and 23)	Yes	Yes	Yes	No	No	No	No	No
Freeway agreement (Chapters 13 and 24)	Yes	No	No	Yes	No	No	No	No

(Chapter Section) = *Project Development Procedures Manual*

See footnotes on next page.

Footnotes:

1 Formal PDT not required. The determination of significance of environmental impacts and of the Project Development Category will be jointly made by district project management, design, and environmental units.
2 Not applicable if categorically or statutorily exempt, and/or categorically excluded.
3 Required for projects that present alternatives in an environmental document (environmental impact report/environmental impact statement or initial study/environmental assessment).
4 If no federal environmental document is involved, the PDT evaluates and determines the need for a public hearing.
5 The following project initiation documents are applicable, depending on project type or program:

Program	Type of Project	Document
Various	Project-funded-by-others, non-complex, > $1M	PSR-PR, PEER
HA1	Lands, buildings, & facilities improvement	Facility PSR
HA4S	Seismic retrofit	PSSR-Seismic
HA21 / HA22	Bridge/roadway R&R	PSSR
HA23	Major damage restoration	DAF
HA25 / HB32	Highway planting or restoration	PSR Data Sheet
HA28	Urban freeway off-pavement access	PSSR-UFOPA
HB4N	Operational improvements (TSM projects)	PIR
HB5	HOV operational improvements (TSM projects)	PIR
HB6	Rideshare facilities (TSM projects)	PIR
HB311	Community noise abatement	NBSSR

Note: Minor A, Minor B, Capital Preventive Maintenance, and other maintenance projects do not require a project initiation document; therefore, a PR initiates a Minor A, a CAPM-PR initiates Capital Preventive Maintenance projects, and an EA-PR initiates the Minor B and other non-CAPM maintenance projects.

6 The following project approval documents are applicable, depending on project type or program:

Program	Type of Project	Document
– – – – – – –	Encroachment permit < $1M	PEER
Various	Projects-funded-by-others, non-complex, < $3 M	PEER
Various	Minor B or maintenance projects	EA-PR
HA22	Capital preventive maintenance projects	CAPM-PR
HA25 / HB32	Highway planting or restoration	PR-HP&R
HA26 / HB33	Safety roadside rest or restoration	PR-SRR

These project initiation documents are equivalent to a PR if they have the following approved attachments:

Document	Attachments
NBSSR	CE (or ND if necessary) and noise study
PSR-PR	Approved ED
PSSR	CE (or ND if necessary)
PSSR-Seismic	CE
PSSR-UFOPA	CE
DAF	CE

7 Category 7 relates to local projects on local facilities only. See the *Local Assistance Procedures Manual*.

Figure 8-2 Project Initiation and Approval Documents – According to Program[10]

CMP = State budget program component

PRG = State budget program task (old program)

Report Types

CAPM-PR	Capital preventive maintenance - project report
PSR-PR	Project study report - project report
DAF	Damage assessment form
DO	Director's order
DPR	Draft project report
EA-PR	Expenditure authorization - project report
Facility PSR	Facility project study report
NBSSR	Noise barrier scope summary report
PEER	Permit engineering evaluation report
PIR	Project information report
PR	Project report
PR-HP&R	Project report - highway planting restoration
PR-SRRA	Project report - safety roadside rest area
PSR	Project study report
PSRDS-HP	Project study report data sheet - highway planting
PSRDS-HPR	Project study report data sheet - highway planting restoration
PSSR-BR	Project scope summary report - structure rehabilitation
PSSR-PR	Project scope summary report - pavement rehabilitation
PSSR-SR	Project scope summary report - seismic retrofit
PSSR-UFOPA	Project scope summary report - urban freeway off-pavement access

Key Project Planning Steps	PROJECT DEVELOPMENT CATEGORY								
	1	2		3	4		5	6	7
		A	B		A	B			
Access control freeway agreement	YES	NO	NO	YES	NO	NO	NO		
On new alignment route adoption	YES	YES	YES	NO	NO	NO	NO		
Substantial new	YES	YES	NO	M	YES	NO	NO		
Right of way needed		YES	NO	YES	YES	NO	NO		
Substantial increase in traffic capacity									YES
Initiated by or under local jurisdiction		YES	NO		M	YES	NO		
Environmental significance								YES	
Emergency									

M = maybe (yes or no)

Projects Authorized in State Programming Documents

State Highway Operation and Protection Program (SHOPP)				
CMP	**PRG**	**DESCRIPTION**	**INITIATION**	**APPROVAL**
RAS	HA11	Equipment facilities	Facility PSR	PR[4]
	HA12	Maintenance facilities	Facility PSR	PR[4]
	HA13	Buildings and operation centers	Facility PSR	PR[4]
	HA21	Bridge restoration and replacement	PSSR-BR	PSSR-BR[1]
	HA22	Roadway reconstruction and restoration	PSSR-PR	PSSR-BR[1]
	HA22	Capital preventive maintenance projects	CAPM-PR	CAPM-PR
	HA23	Major damage restoration	DAF	DAF[1]
	HA25	Highway planting restoration	PSRDS-HPR	PR-HP&R
	HA26	Safety roadside rest area restoration	PSR	PR-SRRA
	HA27	Urban freeway median barrier retrofit	PSR	PR
	HA28	Urban freeway off pavement access	PSSR-UFOPA	PSSR-UFOPA
	HB42	Protective betterments	PSR[3]	PR[3,4]
	HA4S1	Phase 1 structures seismic retrofit	PSSR-SR	PSSR-SR
	HA4S2	Phase 2 structures seismic retrofit	PSSR-SR	PSSR-SR
	HB1	Safety improvements	PSR[3]	PR[3,4]
OHC	HB32	Highway planting	PSRDS-HP	PR-HP&R
	HB33	Safety roadside rest areas	PSR	PR-SRRA
	HB34	Roadside enhancement (vista points)	PSR[3]	PR[3,4]
	HB4N	Operational improvements (non-capacity increasing)	PSR[3]	PR[3,4]
	HB711	New curb ramp (ADA)	PSR	PR
	HB712	Park-and-ride lot (ADA) modifications	PSR	PR

State Transportation Improvement Program (STIP)				
CMP	**PRG**	**DESCRIPTION**	**INITIATION**	**APPROVAL**
FCR	HB4N	Operational improvements (non-capacity increasing)	PSR[3]	PR[3]
	HB4C	Operational improvements (capacity increasing)	PSR[3]	PR[3,4]
	HB5	HOV facilities	PSR[3]	PR[3]
	HB6	Transit-related and ridesharing facilities	PSR[3]	PR[3]
IRS	HB4N	Operational improvements (non-capacity increasing)	PSR[3]	PR[3]
	HB4C	Operational improvements (capacity increasing)	PSR	PR[4]
	HE11	New facilities - new connections and cross-traffic improvements	PSR[3]	PR[3,4]
	HE12	New Facilities - upgraded facilities	PSR[3]	PR[3,4]
	HE13	New Facilities - lane additions	PSR	PR[4]
	HE14	New Facilities - new highways	PSR	PR[4]
SW	HB311	Community noise attenuation	NBSSR	NBSSR[1,2]

Traffic Systems Management Plan (TSM Plan)				
CMP	**PRG**	**DESCRIPTION**	**INITIATION**	**APPROVAL**
TSM	HB4N	Operational improvements (non-capacity increasing)	PIR	PR
	HB5	HOV facilities	PIR	PR
	HB6	Transit-related and ridesharing facilities	PIR	PR

Toll Bridge Program				
CMP	**PRG**	**DESCRIPTION**	**INITIATION**	**APPROVAL**
TBF	HA14	Toll facilities	Facility PSR	PR[4]
	HA21	Bridge restoration and replacement	PSSR-BR	PSSR-BR
	HA4S3	Toll bridge seismic retrofit	PSSR-SR	PSSR-SR
	HB4N	Operational improvements (non-capacity increasing)	PSR[3]	PR[3]
	HE11	New Facilities - new connections and cross-traffic improvements	PSR[3]	PR[3,4]
	HE14	New Facilities - new highways	PSR	PR[4]
	HE201 to HE209	New toll bridge facilities	PSR	PR[4]

Projects not Authorized in State Programming Documents

Other Caltrans-Funded Projects			
PROGRAM	**DESCRIPTION**	**INITIATION**	**APPROVAL**
HM1 to HM5	Maintenance	EA-PR	EA-PR
All programs	Minor B	EA-PR	EA-PR[11]
All programs	Minor A	PR	PR
All programs	Emergency or urgent	DO/DAF[12]	DO/DAF[1]

100% Locally Funded Projects[8]		
DESCRIPTION	**INITIATION**	**APPROVAL**
Projects-funded-by-others[6] that do not meet criteria	PSR[3,9]	PR[3,4]
Projects-funded-by-others[6] that meet criteria	PSR-PR	PSR-PR
Projects-funded-by-others[6] that meet PEER criteria	PEER[5,9]	PEER[5]
Encroachment permit projects[7] ($300K or less)	PEER[9]	PEER
Encroachment permit projects[7] ($300K to $1M)	PEER[5,9]	PEER[5]

Footnotes:

1 Must have categorical exemption or final environmental document attached.
2 Noise study must be completed and approved.
3 Combined PSR-PR could be used if criteria are met.
4 DPR needed if draft environmental document is prepared by Caltrans.
5 PEER can be used unless district decides PEER provides inadequate justification and documentation and that a PR is needed. The PSR-PR format may be used for PR if criteria are met.
6 100 % locally funded projects costing over $1 million within State right of way.
7 100 % locally funded projects costing $1 million or less within State right of way.
8 Jointly funded projects are projects authorized in State programming documents and are processed in the same manner.
9 New public road connections: Use the PSR for both expressways and freeways.
10 PSR is standard project initiation document. PR is standard project approval document. If the specialized document does not provide adequate coverage, use the standard document.
11 Traffic-signal projects require cover letter with technical justification, attachments, RE stamp.
12 Emergency projects outside of HA23 program which will receive a director's order may follow the HA23 procedure.

SECTION 6 Project Alternatives

Need for Alternatives

During the development of all projects, alternatives are considered to the extent necessary to (1) minimize costs and adverse environmental impacts, and to (2) maximize public benefits. In addition, a minimum fundable alternative and stageable alternatives need to be identified (see Chapter 7 – Uniform File System).

