QUALITY ASSURANCE PROGRAM

Contra Costa Transportation Authority

May 2021

TABLE OF CONTENTS

REVISION HISTORY

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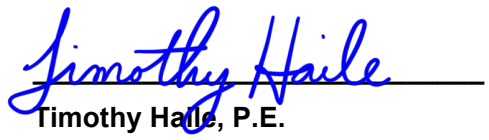

May 14, 2021

Timothy Haile, P.E. **Date**

Executive Director

SECTION 1 – INTRODUCTION AND BACKGROUND

Contra Costa Transportation Authority (CCTA) is a public agency formed by Contra Costa voters in 1988 to manage the County's transportation sales tax programs and is the County's designated Congestion Management Agency (CMA). CCTA is responsible for planning, funding, and delivering transportation infrastructure projects and programs that connect its communities, foster a strong economy, increase sustainability, and safely and efficiently get people where they need to go. CCTA strives to ensure that all programs and projects are managed and administered with the highest regard for quality, in an effort to maximize the cost effectiveness of the transportation dollars and resources being invested and implement safe and reliable transportation improvements in Contra Costa County.

CCTA's Quality Assurance Program (QAP) will ensure an expected and acceptable level of quality is achieved on the transportation projects and programs funded and administered by the Authority. The QAP encompasses program and project level Quality Assurance (QA) and Quality Control (QC) and is based on the principle that each member of the project and/or program delivery team has a responsibility to the overall quality of the work product and should be accountable in the scope of work and contract commitments. The QAP covers the Authority's Program and Capital Improvement Projects, including innovative transportation systems.

The QAP will define objectives, roles, and responsibilities, coordinate with other plans, and define the purpose and elements of the Project Level Quality Management Plans (QMPs). The procedures included in the QMPs will ensure that contracts and services are produced and delivered in a timely, cost effective, and quality manner. It defines the person responsible for project quality activities, the procedures used, the planned quality activities, and resources required to conduct related activities.

The goal of the QMP is to prevent deficiencies and non-conforming work through control of activities affecting the quality of the work product. The QMP provides a methodical approach to activities affecting quality at each phase, including verification that each activity has been satisfactorily performed and the supporting documentation is developed to demonstrate that the required quality has been achieved.

CCTA recognizes that the ultimate quality of a work product is a joint effort of the entire project development team (study, design, etc.), however the **QMP emphasizes that the primary responsibility rests with the entity contracted to perform the work**. The QA Manager from CCTA's Consultant Program Management team is responsible for leading and coordinating activities related to the team's QMP. This includes reviewing a Consultant's submittal(s) and performing audit(s) as required, to ensure the quality of the product and document that the work and associated deliverables meet or exceed the contract requirements, the QMP and the QAP.

1.1 DEFINITIONS

1.1.1 Quality Assurance (QA)

QA is the planned and systematic processes and actions necessary to provide sufficient confidence (by independent verification) to management, and ultimately, the owner, that a

product or service will satisfy the given requirements. QA includes verifying that program and/or project requirements are developed to meet the needs of all relevant internal and external sponsor agencies and stakeholders and includes planning the processes needed to verify requirements are being met. QA verifies that Consultants/Contractors are capable of, and are, meeting the quality requirements and sufficiently documenting all quality efforts. These processes are included in the QAP and QMPs to provide the overall direction for implementing effective QA through documented plans and procedures.

QA emphasizes upstream actions that directly guide and monitor QC actions to ensure that a product or service meets requirements. QA includes ensuring that the project requirements are developed to meet the needs of all relevant internal and external agencies, planning the processes needed to ensure quality of the project, ensuring that equipment and staff can perform tasks related to project quality, ensuring that contractors are capable of meeting quality requirements and that they follow their CCTA-approved Quality Management Plans and are properly documenting their quality efforts.

1.1.2 Quality Control (QC)

QC is the application of operational techniques, activities, inspections, tests, or other actions to sustain the quality of a product; and control and measure the performance characteristic material, component, system, process, or facility against specific criteria. Such techniques will be ongoing during all elements of contracted services including studies, design, and construction phases of the project. The purpose of the QC activities is to control the quality of the work and verify it meets the performance criteria specified in accordance with identified standards and requirements. Additionally, it includes the process of documenting such actions.

Whereas QA provides for a Quality Management Plan and its oversight and is the responsibility of the QA Compliance Manager; QC is the responsibility of the CCTA Project Managers, their project staff including Consultants and Contractors.

1.1.3 Quality Management Plan (QMP)

The QMP is a systematic approach to ensure and verify that a desired project, including products and services, is delivered as required in a timely and cost-effective manner. The QMP includes the description of project and project objectives, identification of risk elements, a definition of how the various work elements will be accomplished (and by whom) through the assignment of task activities and associated schedule, and a strategy as to where to assign QA/QC responsibilities (CCTA, Consultants, and Contractors).

The QMP documents the preventative measures and verification activities that will be conducted through the various/applicable phases of development including, adequate and thorough design review; verification of design definition; systems design verification, integration, and testing; control of procured items; and effective and adequate training of personnel. Additionally, the QMP includes documentation the final product has been validated and is consistent with the scope of work and all contract commitments.

1.1.4 Project Audit Plan

An important subsection of the QMP, the Project Audit Plan, describes the review, audit frequencies, and responsibilities of CCTA and Consultants, including Construction Management Consultants.

1.1.5 Project QA Reporting

A requirement for Project Reporting of QA activities, issues, and metrics.

1.1.6 Corrective Actions

CCTA, Consultant, or Contractor responses to issues identified in QA audits.

1.1.7 Root Cause Analysis and Corrective Actions to Significant Issues

CCTA, Consultant, or Contractor analysis and responses to major issues identified in QA audits.

1.1.8 Definition of QAP-related Terms

A definition of various terms used in QAP enforcement and verification are provided in the table below.

Term	Definition
Acceptance Criteria	Specified limits placed on characteristics of an item, process or service as defined in codes, standards or other requirement documents.
Acceptance Test	Functional tests performed on articles submitted for acceptance. Acceptance tests shall not have detrimental effect on the operational life of the article but shall assure that each production article is equal to those that successfully pass qualification tests.
Audit	A documented activity performed in accordance with written procedures or checklists to verify, by examination and evaluation of objective evidence, that applicable elements of the QAP have been developed, documented, and effectively implemented in accordance with specified requirements. Audits should not be confused with surveillance or inspection.
Audit Report	A signed, written document presenting the purpose, scope, and results of an audit.
Certificate of Compliance	A written statement, signed by a qualified party, *attesting* that the items or services comply with specific requirements which is accompanied by additional information that substantiate the statement.
Certificate of Conformance	A written statement, signed by a qualified party *certifying* that items or services comply with specific requirements.
Quality Audits	A documented activity performed in accordance with written requirements of CCTA's quality system.
Quality Policy	The overall quality intentions and direction of CCTA with regard to quality, as formally expressed by top management.
Quality Procedures	Written instructions for implementing various components of the quality system. Procedures shall identify what is to be done, who shall do it, how, where and when it shall be done
Quality System	The organizational structure, responsibilities, procedures, processes, and resources for implementing quality management.

1.2 QMP and QA/QC

CCTA manages several programs and projects which cycle through various phases of development throughout the projects' lifecycle. Due to the wide range of complexity, cost and risk associated with various CCTA projects, QMPs will be developed for each phase of the project. QMPs will vary depending on the following categories and associated guidelines.

1. **Large or Complex Projects** – Projects with costs greater than $100 million such as the *Innovate 680 Program* and those with complex quality issues such as high risk or unique technical elements and fabrication, or construction issues will require extra QA/QC attention.
2. **Medium / Non-Complex Projects** - Projects with costs between $20 million and $100 million with no complex or high-risk elements.
3. **Small / Non-Complex Projects** - Project with costs less than $20 million with no complex or high-risk elements.

Many CCTA projects that include State or Federal funds will be subject to California Department of Transportation (Caltrans) and Federal Highway Administration (FHWA) requirements as specified in the project funding agreement. All QMPs will include Peer Reviews, over-the-shoulder-reviews where the designer walks through specific parts of their design as request by CCTA, interdisciplinary reviews, and constructability/biddability reviews. The general approach for the Project Level QMP in Large, Medium, and Small project categories will be as follows:

1. **Large or Complex Project** - QMP will address significant risk elements such as complex components, special manufacturing, unique construction activities, etc. Requires Consultant QMP by Phase (planning, environmental, design, right of way (ROW), construction management and construction). CCTA will perform audits of Consultant's QMP program compliance and reporting of audit results. The QMPs for large or complex projects require detailed design workshops and independent estimates/review/verification by another Consultant and may incorporate additional quality checks.
2. **Medium / Non-Complex Projects** - Requires Consultants' QMP by Phase (planning, environmental, design, ROW, construction management, and construction). CCTA will perform audits of Consultant's QMP program compliance and reporting of audit results.
3. **Small / Non-Complex Projects –** For Small / Non-Complex Projects, CCTA will rely on Consultant developed QMP based upon assessment of the risk items for the project. The Project QMP has to be reviewed and approved by CCTA. CCTA will audit to ensure it has been followed and fairly executed.

1.3 Quality Assurance Review and Approval

Three levels of review and approval responsibilities are defined for reporting on the implementation of the QMPs. These responsibilities are defined as follows:

1. CCTA Executive Director

2. CCTA Deputy Executive Director, Projects or Designee
3. CCTA Project Manager

Project Size / Complexity	Large / Complex	Medium / Non-Complex	Small / Non-Complex
Development of Project QMPs	3	3	3
Approval of QMP	1	2	2
Monthly Reporting to Deputy Executive Director for Projects	3	3	3
Quarterly Reporting to Executive Director	2	2	2
Approval of Audits and Corrective Actions	2	2	2
Approval of Significant Corrective Actions and Root Analysis	1	2	2

Table 1 - QA Review and Approval Responsibilities

1.4 Integrated Levels of Quality Assurance Implementation

It is important to integrate program and project level QA/QC procedures, so they are streamlined, clear, and consistent. Program level QA/QC that is also applicable at the project level include quality checks of Board reports, invoice review, document controls, all public facing documents including press releases and website content, contract administration, and procurements. (See CCTA Administrative Code and Contract Administration Guide for additional details.)

At the Project Level, certain QA/QC elements specific to the Design and Construction phases may have additional quality-related activities and monitoring for compliance depending on the project size, complexity, and risk profile. This means high-value professional services, design, and construction contracts and agreements will be subject to more QA/QC compliance monitoring.

The QMP is implemented throughout the duration of the project and is intended to ensure that reports, plans, studies, estimates, and other documents submitted to CCTA and appropriate agencies are complete, accurate, checked, and proofread to meet standard of care professional practice and certified in accordance with this QAP. Periodic audits will be conducted on design and document submittals to verify the procedures established in the QC Plan are being followed.

SECTION 2 – APPROACH TO QUALITY ASSURANCE AND CONTROL

2.1 CCTA Quality Assurance Program

The objective of the QAP is to establish a planned and systematic approach to program and project level QA/QC in delivering overall program and associated project requirements with the expected level of quality. CCTA projects shall be planned, designed, and constructed in accordance to contract requirements. CCTA Management shall identify quality objectives, specify quality-related activities to be performed by project teams to achieve those objectives, and assign responsibilities for implementing actions for compliance. A project level QMP will be developed for each phase of the project. Initially, QAP enforcement will focus on design quality,

but will be extended to include procurement, construction, design-build activities, and intelligent transportation systems/ advanced technology projects. Each team is responsible for producing quality results in alignment with members' roles and responsibilities on the project consistent with the adopted QMP, including management, design, construction, professional services consulting, or other services.

