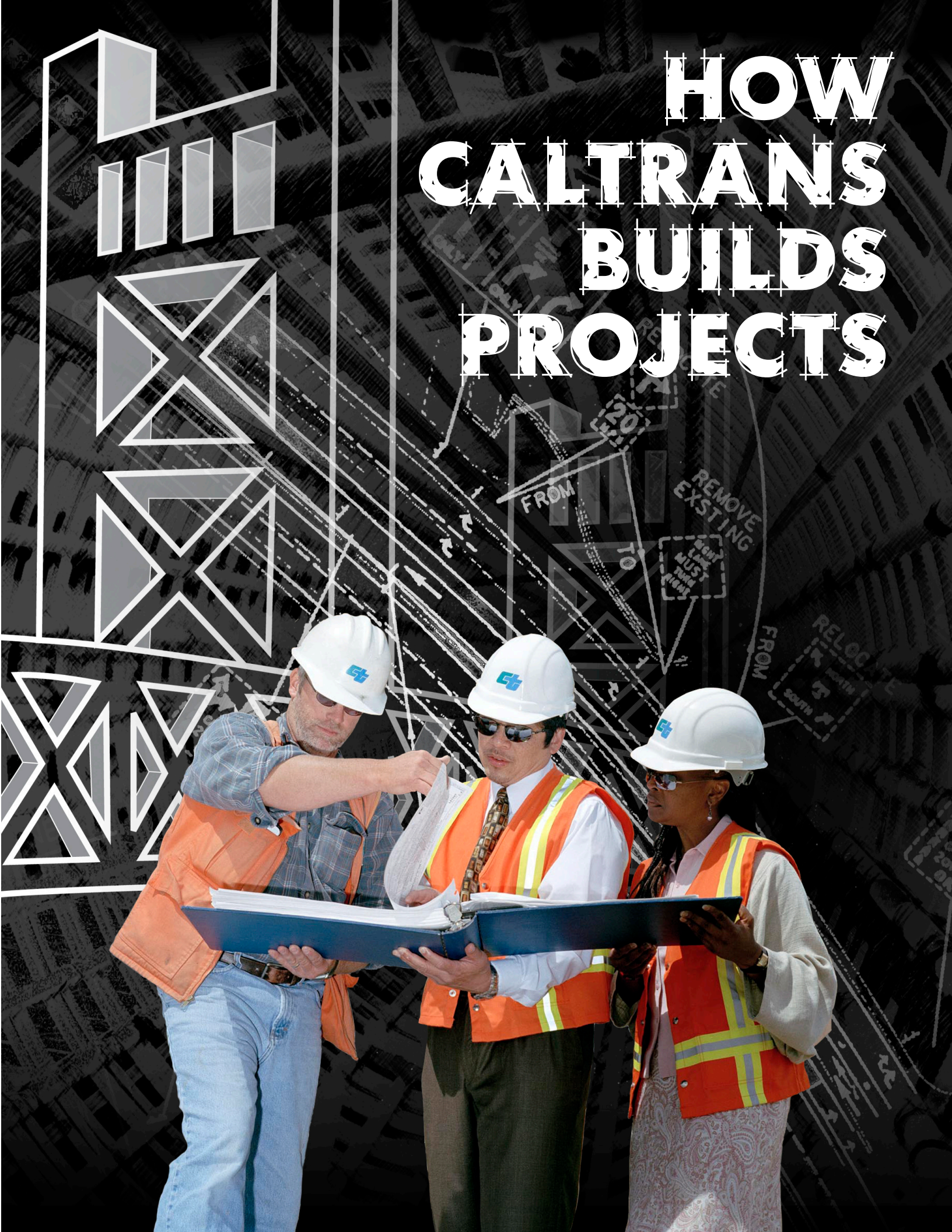
HOW CALTRANS BUILDS PROJECTS



THIS BOOKLET

This booklet gives a concise overview of the California Department of Transportation (Caltrans) project delivery process for projects that will improve or maintain the State Highway System (SHS) including the Interstate System. This booklet also provides a list of resources for further reference. In addition to contacting local district staff with questions pertaining to their area of expertise, information may be obtained via the Caltrans web portal: http://www.dot.ca.gov or http://www.dot.ca.gov/doingbusiness.htm.

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Introduction

CALTRANS MISSION

Caltrans Mission is to 'Improve Mobility Across California'. It accomplishes this mission through a variety of programs set up by the California Legislature, including:

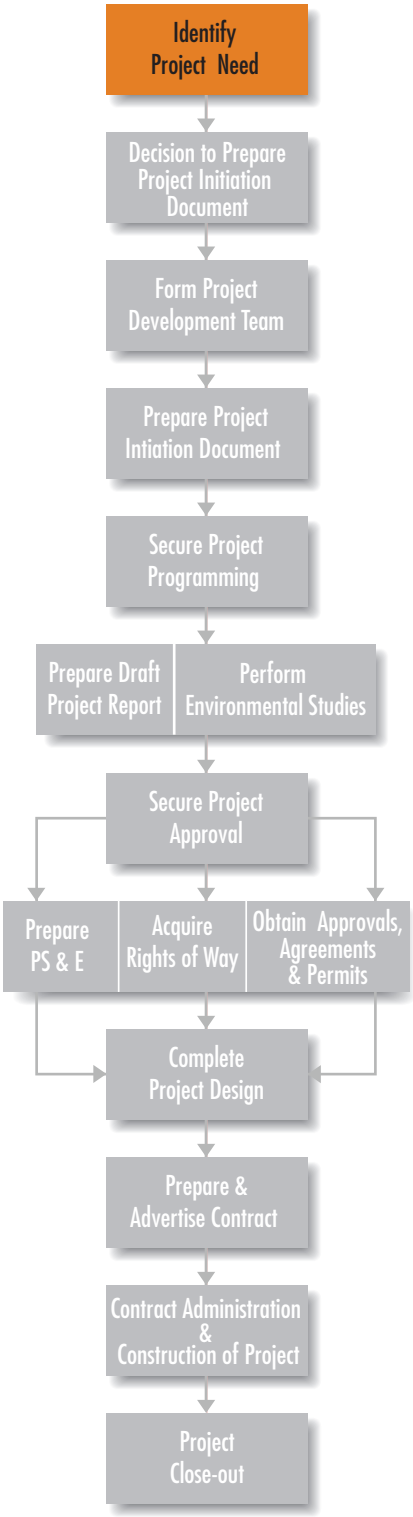
- The State Highway System (SHS) (includes the Interstate System)
- Mass Transit (bus and light rail)
- Aeronautics (airports)
- Rail (Amtrack and Caltrain)
- Local Roads (support for projects using state and federal funds)

CALTRANS ROLE IN DEVELOPING PROJECTS ON THE SHS

Caltrans, as owner-operator of the SHS, has the authority and obligation to ensure that all modifications or additions to the SHS, regardless of the project sponsor or funding source, are:

- Safe, operational, maintainable, compatible, and of good value
- Providing efficient multimodal movement of people and goods
- In the best interest of the general public
- Developed and constructed in compliance with laws and regulations that govern the use of state and federal transportation funds
- Developed and constructed in partnership with vested stakeholders

IDENTIFYING PROJECT NEED



HOW PROJECTS GET STARTED

Considerable planning is performed either by Caltrans, a local agency, or jointly before project development starts. A transportation need is identified, either as a structural or operating deficiency of the existing transportation system or as a response to planned land use changes such as a new subdivision, shopping center, or manufacturing center. Identification of such a need may result in a project as minor as a traffic signal or as major as a freeway or a multimodal connection (bus/rail/transit connection to the SHS).

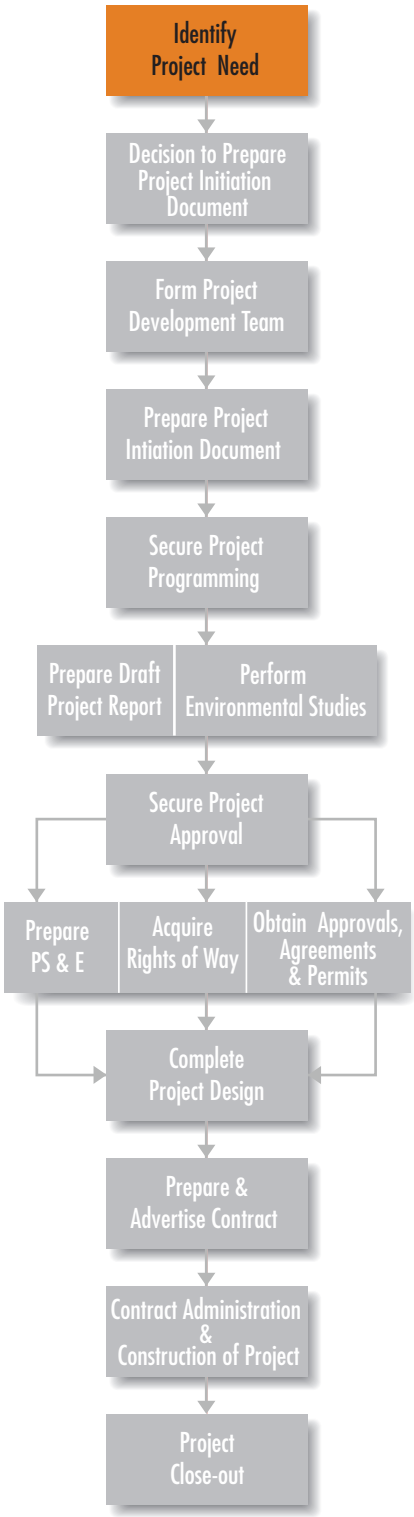
If a major project such as a freeway or transit system on the SHS is needed, Caltrans or a regional planning agency must perform studies to compare potential transportation investments before deciding what to build.