Generally, the concept and scope of project alternatives can include location, geometric features, mode, or mix of modes. However, mode or mix of modes should have been determined at an earlier stage, during the system planning process, and only review and documentation of that determination is needed during formal project studies. In addition, some location and geometric variations are not alternatives; instead, they are design variations.

Discussing project alternatives with community groups is an effective way to gain an improved understanding of the goals and objectives of various community interests. It can assist in determining which alternatives have the greatest potential for successful implementation.

Value analysis is the preferred method of developing alternatives, using a systematic application of analytical techniques to identify a project's function, identify alternatives, and analyze alternatives to identify the one that fully meets the project's function at the lowest overall cost.

Least Environmental Damage

It is Caltrans' policy to evaluate alternative solutions that reduce or avoid adverse environmental impacts, and to select the alternative that causes the least environmental damage while still accomplishing the transportation need.

Most Projects Have no Significant Impacts

Most projects do not have potential significant environmental impacts, thus no formal consideration of alternatives is needed. This would generally include traffic system management and rehabilitation projects, and other projects with minor impacts and little controversy. For these cases, project alternatives are

considered on an informal basis; and are not required to be addressed in the project's environmental documentation. Viable alternatives would, however, be discussed in the PR and the reason given for selecting the preferred alternative.

Thorough Study of Alternatives

Alternatives that are studied in detail (either formally or informally) must comply with legal and administrative requirements and must be technically and economically feasible. The depth of studies should be consistent with the scale of the proposed project and the significance of the project impacts. Additionally, the studies should reflect the need for permits and formal consultations with other agencies. They should also reflect the degree of community involvement.

Environmental Review Requirements

The consideration of alternatives must be consistent with the environmental review requirements. Project delivery frequently depends on the skill with which compliance with these laws is obtained. Therefore, it is important for the PDT and the project manager to have a general knowledge of applicable environmental laws.

Permit compliance for the development of required disposal, staging or borrow sites may require comprehensive environmental studies and reclamation planning.

Full Range of Alternatives

When environmental laws require the formal consideration of alternatives within the environmental document, the full range of options are to be addressed. The document must list specific objectives outlining the project's purpose-and-need and the reasons why certain alternatives did not meet these objectives and were consequently set aside. All significant adverse effects of each reasonable alternative must be identified. For each such effect, all reasonable mitigation measures must also be identified. The environmental document provides a record of the decision-making process.

Constructability Reviews

Constructability reviews (CRs) improve project quality and overall constructability in an effort to reduce contract change orders and delay claims. These reviews also improve the communication between construction and other project team members, assure that field reviews occur, and minimize plan changes at the final design stages. In addition, constructability reviews conducted at project closeout are extremely valuable in assisting the project team in improving future projects.

Definitions

Constructability review – a validation process that assures the plans, specifications, and estimate effectively define the project so that it can be built by a competent contractor. The constructability review process is an iterative, multidisciplinary review of project quality.

Work plan – a resourced project schedule. The work plan identifies Caltrans' project-specific work breakdown structure elements and defines the cost, timeline, Caltrans resources, deliverables, and requirements of each. For the Caltrans work breakdown structure elements used in work plans, see the *Workplan Standards Guide, Release 12.0*.

Law

Per *California Public Contract Code* Section 10120, "Before entering into any contract for a project, the department shall prepare full, complete, and accurate plans and specifications and estimates of cost, giving such directions as will enable any competent mechanic or other builder to carry them out." The constructability review procedure assures this code requirement is met.

Essential Procedures

Constructability reviews will be performed on all projects that exceed the Minor A dollar limit as defined by the CTC, including projects sponsored by others. The number of constructability reviews is based on the project's complexity. Figure 8-3 shows the number of constructability reviews required based on the complexity of the project. Caltrans reports constructability review performance measures to the FHWA per the Stewardship Agreement.

For this discussion of constructability reviews, the terms project manager, design task manager, project engineer, and other functional unit staff refer to the implementing agency's team members. Roles and responsibilities that are specific to Caltrans will be specified as such.

Exceptions to not performing a constructability review or modifying the number of required constructability review reviews must be documented and approved by the District or Region Director. This exception authority may be delegated to the Deputy District Director or Region Division Chief for design and construction jointly. The request justifying the policy exception must be generated by the project engineer and submitted by the project manager. The request must contain a risk management plan, as discussed in the *Project Risk Management Handbook: A Scalable Approach*, to satisfy the intent of this policy.

The Deputy District Director or Region Division Chief of Construction is required to indicate concurrence that the response to comments generated by the constructability review is adequate. The constructability review will not be considered complete without this concurrence from construction. The Deputy District Director or Region Division Chief of Construction may delegate this authority to the district or region district construction manager or senior.

The project manager, along with the PDT, is responsible for selecting the appropriate constructability review level, assuring that sufficient time and resources are allocated for the constructability review in the project work plan, and ensuring that the constructability reviews take place at the established times. Project Development Categories discussed in Section 5 "Project Development Categories" are used to determine a project's complexity.

Figure 8-3 Milestones Requiring a Constructability Review

Project Development Category	CR Level	PID	PA&ED	60% PS&E	95% PS&E	Construction Closeout
1, 2, 3	1	X	X	X	X	X
4	2	X	X		X	X
5	3	X			X	X

Project Initiation Document Constructability Review

The PID constructability review is a “fatal flaw” type review to assure that all alternatives are constructible based on the available level of detail. The PID constructability review must occur once the alternatives have been adequately scoped and prior to approval of the PID. The constructability review also includes a review of the proposed project work plan and schedule.

Project Approval and Environmental Document Constructability Review

The PA&ED constructability review assures that all of the alternatives and the proposed preferred alternative are constructible on the available level of detail. This review is particularly important during consultation with environmental permitting agencies that may establish construction windows or place specific mitigation requirements on the project. The constructability review includes the review of the proposed work plan, schedule, environmental requirements, and construction impacts.

60 Percent Plans, Specifications, and Estimate Constructability Review

The 60% PS&E constructability review is a detailed review of:

- Final project geometrics,
- Completed earthwork/grading plans,
- Drainage layout,
- Preliminary quantity calculations,
- Final right of way requirements,
- Traffic control,
- Construction staging,
- Permits, licenses, agreements, certifications (PLAC), and approvals,
- Material disposal, staging, and borrow sites, and
- Any design modifications or schedule or resource changes since the previous review.

95 Percent Plans, Specifications, and Estimate Constructability Review

The 95% PS&E constructability review incorporates the project safety reviews and builds upon prior reviews.

This constructability review includes a check of:

- Final quantities,
- Special provisions (including number of contract working days), and
- Project cost estimate.

Construction Closeout

The construction closeout incorporates discussion regarding future improvements for the PDT. It may include a survey of the construction contractor, contract change orders, delay claims, and other staging or construction issues for the project closeout report.

In the construction closeout meeting, the PDT meets with the construction team (including resident engineer and area senior) in assessing the overall quality of the design product. This meeting should take place prior to construction closeout. The format of the meeting should focus on positive aspects of the project as well as topics to improve on. The resident engineer will schedule the construction closeout meeting, complete the report as part of the project closeout activities, and distribute to the PDT members.

Constructability Review Meeting

The districts/regions have the flexibility to conduct the constructability review meetings in a way that best fits with their current practices and organization. The constructability review team members should be multidisciplinary and may include PDT members or other subject matter experts. For example, constructability review team members may include representatives from design, construction, environmental, maintenance, traffic, right of way, and structures. At the early constructability review levels, it may be appropriate to include regulatory (permitting) agencies or local agency staff. Later constructability review levels may include representatives from material/geotechnical, hydraulics, utilities, and local agencies or permit agencies. Headquarters representation should include the Project Delivery Coordinator and construction reviewer for larger, more complex projects.

Comments from the constructability review team members are discussed at the constructability review meeting and should focus on constructability issues. The goal is to resolve all comments during the meeting. The design task manager and the project manager have the overall responsibility to assure that

all comments are adequately addressed. The response to comments are documented and then sent to district construction for concurrence. The constructability review is not considered complete until the Deputy District Director or Region Division Chief of Construction, or delegate, has concurred with the response to comments.

Implementation Responsibilities

Figure 8-4 outlines the responsibilities for constructability review activities as they pertain to a Caltrans administered project and a locally administered project.

Figure 8-4 Key Roles and Responsibilities for Constructability Review Activities

Required Activity	Responsibilities for Projects Implemented by Caltrans	Responsibilities for Projects Implemented by Others (not Caltrans)
Include constructability review meetings in project work plan	Caltrans project manager	Project manager
Assign experienced personnel to participate in the constructability review process and provide thorough and timely comments	Caltrans functional managers	Project manager
Record compliance of the constructability review policy with schedule	Caltrans project manager	Caltrans oversight engineer
Distribute project information to appropriate units prior to constructability review (all phases except Construction Closeout)	Caltrans design task manager	Project manager
Schedule and coordinate constructability review meetings	Caltrans design task manager in conjunction with project management	Project manager
Assure that all constructability review comments are either adequately addressed or documented and explained in the project risk management plan	Caltrans project manager, Caltrans design task manager, and Caltrans functional unit technical expert	Project manager
Send final response to comments to the Deputy District Director Region Division Chief of Construction (or delegate)	Caltrans project manager	Project manager
Obtain concurrence to the responses to comment.	Caltrans project manager	Project manager
Schedule construction closeout meeting, distribute information, address comments, and document meeting	Caltrans resident engineer	Construction engineer
Include in the project history file the number of constructability reviews required by policy and the number of constructability reviews conducted	Caltrans project manager	Project manager
Assure compliance to constructability review policy	Project engineer prior to Ready to List certification	Caltrans oversight engineer prior to requesting issuance of the encroachment permit

Safety Reviews

Overview

During various project development phases, formal safety reviews of project plans and documents are conducted to evaluate or assess the application of safety-related standards. The safety review process can lead to cost-effective modifications that enhance safety for all road users and workers without significant changes in the scope of the project (refer to Chapter 6 – Project Cost, Scope, and Schedule Changes).

To reach the goal of eliminating fatal and serious injury crashes on our roadways by 2050, Caltrans adopted the safe system approach (SSA) as identified in *Director's Policy DP-36* "Road Safety." The safety review process facilitates incorporating the safe system approach in the project design process.