The following shows the QAP process:

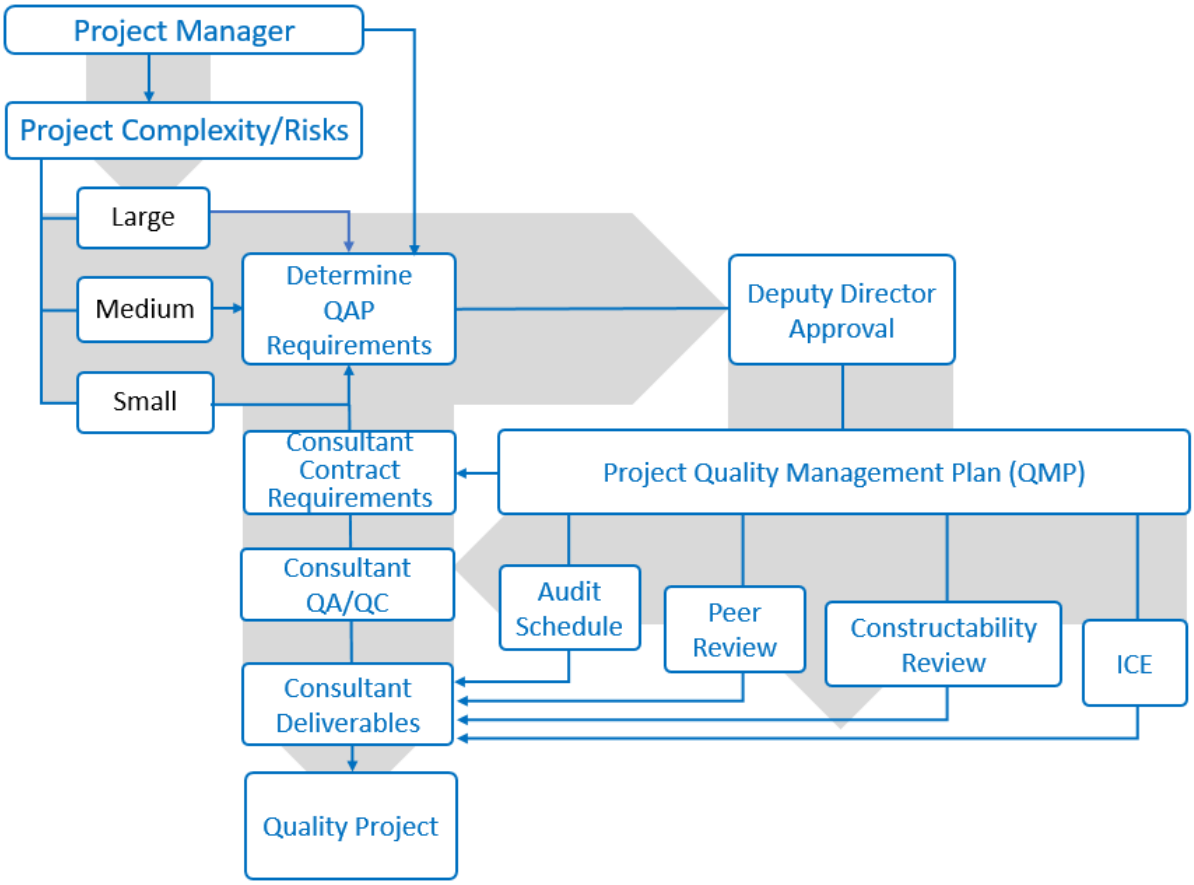

Figure 1 - CCTA QAP Process

Quality implementation and controls will be performed at the contract level. CCTA will require a Consultant or Contractor for Large /Complex and Medium / Non-Complex Projects to submit a project specific QMP after contract execution. This project QMP and all contract/agreement QA/QC Plans (if a project includes multiple contracts) will be reviewed and approved by CCTA prior to the Consultant or contractor obtaining authorization to start work activities. For Small / Non-Complex Projects, the QMP and QA/QC Plans will be agreed upon between the CCTA Project Manager and the Consultant team depending on the complexity of the contract (Studies, PA/ED, Design and Construction).

2.1.1 Quality of Design

A team approach to design quality will be implemented under CCTA's QAP. Each CCTA Project Manager require Engineering Design Consultants and/or design-build (DB) contractors to

develop a Design Quality Management Plan. Discipline lead engineers assigned responsibility for the design of a system, component or facility will be held accountable for the professional quality, completeness of the work, constructability, and conformance with design criteria for all work under their control.

The overall goal of the Design Quality Management Plan is to prevent deficiencies and non-conforming work through control of activities affecting the quality of the design product. The responsibility for the quality of a design item is placed directly on the person performing the design function. The supervisor or lead engineer of the designer is responsible for ascertaining that the design is performed in accordance with the design criteria. The Design Consultant's Quality Manager performs selected checks to assure and document that the item of work or function is in conformance with the requirements of the design criteria and approved procedures, and that results verify the design criteria have been correctly translated into the design product.

Design QMPs must establish procedures for the control of applicable design activities addressing the following as appropriate:

- **Basis of design** - The design basis includes the scope, criteria, applicable codes and standards, and regulatory requirements.
- **Design Interfaces** – The interfaces between various design groups and design disciplines as well as the responsibilities for both design performance and design quality are identified.
- **Design Review** – Qualified personnel who did not originate the design review the documents at appropriate stages. Design review includes verification of the basis of design, independent check of calculations and review of constructability. Design changes or revisions are checked, reviewed, and approved as thoroughly as was the original design.
- **Document Control** – Design documents are uniquely identified and controlled to assure the use of approved documents.
- **Audits** – Designers, contractors, and suppliers shall provide for internal audits of execution of Design QMPs.
- **Documentation** – Quality-related activities performed by the designers, contractors and suppliers are documented and records are maintained.
- **Design Control** – Consultant Designers, CCTA Project Managers and responsible engineers shall implement and monitor configuration control of drawings and specifications during the design and construction phases of their projects.

2.1.2 Quality of Environmental Policy Compliance

CCTA complies fully with regulations and guidance set forth by the US Council on Environmental Quality (CEQ) 40 CFR §§ 1500-1508 National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA) and local environmental laws and regulations.

All environmental documentation for CCTA transportation projects will be prepared in accordance with state, federal and local environmental laws. Federal requirements address compliance with the federal laws, Executive Orders, and regulations applicable to transportation projects including policy, guidance, directives, and advisories pertaining to federal environmental

laws, and agreements pertaining to NEPA and California Department of Transportation Act Section 4(f) compliance. State Requirements address the requirements of California law and regulations, the California CEQA, and its guidelines as well as related state environmental statutes and regulations. CEQA compliance is required for all projects for which a public agency has a discretionary action unless the project is exempted by statute in an act of the California Legislature.

2.2 Project QMP and Contract QA/QC Plan Requirements

2.2.1 Consultant Contracts

Each Consultant contract shall contain a detailed scope of work that outlines all tasks required to successfully complete a specific phase of work. Each task will identify a list of deliverables for that task. Each contract shall contain a summary milestone schedule for the project. Appropriate QC and QA review should be identified in the project schedule for each formal submittal and deliverable. Contracts will also contain language requiring the Consultant to prepare and maintain a detailed schedule for the project, including a schedule for completion of each task and each deliverable. Consultants responsible for overall Project Management for projects will prepare a QMP with QA/QC procedures for tasks and deliverables for their contract's scope of work and will also be responsible for ensuring that other consultants and subconsultants involved on the project in implement QA/QC procedures per CCTA's QAP guidelines.

2.2.1.1 Schedule

Each Consultant will develop, manage, and control the project Schedule. The methodology of the schedule should be identified by the Consultant (e.g., predictive or adaptive life cycle) and schedule software needs to be identified by the Consultant.

The project schedule activity list includes the scheduled activities required on the project, formal submittals (30%, 60%, 95% design completion), all deliverables in the scope of work, and the reviews necessary to seek approvals including QC/QA for all submittals and deliverables.

The activity list includes an activity identifier and a scope of work description for each activity in sufficient detail to ensure that project team members understand what work is required to be completed. For projects that use Agile techniques, the activity list will be updated periodically as the project progresses.

Every schedule should identify a list of all project milestones required by the contract and optional milestones such as those based on successful completion of key deliverables, submittals and related events such as recommended design reviews and CCTA approvals and acceptance.

2.2.1.2 Minimum QMP Requirements

The contract will contain language that requires the Consultant to establish a project document control system and requirements for a QMP.

Minimum parameters for the document control system include:

- An electronic project file for all controlled documents;
- A hard copy or electronic project file will be established for redundant storage and accessing project records. The files will be indexed to provide ease of access and retrieval of materials. The files will be stored in cabinets accessible to personnel involved in their use and will be protected from damage;
- The document control system should include date and revision control for in-process and final submittals; and
- All submittals shall be in compliance with the CCTA submittal procedures.

Prior to the solicitation of any Consultant services, the CCTA Project Manager will develop a risk assessment that considers the project cost, complexity and any other factors that could influence the quality completion of the contracted work. Based on this assessment, the CCTA Project Manager, in coordination with the QA Manager will develop contract specific QMP requirements for approval by the Deputy Executive Director, Projects. At a minimum, the following or similar language relating to QMP requirements shall be included in the scope section of all Consultant contracts.

The Consultant shall prepare and submit a QMP and supporting procedures applicable to work to be performed under the contract for CCTA review and acceptance. The QMP shall apply to all work products and deliverables including, but not limited to, document control, reports, plans, specifications, studies, calculations, invoices, schedules, and estimates. The Consultant's QMP shall outline its program for internal review and checking of work products, as well as its program of independent internal audit of its QA processes and procedures. The Consultant shall submit to CCTA reports and findings/corrective actions of these internal independent QA audits as evidence that it is in compliance with its QA Plan.

Medium and Large/Complex Project QMP Requirements

The scope section for Medium and Large/Complex project must include the following:

- Completed Project Financial Analysis using CCTA's standard Financial Plan worksheet which includes Budget, Funding and Commitments (Contracts and Cooperative Agreements) including Future Commitments by Phase as outlined below in the Project Schedule and Project Cashflow
- Project Schedule outlining the activities by Phase as applicable:
    - PRJM – Project Management
    - STU – Studies Prior to Environmental Planning
    - ENV – Environmental Clearance
    - PSE – Plans, Specifications and Engineering
    - ROW – Right of Way Services
    - ROWC – Right of Way Capital
    - UTL – Utilities
    - CON – Construction

- CSS – Construction Support Services

- Project Schedule must include the following QMP activities:
  - Caltrans, FHWA, and other compliance requirements and due dates of submittals and deliverables for regulatory agencies;
  - Schedule of project milestones for design and construction;
  - Schedule of required design and construction submittals and deliverables and the required QA reviews and activities/reports including:
    - Peer Reviews, Over-the-shoulder reviews, and inter-disciplinary reviews during the design phase;
    - Constructability and Biddability Reviews before Construction Contract is advertised;
    - As applicable or required by CCTA: Detailed Design Workshops, Independent Cost Estimates (ICE) and formal Design Review / Comments Disposition for Submittals and Deliverables at key Design Milestones for 30%, 60%, 95% and 100% design completion; and
    - Due date of QMP from Design Consultants as applicable or required by CCTA.
  - Define the project requirements, and the scope of the project;
  - Organization Chart;
  - Describe the responsibilities of each team member;
  - Ensure the competence, skills, experience, and credentials of Consultant staff relevant to the work. Define the appropriate and applicable industry standards that should be used in preparing the work and identify methods to document compliance with project design/control requirements and applicable codes and standards;
  - Define electronic transmission of plans and records;
  - Communicate project requirements and work procedures for producing the work;
  - Describe the Consultant's QC review process/procedures;
  - Establish frequency/timing for internal QC reviews and/or surveillances;
  - Include a verification process that documents were prepared in a manner to meet the requirements of the project;
  - Identify staff that will conduct QC reviews and QA audits;
  - Identify and list all deliverables that are subject to Caltrans or other agencies' review and approval. Identify the appropriate and required QC reviews including the appropriate level of QA reporting. Include a 'back check' process to verify that all suggested changes were made;
  - Identify any additional quality control procedures for major deliverables and milestones (i.e.. Project Report, Environmental Document, 30% Design, 60% Design, 95% Design, 100% Design, etc.);
  - Procedures of review, comments, and resolution for all deliverables;

- Procedures for education and training project team of QMP;
- Procedures for Document Control;
- Procedure for Design and Development Changes;
- Process for implementation of Corrective Actions;
- Procedure for Checking of Calculations;
- Procedures for review of Structural Design;
- Procedure for Checking Studies and Report-Type Documents;
- Procedure for Checking Plans and Drawings;
- Procedure for Checking Environmental Commitments Record, Specifications, Quantities, Cost Estimates and Contract Documents;
- Procedures to comply with any external requirements such as Caltrans or third party and for conducting interdisciplinary reviews to ensure all conflicts are resolved
- Include requirements for the preparation of a certificate of quality compliance for each deliverable before it is submitted for final approval by Caltrans or other approving agencies. The purpose of the certificate of quality compliance is to document a final pre-submittal review was completed for each deliverable and the documentation was reviewed by the CCTA and Consultant Project Manager.

The QMP will require approval and acceptance by CCTA. The final QMP will include a project audit plan describing the review, audit frequencies and responsibilities of the project team. Once approved, the QMP shall be distributed to all project staff. Distribution of the QMP shall be done as early as possible; preferably during the project kick-off meeting. The Design Consultant Project Manager is responsible for the implementation of the QMP including educating all project staff and subconsultants of the project level QA/QC procedures. Each project team member must acknowledge they have read and will comply with the QMP. The project team must be fully aware of this policy and the Consultant's commitment to its implementation.

Consultant will allow CCTA to perform QA Compliance Audits of Consultant's QA processes and procedures. CCTA will perform these audits intermittently and either independently or in cooperation with Consultant's internal audits. All deliverables shall be accompanied by a control form indicating the QC measures completed prior to submittal and by whom.