Project needs are identified through Caltrans management systems, master plans, system and regional plans and prioritizing processes. These focus on transportation problems and solutions by establishing objectives and preliminary scoping. A feasibility planning estimate may be prepared to validate the project's objectives. At this point, a project is little more than a planning concept with location and general deficiency identified.

SYSTEM AND REGIONAL TRANSPORTATION PLANNING

System and regional transportation planning, other processes mentioned above, and master plans identify the need for transportation projects.

Transportation planning is long-range (20+ years), area-wide, and developed with the involvement of federal, state, regional, and local agencies; public entities, private and community-based organizations; the general public and individuals working together to identify future transportation needs and to plan for how these needs can and will be met. The goal of transportation planning processes is to prepare and provide for mobility for all travelers in a fiscally and environmentally responsible manner consistent with environmental, social, economic, financial, political, land use, and equity information and addressing community goals. Transportation planning processes are based on federal transportation law: it is continuing, cooperative, and comprehensive. It is ongoing, not a single completed action. All modes of transportation are considered in the planning process, and all affected stakeholders are involved.



Some of the goals of the transportation planning process, under the overall mission to improve mobility across California are:

- SAFETY

  Provide the safest transportation system in the nation for users and workers.
- MOBILITY

  Maximize transportation system performance and accessibility.
- DELIVERY

  Efficiently deliver quality transportation projects and services.
- STEWARDSHIP

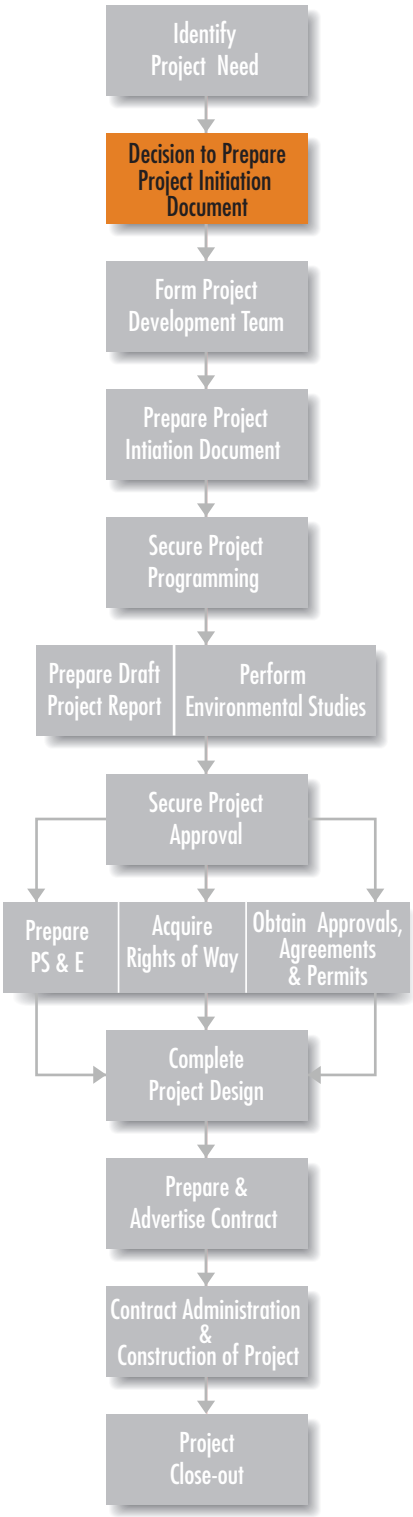
  Preserve and enhance California's resources and assets.

In 1997, Senate Bill 45 placed 75 percent of State Transportation Improvement Program (STIP) funds under the control of California's regional agencies through a program called the Regional Transportation Improvement Program (RTIP). In the regions, projects are nominated by cities, counties, Caltrans and others for inclusion in the RTIPs. Projects compete with one another through a process that is established by the region. Caltrans districts assist the regional agencies, where requested to do so, in developing regional plans. Caltrans is the steward for projects proposed on the State Highway System, and as such oversees the state and federal processes and approvals applicable for these projects, regardless of funding source or project sponsor.

WHY BUILD IT?

A project must satisfy a clearly defined purpose and need. Planning documents the regions' transportation deficiencies and describe the underlying transportation needs. In parallel, projects are proposed to meet that need or resolve the transportation problem identified along with addressing environmental, social, cultural, economic community, aesthetic, historic, and scenic goals. The specific objective of the project becomes the purpose. Planning documents are required to be fiscally constrained, comprised of projects that are realistically fundable.

DECISION TO PREPARE PROJECT INITIATION DOCUMENT



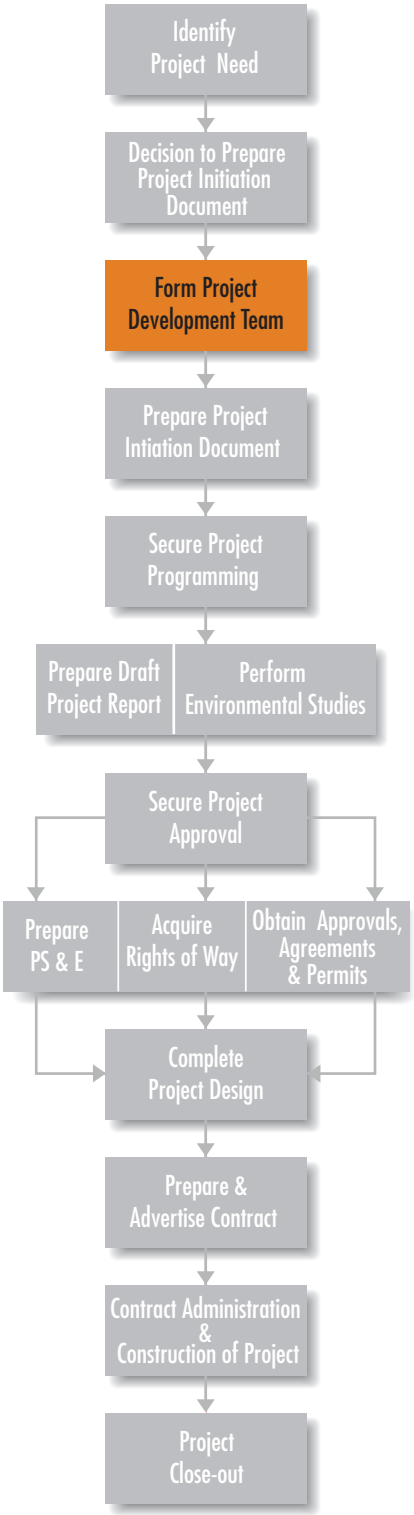
Projects from the planning documents are selected by each district or region for further study subject to various considerations, including regional agency priorities. The result of these studies is a Project Initiation Document (PID). Before committing resources to a PID, a short decision document discussing the feasibility of initiating the project is prepared. This document usually includes a strip map and feasibility planning estimates. All STIP (or RTIP) projects on the State Highway System require a PID in order to be programmed. Programming is the commitment to fund a project, usually with dollars from the State Highway Account (see the section on Secure Project Programming later in this booklet for more information on this subject and other funding sources).

PROJECT INITIATION

The PID is written to provide stakeholders, decision –makers, and "next-phase" PDT members with a broad understanding of the transportation deficiency and the proposed project's objective to resolve the deficiency. The PID informs the reader of the key issues and assumptions regarding the commitments on the scope, schedule and estimated cost of the project. The PID must provide a sound basis for commitment of future state funding.

The PID is an analysis of major issues such as constructability, traffic operations, multimodal mobility, finance, railroad and utility involvement, transportation management, environmental questions, community involvement, and identification of individuals and institutions that are likely to be affected by the project. The PID analysis of these issues is against a framework of multimodal alternatives designed to meet the project purpose and need.

PIDs vary in outline and extent based on the funding source and the complexity of the project. Generally, the origination of any new STIP (or RTIP) project on the State Highway System requires a PID document called a Project Study Report (PSR). For larger, complex projects that take many years to program, another PID document, the Project Study Report (Project Development Support) can be prepared. For most projects proposed to use State Highway Operational and Protection Program (SHOPP) funds, a Project Scope and Summary Report (PSSR) is the PID that is prepared. These reports are substantial engineering documents that contain a report of preliminary engineering, a detailed alternatives analysis, and cost, schedule, and scope information. The format for these reports is contained in the appendices of the Project Development Procedures Manual (PDPM) and is covered briefly in the section on Prepare Project Initiation Document.



PIDs are prepared by project teams under the leadership of a project manager. Formal project development starts when a Caltrans project manager is named and secures an expenditure authorization. A project work plan is developed by the project manager, which covers the effort needed to produce a PID. The work plan includes the resources and disciplines needed to develop the PID, the identification of the affected stakeholders and a communication plan.