Policies

A safety review is required for all major projects during PID and PS&E phase. During the PID, PA&ED, and PS&E phases, the number of safety reviews is based on:

- project development category as described in Section 5 "Project Development Categories."
- traffic handling requirements (detour plan, stage construction plan, and traffic handling plan).
- positive work zone protection requirements.

Figure 8-5 shows safety review requirements for major projects during each project development phase. For projects-funded-by-others that do not have separate PID and PR documents (that is, projects that use project study report-project report or design engineering evaluation report), at least one safety review is recommended to be conducted before project approval and at least one safety review is recommended during PS&E.

Figure 8-5 Safety Review Requirements Per Phases

Project Development Category	PID	PA&ED	60% PS&E	95% PS&E
1, 2, 3	X	X	X	X
4 with traffic handling requirements	X	X	X	X
4 without traffic handling requirements	X	X		X
5	X		1	X

Footnote:
1 Safety review for 60% PS&E phase is required when the use of temporary barrier is required by DIB 91 Positive Work zone Protection (PWP) & Mitigation Measures.

A field review facilitates in-person observations of the roadway and roadside conditions and to identify safety-related elements, including safety devices, roadway geometry, road surface, roadside maintenance activities, lighting conditions, parked vehicles, worker safety, pedestrians and bicyclists, visibility, intersections, utilities, traffic signals, signs, and pavement markings. Conduct at least one field review to support safety reviews for each project. For further guidance, see the heading Coordination of Safety Review with Safety Analysis and Constructability Review. The local maintenance area superintendent or maintenance manager should participate in a field review.

For projects funded-by-others, safety review should be included in the quality assurance program (refer to *Deputy Directive DD-23* "Roles and Responsibilities for Development of Projects on the State Highway System"). For projects subject to QMAP, see the heading Quality Management Plan Requirement in Article 8 of Chapter 9 – Project Initiation for more details. For projects in construction, the detection of the need for safety-related changes is the responsibility of construction personnel, as outlined in the *Construction Manual*.

Safety Review Committee

The district safety review committee (SRC) membership includes the district safe system lead and at least one representative each from Design, Construction, Maintenance, and Traffic Operations. One member serves as SRC chairperson. Assigning an engineer from district maintenance engineering to be responsible for requesting and consolidating comments from maintenance field staff promotes participation and consistency of their review and input. Other functional units relevant to the project may be included in the

safety review based on project-specific needs. To promote impartiality, it is recommended that SRC members be uninvolved as much as is practicable with the production of engineering reports and documents, as well as plans, specifications, and estimates for the individual project to be reviewed. The district may support a standing SRC, designate SRC membership for specific safety reviews, or use a combination of both. The District Director or delegated authority may establish the process for additional district-specific requirements to identify SRC membership.

SRC members should have effective written and oral communication abilities and a minimum of two years of experience in the field they are representing. For project delivery representatives, it is encouraged but not required to have experience in both design and construction.

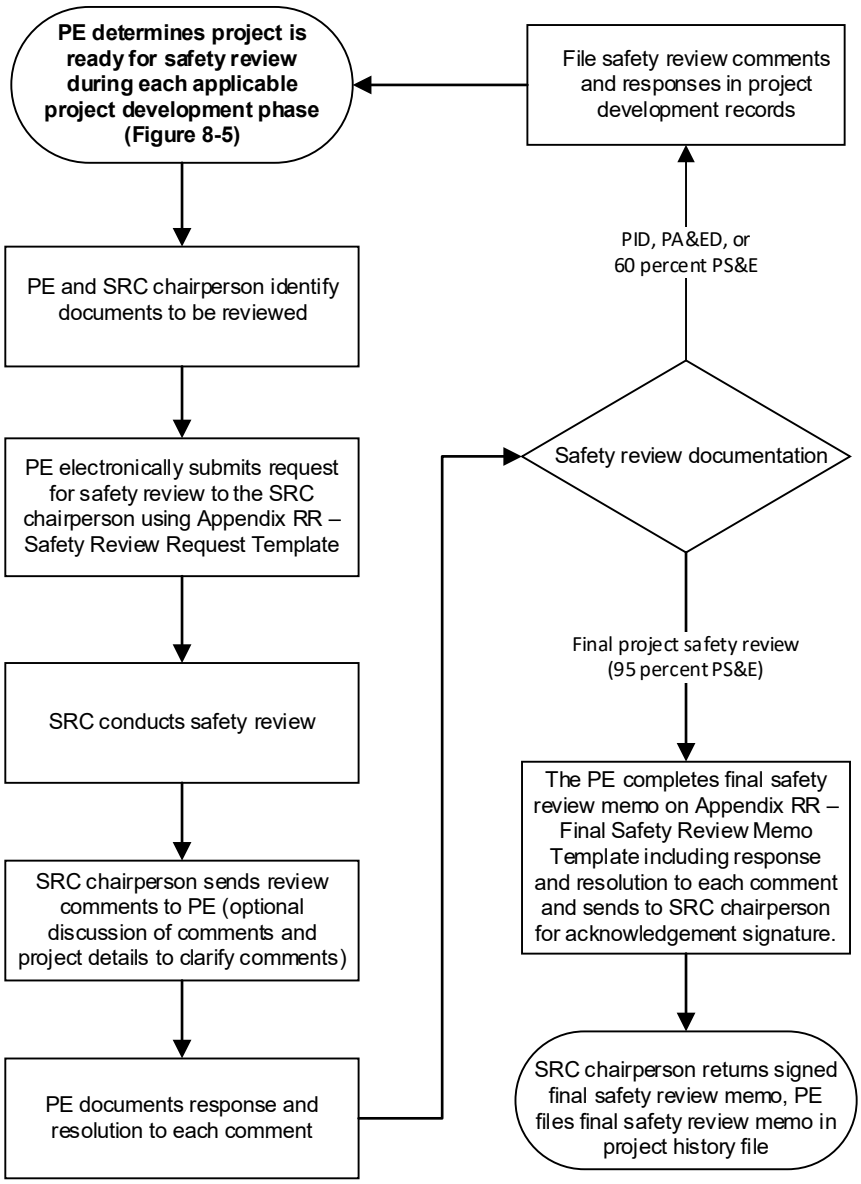
SRC members should remain current on trainings and changes to guidance and standards on various topics to be able to provide effective and meaningful safety reviews for the district. Some general topics include highway design, complete streets, design flexibility, intersection design, various geometric design standards, project delivery process, worker safety, and safe system approach. Depending on their subject matter area, SRC members should also have knowledge of various topics such as traffic safety principles, proven traffic safety countermeasures, traffic calming measures, roadside safety, intersection control, roadway rehabilitation, transportation management plans, traffic safety devices, construction staging and traffic handling, and positive work zone protection.

Essential Procedures, Roles, and Responsibilities

The project manager (PM) is responsible for allocating resources for project safety reviews to accommodate the requirements in Figure 8-5. For each project, the PM and the design senior determine the appropriate safety committee review resources and schedule with the concurrence of the SRC chairperson based on the complexity of the project. The typical minimum review time for each safety review should be two weeks. The PE and SRC chairperson confer on which project development documents and supporting documents will be reviewed and how the files will be made available to the SRC. The PE electronically submits a safety review request and the supporting documents to the SRC chairperson using the Safety Review Request Template from Appendix RR. After the safety review, the SRC transmits review

comments to the PE. If needed, the PE and SRC may confer on project details and revise any safety review comments. The PE documents responses and resolutions to each comment. For the final project development safety review at 95% PS&E, the SRC compiles and transmits review comments to the PE using the final safety review memorandum template from Appendix RR. The PE completes the final safety review memorandum by including a response to each comment and returns it to the SRC chairperson for signature to acknowledge receipt of the responses. Only the final safety review memorandum, complete with responses to comments, is included in the project history file (see Chapter 7 "Uniform File System," Section 2 "Directory and Instructions"). Do not include any draft project plans with the final safety review memorandum. See Figure 8-6 for a summary of safety review workflow. Appendix RR – Safety Review Templates, includes templates for the safety review request and final safety review memorandum.

Figure 8-6 Safety Review Workflow Summary



Coordination of Safety Review with Safety Analysis and Constructability Review

Safety analysis of the existing facility for rehabilitation projects is described under the heading “Safety Analysis” in Chapter 9, Article 5. A safety analysis should be performed early enough to allow sufficient time to incorporate safety recommendations into the proposed project design during applicable project development phases. Various reports, relevant data, and recommendations generated by safety analysis and the Safety Index Calculation form should not be attached to project initiation documents or project reports. Contact the

district traffic safety engineer for project-specific support and Headquarters Division of Safety Programs for more information on policy and procedures related to safety analysis.

A safety review may be conducted in parallel with a constructability review, however, the safety review must be documented separately. Comments and responses for the final safety review must be documented using the final safety review memorandum template in Appendix RR. Procedures for constructability reviews are included in Section 6, "Constructability Reviews."

On-site field reviews for project development, safety analysis, constructability review, and safety review may be conducted concurrently for some projects, if appropriate; however, each must be documented separately by the responsible functional units.

Policy Exception

Any exception to the policy for safety reviews must be approved by the District Director, including reducing the total number of required safety reviews for a project. At least one safety review must be performed during project development on each project other than emergency projects. Exception authority may be delegated to the Deputy District Directors or Region Division Chiefs for Design and Safety jointly. The request justifying the policy exception must be generated by the PE and submitted by the PM.

Incorporation of the Safe System Approach

Director's Policy DP-36 "Road Safety" identifies Caltrans' vision for road safety, including adoption of the safe system approach (SSA). The SSA aims to eliminate fatal and serious injuries for all road users through a holistic view of the road system. The SSA is based on six principles and five elements as specified in the National Roadway Safety Strategy (January 2022) published by the United States Department of Transportation. For full details on the SSA principles and elements, refer to the *National Roadway Safety Strategy* webpage.

Incorporating SSA into the project delivery process is a continuous and iterative process that begins during proje`ct scoping and continues through every phase of project delivery. In accordance with *Director's Policy DP-36*, each PDT member has the responsibility to promote the SSA and implement road safety

initiatives and practices in the production of project plan sheets, specifications, and other engineering reports or documents. Safety reviews provide opportunities to further strengthen proposed design elements and implement additional items, such as proven safety countermeasures and traffic calming measures, by introducing an impartial review performed by a knowledgeable group of subject matter experts.