Three levels of requirements are defined for reporting on the implementation of the QMPs. These requirements are defined as follows:

Minimum QMP Requirements	**Project Size / Complexity**		
	Large / Complex	Medium / Non-Complex	Small / Non-Complex
Schedule with deliverables and QMP requirements	M	M	M
Quality Control Reviews	M	M	M
Risk register	M	M	M
Independent design workshops	M	M	O

Minimum QMP Requirements	Project Size / Complexity		
	Large / Complex	Medium / Non-Complex	Small / Non-Complex
Independent cost estimate	M	M	O
Independent review and verification	M	O	O
Constructability/Biddability	M	M	O
Caltrans Requirements Compatible	M	M	M
FHWA Requirements Compatible	M	M	M
CCTA Audits	M	M	O
Additional subsurface investigation (as needed)	O	O	O
Value Analysis	M	O	O

Table 2 - Minimum QMP Requirements (M-Mandatory, O-Optional at CCTA's discretion

2.2.1.3 Minimum Quality Procedures

QMPs submitted by Consultant Project Managers and contractors for CCTA hall address all quality procedure elements set forth in CCTA's QAP as defined in this document.

CCTA recognizes that size, complexity, and risk of projects will determine how comprehensive each project and contract's quality procedures will need to be. Project and Contract managers should take these into considerations as they develop QMPs and QA/QC plans to tailored for the quality needs of their projects and submit these plans to the CCTA QA Manager for review and CCTA's Executive Director for approval.

CCTA's approval of the project and contract QMPs and QA/QC plans is a pre-requisite to start of design and construction activities.

2.2.1.4 Minimum Quality Control

The QA Manager will develop the required quality-related forms and documentation which will be compatible and consistent with CCTA's overall QAP procedures. These quality documents will preserve a written record of the execution of the QAP. Initially, the documents will focus on design quality, but will be extended to include procurement, construction, design-build activities, and intelligent transportation systems / advanced technology projects. Project and contract QMP and QA/QC Plans will be reviewed by the QA Manager and forwarded to CCTA's Executive Director for approval before design and construction activities can commence.

Minimum Quality Control documents must include:

- Reports of surveillance, inspection, tests and audits carried out during the course of the work;
- Reports documenting follow-up and corrective actions;
- Records of quality meetings; and
- Quality plans prepared by Consultants and Contractors.

Quality documents will be reviewed by the QA Manager and uploaded into e-Builder Project Management Information System (PMIS) or any CCTA-designated repository for electronic files.

The quality documents will be accessible for future retrieval for use as supporting data for QAP compliance verification; compliance data may also be monitored via reports and dashboards on e-Builder PMIS.

2.2.2 Quality Assurance Audits

To monitor compliance and measure Consultant's and Contractor's QA/QC activities, CCTA will conduct QA Audits which will be both scheduled and unscheduled. Frequency of audits will be determined as deemed necessary by CCTA and will be agreed to as part of all Consultant agreements and contracts. The audits are intended to develop confidence in project quality efforts, to allow for simple and timely correction of deficiencies, to improve project team understanding of project quality requirements, and to give a complete and continuous view of the overall level of the quality of the project activities.

The QA Audit involves evaluation by various specialists using a detailed checklist and generally includes observation, interview, and review of documentation. Quality audits help to identify overall project organization and control and include follow-up for correction of the problems identified. In conducting the audit, QA Form A, QA/QC Plan Audit Checklist, or a specially prepared checklist on QA Form B is used. Typically, the audits will be conducted at the Consultant's office.

Prior to the scheduled audit the Consultant Project Manager assembles the documents to be examined, confirms the location, and invites key personnel to be interviewed. The CCTA Auditor documents the compliance or non-compliance with the QPM and QA/QC Plan requirements and the responses to audit questions, on QA Form A.

At the completion of the audit, and prior to finalizing the audit report, the CCTA Auditor will conduct an exit interview with the Consultant Project Manager to resolve any questions and establish mutual understanding regarding the audit and findings, along with corrective action(s), if any. A time frame is established within which corrective action must be completed, providing closure to the finding, if any.

All audit findings and recommended corrective actions are documented on QA Form B and QA Form C and attached to the Audit Report prepared by the CCTA QAP Compliance Auditor.

The original Audit Report is provided to the Consultant Project Manager with copies to the CCTA Project Manager. The status of all QA audits is reported on at least a quarterly basis to CCTA's Deputy Executive Director, Projects. Deficient areas are re-audited or otherwise verified, after completion of corrective action, to ascertain that observed non-compliances do not recur.

A Corrective Action Request form is prepared by CCTA Auditor for the items requiring follow-up in the form of a correction or verification that a procedure was conducted and not verifiable at the time of the audit.

To monitor non-compliance and corrective actions for QA, CCTA will ensure that Consultants and subconsultants take appropriate and timely actions to resolve non-conformities identified in audits, non-conformities are prevented from re-occurring, and CCTA is provided with complete records and documentation of Consultant's Quality compliance.

CCTA's QA Manager will monitor all non-compliance reported and subsequent corrective actions required by CCTA to ensure resolutions are completed within 30 days from when Consultants and other parties responsible for non-compliance are officially notified. Additionally, the QA Manager will be responsible for escalating to the Deputy Executive Director, Projects any non-compliance actions that continue to remain unresolved and providing recommendations to implement further measures to enforce QA, including termination of contracts of Consultants who continue to be non-responsive to CCTA QAP enforcement efforts.

2.3 Control of Non-Conformance

2.3.1 Purpose

CCTA will monitor noncompliance and corrective actions to ensure that:

- Consultants take appropriate action to resolve non-conformities identified in audits, including those of the subconsultants.
- Non-conformities are resolved to the satisfaction of CCTA.
- Non-conformities are prevented from re-occurring.
- Consultant's Quality records are documented and kept on file at CCTA.

2.3.2 Non-Conformance Analysis

CCTA will collect and analyze non-conformances to demonstrate the suitability and effectiveness of the QMP and to evaluate where improvements can be made. The analysis will provide CCTA information relating to conformity to design requirements, technical study requirements, subconsultant work product, and overall quality of work.

2.3.3 Preventive Action

Based upon the non-conformance analysis, preventive action procedures will be established to eliminate the causes of potential non-conformities to prevent their occurrence. CCTA will issue a memorandum that would serve as a preventive action record.

2.4 Additional Quality Control Measures

For some large or complex projects, the CCTA Project Manager may recommend additional quality measures be included in the QMP for the project which are listed and defined below.

2.4.1 Peer Reviews/Project Review Workshops

Peer Reviews and/or project design workshops may be performed based on the scope and complexity of the design to review approach, suitability, completeness, accuracy, consistency with standards, and sound engineering practice. This procedure is required to ensure the quality and adequacy of engineering design, environmental studies, ROW engineering, reports, documents, etc., and that CCTA's quality objectives and goals are satisfied. These Peer Reviews are generally conducted by CCTA's on-call consultant staff through the existing, or future, on-call contracts with engineering, environmental, or ROW firms.

Peer Reviews may be performed to provide written comments to Consultants and follow-up to ensure that all comments have been addressed prior to transmission of the submittal package for agency review/approval. These are not intended to replace internal QA/QC procedures within each Consultant firm contracted by CCTA to provide engineering design, environmental studies, ROW engineering, construction management, and other services.

2.4.2 Constructability/Biddability Review

Constructability and Biddability Reviews are an essential component of CCTA's QAP and the Project Specific QMP. A Constructability Review is an independent, structured, and knowledgeable review of construction bid documents to ensure that the work requirements are clear, the documents are coordinated, and that they assist the contractor in bidding, construction, and project administration to result in reduced impacts to the project.

As part of the Constructability Review process, a Biddability Review is conducted to examine contract documents to identify errors, omissions and conflicts in plans, specifications, quantities, work items/activities, operational constraints, and appropriate basis of payment.

Reviews will be performed at various points during project development. CCTA will follow the Caltrans protocols for the timing of constructability reviews during the various phases to reduce CCTA's exposure to risks and allow revisions to the project plans prior to construction contract advertisement. CCTA will perform a thorough Constructability and Biddability Review that will be tailored to the phase in which they occur. However, during the Plans, Specifications, and Estimates (PS&E) phase, rigorous reviews will occur at the 35, 65, and 95 percent complete deliverables. The focus will be on project areas where most of the risk is associated such as construction staging, traffic handling, clearances during construction and items of work representing 80 percent of the project cost. Specifications will be reviewed in conjunction with plans and items of work for order of work, permitting, utility relocations, and ROW contract provisions. A review of all PS&E supporting documentation will be conducted to ensure that project sponsor commitments have been fully accounted for.

2.4.3 Independent Cost Estimate

An ICE is a documented cost estimate prepared independently for the project sponsor, using the same detailed technical and procurement information to make the project estimate. The ICE is an assessment of what you would expect to pay for the project and is used to validate the project estimate to determine whether it is accurate and reasonable. The ICE is based on a reliable source, such as paid historical prices, industry standards, or market surveys and may range from a simple budgetary estimate to a complex estimate, based on inspection of the product, review of drawings or specifications, and prior procurement data.

If any outside party assists in developing the ICE, appropriate steps must be taken to ensure that organizational conflicts of interests are avoided and that the outside party does not obtain any competitive advantage from advance knowledge of the estimate. For contracts with optional extensions or other modifications, a Consultant/Contractor must make an ICE before execution of the option or modification.

Large deviations between the project cost estimate and the ICE may indicate a deficiency in the procurement scope of work. CCTA can, at its discretion, have the ICE reviewed by other agencies.

2.4.4 Independent Review and Verification

CCTA Project Managers can request an Independent Review and Verification (IRV) for the design of their projects when necessary to minimize errors, highlight/resolve design scope conflicts and constructability issues and ensure that the design package is complete and of the highest quality.

The primary objectives of an IRV are to ensure that:

- The design matches the scope of work;
- The design meets the applicable codes and engineering practice;
- Concepts, features, methods, analyses, details and project costs are appropriate, valid, fully coordinated, and correct;
- All relevant engineering and scientific disciplines have been effectively integrated.
- Appropriate computer models and methods of analysis were used, and basic assumptions are valid and used for the intended purpose;
- The source, amount, and level of detail of the data used in the analysis are appropriate for the complexity of the project;
- Content is sufficiently complete for the applicable design milestone of the project and provides an adequate basis for future development effort;
- Project documentation is appropriate and adequate for the design milestone; and
- Any deviation from guidance and standards are identified and properly approved.

The primary focus of the IRV is to identify significant deficiencies, but comments on the presentation of drawings, minor numerical errors and spelling, grammar and formatting errors are encouraged. IRVs for design will be done internally, by another agency or by an independent consulting firm engaged directly by CCTA and coordinated by the QA Manager and/or staff. IRV team members will include subject matter experts for engineering and other technical disciplines as required.

2.4.5 Value Analysis / Value Engineering

Value Analysis is a systematic process for enhancing product value by improving the relationship of performance to cost through the study of the product's or process' function. The method seeks to know if the function of the product provides the value that the organization intends to give to its consumers. The objective of this method is to improve the value of the end product. This is a very effective method in improving the quality prerequisites and performance while at the same time minimizing costs and giving a solution to the problem. Value Engineering is the development of innovative approaches that reduce costs of construction. CCTA encourages contractors to develop and implement innovative approaches to construction projects.

Value analysis studies are required on all federally aided projects with costs greater than $50 million or more (construction, ROW, and capital outlay costs) on the National Highway Systems (NHS) and on bridge projects with cost estimates of $40 million or more. The project is defined by the Environmental Document and may include multiple contracts over many phases. The NHS Act of 1995, the subsequent Federal Rule (February 1997- Subpart 627) and the Federal Aid Policy Guide, which added a new Chapter 6- “Value Engineering”, define the application of this regulation.

An inventory of Value Analysis Policies, Guidance and Directives is available at https://dot.ca.gov/-/media/dot-media/programs/design/documents/va-inventory-policies-and-guidance-2013-a11y.pdf.

2.4.6 Surface and Subsurface Investigations

CCTA project work sites will be inspected thoroughly to identify potential problems arising from field conditions. Surface and subsurface investigations will be performed and coordination with utility companies will be conducted.

Pre-construction surveys or inspections of existing buildings and structures adjacent to the Project ROW will be performed by the Design Consultant and construction or Design Build (DB) Contractor prior to start of construction. The survey will provide documentation, including photographs and written descriptions, to identify and record existing conditions prior to construction and any damage that can be potentially caused by the construction. Where ROW acquisitions and utility relocations are not expected to be completed prior to start of construction, the schedule for these property acquisitions and utility relocation activities will be incorporated into the Construction Contract site access milestone constraints, thereby requiring the selected Contractor to incorporate these requirements in its planned project schedule and sequence of work.

QA on subsurface investigations like utility conflict identification and potholing will be performed by CCTA which could involve hiring an independent Consultant to perform QA and make sure all requirements have been met and risk has been minimized for any underground or latent conflicts before the start of construction activities.