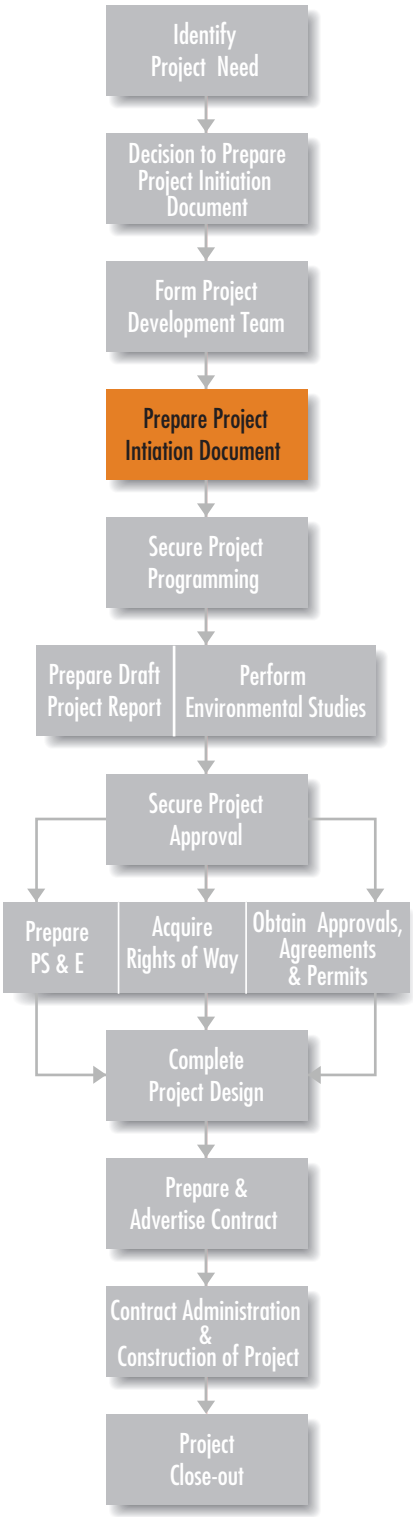
FORM PROJECT DEVELOPMENT TEAM

Project Development Teams (PDTs) are used throughout the project development process, from feasibility studies to the completion of the project. Essentially, the PDT is the steering committee for the project, with a larger project team performing the routine project development activities. In developing the PID, the PDT refines the project's purpose and need, employs different disciplines (such as value analysis) to develop and evaluate alternatives, helps project managers direct studies, make recommendations, and carry out the project work plan through subsidiary team members. Members of the PDT participate in major meetings such as public hearings and community involvement. They are responsible for the conduct of studies and accumulation of data. For larger, more complex projects, PDTs are extended and formalized (as required by law) to include a wide range of disciplines and individuals from outside agencies and may even include representatives from community groups.

PROJECT DEVELOPMENT TEAM FUNCTIONS

In the PID stage, the PDT has these primary functions:

- Determine logical project limits
- Determine the need for participation of local, regional, state, or federal agency members, or the need for advisory committees
- Recommend alternatives, timetables, type of environmental document supporting studies, and the feasibility of environmental mitigation measures
- Call upon various disciplines as needed to ensure thorough analysis of the social, economic, environmental, and engineering aspects of the project
- Initiate community involvement designed to obtain input on the project and help plan public meetings and hearings
- Ensure that state and federal requirements are met
- Establish a Quality Assurance procedure to assure that stakeholder needs or expectations are met or exceeded



Subsequent to the PID development, PDTs:

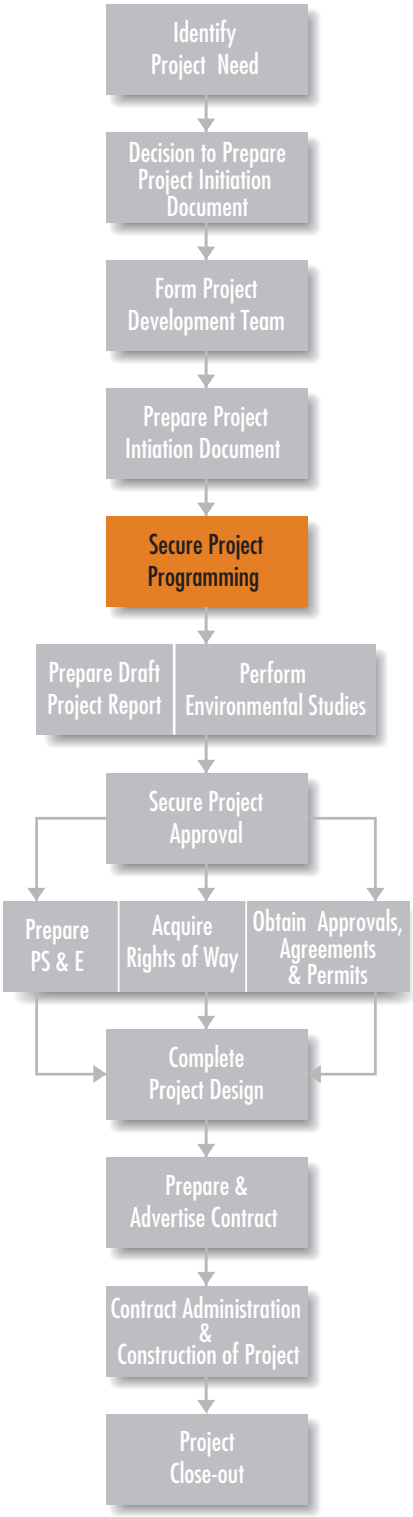
- Participate in a reevaluation of preliminary engineering data and systems planning recommendations to confirm that the study should continue
- Recommend a preferred alternative to district management
- Ensure design of a quality project that can be safely and efficiently constructed and maintained within scope and budget and on schedule
- Ensure that right-of-way is acquired and cleared on schedule
- Provide advice during construction
- Ensure that the project history is preserved

PREPARE PROJECT INITIATION DOCUMENT

The main purpose of a PID is to define the project's scope, cost and schedule and obtain conceptual approval within Caltrans, who is the owner/operator of the SHS. Secondarily, the PID is used to scope a project to be used as a candidate for programming.

Before a project team can perform its functions successfully, it is crucial to gain consensus on the project's purpose and need. The PDT must identify the transportation deficiencies and describe the underlying transportation need. The first step in this stage of project development is agreement on the primary objectives (the purpose of the project) that will be fulfilled by constructing the project. Once this is complete, decisions can be made as to the information necessary to develop alternatives that will address the project's purpose and need. The result of this process is the PID. The study of each alternative, whether detailed or cursory, includes:

- Design concepts
  - Multimodal options
  - Operational improvements
  - Associated costs
- Environmental considerations
  - Feasible avoidance alternatives
  - Associated costs
- Right-of-way (R/W) needs
  - Associated costs



From these, a practicable alternative is selected by the PDT, and upon approval be the District Director, the cost, design concept or scope, and schedule as presented in the PID may be programmed. The cost includes capital (cost to construct), R/W, and project development/support costs.

The basic requirements for project initiation documents are similar, their difference lying in the level of detail necessary to provide adequate assurance that the cost, scope and schedule are suitable for programming. Outlines for the four main types of PIDs noted below are contained in the PDPM:

- Project Study Report (PSR)
- Project Study Report (Project Development Study) (PSR-PDS)
- Project Scope and Summary Report (PSSR)
- Small Value Capital Projects - Project Initiation Document (SVCP-PID)

Note that there are many sub-categories of these reports for special projects (see the PDPM for outlines of these as well). The PSR-PDS is only used to program the cost of the next step in project development, the Project Approval and Environmental Document stage (PA&ED). It is used for projects too complex to complete in one funding cycle.

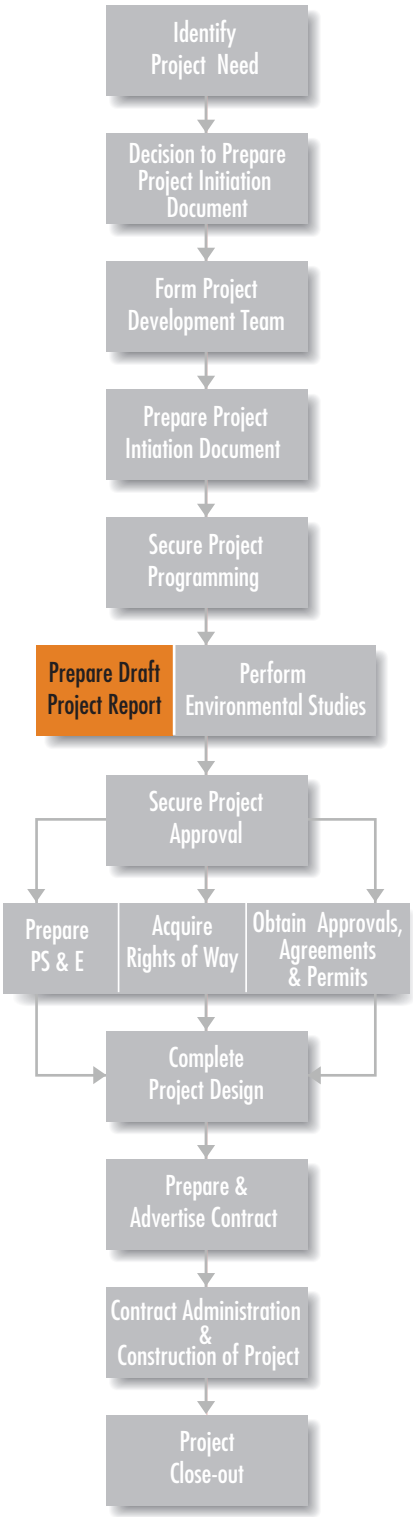
SECURE PROJECT PROGRAMMING

STATE-FUNDED PROJECTS

Before detailed project studies can commence for state-funded projects, the project must be programmed. Programming is the process by which specific funds for a project are identified. Programming capacity is based on a projection of revenues expected to be available at specific times in the future. Projects may be listed in the STIP or in the SHOPP, both of which are approved by the California Transportation Commission (CTC).