SRC and PDT members should stay abreast of best practices and innovations in the field of their responsibility. For more details on available training classes that discuss a specific discipline or topic of transportation engineering and how designers can improve related SSA elements, contact the corresponding Headquarters division. For general training classes, guidance, tools, and other resources related to SSA, refer to the *Division of Safety Programs*.

The general focus of SSA incorporation into the safety review for each project delivery phase is different, so these are provided under the following headings.

Project Initiation Document Phase Safety Review

Review completed project initiation proposal and include all feasible build alternatives in the PID phase safety review. Safety review during the PID phase should focus on higher-level input, as detailed design plans are typically not available. PID phase is an opportunity for the SRC to identify missing safety related features associated with the scope of work or proactively recommend additional countermeasures to strengthen elements of the SSA. Some examples like adding rumble strips, enhancing crosswalks, lighting, ITS elements, MVPs, etcetera, further improves safety for all users.

For PID phase safety reviews, provide the current draft or completed version of the following documents with the request to the SRC, if applicable:

Required documents:

- Project initiation document or equivalent report (for example, PIR, Project Initiation Proposal, Major Storm Damage Assessment Form, etcetera)
- Various reports and relevant data generated by safety analysis, including identified patterns potentially addressed with cost-effective safety improvements
- Advance planning study

Optional documents:

- As-built plan sheets
- Safety screening documentation for pavement rehabilitation projects
- Design standards risk assessment
- Site photos and aerial images (for example, existing nonstandard features, utilities, overhead signs, etcetera)

Project Approval and Environmental Document Phase Safety Review

A safety review during the PA&ED phase is an opportunity to coordinate the requirements of safety-related geometric design standards applicable to proposed design elements and existing infrastructure before the environmental document is approved and detailed design work is performed during PS&E phase. Examples include identifying safety-related needs for construction staging, safety devices, maintenance worker safety, and verifying implementation of safety measures approved in the PID phase.

For projects that require stage construction, draft stage construction concepts and transportation management plans are key parts of the supporting documents in this phase. Safety review during this phase should validate the feasibility of the stage construction concept and identify any safety-related concerns during temporary construction conditions.

For PA&ED phase safety review, provide the current draft or completed version of the following documents with the request to the SRC, if applicable:

Required documents:

- Project report
- Available plan sheets (for example, typical cross-sections, layouts, stage construction, etcetera)
- Transportation management plan
- Advance planning study
- Comments and responses from previous safety reviews

Optional documents:

- Site photos and aerial images (for example, existing nonstandard features, utilities, overhead signs, etcetera)
- *DIB 78* design checklist
- Design standard decision document (DSDD) or design standards risk assessment (The DSDD has a separate review, documentation, and approval process; however, the nonstandard features listed in the DSDD may be relevant to the overall project safety review.)

60 Percent Plans, Specifications, and Estimate Safety Review

Safety review during the PS&E phase should be scheduled when the project plan sheets are sufficiently developed for the safety review to be productive. If substantial changes have been made to the plans since submittal, the safety review may be subject to re-scheduling. Submitting inaccurate or incomplete plans to the SRC may result in postponement of the review; therefore, quality management is an important consideration for the safety review process.

Safety review during 60 percent PS&E provides an opportunity to review more refined traffic handling plans and positive work zone protection requirements. Any project with positive work zone protection requirements (see *DIB 91* Guidelines on the Use of Positive Work zone Protection [PWP] & Mitigation Measures) would typically require traffic handling plans. Any project with traffic handling plans or temporary barriers should be reviewed during both 60 percent and 95 percent PS&E.

For 60 percent PS&E phase safety review, provide the current draft or completed version of the following documents with the request to the SRC, if applicable:

Required documents:

- 60% complete plan sheets (for example, typical cross-sections, layouts, stage construction, traffic handling, pavement delineation, etcetera)
- Transportation management plan
- Comments and responses from previous safety reviews
- Bid items and cost estimate

Optional documents:

- Site photos and aerial images (for example, existing nonstandard features, utilities, overhead signs, etcetera)

- DIB 78 design checklist
- DSDD or design standards risk assessment
- DIB 91 positive work zone protection determination
- Standard plans list

95 Percent Plans, Specifications, and Estimate Safety Review

A safety review is required for all projects during 95 percent PS&E. At this stage of project development, all information, such as design geometric features, surveys, geotechnical report, underground utility information, stage construction, traffic handling requirements, and environmentally sensitive areas should be available.

Safety review during 95 percent PS&E is an opportunity to review the integration and cohesion of various design elements that may have been proposed by various functional units. It is also an opportunity to confirm resolution of comments from safety reviews conducted during earlier project development phases. Comments should be specific and detailed.

Some of the design elements can be reviewed only during 95 percent PS&E as they may be conceptualized during earlier stages of project development or require additional approvals. For example, geotechnical recommendation maybe required before designing side slope which is a prerequisite for determining guardrail requirements.

Additionally, approval by district Division of Traffic Safety is required before traffic safety systems, including guardrails, crash cushions, and median barriers, can be incorporated into the plans.

For 95 percent PS&E safety review, provide the current draft or completed version of the following documents with the request to the SRC, if applicable:

Required documents:

- 95% complete plan set (including structure plans, if applicable)
- Transportation management plan
- Comments and responses from previous safety reviews
- Bid items and cost estimate
- Standard plans list
- DIB 91 positive work zone protection determination

Optional documents:

- DIB 78 design checklist
- DSDD
- Non-Standard Special Provisions (NSSP)

Figure 8-7 is a summary of required and optional documents that may be submitted with the request for safety review during each project development phase. Figure 8-7 is not an exhaustive list.

Figure 8-7 Required and Optional Documents for Safety Reviews in Each Phase

Required Documents	PID	PA&ED	60% PS&E	95% PS&E
Various reports and relevant data generated by safety analysis	X			
Project initiation document or equivalent report (e.g., PIR, Project Initiation Proposal, Major Storm Damage Assessment Form, etc.)	X			
Project Report		X		
Available plan sheets. (e.g., typical cross-sections, layouts, stage construction, traffic handling, pavement delineation, etc.)		X	X	X
Transportation management plan		X	X	X
Advance planning study	X	X		
Comments and responses from previous safety reviews		X	X	X
Bid item and cost estimates			X	X
Standard plans list				X
DIB 91 Positive Work Zone Protection Determination				X
Optional Documents	PID	PA&ED	60% PS&E	95% PS&E
As-built plan sheets	X			
Site photos and aerial images (e.g., existing nonstandard features, utilities, overhead sign, etc.)	X	X	X	
Design standards risk assessment	X			
DIB 78 Design Checklist		X	X	X
DSDD or design standards risk assessment		X	X	X
DIB 91 Positive Work Zone Protection Determination			X	
Standard plans list			X	
Safety screening documentation for pavement rehabilitation projects.	X			
Non-Standard Special Provision (NSSP)				X

Useful Resources

The following resources can be used to contribute project-specific content for conducting safety reviews. For safety related standards and other technical guidance, refer to the appropriate Headquarters division webpage.

- Project Development Workflow Guide, Section 3 – Other Resources: This section compiles safety review related tools, checklists, and other educational materials that are available on districts and headquarters' web pages.
- Traffic Safety Investigation Handbook: This handbook provides a resource for conducting safety investigations in a consistent and systematic manner across the state. It contains information on what to look for during field safety review and how to analyze various output reports generated by the Traffic Accident Surveillance & Analysis System (TASAS).
- DIB 78 Design Checklist: This checklist should be used in conjunction with the most current versions of the Highway Design Manual, Project Development Procedures Manual, and other DIBs to develop the geometric plans for highway projects.
- DIB 91 Guidelines on the Use of Positive Work zone Protection (PWP) & Mitigation Measures: This DIB contains form *CEM-1302*, "Construction Work Zone Positive Protection Determination," which is used to determine the positive work zone protection requirement.

Life-Cycle Cost Analysis

Life-cycle cost analysis is an effective and useful tool used nationwide to determine the best value for spending limited resources. A life-cycle cost analysis takes into account various current and future financial obligations and impacts of a particular design, including initial costs, future maintenance costs, future rehabilitation costs, and costs of the user (motorists and the movement of goods). The alternative with the lowest life-cycle cost is viewed as having the lowest impact to the State even if it has higher initial costs.

To ensure that the costs over the life of a project on the State Highway System are considered when making project decisions, life-cycle cost analyses are used regardless of funding sources.

Life-cycle cost for all alternatives investigated shall be documented in project initiation documents and project approval documents. For projects involving

work on the State Highway System, a life-cycle cost analysis shall be performed prior to programming construction capital.

Life-cycle cost analyses information and procedures for pavement are located in the *HDM*, Topic 619 "Life-Cycle Cost Analysis" and the *Life-Cycle Cost Analysis Procedures Manual*.

Formal Consideration of Alternatives

Alternatives must be formally considered within the environmental review process under any of the following circumstances:

- When an environmental impact report (EIR) or environmental impact statement is prepared
- When an adverse impact is expected on any of the following protected resources:
  - Endangered species
  - Public parks, recreation areas, or wildlife and waterfowl refuges
  - Historic sites
  - Aquatic ecosystems, including wetlands
  - Farmlands or agricultural preserves
  - Floodplains
- When a hazardous waste site is expected to be impacted

The PDT may find it most expedient to propose a project alternative that would avoid these circumstances. Conversely, there are situations where due to the public controversy surrounding a project, or due to a project's high public profile, the PDT may appropriately elect to address project alternatives in a formal manner—even though not required.

Defensible Alternative Selection Process

If project alternatives are formally considered, it is extremely important to embark upon a systematic and defensible alternative-selection process. It has been shown time and again that a quality process from the outset, carefully targeted to the community, will save delivery time and money and result in a better end-product.