2.5 Roles and Responsibilities

2.5.1 CCTA Project Manager Responsibilities

- Ensure that Request for Qualifications (RFQ) or Request for Proposal (RFP) and contracts contain requirements for the Consultant to develop and implement a project QMP and allows for audits to ensure Consultant's compliance with the plan;
- Develop a QMP and Audit Plan for each phase of a project;
- Present the QMP for approval from appropriate level in the responsibility matrix;
- Assure QMP requirements are incorporated into scope of work for Consultants and construction contractors;
- Assure all QMP requirements are met throughout the project;

- Ensure that all project team members acknowledge and understand the QMP for the project; and
- Review and document Consultant submittals.

2.5.2 Quality Assurance Manager Responsibilities

The CCTA Team QA Managers have overall responsibility to monitor the performance of the design team verifying compliance with the requirements of the QAP through the PS&E phase. These responsibilities include:

- Prepare the QAP and revise as required;
- QAP implementation, training, and maintenance throughout the project;
- Work with the Discipline Leaders, Independent Reviewers, and staff on QAP procedures;
- Conduct audits of the various disciplines to verify work is being performed in conformance with the QAP;
- Issue notice of deficiencies for non-compliance with the QAP and follow-up to verify that cited deficiencies are corrected;
- Report major non-compliance with QAP procedures to the CCTA Project Manager and others as required to resolve deficiencies;
- Participate in project coordination meetings, as appropriate;
- Verify qualified staff have been assigned to conduct independent reviews of the plans, reports, and other related documents;
- Verify schedules and resources are adequate to meet the requirements of the QAP; and
- Participate, or assign a qualified designee, in QA audits.

2.6 Using CCTA's e-Builder PMIS for QAP Compliance Monitoring

CCTA has implemented e-Builder as its standard PMIS and collaboration tool for managing all phases of its capital projects. This cloud-based system includes modules that can be used to manage elements of the QAP to monitor and enforce compliance by automating processes and organizing information in an easy to manage folder and file structure.

2.6.1 Document Control

e-Builder's Documents Module is a full function document management module that allows internal and external users to upload and download documents to project document folders that can be used as the centralized document repository of Consultants, contractors and CCTA project team members.

Documents can be managed throughout their lifecycle—from the collaborative development for work-in-progress through final versions of documents which may be submitted as contract deliverables. The Document Module in e-Builder can be used as a repository for any type of electronic documents from design drawings in AutoCAD format to Microsoft Office Word and Excel files, etc.

"Final" documents and formal submittal packages consisting of multiple documents can be uploaded to e-Builder's document module set up with specialized access control to fulfill contractual requirements of transmitting submittals and deliverables by specified due dates. Once uploaded in e-Builder, CCTA' Document Management and Control processes will ensure proper filing, date and time stamping, version control and storing of project documents.

With e-Builder's workflow engine, customized routing of documents through steps of review, acceptance or rejection of comments, as well as mark ups and redlining can be implemented. Custom reports and dashboards can be developed to facilitate QAP compliance monitoring.

2.6.2 Submittal Package and Document Tracking

The Submittal module in e-Builder is used for keeping track of Submittal Packages, scheduled due dates and includes basic workflows for submittal reviews and tracking comments. Existing functionality in the Submittal module can be further enhanced by developing custom workflows, reports and dashboards to facilitate QAP monitoring and enforcement.

2.6.3 QMP Audits, Non-Conformance and Corrective Action Tracking

Using e-Builder forms and workflows, custom processes can be created to step through audits, report non-conformances and monitor QAP compliance and progress on on-going corrective actions. Custom reports and dashboards can facilitate monitoring of QAP enforcement activities.

2.6.4 Design Review and Comments Disposition

High Risk and more complicated projects like those in the Innovate 680 Program may require more elaborate and comprehensive a Design Review and Comments Disposition (DRCD) process which can be addressed using custom workflows, reports and dashboards. The DRCD form can be filled out online and routed through all the reviewers while the CCTA Submittal Coordinator monitors the DRCD process to make sure it is completed within the allotted time for the review process.

2.6.5 QAP Dashboards and Reports

QAP monitoring and enforcement can be managed in e-Builder by using custom dashboards that can generate relevant reports. Custom workflows can be created as needed to route documents for review, comments, and track approvals over a set window of time by which QAP activities are scheduled to start and complete.

2.7 FHWA Requirements (for Major Projects)

CCTA's QAP program will be enforced to comply with the guidelines and provisions set forth in the US Department of Transportation's Standard Specifications for the Construction of Roads and Bridges on Federal Highway Projects referenced as "FP-14" and directly administered by the FHWA. The QAP will ensure that CCTA highway and bridge projects involving the NHS are designed and constructed in full compliance of FHWA standards. More details about FP14 are available on https://highways.dot.gov/federal-lands/specs.

2.8 Caltrans Requirements (for Major Projects)

CCTA's QAP program will be enforced to comply with the guidelines and provisions set forth in the California Department of Transportation's current Construction Contract Standards which include Standard Specifications, Standard Plans, Standard Special Provisions, Standard Bid Items, Notice to Bidders and Bid Book. The QAP will ensure that CCTA highway and bridge projects are designed and constructed in full compliance of Caltrans most recent standards and will be updated accordingly. More details about Caltrans Construction Contract Standards are available on https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications and the Caltrans QAP Guide for Design Products can be found in Appendix B below.

QC/QA Design Checklists

For reference and use when applicable, the following checklists for enforcing Quality for Design on State Highway projects are included in the Appendix B section of this document.

1. Freeway Agreement (FA) and Control Access Highway Agreement (CAHA)
2. QC/QA Checklist for Design Standard Decision Document (DSDD)
3. QC/QA Checklist for PS&E Design Packages
4. QC/QA Checklist for Route Adoption Map
5. QC/QA Checklist for Utility Encroachment Exception
6. QC/QA Checklist for Utility Policy Exception
7. QC/QA Checklist for Landscape Exception
8. QC/QA Checklist for Project Review

Geometric Approval Drawing Guidelines (GAD)

A GAD is a set of plans with sufficient detail to show the roadway features in a particular build alternative. The intent of the GAD is NOT to prevent modifications during the Plans, Specifications, & Estimate (PS&E) phase, but is used as the foundation for development of final design plans. The purpose of a GAD is to:

1. Establish the project base map
2. Establish horizontal/vertical alignments
3. Allow Traffic Operations to confirm that proposed geometrics will meet operational needs
4. Identify major design elements (e.g.. pavement, walls, bridge limits, sidewalk, driveways, gore treatment, etc.)
5. Ensure proper application of design standards
6. Minimize design risks during PS&E phase

Projects Requiring a GAD

The Caltrans Design Office Chief shall determine if a GAD is required. If uncertain, it may be necessary to seek advice from the Caltrans Design Liaison. It is the Design Office Chief's responsibility to notify the Project Development Team (PDT) early in the Project Approval and Environmental Document (PA&ED) phase of the need to develop a GAD. A GAD is required for projects that involve any of the improvements listed below:

1. New roadway alignment
2. New interchange or intersection
3. Change in configuration of an existing interchange or intersection
4. Realignment of existing roadway (vertical or horizontal)
5. Removal of an existing ramp (entrance or exit)
6. Addition of a new ramp (entrance or exit)

Note: Only the Caltrans Design Office Chief assigned to the project may authorize the development of a GAD for projects that DO NOT fall under Section III requirements of this guideline. Guidelines and requirements for developing a GAD are included as a reference in Appendix B.

Construction Contract Development (CCD) Guide and Best Bid Standards (BBS)

Caltrans' CCD and BBS are provided in Appendix B as a key reference and guide for enforcement of CCTA's QAP covering Construction activities. The CCD Guide is produced by the Caltrans' Division of Engineering Services (DES) and Program/Project Management and Office Engineer (PPM&OE) encapsulates many of the requirements governing construction contracting as specified by Federal and California State Laws and Federal Highway Administration and Caltrans policies. The Caltrans BBS governs Districts' process and authority to approve construction contract advertisement and the PPM&OE's responsibilities and procedures for performing Independent Quality Assurance on state highway construction contracts advertised for bids. Also included in Appendix B are checklists and reference guidance for ensuring BBS compliance for contract consistency, Plans, Specifications, Estimate (Bid Item List) and other categories.

Appendices

❖ Appendix A Quality Assurance Forms

- QA FORM A: QA/QC Plan Audit Checklist
- QA FORM B: Quality Audit Checklist
- QA FORM C: Quality Audit Finding

❖ Appendix B Caltrans QAP References and Guides for Design and Construction

- Caltrans QAP Guide for Design Products
- Caltrans Design QC/QA Checklists
- Caltrans Geometric Approval Drawing (GAD) Guidelines
- Caltrans Construction Development (CCD) Guide
    - Caltrans Best Bid Standards Checklist

CONTRA COSTA transportation authority

AUDIT CHECKLIST FOR QA/QC PLAN IMPLEMENTATION

PROJECT TITLE:	CONSULTANT:
CONSULTANT PM:	LOCATION:
AUDITOR:	DATE(S) OF AUDIT:
CONTRACT AMOUNT:	STAGE OF PROJECT AT DATE OF AUDIT:

PROJECT STAFF CONTACTED	POSITION	OFFICE

PROJECT MANAGER RESPONSE	YES/NO	REMARKS
a. Has the QA/QC Plan been distributed to staff?		
b. Is there a controlled list for distribution of Plan updates?		
c. Has the Project staff been trained on the Plan?		
d. Is compliance with the Plan being monitored?		
e. Have there been changes in work program or budget since the Plan was approved or last updated?		
f. Is the Plan being updated to incorporate these changes?		

PROJECT STAFF RESPONSE	YES/NO	REMARKS
a. Do project staff have a copy of the Plan in their possession?		
b. Have they read the Plan to become familiar with it?		
c. Are they aware of their primary functions & responsibilities?		
d. Are their duties adequately described in the Plan?		
e. Do they understand their role in checking and review of the work?		
f. Are they following the procedures described in the QA/QC Plan?		
g. Are they familiar with the schedule and budget for their task?		
h. Is their part of the project within budget and on schedule?		
i. Do they have any comments on, or objections to the Plan?		
j. Have these comments or objections been conveyed to the Project Manager?		
k. Has the Plan been a helpful tool in implementing QA/QC.		
l. Could the Plan be made a more helpful tool?		

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QUALITY AUDIT CHECKLIST

AUDITED PROJECT/CONSULTANT:	DATE(S) OF AUDIT:
AUDITOR:	AUDIT:

AUDIT ITEM	REFERENCE	METHOD OF VERIFICATION	CONFORMS	
			YES	NO

QA FORM B

CONTRA COSTA transportation authority

QUALITY AUDIT FINDING

AUDITED PROJECT:	AUDIT NO.: Finding No.
CONSULTANT:	AUDITOR:
DATE(S) OF AUDIT:	REFERENCE:

REQUIREMENT:

FINDING:

FINDING ACKNOWLEDGED BY:_____ DATE: _____

RECOMMENDED CORRECTIVE ACTION:

SCHEDULED COMPLETION DATE:	CORRECTIVE ACTION RESPONSIBILITY ASSIGNED TO:

ROOT CAUSE:

CORRECTIVE ACTION TAKEN:

CORRECTIVE ACTION COMPLETED DATE:_____SIGNATURE: _____

CORRECTIVE ACTION VERIFIED BY: _____ DATE: _____

(AUDITOR)

COMMENTS:

QA FORM C

Appendix B - Caltrans QAP References and Guides for Design and Construction

- Caltrans QAP Guide for Design Products
- Caltrans Design QC/QA Checklists
- Caltrans Geometric Approval Drawing (GAD) Guidelines
- Caltrans Construction Development (CCD) Guide
    - Caltrans Best Bid Standards Checklist

Appendix B - Caltrans QAP References and Guides for Design and Construction

- Caltrans QAP Guide for Design Products

Quality Assurance Program Guide

for Design Products

HQ Division of Design

Office of Performance Management

February 28, 2020

TABLE OF CONTENTS

1.0 INTRODUCTION

Deputy Directive 23 Revision 2 (DD23), Roles and Responsibilities for Development of Projects on the State Highway System (SHS), requires delivery of quality projects. The California Department of Transportation (Caltrans) achieves this goal by applying quality management practices, including the establishment of a Quality Assurance Program (QAP) pertaining to the Division of Design functional area products and services.

1.1 Policy & Background

Caltrans, as owner/operator of the SHS, has the statutory responsibility (Government Code § 14000(c)) and inherent goal to ensure that all modifications or additions to the SHS are:

- Safe, operational, maintainable, environmentally compatible, and of good value.
- Efficient in providing 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.

Caltrans meets its statutory goals by:

- Applying quality management practices.
- Engaging in early and continuous partnerships and ensuring accountability among project sponsors, implementing agencies, stakeholders, Caltrans functional units, local, regional, and transit agencies, tribal governments, developers, and consulting firms employed by Caltrans or its partners.
- Ensuring that all projects on or proposed for the SHS are planned, developed, and constructed efficiently and effectively, resulting in a quality project in accordance with Caltrans standards and practices.