Regional Transportation Planning Agencies are responsible for decisions to program 75 percent of funds in the STIP. The remaining 25 percent are projects funded and nominated by Caltrans through the Interregional Transportation Improvement Program. From the project sponsors' perspective, a programmed project is a commitment to deliver a specific project to address a specific need on a specific date at a specific cost.

STIP projects concentrate on increasing capacity while SHOPP projects concentrate on improving or maintaining existing facilities. The State, by law, funds the SHOPP first; the remaining funds are available for the STIP.



PROJECTS FUNDED BY OTHERS

In this context, projects funded by others include locally funded, sales tax funded, or privately funded projects on the SHS. They can be projects ranging from new public road connections to freeways, signal modifications, or even a new freeway or expressway to be incorporated into the SHS. All projects involving the SHS are required to follow the project development process as established by Caltrans. However local agencies may prepare and submit to Caltrans a draft PID at their own expense. As owner-operator responsible for assessing the impact of improvements on the existing SHS, Caltrans is responsible for reviewing those PIDs at Caltrans expense.

The District Director approves these PIDS. For projects funded by others, an executable Cooperative Agreement or Highway Improvement Agreement covering the work to be done in each phase of the project is required with the PID to outline the responsibilities of each party. If the project uses any STIP funds, the project is programmed as noted above. Projects using only local funds are programmed using a process established by the local agency. Small projects funded by others can use the Permit Engineering Evaluation Report process to gain project approval.

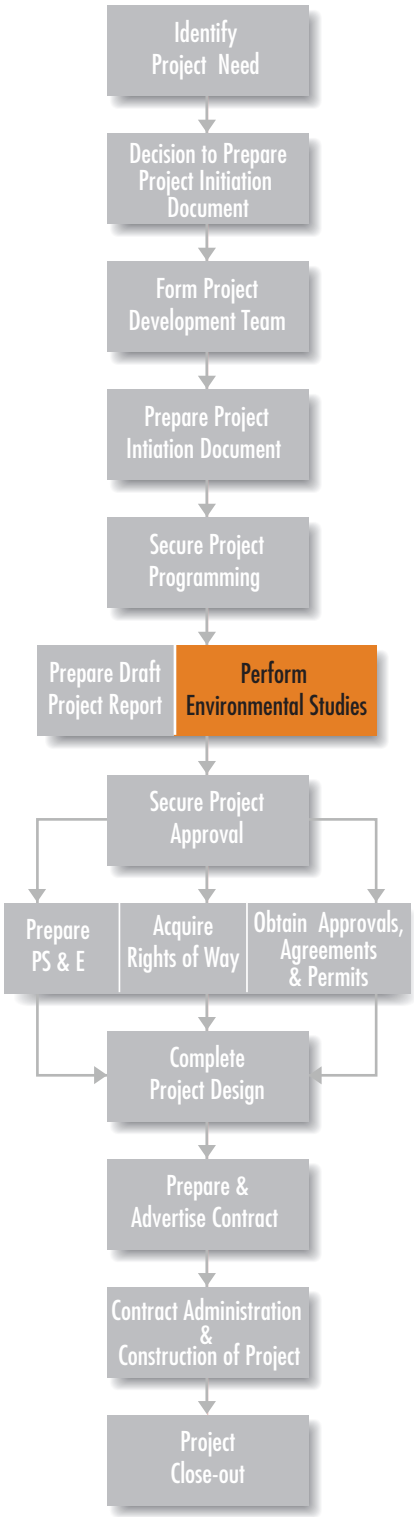
Projects off the SHS should use the Local Assistance Procedures Manual and supporting guidelines to learn more about local programs. Local assistance help is available in each Caltrans District Office as well as Headquarters in Sacramento.

PREPARE DRAFT PROJECT REPORT

Once a project is programmed, detailed project studies begin. Taking direction from the PDT, the project team refines the information in the PID. The result is a document that provides information for decisions regarding a project's ultimate scope, schedule, and cost. For projects requiring a formal consideration of alternatives, the document is termed a Draft Project Report (DPR). This report, based on preliminary engineering analysis, contains information about the project's background, purpose and need, alternatives investigated, and issues encountered in the engineering and environmental investigations. Issues encountered may be environmental issues such as air quality conformity, or issues regarding permits, right-of-way, traffic management, or various other engineering and/or funding issues.

The preliminary engineering activities in this phase include surveys and mapping, traffic forecasts and modeling, value analysis, hydraulic studies, right-of-way and utilities need/impact assessments, railroad issues, materials and geotechnical information studies, and multimodal alternatives.

Parallel to the development of the DPR or PR are environmental studies, which analyze in detail the impact of the alternatives.



ALTERNATIVE CONSIDERATION

Consideration of all reasonable and feasible alternatives that meet the purpose and need of the project is required to comply with federal and state law. Value analysis is the preferred method to identify the optimal fundable and stageable alternative that minimizes costs and adverse environmental impacts while maximizing public benefits. The concept and scope of alternatives can include location, geometric features, and mode or mix of modes (although mode or mix of modes should have been determined during system planning).

Alternatives studied in detail must comply with legal and administrative requirements, and be technically and economically feasible. The depth of the studies should be consistent with the project scale and its impacts. Studies should reflect the need for permits and consultation with other agencies and affected stakeholders.

Projects that do not have significant environmental impacts do not require public circulation of alternatives. See the next section about alternatives for more information about this topic. For projects without significant environmental impacts, alternatives are considered informally and the DPR is bypassed directly to a Project Report (PR).

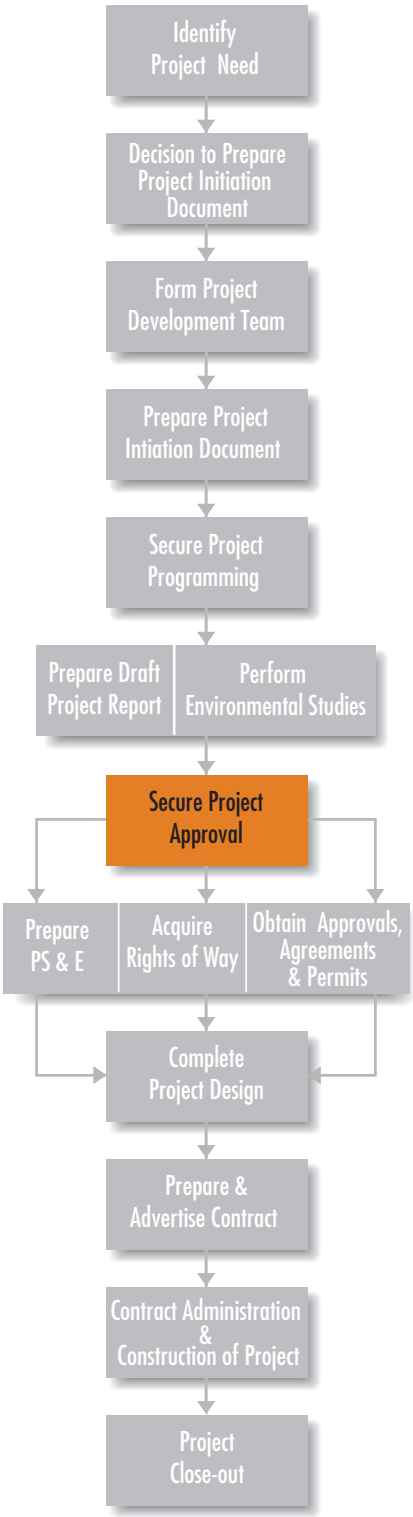
PERFORM ENVIRONMENTAL STUDIES

Environmental studies are conducted by the project team to analyze the effect and impact of the various project alternatives. They are required by state and federal laws under the general heading of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). All projects must comply with CEQA and all projects using federal funds or requiring a federal action (such as a potential impact to a federal listed endangered species) must comply with NEPA.

The result of the studies is an Environmental Document (ED). The type of ED depends on the significance of the impacts. Simple projects with few or no environmental impacts can have a one-page ED, while larger, more complex projects with significant impacts will likely require a lengthy Environmental Impact Statement (EIS) or Environmental Impact Report (EIR). These projects will also likely require a DPR, and for these projects the EIR will be preceded by a Draft ED. Like the DPR, the Draft ED is a formal document. Both are prepared in parallel and form the basis for selecting the preferred alternative.

ALTERNATIVES MUST BE FORMALLY CONSIDERED:

When environmental laws require formal consideration of alternatives, the full range of options must be addressed. Formal consideration also means the DPR and the Draft ED are circulated for public comment via a formal process such as



a public meeting. The environmental document must outline the need and purpose and the reasons why certain alternatives were set aside. All significant adverse effects of each reasonable alternative must be identified along with mitigation measures for each effect. The environmental document provides a record of the decision-making process in selecting the preferred alternative. Alternatives must be formally considered when an EIS or EIR is prepared or an adverse impact is expected on:

- Endangered species
- Public parks, recreation areas, Historic sites, or wildlife and waterfowl refuges
- Aquatic ecosystems, including wetlands and Floodplains
- Farmlands or agricultural preserves
- A hazardous waste site

Before starting the DPR and Draft ED, the project team reviews the project alternatives and considers the need for environmental mitigation. Excessive mitigation costs or long-term mitigation maintenance may be a factor in discarding alternatives. Effects that must be considered include those on the natural environment, architectural and cultural issues, social issues, and hazardous materials, involving as many as a dozen separate studies. Projects must comply with an extensive list of applicable environmental laws. Compliance is usually established in the ED after review by applicable agencies.