Consider the following key points during this process:

- Early identification of impacts—the need for early identification of significant environmental impacts, uses of protected resources, and impacts on hazardous wastes.
- Project purpose-and-need—the need to develop a thorough and accurate description of the project's purpose-and-need.
- Funding—Alternatives must take into account the flexible funding that is available for congestion relief projects.
- Close cooperation—the project's engineering, environmental, and transportation planning staffs must work together as a team. This is best accomplished with frequent, informal interaction.
- Decision maker—the preparer of the environmental document does not determine if the project is to proceed; that is the jurisdiction of the District Director. The environmental document identifies the project's "pluses and minuses." As such, it can be used by the District Director as an informational tool that will help in making an informed project decision.

SECTION 7 Policies and Procedures that Span the Project Development Process

ARTICLE 1 Introduction

During the project development process there are many issues to consider. The following chapters in Part 2 (7 through 15) give a chronological description of most items that may need consideration. Other topics that relate to the entire project development process, but are difficult to describe chronologically, are covered in this section and in Part 3. Part 3 topics describe policies that are specialized topics or reach beyond the considerations of a single project, such as topics of general application by project development personnel even if a project is not involved, or topics that apply to locations or limits that are not the same as those of a particular project.

This section provides information on topics that may affect specific projects throughout the project development process, and if overlooked may cause significant fiscal and scheduling problems. These topics need to be identified at the project initiation stage and incorporated into the proposed project as appropriate, with documentation as needed in the project initiation and approval documents.

ARTICLE 2 Right of Way Considerations

Right of way issues can significantly affect the development, scope, and cost of a project. If overlooked, right of way issues can delay or seriously impact the project schedule.

Relocation Impact Studies

Relocation impact documents are prepared in accordance with the procedures outlined in the *Right of Way Manual*, Section 10.05.00.00 “Moving and Related Expenses – Nonresidential (Business, Farms, and Nonprofit Organizations).” These studies are required on all projects that displace any person or business. A final relocation impact study will be completed for the preferred alternative so that necessary revisions may be included in the final environmental document.

Relocation impact studies are often complex and time-consuming; therefore, requests for the studies should be submitted to the district right of way unit as early in the project development process as possible. This is particularly important if “last resort housing” or “replacement of affordable housing” is involved. The importance of submitting good mapping and other base data to the district right of way cannot be overemphasized. The quality of the information submitted directly relates to the validity of right of way impact studies.

Airspace Lease Areas

The *California Streets and Highways Code*, Section 104.12(c) requires Caltrans to consider future lease potential of areas above or below State highway projects when planning new State highway projects. The PDT should determine whether the proposed project is in an area of high land values having potential for future airspace leases. If so, and if the geometric plan can accommodate or can be modified to accommodate airspace leases, the district airspace committee is requested to review the appropriateness of incorporating such provisions into the project.

Where the district airspace committee has determined that provision for future airspace leases is appropriate, the involved local agency is contacted to ascertain compatibility with local land-use plans and the agency’s willingness to make a financial commitment for any added costs. Unless airspace lease provisions are required to mitigate project impacts, any added costs must be borne by others (either public or private sources).

Right of Way Cost Data

Right of way cost estimates and parcel data are prepared in accordance with the *Right of Way Manual*. The right of way data sheet is used by the district right of way unit to provide this information when requested.

Development of right of way cost estimates are often complex and time consuming, so requests for such should be submitted to the district right of way unit as early in the project development process as possible. Good mapping and other base data provided by the design unit are important as their quality directly impacts the validity of the right of way cost estimates which are a component of the project cost estimate.

Railroad Involvement

It is the design unit's responsibility to provide the district right of way unit with approximate geometric maps, profiles, and cross sections for the purpose of determining railroad involvement and for use in subsequent negotiations, as necessary. Refer to Chapter 3 – Involvement of Caltrans Functional Units, Section 3 "Surveys" and Section 8 "Structure Design."

Utility Involvement

It is the design unit's responsibility to provide the district right of way unit with approximate geometric maps, profiles, and cross sections for the purpose of determining utility involvement and use in subsequent negotiations, as necessary. Refer to Chapter 3 – Involvement of Caltrans Functional Units, Section 13 "Utilities."

Requests for exceptions to Caltrans' encroachment policy and/or utility policy must be submitted in accordance with Chapter 17 – Encroachments and Utilities.

ARTICLE 3 Disposal, Staging, and Borrow

Measures must be taken to ensure the availability of disposal, staging or borrow sites from or for transportation projects. Disposal, staging, and borrow may or may not be contiguous with the project limits. Easements or acquisitions may be required to harvest, process or haul materials. See *HDM*, Topic 111 "Material Sites and Disposal Sites," and *Design Information Bulletin 85* – Guidance for the Consideration of Material Disposal, Staging and Borrow Sites, for further guidance.

ARTICLE 4 Responsibilities of Utility Companies and Other Owners

A preliminary determination of the financial responsibilities of utility companies and other owners is needed to prepare a good estimate of State costs. Owners of non-Caltrans facilities located within the highway right of way may be required to participate in any relocation, reconstruction, or improvements required by proposed highway improvements.

At a very early stage in the project studies, a thorough investigation is made of all affected facilities to determine ownership. Particular attention should be paid to water carrying facilities, as they may appear to be highway related facilities, but may actually belong to an irrigation or reclamation district or may be part of a State water project. These facilities may have been installed under permit, which requires owner participation in subsequent modifications. The previous investigations should reveal ownership, prior rights, permit obligations, etcetera.

State funds are not used to pay for obligations that have been incurred by others as a condition for placement of their facilities within Caltrans right of way.

- Public Utility Owned Facilities

  Public utility facilities, both publicly and privately owned, that are to be constructed as a part of a transportation project, require a determination of liability. The determination is prepared by the district right of way unit and approved by the Headquarters Division of Right of Way, prior to submittal of the PS&E package to the Headquarters Division of Engineering Services-Office Engineer. The public utility company is notified to relocate their facilities by the district after this approval is given. For details see the *Right of Way Manual*, Chapter 13 "Utility Relocations."

- Non-Utility Facilities
  - Non-Common Carrier Facilities

    Non-utility facilities (such as non-common carrier oil company pipelines) also require a determination of liability as described previously.

  - Sidewalks

    Financial responsibility for construction of sidewalks is established in accordance with *HDM* Topic 105 "Pedestrian Facilities."

  - Private Access Openings

    Revisions to private access openings (such as driveways and road approaches) are covered in Chapter 26 – Disposal of Rights-of-Way for Public or Private Road Connections and *HDM* Index 205.5 "Financial Responsibility."

  - Mailboxes

    Movement of mailboxes is discussed in the *Construction Manual*, Chapter 4 "Construction Details," Section 15 "Existing Facilities."

ARTICLE 5 Mobility Considerations

Complete Streets

Definitions

Complete streets – a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit riders, and motorists, that is appropriate to the function and context of the facility.

Law

Various State laws promote and facilitate the integration of multimodal travel for people of all ages and abilities.

Section 65302 of the *California Government Code* requires that the circulation element of a local government's general plan establish a plan for a balanced, multimodal transportation network. This network must meet the needs of all users of streets, roads, and highways for safe and convenient travel in a manner that fits the rural, suburban, or urban context of the general plan. The Statute states that users of streets, roads, and highways include bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, transit riders, and seniors. The Statute focuses on the local agency's responsibility to modify the general plan circulation element by January 1, 2011, if the circulation element has any substantial changes. Caltrans recognizes that the State Highway System should be a coordinated component of the street and highway networks established by Caltrans' local government partners. Caltrans must partner with these local agencies during the development of guidelines and circulation elements.

Section 890 through Section 894.2 of the *California Streets and Highway Code* provide that the legislature's intent is to establish a bicycle transportation system to achieve the commuting needs of all travelers with the foremost consideration given to employees, students, business persons, and shoppers.

State law has codified the use of bicycles as a mode of transportation that uses the streets and highways of the State. Section 21200 through Section 21212 of the *California Vehicle Code* provide that persons riding bicycles have the same rights and must follow the same laws as motor vehicle drivers unless the

local jurisdiction prohibits bicycle operation. Section 21960 of the *California Vehicle Code* provides that freeways and expressways are open to bicyclists and pedestrians unless Caltrans makes a decision to restrict the use of them to these users. If the use of these facilities is restricted, these facilities must be properly signed to show this restriction.

Policy

Caltrans' intent is that travelers of all ages and abilities can move safely and efficiently along and across a network of complete streets.

All transportation improvements are opportunities to fulfill the objectives of short-range and long-range transportation plans. They can improve safety, access, and mobility for all travelers in California. Caltrans recognizes that vehicular, bicycle, pedestrian, and transit modes are all integral elements of the transportation system. Bicycle, pedestrian, and transit travel is facilitated by envisioning complete streets early in system planning. Developing a network of complete streets requires collaboration and partnership among all Caltrans functional units and stakeholders. Development of complete streets on the State Highway System is applicable to all facility types including freeways, expressways, and conventional facilities where users of different modes of transportation are legal roadway users and have needs identified in transportation planning documents. To ensure that the needs of complete streets are addressed, implementation of the plan continues through project scoping, project delivery, maintenance, and operations. Addressing the safety and mobility needs of all users (motorists, bicyclists, pedestrians, and transit users), regardless of funding, is the intent of this policy.

High-Occupancy Vehicle (Bus and Carpool) Lanes

Caltrans policy (refer to the *High-Occupancy Vehicle Guidelines* for more information) requires consideration of a high-occupancy vehicle lane alternative for all capacity additions to metropolitan freeways or new metropolitan freeways, and to recommend high-occupancy vehicle preferential lanes at ramp meters where appropriate. Districts with major metropolitan areas work with the regional transportation planning agencies to develop a region wide high-occupancy vehicle lane system, and these systems are included in the regional transportation plans by the regional agencies, providing the basis for programming high-occupancy vehicle lane projects.

Depending on such factors as transportation demand, travel time, cost, safety considerations, maintenance considerations, enforcement requirements, funding availability, environmental considerations, and community support, the specific high-occupancy vehicle design and operational features considered in project planning will vary. Since the goal is to optimize the people-carrying capability of the high-occupancy vehicle lanes, transit should be given preference, with vanpooling following and then carpooling. Proposals for lane additions and new facilities should be analyzed for mixed-flow and high-occupancy vehicle operation to identify the alternative that will ultimately result in less overall person delay or the most increase in person carrying capacity. Separate roadways for high-occupancy vehicles should be considered when travel demand, cost-effectiveness and operational needs justify those facilities. Convertibility to rail is required under certain conditions when a new alignment or new structures are proposed.