- Ensuring one implementing agency undertakes the project's advertising, awarding, and administration of a construction contract.
- Maintaining ultimate approval authority for all projects on the SHS.
- Keeping the public informed through appropriate outreach.

For additional information on Roles and Responsibilities for Development of Projects on the SHS (DD23) see *Appendix A*, or: https://admin.onramp.dot.ca.gov/downloads/admin/deputy_directives/dd_23.pdf.

This guide recognizes that the roles and responsibilities in planning, designing, and constructing transportation projects on the SHS continue to increase in complexity due to the influx of various transportation funding sources; the ability to use alternative project delivery methods; regional transportation planning agencies' active roles in selecting and programming transportation projects; and these agencies' ability to contract with private architectural and engineering firms to deliver those projects. Nevertheless, Caltrans is the steward of the SHS, and is responsible for ensuring that the appropriate accountability and professional liability remain with project sponsors, implementing agencies, and product suppliers.

Caltrans seeks to ensure the integrity of the SHS by defining the various roles and responsibilities of all parties involved, and by ensuring the quality of transportation projects. The DD23 quality policy is based on the fundamental concept that control of quality is the team obligation that recognizes quality is built into every aspect of the project.

This guide describes the roles and responsibilities for those either overseeing professional engineering works, or Project Engineer (PE) in charge of professional engineering works. The works, herein referred to as design products, include, Draft Project Report (DPR), Project Report (PR), Plans, Specifications, and Estimate (PS&E), Design Standards Decision Document (DSDD), and other delegated design decision documents. Although the PE relies on the works and recommendations of other functional areas, the PE is responsible for integrating those works and recommendations into an optimum solution as part of the design products.

Caltrans also procures services from Architecture & Engineering (A&E) consultants to assist with the development and construction of projects. In these cases, this guide is also intended to assist those involved in overseeing this type of contract work.

Caltrans is committed to effectively and efficiently develop and construct its transportation projects throughout the project development process in compliance with laws and regulations that govern the use of state and federal transportation funds. Transportation funds also include the post-construction funds needed to maintain and operate the transportation projects as part of the SHS.

1.2 Definitions

The following definitions are related to the Quality Assurance Program for design products. Additional definitions can be found in *Appendix A: Deputy Directive 23 Revision 2*.

Design Products – Products developed in the PA&ED and PS&E phases of the Caltrans project delivery process including Draft Project Report (DPR), Project Report (PR), Plans, Specifications, and Estimate (PS&E), Design Standards Decision Document (DSDD), and other delegated design decision documents. Refer to: Draft Project Report/Project Report – See Project Development Procedures Manual (PDPM) Chapter 12, Plans, Specifications, and Estimate – See PDPM Chapter 14, and Design Standards Decision Document – See PDPM Chapter 21.

Quality Project – The fulfillment of project responsibilities in the delivery of products and services that considers stakeholders' interests and fulfills Caltrans' requirements and outcomes. A quality project is one that is delivered within the project's scope, schedule and cost and is biddable and buildable as submitted. It is one that meets the project purpose and need, incorporates safety for the traveling public and Caltrans maintenance forces, consistent with the environmental requirements, and is compatible with the values of the communities in which it lies.

Quality Management Practices – All the implementing agency's systematic activities used to direct, control, and coordinate the development of a quality project. These activities include the QAP and Quality Management Plan (QMP) implementation, the performances of Quality Control (QC), Quality Assurance

(QA), and Quality Management Assessment (QMA) activities, and quality improvements originating from QC, QA, or QMA.

Quality Organization – Three separate groups: QC, QA and QMA. The key quality management positions include the Project Engineer (PE), Design Senior, Project Manager (PM), Project Delivery Team (PDT), and Subject Matter Experts (SMEs) (could be identified as Quality Manager) responsible for the performance of QMA activities and Executive management.

Quality Assurance Program (QAP) – The implementing agency's promulgated quality-related policies, procedures, and guidelines necessary to ensure the work performed for each project component results in a quality project. DD23 and this QAP guide are some elements of HQ Division of Design (HQ DOD) QAP.

Quality Management Plan (QMP) – A document prepared by the Design Senior in coordination with the PM and PDT, that describes by who, what, when, and how QC, QA, and QMA activities will be performed for the design products. QMP describes the processes, procedures and details of reviews and checks that will be performed on the design products. The QMP should include quality organization defining the responsibilities of all personnel who manage, perform, and ensure the quality of the work including:

- Initiate action to prevent the occurrence of errors, omissions, and rework.
- Identify, evaluate, and document quality problems.
- Recommend or initiate quality improvement solutions.
- When a risk is identified, an analysis of impacts should be conducted, and resolution strategies formulated and implemented as early as possible.

Quality Control (QC) – The methods, means, or procedures used by a design product developer to monitor and assess products or services to ensure that the final product will fulfill the established quality requirements. The PE is responsible for the design products QC in coordination with the PDT. The PE is to ensure the delivery of design products is well planned, coordinated, and supported by the Design Senior.

Quality Assurance (QA) – The performance of all the planned and systematic activities that provide confidence that the design product requirements will be fulfilled. Design Senior assures the products are developed in compliance with

Caltrans policies, procedures, and standards and in coordination with other disciplines, agencies, and community representatives as outlined in the QMP. The Design Senior is also responsible for the development and maintenance of the QC process and procedure. The Design Senior's role is also to ensure that the QMA reviews are performed and are incorporated into the improvement of the design product and QMP.

Quality Management Assessment (QMA) – The performance of all planned systematic activities by the SMEs or Quality Manager who are not reporting to the design unit responsible for the development of design product (independent). The QMA verifies the quality of the design products and the QMP effectiveness, and precedes the approval of design products.

1.3 Laws and Regulations

The following laws and regulations are related to quality management practices.

Government Code § 14000(c) – This government code describes Caltrans' goals to provide adequate, safe, and efficient transportation facilities and services.

Government Code § 830.6 – This government code establishes requirements to maintain design immunity for a public entity or a public employee.

Government Code §14520.3 (b) – This government code upholds Caltrans' responsibility for planning, design, construction, maintenance, and operation of the SHS.

Streets and Highways Code § 90 – This government code requires Caltrans to have full possession and control of all state highways property necessary to construct the SHS.

Streets and Highways Code § 137 – Caltrans shall determine the kind, quality, and extent of all highway work done under its control, and may prepare and approve all plans, specifications, and estimates for all such work.

U.S. Code, Title 23, Highways § 106 (h) – Major projects greater $500 million require Federal Highway Administration (FHWA) approval of a project management plan.

2.0 ROLES AND RESPONSIBILITIES

The QAP serves to provide quality policies, procedures, and guidelines in the planning and designing of transportation improvement projects. All documents related to quality and administrative procedures should be available to all design staff. The design team should receive orientation and training on the quality program and procedures.

Proper QAP development, implementation, and quality management practices should create a project development culture that:

- Values prevention over inspection in achieving quality.
- Incorporates quality into the entire project development process.
- Focuses on the customer to satisfy quality.
- Promotes pride of workmanship.
- Promotes efficient use of resources.
- Reduces errors, omissions, or conflicts.
- Integrates risk management.

A quality project shall be continuously assessed against the following areas:

- The project provides safety features for all users and workers during and after construction.
- The project purpose solves the transportation needs.
- The project support and capital cost, and its schedule, are managed with minimal project changes or within the project constraints.
- The project design applies appropriate standards.
- The project environmental impacts are minimized and mitigated; and when applicable, its environmental commitments are met.
- The project right-of-way footprint and impact are minimized and are compliant with laws and regulations.

- The project is constructible in the manner that the construction contract results incur minimal delays and avoid unplanned contract change orders or claims.
- The project is designed to operate as planned to ensure efficient flow of all modes of transportation users throughout its design life.
- The project is compliant with the construction contract, where contractors provide their best bid and the contract is easily administered to fulfill the scope and requirements.
- The project is maintainable, so that it is easily serviceable and incorporates reliable, durable materials and features.
- The project provides additional features that enhance basic performance, such as aesthetics, future considerations, or other context elements.

Establishment and implementation of a QAP ensures that responsibilities and authorities are defined through delegations, functional organizational charts, and the assignment of quality management. The essential roles and responsibilities for the delivery of the quality design products are shown in Figure 1. Please see *Appendix B* for the full QAP process flowchart.

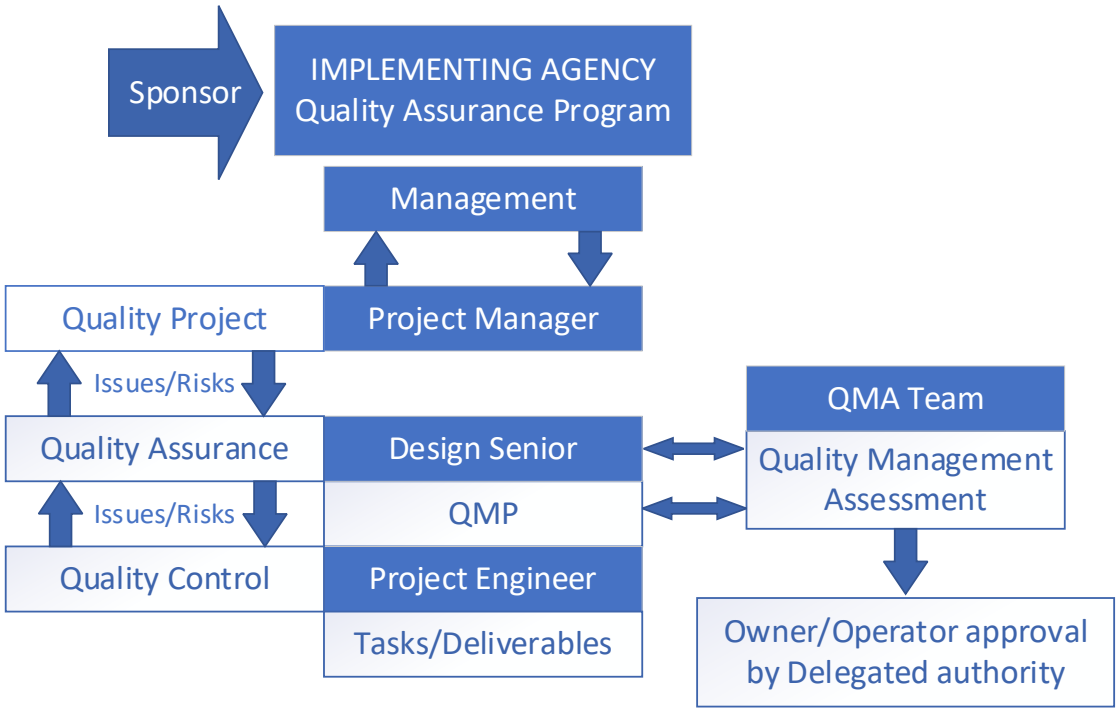


Figure 1. Essential roles and responsibilities for the delivery of quality design products

The following are the essential roles and responsibilities for the performance of quality management activities for design products:

Management is responsible for the overall implementation of quality management practices for all projects within their delegated authority; this includes overseeing the planning, organizing, commanding, coordinating, and controlling of all project-related works. They assist in resolving project-related issues, and risks that are beyond staff's authority or responsibility, such as owner/operator responsibilities, obligations, or commitments. Management also improves quality management practices, effectiveness, and efficiencies, to ensure that quality projects are realized. (see PDPM Chapter 2, District Director and Deputy District Directors).

Deputy District Director (DDD) of Design is the approving authority for the District QMP and assigns QMA Team Lead.

Project Manager (PM) is responsible for the project quality by ensuring the quality management practices and activities are planned, resourced, and managed as part of the project management plan for each phase. The PM collaborates with the PE, Design Senior, and PDT in the development of the QMP, identifying risks, resolving issues, and facilitating resolutions to issues and risks; and fulfills the responsibilities described in PDPM Chapter 2, Project Manager.

Design Senior (or Project Engineer's Manager) is responsible for QA for the development of design products. The Design Senior acts as the primary supplier for the design services for the project deliverables, as described in PDPM Chapter 2, Section 3, Design Senior. Examples include development; reviewing and updating the QMP; assessing the PE's experience; addressing issues that are beyond the PE's responsibilities; ensuring the quality work is complete and accurate; providing direction to the PE and staff; and either verifying the review of the work is performed or performing the review. The Design Senior assures the quality of the design products submitted by the PE. The Design Senior assures the products are developed in compliance with Caltrans policies, procedures, and standards and in coordination with other disciplines, agencies, and community representatives as outlined in the QMP. Design Senior is also responsible for the development and maintenance of the QC processes and procedures. The Design Senior's role is also to ensure that the QMA reviews are performed, and the comments are addressed and incorporated into the improvement of the design product and QMP.

Project Engineer (PE) is responsible for QC of the engineering work performed and the integration of the work performed by other functional units as described in PDPM Chapter 2, PE. Examples include following the QMP, appropriate use of design standards, use of engineering judgment, collaborating with other functions affecting project quality, verify that the quality expectations have been met, seek to address issues, and assess risks. The PE is a member of the PDT and collaborates with the PDT members in the development of the design products. The PE is responsible for the design products QC in coordination with the PDT. The PE is to ensure the delivery of design products is well planned, coordinated, and supported by Design Senior.