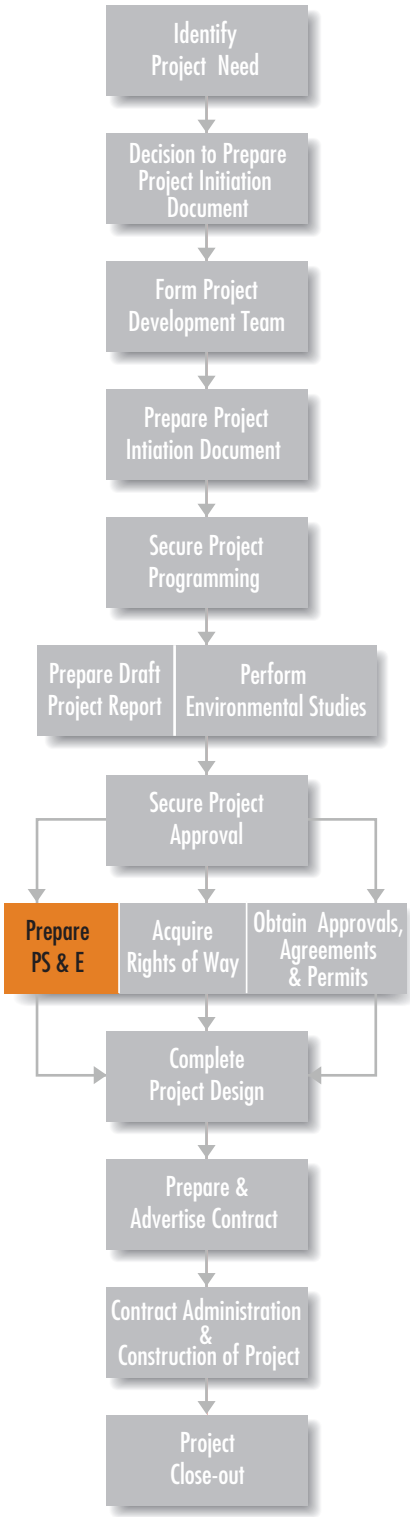
SECURE PROJECT APPROVAL

PROJECT APPROVAL/ENVIRONMENTAL APPROVAL

Once the environmental studies for the practicable alternatives are complete, the Draft ED is approved, and together with an approved DPR, the project is circulated for public comment. A preferred alternative is not usually recommended at this stage; however, if one is presented, a discussion of the preferred alternative should document factors considered in its selection.

The least environmentally damaging practicable alternative that satisfies the project's purpose and need must be identified when a Draft ED is prepared. The impact of a 'no-build' project is included in the Draft ED and may be chosen as the preferred alternative if supported by engineering and environmental studies.

Projects that are determined to not have significant environmental impacts are not normally circulated for public comment. As noted before, these projects are not required to have a formal consideration of alternatives and as such, proceed directly to the PR and ED stage without going through the formal Draft stage.



FINAL PROJECT APPROVAL

For projects that undergo a public comment period, the PDT selects the preferred alternative after it has analyzed and responded appropriately to the public comments. Then the final ED is completed and attached to the final PR, which should also document the selection of the preferred alternative and discuss changes in the project as a result of public comment.

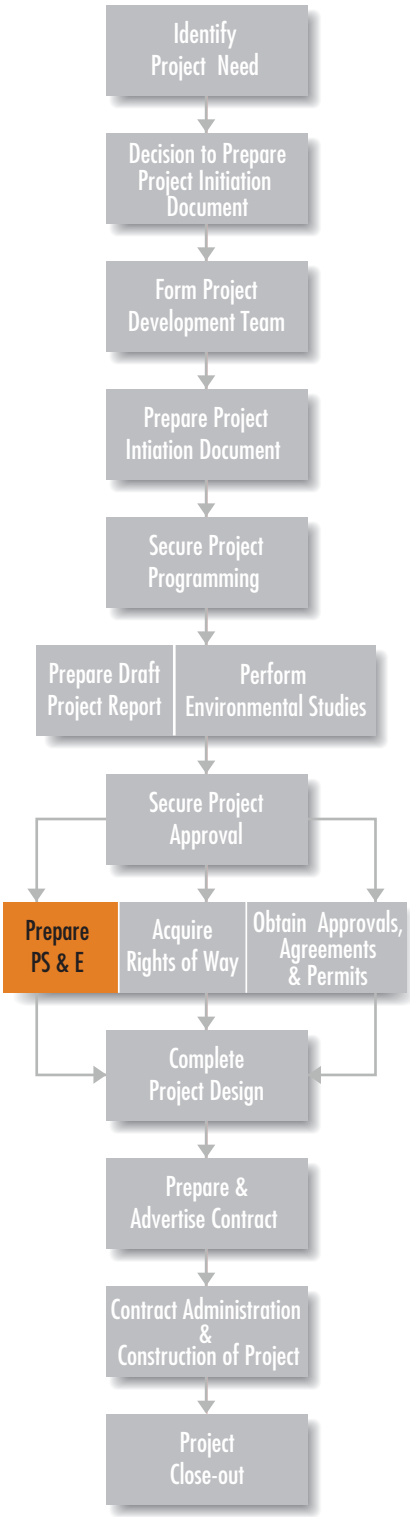
Approval of the PR by the District Director with an attached approved ED project must also be approved by the Federal Highway Administration (FHWA) unless this approval has been delegated to Caltrans pursuant to the Stewardship Agreement and/or the NEPA Delegation Program with FHWA. A one-month waiting period is allowed after final project approval of the document to provide an opportunity for objections by other federal agencies or legal action by project opponents. If the project contains no federal funds or federal action, final approval of the project is by Caltrans. For projects involving a new public road connection to a freeway or controlled access highway, the California Transportation Commission (CTC) has the final approving authority. The CTC is also the approving authority for new Route Adoptions, Relinquishments, and related route matters.

At this point, the project scope is established in enough detail to identify all affects and impacts, including right-of-way needs. The project has been approved to proceed to the next step where detailed design takes place and right-of-way is purchased. In essence, the PR and ED state what is to be built, when it will be built, why it is to be built, what it will cost to build, and what are the environmental impacts of building it. Completing the next milestone, detailed design, is called Plans, Specifications, and Estimate (PS&E).

PREPARE PS&E

Preparation of PS&E cannot begin until the PR and ED are approved. In this stage, project information is reviewed and updated; the scope of the selected alternative refined; design surveys and photogrammetric mapping obtained; and reports including traffic data, hydrology and hydraulic, geotechnical design, pavement design, and materials and soundwall design reports are completed. Final right-of-way requirements are determined and procurement is initiated. Any necessary pumping plant, special design culvert and bridge and structure site plans are also prepared.

If the detailed design uncovers issues that were not properly addressed during the PR and ED stage, both these documents may need revisions.



ISSUES TO BE CONSIDERED

Among the issues to be revisited and resolved during the detailed design phase are the following:

RAILROADS AND UTILITIES

Railroads and utilities present significant design issues that need to be resolved. For projects designed by Caltrans, the design unit provides the right of way unit with maps, profiles, and cross sections to determine railroad and utility involvement. The right of way unit uses this information in part for subsequent negotiations with the affected owner. The resolution of these issues can result in utility relocations, project re-design, or both. Exceptions to the Caltrans encroachment policy for utilities must be submitted to Headquarters Division of Design. If the project limits contain or are immediately adjacent to an existing railroad, the project manager should contact HQ Right of Way, Office of Railroads, early in the design phase as these negotiations typically require a long timeline.

TRAFFIC OPERATIONS

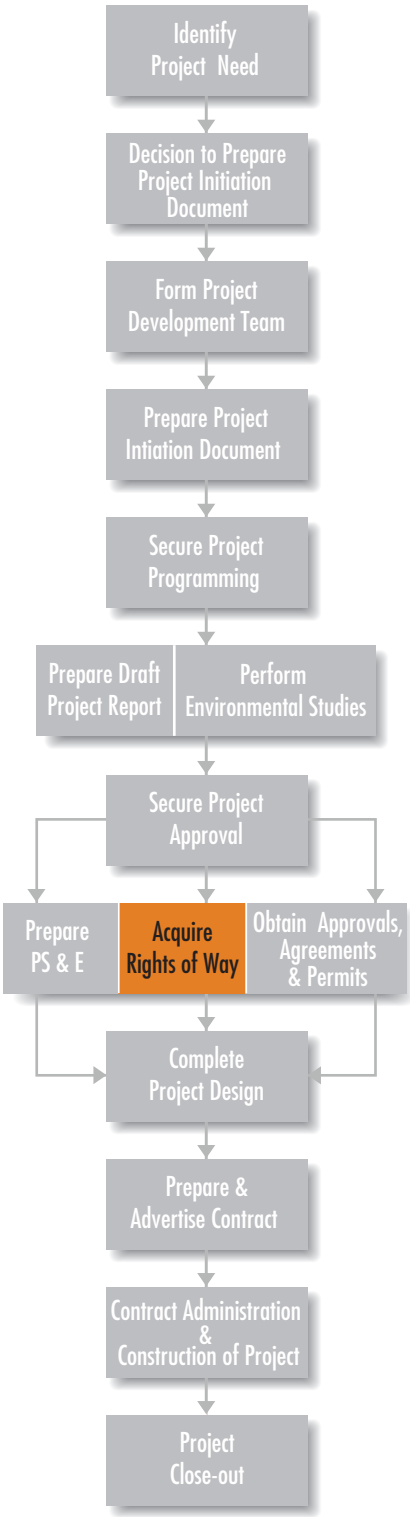
Caltrans policy requires consideration of high-occupancy vehicle lanes for all capacity additions to metropolitan freeways or new metropolitan freeways and at ramp meters where appropriate. Park and ride facilities must be considered for all new freeways, interchange modifications, lane additions, transit facilities, and high-occupancy vehicle lanes. Transit facilities including bus turnouts, passenger loading areas, benches and shelters, and traffic control devices should be considered where appropriate. All these considerations should take place in the prior Project Approval Stage. At the PS&E stage, the detailed design of these features will be required.