Section 21655.6 of the *California Vehicle Code* indicates that approval by the affected transportation planning agency or county transportation commission must be obtained before Caltrans may implement exclusive or preferential use of highway lanes for high-occupancy vehicles. Section 21655.5 of the *California Vehicle Code* and Section 149 of the *California Streets and Highways Code* indicate that Caltrans, prior to constructing or establishing bus and carpool lanes, shall conduct competent engineering estimates of the effect of such lanes on safety, congestion, and highway capacity.

When considering high-occupancy vehicle lanes it is important for the project manager or the project engineer to consider the need to seek support from local legislators, the public and local governments, and for coordination with the CHP concerning operation and enforcement.

The *High-Occupancy Vehicle Guidelines* should be consulted for more detailed information on policy and on planning, operations, geometric design, ingress and egress, signing and delineation, and enforcement. Appendix B of the *High-Occupancy Vehicle Guidelines* contains a sample table which should be used to summarize the analysis of the congestion, capacity, and safety ramifications of the alternatives for inclusion in the DPR and PR.

Park-and-Ride Facilities

Park-and-ride facilities must be considered for inclusion on all major transportation construction projects that include, but are not limited to, new freeways, interchange modifications, lane additions, transit facilities, and high-occupancy vehicle lanes. Section 146.5 of the *California Streets and Highways Code* contains specific legal requirements regarding the selection and funding of these facilities. It is important to consider park-and-ride facilities before setting right of way lines. The district park-and-ride coordinator must be consulted as to the appropriateness of including park-and-ride facilities and for assistance in documenting compliance with the legal requirements in the project initiation and project approval documents. Full justification is required for proposals that are contrary to the park-and-ride coordinator's recommendations.

Park-and-ride facilities are not permitted within interchange areas except with the review and approval from the Headquarters Project Delivery Coordinator and the Headquarters Traffic Engineering Liaison. Generally, these locations will be approved only if no other area is acceptable or economically justifiable.

Additional information on park-and-ride facilities can be obtained from the Headquarters park-and-ride coordinator through the Headquarters Traffic Engineering Liaison. For the design of complex park-and-ride facilities and specific planting or erosion control requirements, consult with the district landscape architect.

Pedestrian Accessibility

Buildings and transportation facilities on all projects must be accessible within the State highway rights-of-way in accordance to federal and State law. The *Americans with Disabilities Act of 1990*, along with its implementing regulations, and the *California Government Code*, Section 4450 et seq., prescribe that buildings and facilities shall be made accessible to persons with disabilities. Accessibility design standards for the State of California are prescribed in *Title 24 California Code of Regulations;* in Part 2, the *California Building Code*. The Department of General Services, Division of the State Architect (DSA), oversees *California Building Code* compliance.

Except for rail and transit stations, within the State highway rights-of-way, Caltrans (in addition to Division of the State Architect) is authorized by State law to certify, on a project-by-project basis, that a project complies with State pedestrian accessibility design standards for transportation facilities. *Design Information Bulletin 82* – Pedestrian Accessibility Guidelines for Highway Projects, provides design guidance on pedestrian accessibility for highway projects and how to comply with the various federal laws and State codes.

Division of the State Architect reviews and provides the required approval that a rail or transit station project complies with the State pedestrian accessibility code.

For additional discussion on pedestrian facilities, see the Chapter 31 – Nonmotorized Transportation Facilities.

Transit Related Facilities

Transit related highway facilities, including bus turnouts, passenger loading areas, passenger benches and shelters, and special traffic control devices, should be considered where appropriate. Section 148 of the *California Streets and Highways Code* contains specific requirements concerning these facilities.

Transportation Management Plans

Deputy Directive DD-60-R2 – Transportation Management Plans, requires a transportation management plan (TMP) for all projects on the State Highway System to minimize disruption to the traveling public. Transportation management plan measures must be considered during project initiation and included for project approval to ensure they are incorporated into construction contracts.

A transportation management plan is an approach for alleviating or minimizing work-related traffic delays by the effective application of traditional traffic handling practices and an innovative combination of various strategies. These strategies include public awareness campaigns, motorist information, incident management, construction methods, demand management, and alternate route planning. Specific guidance for application of the various strategies is contained in the *Transportation Management Plan Guidelines*.

Prolonged Ramp Closures

Temporary ramp closures of more than 10 consecutive days require preparation of an economic impact study by the environmental unit. Closures of less than 10 days may require a study, depending upon circumstance. Refer to Volume 4 of the *Standard Environmental Reference* for further information.

Accommodation of Oversize Loads

In accordance with policy, State freeways must be designed to provide passage for vehicles of unrestricted height while moving in and out of the area; to or from airports, harbors, and testing sites; and to or from ultimate destination for use or assembly. Exceptions to this policy should only be considered when an existing city or county facility allows for bypass of a State facility that has restrictions preventing passage of overheight vehicles.

n those instances where it is impractical to follow this policy due to engineering controls, excessive costs, or community values considerations, the impacted industries should be contacted and a mutually satisfactory solution sought. Impacted industries are those presently engaged in manufacturing of extralegal-dimensioned articles or those industries who have notified Caltrans of their potential for such activity. (Aerospace represents a significant portion of the impacted industries.)

Refer to Chapter 21 – Design Standard Decisions, for a discussion of the Department of Defense Rural and Single Interstate Route System for which a minimum vertical clearance is required.

ARTICLE 6 Environmental Considerations

Public Access to Waterways

- **Navigable Rivers:** Section 84.5 of the *California Streets and Highways Code* requires full consideration of, and a report on the feasibility of providing a means of public access for recreational purposes to any navigable river over which a new bridge is being constructed. The Office of the Attorney General finds that a “navigable river” as defined under California common law, is any watercourse “capable of being navigated by oar or motor propelled small craft” (*People ex rel. Baker v. Mack* (1971) 19 Cal.App.3d 1040, 1050).

It is necessary to discuss this subject at any public hearing and to justify and document the position taken on public access to waterways in the project approval document thus satisfying State code. All environmental and engineering aspects must be considered as well as the intent of the Legislature to maximize such public access by requiring its consideration during the planning of such projects. As such, the potential for this item should be fully considered and addressed in the PID and PR as appropriate. See Appendix K – Preparation Guidelines for Project Report, Article 2 "Outline," topic "Report on Feasibility of Providing Access to Navigable Rivers."

- **Public Boat Ramps:** Section 147 of the *Federal-Aid Highway Act of 1976* provides that certain federal funds (see Chapter 4 – Programming, Article 4 "Federal Programs") may be used to construct access ramps to public boat launching areas in conjunction with bridge projects on these systems. In addition, it is not the intention of Section 147 to provide an extended roadway system within publicly owned recreation areas, but rather to provide direct access from the highway right of way to the water traversed by such highway.

Floodplains

Identify and discuss any impacts on or encroachment on base (100-year) floodplains. The project engineer is responsible for initiating the floodplain evaluation process. For further guidelines, consult the *Standard Environmental Reference* and the *HDM*, Topic 804 "Floodplain Encroachments."

National Pollutant Discharge Elimination System

A copy of the National Pollutant Discharge Elimination System (NPDES) stormwater permit and notice of intent (NOI), if required, must be included in the PS&E package submitted to the Headquarters Division of Engineering Services-Office Engineer before the project can be advertised.

The National Pollutant Discharge Elimination System was established by Congress as part of the original Federal *Clean Water Act of 1972*. Article 402 of the Act established a system of permits for discharge of wastes to surface waters of the United States. Prior to 1990, these permits focused mainly on municipal and industrial discharges. After 1990, these permits also included provisions related to nonpoint sources—namely stormwater.

Until recently, Caltrans had both kinds of permits: those related to discharges of waste to surface waters of the United States, and those related to stormwater

discharges. The former most often involved discharges of wastewater from maintenance stations and safety roadside rest areas. Since the advent of wash rack conversions at maintenance stations, Caltrans has transitioned out of non-stormwater discharges to surface waters of the United States. The later type of National Pollutant Discharge Elimination System permit—those associated with stormwater discharges—is currently the only type of National Pollutant Discharge Elimination System permit within Caltrans, and because they are so recent, and their requirements are so specific, they are often problematic.

A general construction stormwater permit has been promulgated by the State Water Resources Control Board for all areas of the State not covered by regional water quality control board stormwater permits, and applies to all construction project proponents involving more than 1 acre of disturbed earth. For any project that requires a general permit, a notice of intent must be filed with the State Water Resources Control Board along with the appropriate filing fee. The general permit requires that a storm water pollution prevention plan (SWPPP) be developed and implemented for each construction site. A storm water pollution prevention plan identifies pollutant sources and best management practices (BMPs) to control those pollutants.

The general construction stormwater permit is superseded in areas where an individual stormwater permit has been issued to Caltrans by a regional water quality control board. Projects located in areas covered by these individual permits must follow procedures specified in the individual permit, and the district has the responsibility of coordinating with the regional board.

An approved storm water data report (SWDR) as described in *Storm Water Quality Handbooks: Project Planning and Design Guide* shall be completed during the project initiation, project approval, and PS&E phases. All storm water data reports submitted for approval shall use the storm water data report format.

Efforts continue to try and bring all Caltrans facilities under one permit which all regional water quality control boards, the State Water Resources Control Board, and the Federal Environmental Protection Agency (EPA) will accept. For the most current information, contact the district stormwater coordinator.

Use of Asphalt Concrete Grindings, Chunks, and Pieces

Section 5650 of the *California Fish and Game Code* indicates that it is unlawful to deposit asphalt, other petroleum products, or any material deleterious to fish, plant life, mammals, or bird life where they can pass into the waters of the State. In addition, Section 1602 of the *California Fish and Game Code* requires notification to the California Department of Fish and Wildlife prior to construction of a project that will result in the disposal or deposition of debris, waste or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. When constructing transportation facilities, Caltrans frequently uses asphalt in mixed or combined materials such as asphalt concrete (AC) pavement. Caltrans also uses recycled AC grindings and chunks. There is a potential for these materials to reach the waters of the State through erosion or inappropriate placement during construction.