Quality Management Assessment (QMA) Team is an independent multi-functional team and is responsible for assessing the QMP and any Caltrans approval design products. Activities include recommending QMP improvements, constructive feedback on design products, and recommending approval to the Caltrans authority.

QMA Team Lead is assigned by DDD of Design, and will lead a QMA team to perform QMA activities including verfification of Project-Specific (P-S) QMP / Application.

Contract Manager is responsible for the procurement and administration of the consultant contracts. The Caltrans contract managers have authority over all contract works and should delegate responsibilities to the various functional units beyond their expertise. These include the PM, the design task manager, or Design Senior, as well as other functional areas, in performing quality assurance for the consultant's work or deliverables. For more information, please refer to the Division of Procurement and Contracts (DPAC) at: https://dpac.onramp.dot.ca.gov/.

3.0 QUALITY MANAGEMENT PLAN (QMP)

The QMP is a document that describes who, what, when, and how QC, QA, and QMA activities will be performed for the design products, as specified in the QAP Guide. HQ DOD will review the District QMP for ensuring the consistent and effective applications of the quality management practices as part of the continuous improvement strategy. DDD of Design is the approving authority. The District QMP template and guide are provided for reference in Appendix C, which is developed based on the principles of Leadership, Strategic Plan, Customer Focus, Workforce, Issue Detection, Issue Resolution, and Results & Performance Evaluation.

3.1 Quality Control (QC)

Quality will be obtained through appropriate planning and control of work products and by specific quality control activities such as reviewing, checking, and quality process review and improvements.

The following QC process should be used when developing design products:

- There shall be an originator and checker, they should not be the same person.
- The originator is to produce the work product in accordance with standards of practice such that a checker can achieve the same conclusion or recommendation.
- The checker will review the work product for completeness, accuracy, clarity, and verify the conclusion or recommendation.
- The checker will make comments clearly identifiable to the originator.
- The originator will track and address all comments by either making revisions or corrections, rejecting, or labeling them unresolved subject to the resolution process.
- Once the originator has resolved all issues, the originator is to provide the checker updated document to verify the work product has properly addressed the comments.

- The Design Senior will accept or reject the design product by providing approval or recommendation, if applicable, and provide direction on the next step.

The QC activities consist of the following categories:

- **Planning the work** – As part of the QA and communicated through the QMP, the PE is to ensure the delivery of the design product is well planned, coordinated, and supported by the Design Senior. The PE should be able to make technical decisions, have a proper understanding of project requirements and procedures, should be supported with skilled personnel performing their project delivery functions, and should be able to apply project delivery guidelines and manuals including but not limited to the Highway Design Manual (HDM), PDPM, Plans Preparation Manual (PPM), Construction Contract Development Guide (CCDG), etc. As part of the project planning outline, a discussion should include the procedures for the preparation, reviews, and disposition of project work products or deliverables. All design products that are submitted for formal review or release should undergo detailed QC checks beforehand. The following categories requiring QC reviews should be included:

    - Reports (design documents) – Any required approval documents that are written work products, analysis, recommendations, summaries, or conclusions related to the design.

    - Calculations – Any mathematical or data analysis, arithmetical calculation, or conclusion related to the project.

    - Plans/Drawings – Any graphical work products that display engineering details to construct a project.

    - Specifications – Any of the requirements that a construction contractor will be required to fulfill as part of the construction contract.

    - Product Integration – Any works produced by external design team that will be integrated into the Draft PR, PR, and PS&E.

    - Risk Management – Method of managing all issues, risks, or potential problems generated from reports, calculations, plans, specifications, or the integration of work products.

- **Preparing design documents** – The design team prepares the design documents, using the established design criteria for the design product and appropriate interdisciplinary coordination (via regular scheduled PDT meetings, written communications, etc.).

- **Checking and reviewing the documents** – All design products are subjected to the design checking process. Before delivery to the Design Senior, the PE shall be responsible to make sure that all design documents have gone through a checker / reviewer. The checker checks the design documents following the procedures detailed in the District QMP using the appropriate forms or checklists.

- **Revisions** – Sometimes when a project risk becomes a project issue, a previously reviewed design product will need to be revised or modified. If and when that occurs, the PE should conduct QC reviews of the revised or modified design product.

There are other functional area peers who provide technical or supporting information on the design products. These functional areas are responsible for the quality of their work products; however, the PE is responsible for integrating and incorporating these functional work products into the overall design products. Prior to accepting functional area work products, the PE shall verify the functional work product is properly suited and compatible with the project. The following are best practices:

- Meet with the functional area peer before finalizing.

- Compare the original request against the work product.

- Ensure the work product is complete and accurate.

- Compare the work product against design standards.

- Verify the provided assumptions and risks management strategies.

- Assess the impacts to other functional areas' work in coordination with PDT.

- Evaluate the impacts to the project cost, scope, and schedule in coordination with PM.

The PE shall follow standard practices to deliver design products and should take necessary steps to mitigate the risks in completing the design products. The following are activities that may be used:

Pre-work Activities	Execution of Work
• Assesses the work to be performed compared to the experience • Reviews examples of good work • Reviews expectations and objectives • Identifies potential risks or issues • Reviews checklist requirements for each checkpoint • Reviews the QMP	• Follows the methodology for tracking risks, issues, or comments • Performs the work based on the requirements and expectations to match the manual or standards of practice • Fills out the applicable checklist • Provides risk management strategies • Performs checkpoint reviews by peer, design team, or PDT • Tracks issues, risks, or comments

Project information should be kept accurate, current, and properly filed, as prescribed in PDPM Chapter 7, Uniform Filing System. The purpose of records management is to provide confidence and substantiate that quality management has been incorporated into the work products.

3.2 Quality Assurance (QA)

QA for design products is achieved by applying the Caltrans policies, standards, and procedures to ensure delivery of a quality project. QA starts with proper planning and managing design product development. QA is the responsibility of the Design Senior by establishing the expectations, requirements, and procedures.

The QA objectives are to:

- Ensure that work is appropriately planned and implemented.
- Ensure that design products and deliverable requirements are met.
- Verify that quality project assessments are optimized.
- Ensure that issues or risks are properly managed.
- Verify that internal and external customers' expectations are managed.
- Verify that QC procedures are in place and being used.
- Verify that the District QMP is implemented & applied.

Continuous cursory reviews should be performed to minimize disruption to ongoing design work while providing timely comments and feedback on the design products. Continuous cursory reviews by the Design Senior (or other project stakeholders, as appropriate) can be done through attendance at the PDT meetings, comment resolution meetings and through routine day-to-day interaction. Feedback from the reviews should be documented as appropriate.

At the start of the new project or commencing a project phase, the Design Senior in coordination with the PM shall establish a Project-Specific (P-S) QMP/Application or use of the District QMP for the project phase work to assure a quality project. The QMP should be reviewed by the design team and the PDT to identify potential risks associated with its implementation. These risks should be captured and addressed as part of the P-S QMP/Application and included in the project risk register. Once the PDT has concurred, the P-S QMP/Application should be formalized.

Beyond developing the QMP, QA includes overseeing its implementation throughout the project development process, prioritizing work resources, assisting in resolving and addressing issues and risks, and engaging leadership and stakeholders. The Design Senior is responsible for updating and maintaining the QMP and also responsible for delegating responsible charge to the PE.

3.3 Quality Management Assessment (QMA)

The purpose of QMA is to verify the QAP effectiveness by assessing the QMP application and design product quality prior to any design product approval. QMA activities are separate from QC/QA activities. These independent

assessments are intended to provide a fresh perspective on the quality plan and work product and provide cost-effective recommendations for achieving an overall quality project. Described below are the two primary objectives for QMA.

- QMP Evaluation and Verification – The design products are planned, and prescribed processes and procedures are followed as described in the QMP. Issues are tracked and managed, and those that are unresolved are addressed as part of the Risk Management Plan (RMP). The district management, customers, and stakeholders are made aware of the quality issues.

- Design Product Evaluation – Once the design product is considered complete by the Design Senior and staff, an independent qualified multi-functional QMA team or individual will verify that the design product is aligned to achieve a quality project.

QMP Evaluation and Verification

One of the responsibilities of the QMA team is to evaluate the QMP and verify the implementation of QMP. The QMP evaluator(s) (or QMA Team Lead) are provided an evaluation checklist, as shown in *Appendix C - District QMP, Attachment 3*. P-S QMP Evaluation & Verification Form. This review shall be shared with the DDD of Design if the QMP review demonstrates significant issues.

The evaluation should be done prior to a major milestone or deliverable. The QMP evaluation may include the review of QC, QA, and QMA of design products, issue & issue resolution tracking system, risk management, PDT meeting minutes, documentation of QMP application, or project history files.

Design Product Evaluation

For the design products, district is to establish a QMA multi-functional team composed of project management, design, right-of-way, environmental, traffic, maintenance, construction, structure design (if a structure is involved), office engineer (PS&E only), and structure construction (if PS&E and a structure is involved)). Either the Design Senior or PE shall be responsible for notifying the QMA team when a review is needed. It shall be scheduled in a manner so that reviews will be effective, yet not create unnecessary delays. Refer to *Appendix C – Attachment 4. QMA – Design Product Evaluation Criteria.*

These reviews should be performed by multi-functional team members who meet the following qualifications:

- Are independent from the PDT.
- Are experienced in their respective field.
- Are familiar with the project development process and design products.

The QMA team shall implement the following best practices:

- Meet collectively to ensure consistent comments and avoid duplicate or conflicting comments.
- Provide comments based on Caltrans policies, standards, procedures, and practices.
- Provide suggestions, when appropriate, to satisfy the policy, standard, procedure, or practice, and label as such.
- Have access to other project-related supporting documents.
- Assigns a priority of risks on each comments – High (Critical), Medium (Important), or Low (For future improvement).
- Use judgment sampling or common error sampling to initially check if quality management was performed.
- Formulate and agree on the most efficient review time to verify project quality.
- Agree on reasons for rejecting submittals.
- If available, use a checklist or an evaluation criteria rubric.

Comments should be collected in a comment matrix in which they are legible, the reviewer's name is referenced, they are easy to locate on the review document, and they are prioritized. The purpose of the review comments is to improve the quality of the design products and QMP. These comments should be tracked, resolved, or mitigated in accordance with the QMP; and if needed, recorded in the RMP. Refer to the HQ DOD, Office of Performance Management web page for assistance in the utilization of a QMA tool and training. (https://design.onramp.dot.ca.gov/node/1462).

In addition to the Draft PR, PR, and PS&E, there are other owner/operator approval documents that require a QMA review. These documents are typically associated with project-related decisions that will affect Caltrans authority or responsibilities. They include Design Standards Decision Document (DSDD) and other district delegated design decision documents as described in the Design Delegation Agreement. The reviews of these work products shall be in accordance with the district protocols as prescribed in the QMP and coordinated with the district-assigned point of contact or delegated authority. The QMA team may be incorporated as part of the District Review, Constructability Review, or Safety Review teams.

QMA Feedback

The QMA feedback serves to assist the PDT in prioritizing and resolving issues as well as identifying quality and risks associated with various project decisions. It is the Design Senior who is responsible for quality assurance, and every effort should be made to address quality issues as part of the issue resolution processes.

Should the QMA find significant issues related to unresolved critical issues or risks; incomplete submittals; or QMP application, the Design Senior and PE (contract manager, if applicable), along with the PDT, should be given the opportunity to correct such findings. In addition, the Office Chief or DDD of Design shall be notified of such findings to initiate the issue resolution process to avoid delays and additional support costs related to unplanned rework. These QMA comments may also assist in improving QC, QA, and QMA processes.

The QMA team is not responsible for errors, omissions, or conflicts that are contrary to, in conflict with, or do not conform to state and federal laws; Caltrans standards, policies, and practices; or general professional engineering practices. Such errors, omissions, or conflicts are the responsibility of the Design Senior and PE, even though QMA may have overlooked these errors, omissions, or conflicts in its review.

All technical documents submitted to the QMA team for review shall follow the California Code of Regulations Title 16 § 404.1(b) Responsible Charge – Professional Engineering; § 415 Practice within Area of Competence; § 475 Code of Professional Conduct; and PDPM Chapter 2, Section 9, Signatures on Technical Reports.

Externally Developed Projects

Cooperative projects developed by external partners are subject to the terms and conditions set by cooperative agreements or highway improvement agreements (see PDPM Chapters 2 and 16). In such cases, the local agency or private developer acts as the implementing agency, and is responsible for planning, designing, or constructing a quality project. Therefore, all QC and QA works must remain with the implementing agency's professional liability and responsibility.