TRANSPORTATION MANAGEMENT PLANS

In general, a transportation management plan to minimize construction-related congestion is required for all projects, including projects on the SHS not funded by the State. These plans outline in detail when and how much of a facility can be closed for construction, and what measures must be placed in order to allow traffic to arrive at their intended destination without undue delay. Traffic Management Plans optimize traffic impacts, contractor efficiencies, and worker and traveler safety.

ACCESS TO NAVIGABLE WATERWAYS

Public access to any navigable river or waterway must be maintained. Section 84.5 of the *Streets and Highways Code* requires consideration of the feasibility of providing a means of public access to any navigable river over which a new bridge is being constructed.



FLOODPLAINS

The identification and discussion of any impacts or encroachments on base (100-year) floodplains is to be considered in the ED. The project engineer is responsible for initiating the floodplain evaluation process along with many other issues requiring cross-functional discussions. During this stage, the drainage system is designed in detail to minimize any impacts to the floodplain as outlined in the ED.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

All projects are required to implement, to the maximum extent practical, best management practices to prevent pollution from storm water runoff. The preferred method is to design the project to prevent erosion, and secondly, to prevent any pollution from reaching surface water. These requirements stem from a permit issued by the California Water Quality Control Board and apply to both construction and post-construction activities.

FINAL PS&E

At the completion of the PS&E stage, a complete set of project plans have been developed that allow a competent contractor to bid and build the project. These plans include a refined estimate of the construction costs and any required specifications on how the work is to proceed.

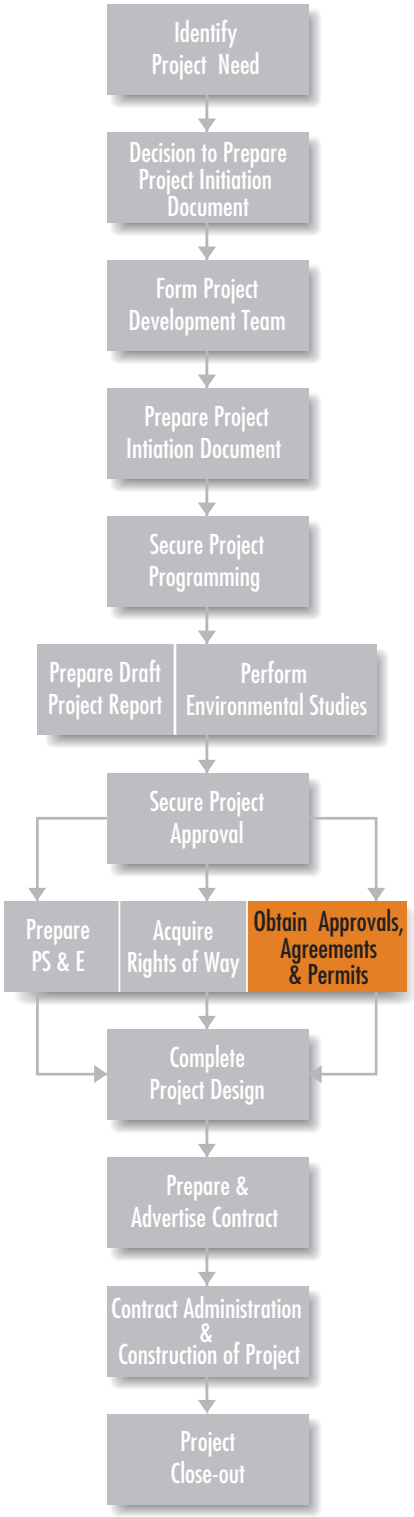
ACQUIRE RIGHTS OF WAY

ACQUISITION

Normally, acquisition of right-of-way can begin only after completion of the ED, although some preliminary work, such as appraisals, can be started beforehand. The State is required to purchase properties at fair market value. Where the State cannot reach an agreement to purchase a needed property, Caltrans is allowed to request a condemnation action from the CTC. An ordinary uncontested acquisition of a residential property, for example, is likely to take about eight months between appraisal and close of escrow. If an owner chooses to exhaust the condemnation process all the way to a court trial, such an acquisition can consume as much as two years or more. Other right-of-way considerations include the following:

RELOCATION IMPACT STUDIES

Relocation Impact Studies are required on all projects that displace any person or business. A final relocation impact study will have been completed for the preferred alternative and included in the Final ED.



AIRSPACE LEASE AREAS

The project development team determines whether the proposed project has potential for future airspace leases. If so, and if the geometric plans can accommodate airspace leases, the district airspace committee reviews the appropriateness of incorporating such provisions into the project.

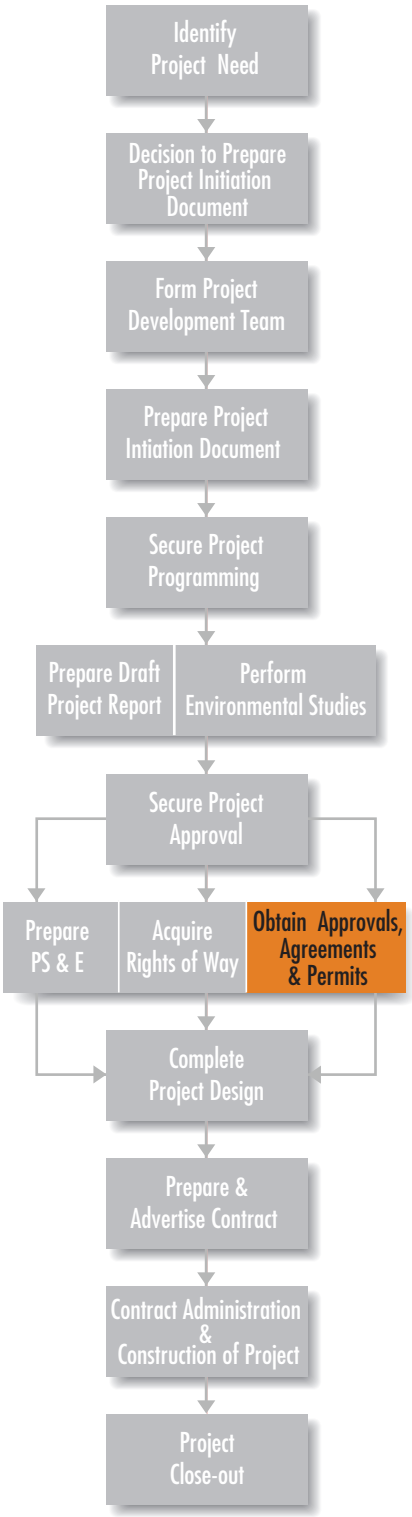
RIGHT-OF-WAY COST DATA

Right-of-way cost estimates are subject to market variations and must be updated yearly to reflect changing market conditions. Good mapping and base data that is consistent as the project is developed is important as this directly impacts the quality and validity of the right-of-way cost estimates. Any changes in the design that require unplanned right-of-way acquisitions can lead to the need to revise both the PR and the ED.

OBTAIN APPROVALS, AGREEMENTS & PERMITS

APPROVALS AND PERMITS

Other agencies protect resources under their jurisdictions by requiring mitigation of project effects or through approvals and permits. Negotiations with other agencies occur throughout the engineering and environmental studies, project approval, and design stages. Some of these agreements are required when the ED is approved, while others are required when detailed design is complete. Again, a failure to properly anticipate necessary agreements may lead to a re-design of the project, which may affect both the project approval and the ED. Among the necessary permits and approvals, depending on the resources affected by the project, are:



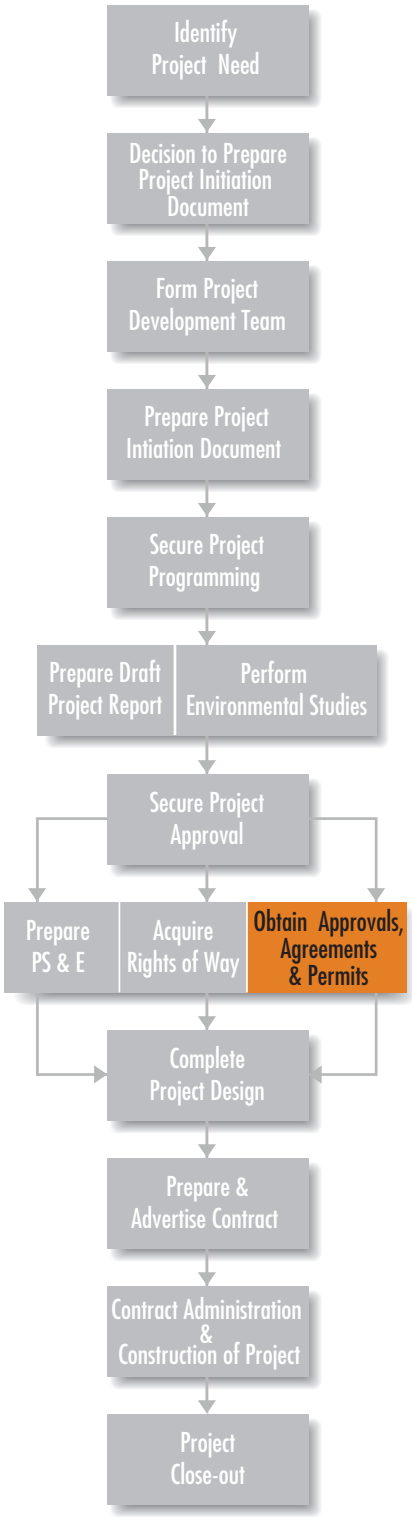
Resource	Agency	Permit
Coastal Shoreline	Coastal Commission or City/County if authorized	Coastal Development Permit
San Francisco, San Pablo and Suisin Bays	San Francisco Bay Conservation and Development Commission	Development Permit
Lake Tahoe Watershed	Tahoe Regional Planning Agency	Project Permit
Floodways in the Central Valley	Reclamation Board	Encroachment Permit
Air	Air Pollution Control/Air Quality Management District	Authority to Construct and Permit to Operate Agreement on EIS
Fish and Wildlife Habitat	Department of Fish and Game U. S. Fish and Wildlife Agency National Marine Fisheries Agency	Stream and Lake Alteration Agreement Biological Opinion Biological Opinion
	Stream and Lake Alteration Agreement	
Water	Lands Commission U. S. Army Corps of Engineers State Water Resources Control Board and Regional Water Quality Control Board Department of Health Services	Land Use Lease Section 404 Permit National Pollutant Discharge Elimination system Permit Waste Discharge Requirements for non-storm discharges Permit to Operate a Public Water system
Cultural Issues	State Historic Preservation Office	Concurrence with National Historic Preservation Act

See the next section for information on other project agreements which could be required as part of the project development process.

AGREEMENTS

Agreements required for projects can include Freeway Agreements, Relinquishment Agreements, Cooperative Agreements, and Maintenance Agreements. These agreements are usually required by law to document the exchange of resources between agencies, the responsibilities of each agency, and the effects a project may have on a community.

These types of agreements are usually required to be in place shortly after the project is approved, and necessary before the project design is complete.



COOPERATIVE AGREEMENTS

A Cooperative Agreement is an agreement between Caltrans and a city, county, or other non-state agency to cooperate in a project or share its costs. It outlines responsibilities and obligations such as liability, ownership, right-of-way, utilities, maintenance, etc. A project may require more than one agreement to cover any combination of planning, design, right-of-way, or construction.

FREEWAY AND CONTROLLED ACCESS HIGHWAY AGREEMENTS

Local agencies must agree, in a Freeway Agreement or for expressways, a Controlled Access Highway Agreement, before Caltrans is allowed to close a city street or county road as a result of construction. These agreements may cover the entire facility or any part of it that lies within the local jurisdiction.

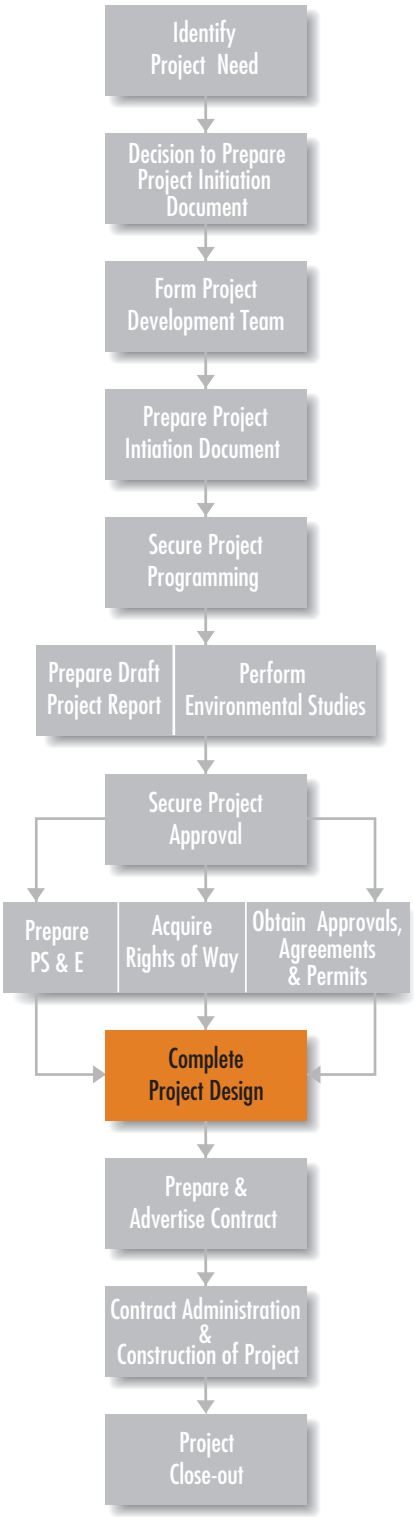
RELINQUISHMENT AGREEMENTS

When a project results in Caltrans' transferring a portion of a state highway to a local agency, state laws requires the parties enter into a Relinquishment Agreement. A Relinquishment Agreement states the extent of rehabilitation of the road, miscellaneous alterations and corrections, installation of traffic signs, signals, and delineation necessary before the road can be transferred. The actual format of a Relinquishment Agreement is a Cooperative Agreement, supported by environmental reports and engineering studies that cover the details of a proposed relinquishment or a transfer of highway location.

MAINTENANCE AGREEMENTS

Maintenance Agreements are required when local forces maintain Caltrans facilities or visa versa. Maintenance agreements describe the work activities and cover liability issues and financial arrangements. They can cover, for example, who maintains and pays for electrical charges for a signal at the intersection of a local road and the SHS.

COMPLETE PROJECT DESIGN



Projects for construction on the SHS are required to be awarded to the lowest responsible bidder, unless emergency conditions require suspending this requirement. In order to bid on a project, a detailed set of plans (see section on Prepare PS&E) needs to be developed that tell a prospective contractor what is to be built, where it is to be built, and, if relevant, how to build it.

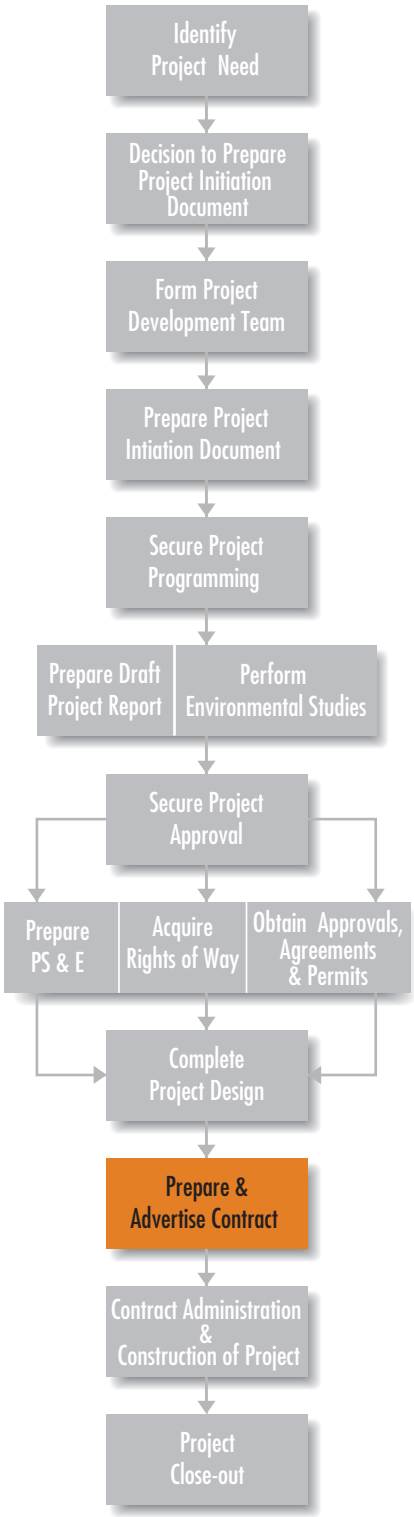
These components comprise the plans and specifications. The third component, the estimate, is made up of an itemized listing or summary of what is to be built. When the project engineer attaches a price to these items, this becomes an estimate of the cost to build the project.

The plans consist of layouts, cross sections, elevations, and enough details to bid on and control the work to be performed. It is analogous to a set of house plans where every detail, down to where the traffic stripes need to go, how wide the stripe is, what color, etc., is shown. The project plans for a mile of new freeway can exceed 100 sheets, the specifications several inches thick, and the number of items well over 500.

Project plans for buildings and bridges are developed by special units called Structures Design, most of which are located in the Sacramento area. Plans for other specialties such as electrical, landscape, hydraulics, and stormwater can also be prepared outside of the normal design unit. Regardless, all these plan sheets make up a final plan set, the content of which is the responsibility of the project engineer.

The final design incorporates comments from a District-wide review. In addition, a safety review and a constructability review, when applicable, are conducted, and plans, specifications, and estimates are finalized. An environmental reevaluation is conducted to confirm that the design conforms to the ED. The plans, specifications, and estimates are then submitted to the HQ Office Engineer in the Division of Engineering Services to be combined, if necessary, with the Structures PS&E. At this time, the project is almost ready for advertisement, which is covered in the next section.