The first step is to determine whether there are waters of the State in proximity to the project that could be affected by the reuse of AC. Waters of the State include: (1) perennial rivers, streams or lakes that flow or contain water continuously for all or most of the year; or (2) intermittent lakes that contain water from time to time or intermittent rivers or streams that flow from time to time, stopping and starting at intervals, and may disappear and reappear. Ephemeral streams, which are generally exempt under provisions developed by Caltrans and the California Department of Fish and Wildlife, are those that flow only in direct response to rainfall.

The reuse of AC pavement grindings will normally be consistent with the *California Fish and Game Code* and not require a 1602 Agreement when these materials are placed where they cannot enter the waters of the State. However, there are no set rules as to distances and circumstances applicable to the placement of asphaltic materials. Placement decisions must be made on case-by-case basis, so that such materials will be placed far enough away from the waters of the State to prevent weather (erosion) or maintenance operations from dislodging the material into State waters. Site-specific factors (such as steep slopes) should be given special care. Generally, when AC pavement grindings are being considered for placement where there is a potential for problems, the district environmental unit should be notified to assist in determining whether a 1602 Agreement is appropriate and what mitigation

strategies are available to prevent the materials from entering the waters of the State.

If there is the potential for reused AC materials to reach waters of the State through erosion or other means during construction, such work would normally require a 1602 Agreement. Depending on the circumstances, the following measures should be taken:

- The reuse of AC pavement grindings as fill material and shoulder backing must conform to the Caltrans *Standard Specifications*, applicable manuals of instruction, contract provisions, and the Memorandum of Understanding described in this sub-article.
- AC chunks and pieces in embankments must be placed above the water table and covered by at least one foot of material.

A Memorandum of Understanding dated January 12, 1993, outlines the interim agreement between the California Department of Fish and Game (currently named the California Department of Fish and Wildlife) and Caltrans regarding the use of asphaltic materials. It provides a working agreement to facilitate Caltrans' continued use of asphaltic materials and avoid potential conflicts with the *California Fish and Game Code* by describing conditions where use of asphalt road construction material by Caltrans would not conflict with the *California Fish and Game Code*.

Specific understandings contained in the Memorandum of Understanding are:

- Asphalt Use in Embankments

  Caltrans may use AC chunks and pieces in embankments when these materials are placed where they will not enter the waters of the State.

- Use of AC Pavement Grindings as Shoulder Backing

  Caltrans may use AC pavement grindings as road shoulder backing when these materials are placed where they will not enter the waters of the State.

- Streambed Alteration Agreements

  Caltrans will notify the California Department of Fish and Wildlife pursuant to Section 1602 of the *California Fish and Game Code* when a project involving the use of asphaltic materials or crumbled, flaked, or ground pavement will alter or result in the deposition of pavement material into a river, stream, or lake designated by the California Department of Fish and Wildlife. When the proposed activity

incorporates the agreements reached under Section 1602 of the *California Fish and Game Code*, and is consistent with Section 5650 of the *California Fish and Game Code* and this Memorandum of Understanding, the California Department of Fish and Wildlife will agree to the use of these materials.

There may be circumstances where agreement between the California Department of Fish and Wildlife and Caltrans cannot be reached. Should the two agencies reach an impasse, the agencies enter into a binding arbitration process outlined in Section 1603 of the *California Fish and Game Code*. However, keep in mind that this arbitration process does not exempt Caltrans from complying with the provisions of the *California Fish and Game Code*. Also it should be noted that this process is time consuming, requiring as much as 72 days or more to complete. Negotiations over the placement of AC grindings, chunks, and pieces are to take place at the district level as part of the 1602 Agreement process.

Consideration of Visual Impacts and Protection of Visual Quality

State highway improvements address transportation needs while recognizing community values and minimizing impacts to the environment. Caltrans supports and encourages the preservation and enhancement of visual quality in planning and designing transportation facilities.

Definitions

Designated scenic highway – a State or county highway (total or portions) recognized for its scenic value. Other Caltrans guidance may refer to "scenic highway," "official scenic highway," "State scenic highway," or "county scenic highway." The list of designated scenic highways is at the Headquarters *Landscape Architecture Program-Scenic Highways* website.

Scenic corridor – land visible from the highway right of way that is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and jurisdictional lines determine corridor boundaries.

Scenic resource – visually unique, natural, cultural, or historic features, such as large trees, rock outcroppings, scenic vistas, or significant structures as determined by a scenic resource evaluation.

Scenic resource evaluation – the identification and description of scenic resources and potential project impacts to these resources that is used to make the environmental determination.

State Scenic Highway system – California's designated scenic highways and highways eligible for designation as listed in the *California Streets and Highway Code*, Sections 263.1 through 263.8.

Visual Impact Assessment (VIA) – the identification and description of visual quality, potential project impacts to this visual quality, and the relative significance of the impacts. The visual impact assessment also recommends appropriate strategies for impact avoidance or mitigation.

Conduct Scenic Resource Evaluation and Visual Impact Assessment

The environmental review process requires the project sponsor's licensed landscape architect to analyze potential impacts to the visual environment for all projects. This analysis involves conducting a preliminary assessment and, if required, a scenic resource evaluation and visual impact assessment. For a Caltrans' sponsored project, the district landscape architect is required to conduct these studies.

A preliminary assessment during the PID–phase identifies scenic resources, scenic corridors, and designated and eligible scenic highways. The assessment establishes the need and level of study for the visual impact assessment based on potential physical changes to the environment. Specific information regarding the scenic resource evaluation and visual impact assessment is described in Chapter 27 of the *Standard Environmental Reference*. Additional information on designated scenic highways is provided in this article.

If the preliminary assessment identifies a scenic resource on the project, a scenic resource evaluation is prepared during the Project Approval and Environmental Document (PA&ED) phase of work. If the project results in damage to the scenic resource and it is on a designated scenic highway, the project cannot be classified categorically exempt under CEQA.

A visual impact assessment must be conducted during PA&ED when the preliminary assessment concludes that a proposed project may impact the

visual environment. The scenic resource evaluation and the visual impact assessment may be combined into one document.

The project team must consider how the transportation project impacts visual quality. The road and roadside can contribute to the visual quality of the highway and its corridor. The scenic resource evaluation and visual impact assessment help establish a context for the project design. Examples of project features that may contribute to or impact the visual quality of the highway corridor or project area are:

- Road alignment.
- Utilities – the placement of new or relocated utilities to be consistent with *California Public Utilities Code*, Section 320.
- Slopes.
- Vegetation.
- Barriers or rails.
- Historic and cultural features.
- Scenic vistas.
- Structures.
- Lighting.

Impact avoidance is the preferred choice because communities can be highly sensitive to changes in visual quality due to project impacts. When avoidance is not a viable or cost-effective option, every effort should be made to design project features so they are compatible with the character of the highway corridor or project area.

Designated scenic highways have visual qualities that have been documented and are protected by local corridor protection programs. These protection programs reflect community values that should be integrated into the planning and design process.

Additional Information on Scenic Highways

The California legislature created the State Scenic Highway system to establish the State's responsibility for the protection and enhancement of California's natural scenic beauty along State highways. Eligible scenic highways are nominated by local jurisdictions, designated by Caltrans, and protected by corridor protection programs.

Review the *Scenic Highway Guidelines* at the Headquarters *Landscape Architecture Program-Scenic Highways* website for information on officially designating or revoking scenic highways.

ARTICLE 7 Owner-Operator Considerations

Interim Projects

Interim projects are subject to the CTC policies. An interim project is any project on or improvement to an existing State highway that is planned to be superseded by construction of a new freeway facility during the period of time between adoption of a freeway alignment and completion of the freeway construction (and subsequent relinquishment of the existing highway).

- CTC Policy:
  The current CTC policy resolution, adopted by the California highway commission on July 30, 1964, sets forth the following responsibilities on interim projects:

  A. Basic Responsibility for all Projects
     1. The correction of drainage conditions that are clearly local problems shall be the responsibility of the local agency.
     2. The financing of all new curbs and gutters, exclusive of those required for channelization, shall be the responsibility of the local agency.
     3. The State shall be responsible for maintaining the structural adequacy of the facility.
  B. Interim Projects Estimated to Serve all Traffic for a Minimum Period of Five Years

The State shall be responsible, subject to limitations in item A, for financing the construction of necessary highway widening (including replacement of existing curbs and gutters and the addition of channelization) and for the cost of right of way acquisition.

  C. Interim Projects Estimated to Serve all Traffic for a Period of Less Than Five Years
     1. For projects that will be under construction prior to budgeting of the freeway project, in addition to item A, the purchase of necessary additional rights of way and construction of new curbs and gutters shall be the responsibility of the local

agency. Replacement of existing curbs and gutters will be done by the State.

2. When the freeway project has been budgeted, the local agencies shall provide 50 percent of all other construction costs for State highway widening in addition to those items previously ascribed to them.
3. After the freeway is opened for traffic, State responsibility shall be limited to placing the existing highway surface in a state of good repair.

"... nothing...will preclude financial participation by local agencies in excess of the amounts indicated...the Commission will consider variations from this policy..."

- Implementation
  - Widening Criteria

    Implementation of the interim projects policy should be based on State participation only to the extent of meeting traffic requirements within the interim time period. Extra width of roadbed for medians or for pavement in excess of that needed for such traffic, etcetera, should be financed entirely by the local agency.

    Exceptions to the policy require CTC approval. Justification for extra width at State expense must be contained in the PR. It is expected that the local agency's request for an exception will normally be in the form of a resolution. Headquarters Division of Design will handle the processing to the CTC.

  - Relinquishment

    California Streets and Highways Code, Section 73 governs the relinquishment of the interim facility after the freeway is open to traffic. It requires that highways, as defined in *California Streets and Highways Code*, Section 23, be placed in a state of good repair prior to relinquishment for routes superseded by relocation. Section 73 also specifies that Caltrans is not obligated for widening, new construction, or major reconstruction, except as the CTC may direct. See Chapter 25 – Relinquishments, for discussion of relinquishment policies and procedures.

  - Traffic Signals and Intersection Lighting

    The modification of existing traffic signals, intersection lighting, and channelization required by the freeway will be at State expense.