For externally developed projects, Caltrans' role is limited to QMA in maintaining its owner/operator charge. The implementing agency is accountable for project management responsibilities. Caltrans typically assigns a single liaison to guide these projects through the project development process. The liaison role is responsible for processing and administering the cooperative agreement or highway improvement agreement terms and conditions. This liaison role consists of:

- Collaborating with the project sponsor, implementing agency's project manager & suppliers, and Caltrans staff.
- Performing QMP evaluations as part of QMA.
- Ensuring Caltrans resources are managed as part of the project workplan for QMA activities, owner/operator approvals, stakeholder activities, and project activities that can only be performed by Caltrans.
- Coordinating QMA activities with the implementing agency.
- Facilitating Caltrans owner/operator approvals, reviews, or concurrence.
- Sharing changes to Caltrans policies, standards, and practices.
- Apprising Caltrans management on quality issues and risks.
- Representing Caltrans at PDT meetings.

PDPM Chapter 8 describes the criteria for which a project implemented by others may be processed per an encroachment permit process (typically non-complex projects). On those occasions that a locally implemented project has significant impacts or improvements on the SHS, Caltrans' role will be to perform QMA.

The Plans Preparation Manual Chapter 2 and Construction Contract Development Guide Section 10 provide the required information for the Caltrans approving authority on the design plans developed by local agencies or private consultants. In such cases, the Caltrans oversight engineer's approval, herein referred to as QMA engineer approval, serves in fulfilling the owner/operator approval inherent in the goal established in Government Code 14000(c). This QMA engineer approval may be granted prior to constructing a project, as required by Government Code 830.6. Caltrans QMA engineer's approval is required to maintain Caltrans design immunity. Designs developed by consultants or local agencies do not grant design immunity unless their work has been overseen and approved by a Caltrans delegated authority.

Lastly, the professional liability, including but not limited to errors, omission, and conflicts, lies with the individual who signs, seals/stamps, and whose registration appears on the plans and specifications.

The QMA engineer approval shall be granted with the following conditions:

- The licensed engineer has been delegated authority granted from the District Director.
- QMA evaluation has verified the QMP implementation has been upheld.
- Risks management strategies have been addressed satisfactorily.
- QMA reviews have found no significant quality issues.

4.0 PERFORMANCE MEASURE AND CONTINUOUS IMPROVEMENT

HQ DOD, in coordination with the districts and other HQ fuctional offices, continues to improve methods and procedures to enhance the quality and delivery of projects by analyzing project performance. At the beginning of each fiscal year, HQ DOD, in coordination with the districts, will establish performance metrics for focused areas of improvement, such as:

- Unplanned project change requests.
- Preventable Contract Changes Orders (CCOs) and Construction claims.
- Addenda.
- Frequency of QMA or Independent Quality Assurance (IQA) review comments.
- Over/Under Engineer's Estimate.
- G12 requests due to scope changes.
- Hours expended versus planned due to avoidable rework.
- Operational issues.
- Maintenance and Transportation Planning's satisfaction.
- Unplanned project improvements.
- Local and permitting agencies' satisfaction.

The analysis of such topics should help improve the quality of project development policies, guidance, training, and tools at the team, program, District, Region, or statewide level. *Appendix D - Performance Metrics* is an example performance measurement.

HQ DOD will ensure that each District QMP is implemented, and will conduct periodic process review focusing on the application of District QMP. The results from the process review including recommended corrective actions will be reported to HQ & District Management.

Appendix A:

Deputy Directive 23, Revision 2

Deputy Directive

Number: DD-23-R2

Refer to

Director's Policy: DP-03, Safety and Health

DP-06, Caltrans' Partnerships DP-07, Project Delivery

DP-08, Transportation System Management and Operations (TSMO)

DP-10, Departmental Commitments DP-14, Quality in Caltrans

DP-33, Sustainability

Effective Date: 12/04/2018

Supersedes: DD-23 R1 (2/23/2007)

Responsible Program: Project Delivery, Division of Design

TITLE Roles and Responsibilities for Development of Projects on the State Highway System

POLICY

T The California Department of Transportation (Caltrans), as owner/operator of the State Highway System (SHS), has the statutory (Government Code section 14000(c)) and inherent goal to ensure that all modifications or additions to the SHS are:

- Safe, operational, maintainable, environmentally compatible, and of good value.
- Efficient in providing 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.

Caltrans meets this goal by:

- Applying quality management practices.
- Engaging in early and continuous partnerships and ensuring accountability amongst project sponsors, implementing agencies, stakeholders, Caltrans functional units, local, regional, and transit agencies, tribal governments, developers and consulting firms employed by Caltrans or its partners.
- Ensuring that all projects on or proposed for the SHS are planned, developed, and constructed efficiently and effectively resulting in a quality project in accordance with Caltrans standards and practices.
- Ensure one implementing agency undertakes the project's advertising, awarding, and administration of a construction contract.
- Maintaining ultimate approval authority for all projects on the SHS.
- Keeping the public informed through appropriate outreach.

DEFINITION/BACKGROUND

The roles and responsibilities in planning, designing, and constructing transportation projects on the SHS continue to increase in complexity due to the influx of various transportation funding sources, the ability to use alternative project delivery methods, regional transportation planning agencies' active roles in selecting and programming transportation projects, and these agencies' ability to contract with private architectural and engineering firms to deliver those projects. Caltrans as steward of the SHS strives to ensure the appropriate accountability and professional liability remain with project sponsors, implementing agencies, and product suppliers. Caltrans seeks to ensure the integrity of the SHS by defining the various roles and responsibilities of all parties involved, and by ensuring the quality of transportation projects. The definitions provided below are recognition of the parties' interests related to transportation project development.

Owner/Operator is the entity ultimately responsible for the planning, design, construction, operation, maintenance, and liability of a facility. Government Code section 14520.3 (b) and Streets and Highways Code section 90 establishes Caltrans as the owner/operator of the SHS.

Project is the undertaking by a project sponsor of a transportation related construction, erection, alteration, repair, or improvement to the SHS, including all work necessary to fulfill the owner/operator's requirements and commitments while satisfying all state and federal laws and regulations. (Public Contract Code section 10105).

Project Sponsor is the project advocate that acquires funding partners to ensure adequate project funding.

Project Components are prescribed in Government Code section 14529(b) and describe the resources during the life of a project in the State Transportation Improvement Program. Components are synonymous to phases which are used to indicate the progression of a project in the project development process.

Implementing Agency is an entity charged with successful completion of a project component, and assumes project management responsibilities for the component. There is only one implementing agency per component.

Supplier is the entity that provides a service or product to the implementing agency.

Delegation is the process of transferring powers, duties, obligations, or actions from one person/entity to another.

Quality Project is the result in the fulfillment of project responsibilities in the delivery of products and services that considers stakeholders' interests and fulfills Caltrans' requirements and outcomes.

Quality Control (QC) is the methods, means, or procedures used by a supplier to monitor and assess products or services to ensure that the final product will fulfill the established quality requirements.

Quality Assurance (QA) is the performance of all the planned and systematic activities that provide confidence that the product requirements will be fulfilled.

Quality Management Plan (QMP) is a document prepared by the implementing agency that describes by who, what, when, and how QC and QA activities will be performed for each project component as specified in the quality assurance program.

Quality Assurance Program (QAP) is the implementing agency's promulgated quality related policies, procedures, and guidelines necessary to ensure the work performed for each project component results in a quality project.

Quality Management Assessment (QMA) is the performance of all planned systematic activities by the owner/operator that verifies the implementing agency's QAP effectiveness and precedes the owner/operator approval.

Quality Management Practices are all the implementing agency's systematic activities used to direct, control, and coordinate the development of a quality project. These activities include the QAP and QMP implementation, the performances of QC and QA activities, and quality improvements originating from QMA, QC, or QA.

Owner/Operator Approval is a non-delegable project related decision which can only be performed by the owner/operator.

Stakeholder Approval is a project related decision which can only be performed by an external individual or organization whose duties are established by law (e.g. National Environmental Policy Act (NEPA) permitting agencies, California Environmental Quality Act (CEQA) permitting agencies, railroads, or the California Transportation Commission (CTC)).

California Environmental Quality Act Lead Agency (CEQA) (Public Resources Code section 21067) is the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect on the environment.

National Environmental Policy Act Lead Agency is the public agency which ensures federal compliance and approvals for a project.

CEQA Responsible Agency (Public Resource Code section 21069) is the public agency, other than the lead agency, that has discretionary authority over a project.

RESPONSIBILITIES

Owner/Operator:

- Performs QMA for all projects to ensure a quality project on the SHS.
- Provides owner/operator approval as needed.
- Provides written approval on risks the project sponsor is unable to mitigate or avoid.
- Fulfills the FHWA Stewardship and Oversight Agreement responsibilities.
- Fulfills NEPA lead agency role and responsibilities when assigned by FHWA.
- Fulfills CEQA lead agency role and responsibilities.
- Performs CEQA responsible agency responsibilities, when not a CEQA lead agency.

Project Sponsor:

- Secures funding for the preparation and completion of all the project components including quality management practices.
- Identifies and seeks approval for the transportation need and purpose that conforms to Caltrans Strategic Management Plan.

- Evaluates and compares project outcomes to the established project goals.
- Chooses an implementing agency for each project component.
- Mitigates project risks and does not create undue risk for the owner/operator unless necessary approvals are obtained using proper procedures.
- Ensures the project management plan is implemented, including, but not limited to, the QMP and risk management plan.

CEQA Lead Agency:

- Determines the appropriate type of environmental documentation.
- Exercises its independent judgment and analysis for the adequacy and objectivity of the CEQA environmental document.
- Reviews and approves the need and purpose for the project as it relates to the environmental documentation.
- Reviews and approves a reasonable range of alternatives in relation to the environmental documentation.
- Reviews, comments, approves, and certifies the environmental documentation at appropriate stages of project development as prescribed in the Caltrans Standard Environmental Reference (SER).

NEPA Lead Agency:

Performed by the US Department of Transportation, Federal Highway Administration (FHWA) unless assigned to Caltrans.

- Reviews, comments, and approves the NEPA environmental documentation at appropriate stages of project development.
- Reviews and approves the need and purpose for the project as it relates to the environmental document.
- Ensures a reasonable range of alternatives are considered in relation to the environmental document.
- Reviews, comments, approves, and revaluates environmental documentation at each project component.
- Ensures the project sponsor complies with the project's environmental mitigation and other environmental commitments disclosed in the environmental document.

CEQA Responsible Agency:

- Ensures its concerns are met by providing early consultation to the CEQA lead agency.
- Participates in the CEQA process.
- Prepares and issues its own findings.
- Certifies its review and consideration of the CEQA lead agency's CEQA document.
- Acts on or approves the project.

Implementing Agency:

- Chooses the supplier for each project component.
- Establishes and implements QAP and generates a QMP for each component.
- Delivers quality project components on time, and within budget.
- Verifies and accepts work performed by the supplier provided appropriate documentation is obtained to allow for verification and acceptance.
- Advertises, awards, and administers the construction contract.
- Ensures that all project component closeout activities are completed in a timely manner, including, but not limited to, survey control and right of way monumentation, as-built plans, environmental commitments compliance, and right-of-way.

Deputy Director, Project Delivery:

- Ensures establishment and implementation of Caltrans policies, standards, procedures, and best practices for each project component affecting project development.
- Ensures establishment of the QAP for each project component affecting Project Delivery that includes QC, QA, QMA, and owner/operator approval activities.
- Ensures allocation of capital outlay support (COS) resources for the timely delivery of quality products and services.

Deputy Director, Maintenance and Operations:

- Ensures establishment and implementation of Caltrans policies, procedures, and best practices for maintenance and operations of SHS.
- Ensures allocation of maintenance and operations support resources for the timely delivery of products and services related to project development.
- Ensures establishment and implementation of Caltrans policies, procedures, and best practices for issuance of encroachment permits.
- Ensures allocation of maintenance and operations support resources for the timely delivery of products and services including CEQA lead agency or responsible agency.

Deputy Director, Planning and Modal Programs:

- Ensures establishment and implementation of Caltrans policies, procedures, and best practices for Transportation Planning of the SHS.
- Ensures that implementation of projects on or proposed for the SHS are consistent with all Caltrans transportation planning documents.

- Provides resources for the development of project initiation documents in the project initiation phase.
- Establishes and ensures the QAP for the project initiation phase includes QC, QA, QMA, and owner/operator approval activities.
- Ensures allocation of Transportation Planning support resources for the timely delivery of products and services including CEQA lead agency or responsible agency.

Division Chiefs:

For each Division's respective area of responsibility pertaining to the efficient and timely delivery of quality projects and services:

- Develop and implement standards, procedures, and best practices that are aligned with Caltrans' Strategic Management Plan.
- Develop and implement guidance, tools, and training to ensure successful delivery of quality projects.
- Develop a QAP pertaining to their product and services for which Caltrans is the implementing agency and responsible agency.
- Provide statewide direction, policies and standards for activities required to ensure compliance with Caltrans policies, standards, and best practices.
- Measure and monitor critical program and project deliverables and outcomes by districts and regions in alignment with Caltrans' Strategic Management Plan.
- Act as the approval authority for owner/operator approvals for those decisions delegated.
- Provide guidance, policies, tools, and training for QMA activities.
- Perform audit, surveillance, or process reviews for ensuring the consistent and effective application of Caltrans standards, procedures, best practices, and quality management activities.
- Implement a system of continuous quality improvement using information learned from measuring and monitoring deliverables and from process reviews.