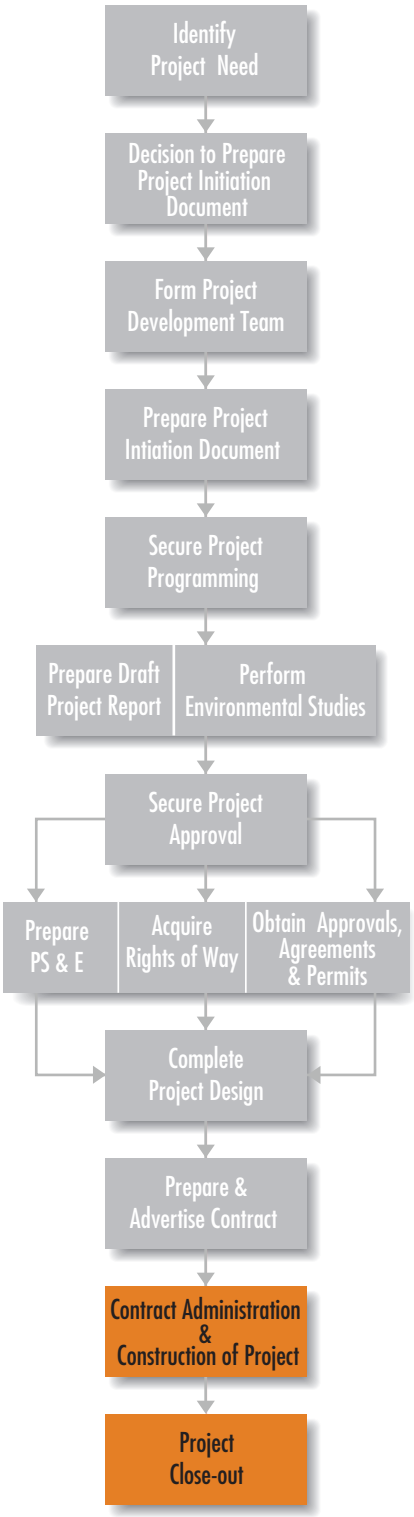
PREPARE AND ADVERTISE CONTRACT



At this stage, design is complete. The complete plans and specifications are once more reviewed to verify that the package contains full, complete, and accurate plans, specifications and estimates of cost, to enable any competent contractor or other builder to carry them out. Division of Engineering Services, Office of Office Engineers then assembles the PS&E into a bid package by adding boilerplate specifications and bidding instructions and this package is advertised to potential contractors. However, three more major items need to be complete before a project can be advertised:

1. The District Right of Way Office must certify that all needed properties have been obtained either by easement or acquisition, and all utility issues have been resolved. A right-of-way certification outlines this information and these come in a variety of types depending on the project. For complex projects involving utilities, this may entail utility relocations being performed during construction.
2. All permits must be acquired and any restrictions with regard to the construction of the project must be shown in the plans or specifications. Examples of these restrictions are work windows, where construction at certain locations are limited to specific time periods, or requirements to place specific erosion control measures at locations specified on the contract plans.
3. Funding for the construction phase, which includes funding the resources necessary to oversee the construction, needs to be in place. Depending on the funding source, this can be very straightforward where, for example, the CTC approves a fund request for a state-funded project only. Alternatively, it could be very complex if funding is coming from several sources, such as state, federal, and local, and each of these sources has within it different funding source such as STIP and SHOPP. A funding package combines all this information and is prepared by the project manager before a project can be advertised.

The PS&E project documents and bid package, consisting of boiler plate specifications, bid requirements and contractor responsibilities are then assembled for advertising. The Division of Engineering Services, Office of Office Engineers (DES-OE) prepares and advertises projects on the SHS unless an agreement to advertise, award, and administer the project by a local agency is in place. Projects are advertised and the bid packages made available to prospective bidders for a length of time commensurate with the complexity of the work, typically three to six weeks. Contractors assemble their bid package, which include prices, subcontractors, bonds, and possibly time frame (if required) and submits sealed packages to the ESC-OE. All the bids are opened publicly at predetermined times. After bids have been opened, the project manager reviews the bidding process and recommends approval and award to the lowest responsive bidder.



CONTRACT ADMINISTRATION & CONSTRUCTION OF PROJECT

When the bids are opened, the packages are examined to be sure the bid proposal meets the requirements of the project, which includes any subcontracting requirements, and is a balanced proposal that is in the best interest of the State. Contract award and approval authorizes construction of a project.

The construction phase of the project entails building the improvements as shown on the plans. The contractor's work is overseen by construction inspectors under the auspices of the resident engineer. Care is taken to protect in-place resources and to construct a project that has the least impact. If changes are required during construction, the project engineer will be asked to prepare engineering details and calculations as required.

The resident engineer authorizes payments to the contractor based on successfully completing specific items of work or making significant progress on completing them. The contractor is responsible for employing their own resources or those of any approved subcontractors in order to complete the project. For most projects, it is advantageous to create a partnership arrangement whereby a win-win solution is aspired to when problems arise. The goal of the construction phase is to build the transportation improvement as efficiently as possible while still allowing the contractor to make a fair and reasonable profit.

PROJECT CLOSE-OUT

The resident engineer prepares the final construction project records when the project construction phase is complete. The project is not complete until the final contract estimate, project history file and as-built plans are completed, final right-of-way activities completed, claims are resolved and mitigation is completed. These items may take months or years following the actual construction of the project, but constitute a critical element of the project development process nonetheless.

CONCLUSION

A completed project may take many years to plan, design, and construct. All projects, even those that need only a short time from inception to completion, take many people and teams to complete. If the project development process seems complex, it is, and it is this way so that projects are developed and constructed to be in the best interest of the State, while efficiently utilizing finite resources. If you would like to know more about the project development process, a short on-line tutorial is available at www.dot.ca.gov/hq/oppd/pdp/index.htm.

RESOURCES

TITLE	INTERNET WEBSITE
Project Development Procedures Manual	www.dot.ca.gov/hq/oppd/pdpm/pdpmn.htm
Transportation Funding in California	www.dot.ca.gov/hq/tpp/offices/ote/fundchrt_files/Funding_Charts.pdf
Project Management Handbook	www.dot.ca.gov/hq/projmgmt/documents/pmhb_5thed.pdf
Regional Transportation Planning Handbook	www.dot.ca.gov/hq/tpp/offices/orip/index_files/RPH.pdf
Highway Capacity Manual	books.trbbookstore.org/hcm2ke.aspx
Standard Environmental Reference	www.dot.ca.gov/ser/
Federal Highway Administration (FHWA)	www.fhwa.dot.gov/cadiv/
Guide to Project Delivery Workplan Standards	www.dot.ca.gov/hq/projmgmt/documents/wsg/wsg_v10_2008-07-31.pdf
Cooperative Agreements	www.dot.ca.gov/hq/oppd/ca/
Office of Special Funded Projects Information and Procedures Guide	www.dot.ca.gov/hq/esc/osfp/project-development/information-and-procedures-guide/guide.htm
Encroachments Permit Manual	www.dot.ca.gov/hq/traffops/developserv/permits/encroachment_permits_manual/index.html
Highway Design Manual	www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm
Transportation Management Plan Guidelines	Contact the Caltrans Office of System Management Operations www.dot.ca.gov/hq/traffops/systemops/
Major Damage Restoration Program	Contact the Division of Maintenance, Office of Roadway Rehabilitation www.dot.ca.gov/hq/maint/
User's Guide to Photogrammetric Products and Services	www.dot.ca.gov/hq/esc/photogrammetry/resources/UsersGuide1996.pdf
Project Development Workflow Tasks Manual	www.dot.ca.gov/hq/oppd/pdwt/revised/pdwt.htm
Local Assistance Program Guidelines	www.dot.ca.gov/hq/LocalPrograms/lam/lapg.htm
PIO Toolbox	Contact the Caltrans Division of Public Affairs
http://www.dot.ca.gov/hq/paffairs/news/	
CADD Users Manual	www.dot.ca.gov/hq/oppd/cadd/usta/caddman/default.htm
Plans Preparation Manual	www.dot.ca.gov/hq/oppd/cadd/usta/ppman/default.htm
California MUTCD	www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/index.htm
HOV Guidelines	www.dot.ca.gov/hq/traffops/systemops/hov/hov_sys/guidelines/index.html
Ramp Meter Design Manual	www.dot.ca.gov/hq/traffops/systemops/ramp_meter/
Standard Plans	www.dot.ca.gov/hq/esc/oe/project_plans/HTM/06_plans_disclaim_US.htm
Standard Specifications	www.dot.ca.gov/hq/esc/oe/specifications/std_specs/2006_StdSpecs/2006_StdSpecs.pdf
Ready to List and Construction Contract Award Guide	www.dot.ca.gov/hq/esc/oe/specifications/rtl_guide/
Right of Way Manual	www.dot.ca.gov/hq/row/rowman/manual/index.htm
Construction Manual	www.dot.ca.gov/hq/construc/manual2001/

Acronyms

CEQA	California Environmental Quality Act
CTC	California Transportation Commission
DES-OE	Division of Engineering Services, Office of Office Engineers
DPR	Draft Project Report
ED	Environmental Document
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
HQ	Headquarters
NEPA	National Environmental Policy Act
PA&ED	Project Approval and Environmental Document
PDPM	Project Development Procedures Manual
PDT	Project Development Team
PID	Project Initiation Document
PR	Project Report
PS&E	Plans, Specifications and Estimates
PSR	Project Study Report
PSR-PDS	Project Study Report (Project Development Study)
PSSR	Project Scope and Summary Report
RTIP	Regional Transportation Improvement Program
SHOPP	State Highway Operational and Protection Program
SHS	State Highway System
STIP	State Transportation Improvement Program
SVCP-PID	Small Value Capital Projects Project Initiation Document

Caltrans

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