    Local participation will be sought on the cost of new signals and lighting systems on the existing highway on the basis of the number of legs under each jurisdiction entering the intersection. If a new

traffic signal or illumination system, or modification to an existing signal, signal system, or illumination system is urgently needed to improve safety of traffic flow on the State highway, and if local authorities are unable to finance their proper share of the cost, the State may accept a lesser participation (or even no participation) by local authorities. The determination of "urgently needed" will be made by the District Director.

Construction of traffic signal systems must begin before the freeway is open to traffic. After the freeway is opened, it will be necessary to obtain advance approval from the CTC for a variance from the policy resolution. If signals are to be in operation less than 12 months before the freeway is opened, traffic signal warrants (see the *California Manual on Uniform Traffic Control Devices [California MUTCD)*]) must continue to be met after the freeway has been opened to traffic.

Widening Adjacent to Existing Facilities

On widening projects, such as lane additions, auxiliary lanes, uphill climbing, or passing lanes, etcetera, it is necessary to thoroughly investigate the existing adjacent pavement condition for rehabilitation need. It is not cost-effective or desirable to widen a highway without correcting for bad ride and major structural problems in adjacent pavements if that work is needed. However, certain circumstances may justify deferring the pavement rehabilitation work and programming it as a separate project in the State Highway Operation and Protection Program (SHOPP). If it is believed such circumstances exist, the Headquarters Project Delivery Coordinator should be consulted to discuss deferring the pavement rehabilitation work. Possible options to consider are: widening only—rehabilitation not needed; widening concurrent with pavement rehabilitation; widening with deferred pavement rehabilitation only; and stage construction.

A review of the current pavement management system inventory and report data in conjunction with a field review of the widening project must be made to determine if pavement rehabilitation is needed in conjunction with the widening. This should be completed during the project initiation phase and then reviewed again during the DPR stage because the pavement condition may have deteriorated during the intervening time.

For AC pavements exhibiting alligator "B" cracking, a deflection study is needed to confirm rehabilitation need and the appropriate pavement rehabilitation

strategy. If the deflection study supports rehabilitation, the appropriate strategy and cost of rehabilitation and other project considerations, such as traffic safety needs, must be included in the project and discussed in the project development report (such as: PSR, DPR, PR, etcetera) unless deferred.

When widening contiguous to portland cement concrete (PCC) pavement, if the pavement management system survey data and a field review indicate rehabilitation of the PCC is not an immediate need but will be necessary within 10 years, it should be completed with AC for compatibility with the eventual PCC pavement rehabilitation strategy. If the pavement management system survey data and field review indicate that rehabilitation will not be needed within 10 years, a PCC pavement structural section should be used to widen the existing PCC pavement.

Converting Shoulders to Traffic Lanes

Converting shoulders to a traffic lane (or portion) should only be undertaken when it is the last available means to provide increased capacity and should be done in consultation with the Headquarters Project Delivery Coordinator. The preferred solution is permanent widening in accordance with the design standards in the *HDM*.

Once a decision has been made to convert an existing shoulder (typically AC) to a traffic lane (or portion) a deflection study must be made to determine the structural adequacy of the in-place material. A field review should also be performed to evaluate the condition of the AC for signs that indicate it will provide poor ride quality or require excessive maintenance and rehabilitation in a short period of time (for example: has it become brittle and surface cracked; does it undulate in grade; is it raveling; is it rolled up at the PCC joint, etcetera).

In addition, the need to modify adjacent landscape features should be determined by field review and study of as-built drawings. Consideration should also be given to maintenance of the roadside and how the conversion affects the safety of maintenance personnel.

Field Safety

Safety is a critical concern for all Caltrans operations. The need for the PDT to conduct field reviews as an ongoing activity has been emphasized. The *Safety Manual*, Chapter 5, “Office and Field Safety,” should be consulted for an

explanation of safe working procedures for employees who normally work in offices and are unfamiliar with Caltrans field work activities.

Project planning and design actions also have a significant impact on the safety of required field efforts, such as surveys. Requests for field-determined data should be made after considering the safety aspect and alternate means of obtaining the data. As an example, pavement elevation surveys expose surveyors to traffic and, at times, require lane closures. Although techniques are available to improve the safety of pavement elevation surveys, the best solution is to eliminate, when feasible, the need for field surveys. Improved photogrammetry equipment and techniques provide opportunities to achieve this goal and reduce the demand for field-determined pavement elevation surveys. Not only can the use of photogrammetry eliminate the need for field surveys, it also (a) reduces the survey costs, (b) avoids the creation of traffic congestion resulting from field surveys with required lane closures, and (c) eliminates the need to consider night surveys.

Although photogrammetric elevations may be inadequate for many project planning and design situations, each reduction in the need for field surveys reduces the exposure of surveyors to traffic and improves safety.

Suicide Barrier

Section 14527.1 of the *California Government Code* requires the consideration, during the development of bridge projects, features to deter suicides. All project study reports or other PIDs prepared for projects involving the construction of a new bridge, or replacement of an existing bridge with a history of documented suicides, shall include a document demonstrating that a suicide barrier was a feature considered for each bridge during the project's planning process. As such, the inclusion of suicide barriers must be fully considered and discussed in the alternatives section of PIDs when applicable.

California Government Code, Section 14527.1

Section 14527.1 states:

> (a) A project study report or project study report equivalent that is prepared for any new project involving the construction of a new bridge, or the replacement of a bridge with a history of documented suicides, which project is included in a regional transportation improvement

program, as described in Section 14527, the interregional transportation improvement program, as described in Section 14526, or the state highway operation and protection program, as defined in Section 14526.5, shall include a document demonstrating that a suicide barrier was a feature considered for each bridge during the project's planning process.

(b) "Bridge" means a publicly owned bridge on the national highway system or the federal-aid highway system, or off system, a publicly owned bridge classified as non-federal-aid highway system.

(c) This section does not impose a mandatory duty pursuant to Section 815.6.

Project Size (Dollar Value)

The basic objective in establishing the size (dollar value and project limits) of any project is to obtain the maximum service to public traffic at the earliest feasible date and at a minimum cost. Some reasons for developing large projects include: (1) economic balance of earthwork; (2) provision of a usable segment or segments that can be opened to traffic upon completion; (3) cost effective and safe handling of traffic through or around construction; (4) minimizing the time and costs of project development and construction engineering; (5) keeping the unit cost and overall project cost down; and (6) avoiding conflict between adjacent contractors.

There are, however, offsetting reasons for maintaining a balance of small, medium, and large projects. These include: (1) encouraging competitive bidding by enabling small, medium, and large contractors to compete for projects; (2) providing opportunities for small businesses, including those owned by minorities and women; and (3) maintaining a viable highway contracting industry in California.

Another reason for maintaining a balance of project sizes is to take advantage of stage construction. Stage construction can result in earlier completion of a project and, under certain circumstances, more effectively utilize available funding. Examples where stage construction may be appropriate: (1) during embankment settlement periods, (2) for railroad separations, (3) for major stream crossings, and (4) for interchanges in urban areas in advance of major projects to minimize later interference with local and contractor's traffic. Breaking a large project into shorter segments should be considered whenever

the earthwork balance can be maintained and where temporary transition problems are minor between s staged segments.

Risk Management

Project Delivery Directive PD-09 – *Project Risk Management*, requires that risk management be applied to all capital outlay projects and major maintenance projects delivered by Caltrans. Refer to the *Project Risk Management Handbook: A Scalable Approach* for the requirements and procedures.

Electronic File Sharing

Project Delivery Directive PD-06 – *Sharing of Electronic Files*, requires sharing of electronic files for certain types of design information within Caltrans and with its delivery partners. The details of what type of information, in what file format, and to whom it is shared are detailed within the directive.

ARTICLE 8 Federal Highway Administration Coordination

Stewardship and Delegation of Federal Highway Administration Authority

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.

Federal Highway Administration Oversight

FHWA involvement, as dictated by the project aspects, must begin as early as possible for all projects on the National Highway System. FHWA should be consulted so that both parties have a clear understanding of the project aspects that will require coordination and information sharing to facilitate oversight and future approvals.

The FHWA oversight activities and approvals must be documented in the reports prepared for project initiation and project approval.

Determination of Responsibility for Project Actions

The degree of review and oversight by FHWA on a specific project is determined by the route designation, cost, funding source, and type of work. The main factor for determining if the responsibility for project actions is assumed by Caltrans or retained by FHWA is whether or not a project is on the National Highway System. Projects with an elevated delivery risk may be defined as "Projects of Division Interest" and will have specific requirements based on the project aspects. Additionally, FHWA retains their responsibility for project actions for projects on the Interstate System that have been determined to be in a high risk category.

National Highway System Route Designation

The National Highway System includes the Interstate Highway System as well as other roads important to the nation's economy, defense, and mobility. National Highway System routes in California may be determined from the information located at the *FHWA National Highway System* website.

"Projects of Division Interest"

The "Projects of Division Interest" are those projects that have an elevated risk, contain elements of higher risk, or present an opportunity for FHWA involvement to enhance meeting their program objectives. They have been further categorized by six types (including federal major projects) of project-specific "Projects of Division Interest" and two types of programmatic "Projects of Division Interest." These projects use a risk based approach for determining how the individual project actions will be handled and will be identified in accordance with the process outlined in the stewardship agreement and the detailed guidance (that includes descriptions of the types and categorizations) located at the *FHWA Stewardship and Oversight* website.

Projects in High Risk Categories

Federal law prevents FHWA from delegating responsibilities for projects on the Interstate System that are in high risk categories. See the latest *Stewardship and Oversight Agreement on Project Assumption and Program Oversight*, for the FHWA California Division determination of high risk categories.

Noteworthy Topics

Topics that have unique procedures are:

New or Modified Access on the Interstate System

FHWA has retained their approval authority for access. For more detail regarding new or modified access on the Interstate System, see Chapter 27 – Access Control Modification.

FHWA Major Projects

Title 23 Code of Federal Regulations, Section 106 specifies Major Projects as those that cost $500 million or greater. These projects have special requirements that include a project management plan and an annual financial plan. Information on the requirements for Major Projects is located at the *FHWA Major Projects* website.

FHWA Other Projects

Title 23 Code of Federal Regulations, Section 106 specifies Other Projects as those that cost between $100 million and $500 million. While they are not classified as Major Projects, there is a requirement for an annual financial plan that must be made available to FHWA upon request.