District Directors:

- Assess the feasibility of the project sponsor's ability to obtain funding for the proposed project component(s) before Caltrans begins work.
- Act as the Caltrans authority for any owner/operator approval for those decisions delegated.
- Concur on the project's need and purpose relative to its public benefit and impacts to the SHS.
- Appoint a primary point of contact for each project.
- Determine and provide those activities that ensure a quality project on the SHS, including, but not limited to:
    - Implementation of the QAP for each project component

for which Caltrans is the implementing agency.
    - Implementation of QMA for all project components.
- Ensure project decisions are made considering information gathered through public outreach and involvement of stakeholders.
- Enter into cooperative or highway improvement agreements as appropriate with project sponsor(s) prior to expenditure of COS resources.
- Inform stakeholders of the policies, standards, procedures, and best practices required by Caltrans and FHWA.
- Deliver on commitments made to partners and customers, based on statutory authority and available resources, and ensure the timely delivery of quality products and services for which Caltrans is the implementing agency.
- Ensure that Caltrans functional units are properly resourced to deliver quality products and services in a timely manner.
- Determine the appropriate agency to be the lead under CEQA.
- Approve and certify the CEQA environmental document if Caltrans is the CEQA lead agency or approve the project if Caltrans is the responsible agency.
- Review and approve the project report or equivalent after consideration of the CEQA.
- If assigned, approve the NEPA environmental documentation.
- Ensures all proposed projects are evaluated and prioritized for funding.

Public Information Officers:

Communicate to the public specific actions that will be taken to restore or minimize effects of all construction, maintenance, permitting, planned emergency restoration, or other activities on the SHS.

District Deputies, Office Chiefs, and Branch Chiefs:

- Provide QA for the products, and services within their functional area.
- Empower employees with the tools, resources, time, and training to deliver the products and services for which Caltrans is the implementing agency.
- Participate in the development of work plans and quality management activities defining project scope, cost, schedule, resource, and quality requirements.
- Prioritize commitments to ensure the successful delivery of both Caltrans' and external project sponsors' projects.
- Ensure that work does not begin without appropriate written authorization.
- Notify their District Director and/or Deputy District Directors, via established reporting relationship, of any changes, problems, or risks that could affect the scope, cost, schedule, and overall quality of projects on the SHS, or owner/operator approval.
- Apply the QAP, and develop the QMP if Caltrans is the implementing

agency.
- Perform QMA, if assigned this responsibility.
- Assess and manage risk affecting the owner/operator responsibilities.

Project Managers:
- Lead the project development team on issues and risks related to quality management, scope management, schedule management, or cost management issues for each project component utilizing appropriate documentation.
- Facilitate resolutions and seek approvals for project related issues and risks affecting the quality, scope, schedule or cost.
- Ensure funding requirements are met.

Task Managers or Employees:
- Participate in the deployment of the QAP by performing quality control or quality assurance, if assigned, on work or services.
- Provide quality and timely products and services by using appropriate tools, resources, time, documentation, and training.
- Assess risk of issues affecting the owner/operatorresponsibilities and communicate those in a collaborative fashion to the implementing agency and stakeholders.
- Communicate to their supervisors, project managers, and impacted functional units any changes, problems, or risks by using proper and approved methods of documentation for the project.

APPLICABILITY

All employees involved with the delivery of modifications or additions to the SHS.

RYAN CHAMBERLAIN
Chief Deputy Director

12/4/18
Date Signed

Appendix B: QAP Flowchart

Quality Assurance Program (QAP) Flowchart for Design Products

HQ DOD

Develop QAP

The following are key documents for the Design Products QAP:
Quality Assurance Program Guide for Design Products
Design Product Evaluation Criteria Handbook (aka QMA checklist)
Annual Performance Metrics
All applicable manuals, guidance, and memos (PDPM, DIBs, HDM, etc)

Design Products Include:
Draft PR
PR
PS&E
DSDD & other delegated design products

District (Implementing Agency)

Develop District QMP

The District QMP consists of the following:
7 Principles for developing QMP
Project-Specific QMP/Application (P-S QMP/Application) Template
Quality Review Checklists
QMP Evaluation Form
QMA Criteria (checklist)

The DDD of Design is responsible for approval of the District QMP.

Design Senior/PM

Develop P-S QMP / Application

Perform overall QA activities throughout the development of the design products

The P-S QMP/Application is a live document being updated through RTL.

PE/PM/Design Senior/ PDT

Follow P-S QMP / Application

Perform QC Activities & Documentation

Issue Detection/ Resolution & Documentation

Risk Management

Perform QA Activities & Documentation

Ready for QMA review

Management (Leadership)

Assign QMA Team & the Lead

Provide decisions for escalated issues & risks

Approval

QMA Team (Independent Quality Review)

QMA Activities include:
Design Product Evaluation
P-S QMP/Application Evaluation/Verification

The QMA Team can use the QMA Checklist provided by HQ DOD or district-owned checklist.

QMA Team comments to PDT

Perform QMA

Recommend Approval?

YES

NO

Appendix C:

District Quality Management Plan (QMP) Template

Appendix C: District (X) Quality Management Plan (QMP) Template

This District QMP incorporates the seven principles from the *National Institute of Standards Technology – Baldrige Criteria*. These principles have been adapted and modified to serve as the foundation for this quality guidance.

The seven principles are:

- Leadership
- Strategic Plan
- Customer Focus
- Workforce
- Issue Detection
- Issue Resolution
- Results & Performance Evaluation

Leadership

Discuss the leadership engagement establishing quality commitment and management's roles & responsibilities in the District QMP.

The purpose of leadership engagement is to encourage and support those involved in the delivery of a quality project. Leadership pertains to those individuals who have project development responsibilities not delegated to the design staff, the PDT members, or project manager. They may include the Director, Deputy Directors, Division Chiefs and Office Chiefs.

The QMP should identify the leadership and the extent to which the PDT will engage and report on the project status, quality management issues, issue resolution process, project risks, owner/operator approvals, or resourcing priorities.

The District (X) leadership includes…

Strategic Plan - General

Establish QC/QA/QMA timelines with specific requirements.

List the applicable manuals, guides, and tools to be used by the design team as part of the execution of work.

The District (X) Strategic Plan…

Strategic Plan - Quality Control (QC)

Discuss the QC methods, or procedures used by the PE or design team in collaboration with the PDT to ensure the reports, calculations, drawings, plans, specifications, estimates, delegated decision documents, risk management, and product integration are aligned to achieve a quality project and appropriately incorporated into the design product.

All design products shall be reviewed by a peer and updated prior to submittal to the Design Senior for QA.

The QC assessment starts with a risk assessment prior to initiating a task, providing risk management strategies, comparing the experience required to be successful, reviewing good examples, reviewing applicable guides or manuals, and reviewing checklist or criteria for the tasks.

The QC continues by applying the required criteria to fulfill the task requirements, having a review performed and comments fixed, and risk management strategies disclosed.

The District (X) QC means, methods, and procedures include…

Strategic Plan - Quality Assurance (QA)

Discuss the QA methods or procedures that will be used in the planning and development of the design products.

All design products prior to approval or recommendation shall have a QA review by either performing a cursory check or verifying the QC review comments have been satisfactorily addressed. In addition, to avoid unnecessary errors, changes and delays, the Design Senior shall monitor the QMP, perform cursory checks of the design products, review and update the risk register, assist in resolving issues, and attend project meetings.

The Design Senior shall schedule the QMA review prior to approval of all design products.

The District (X) QA procedures and processes include…

Strategic Plan - Quality Management Assessment (QMA)

Discuss the QMA methods or procedures.

P-S QMP Evaluation and Verification: The QMA Team (Lead) will perform a review of the P-S QMP and its application, the Design Senior is to update the P-S QMP / Application based on the feedback from the QMA Team (Lead).

Design product Evaluation: After QC and QA are complete, a QMA review shall be scheduled. For major design products such as DPR, PR, and PS&E, the QMA Team will perform an overall

review to validate the risks and assess the quality. However, for DSDD and other delegated design products such as Freeway Agreement and Route Adoption, etc, the QMA review shall be performed by functional SMEs. The QMA results will be presented to the management (or delegated authority) to either approve or reject the design product. The management (or delegated authority) shall grant approval, if and only if, the risks have been appropriately addressed and issues resolved.

The District (X) QMA procedures and processes include…

Strategic Plan - Documentation

Discuss your district's documentation or filing system for developing design products and applying QMP.

Project information should be kept accurate, current, and properly filed, as prescribed in PDPM Chapter 7, Uniform Filing System. The purpose of records management is to provide confidence and substantiate that quality management has been incorporated into the design products.

The District (X) documentation system for developing design products and applying QMP includes…

Customer Focus

Discuss customer and stakeholder engagement.

As prescribed in PDPM Chapter 8, Section 4, Customer Focus allows for external stakeholders or users to engage in the development of the project. These engagements serve to ensure the project is compatible with general plan concepts, in alignment with the community context; allows for coordinating with nearby projects; and allows for open communication. There may also be project sponsors or stakeholders such as FHWA, MPO/RTPA, or a private land developer that should be considered.

Discuss how the PDT will seek and manage customer's or stakeholder's expectations, interests, or satisfaction, and be incorporated into the Issue Detection section.

The District (X) customer and stakeholder engagement includes…

Workforce

Discuss the PDT composition.

Discuss the methods to ensure the PDT's commitment to functional deliverables, work schedule, PDT meetings, QC/QA/QMA, issue detection/resolution, risk management, and required owner/operator approvals.

The PDT members should have the following capabilities: skills, competencies, certifications or licensure, equipment, and workspace to perform the planned work. Reference PDPM Chapter 3 for roles and responsibilities in functional selections of the PDT members. The team members should be identified, resourced, and able to assist the PE and design team.

The PDT members should be meeting at a set frequency that allows the team to engage on issues. Discuss the frequency and procedures that the members will be involved in for team meetings, and how the team will be contributing to improve the project quality.

The District (X) PDT is composed of…

Issue Detection

Discuss the methods or procedures for identifying and managing issues during the project development process.

An issue is a problem that is discovered during the development of the project, and has a negative impact to the project's cost, scope, schedule, quality, and owner/operator obligations or responsibilities during or after construction.

Discuss the methods for documenting, prioritizing, and tracking issues.

The District (X) methods and procedures for identifying and managing issues from project meetings, QC, QA, and QMA activities include…

Issue Resolution

Discuss the methods for the disposition of pending issues, and those issues deemed resolved, including but not limited to the use of the risk management plan.

For certain issues identified, a solution may be easily implemented without much tracking or impact on the project. In other cases, issues are significant, and require additional input and analysis from various team members, customers, stakeholders, sponsors, management, or owner/operator-delegated authority to be involved. The QMP should include a method or procedure for resolving, documenting, and tracking of issues; and if needed, integrating these issues into the risk register. (Refer to the PDPM Chapter 2, Dispute Resolution Process and Project Development Appeal Process, if disputes arise).

The District (X) methods for resolving issues includes…

Results & Performance Evaluation

Discuss what needs to be monitored and measured; the methods for monitoring and measurement needed to ensure valid results; when the monitoring and measurement shall be performed; and when the results from monitoring and measurement shall be analyzed and evaluated.

The Performance Metrics (Appendix D) established annually by HQ DOD in coordination with the district will be provided as key performance indicators.

The RTL Certification Form will add the P-S QMP/Application as a required checking item. (pending)

Discuss district internal process review (aka Internal Audit), corrective action, and continual improvement.

The District (X) monitors and measures performance by…

Attachment 1. Project-Specific QMP/Application Template (Example)

This template is a sample that can be used by the Design Senior when developing a P-S QMP/Application.

1. Approvals

	Name	Signature	Position	Date
Prepared By			Design Senior	
Reviewed By			Project Manager	
Verified By			QMA Team (Lead)	
Approved By			DDD of Design	

2. Project Information
    a. Project ID / EA:
    b. Description:
    c. Location:
    d. Implementing Agency:
    e. Sponsor:

3. Customer Focus (list of key customers – city, county, MPO, RTPA, etc. Optional for non-complex projects, can refer to the District QMP)

4. Leadership engagement (management commitment of quality project. Optional for non-complex projects, can refer to the District QMP)

5. PDT Roles and Deliverables

Function	Representative	Deliverables	QC/QA responsible by (Senior or Manager)
PM			
PE			
Design Senior			
Construction			
Environmental			
…			

6. QC/QA Plan & Documentation: Add the Project-Specific QC/QA plan including QC/QA review checklists.*

    a. DPR / PR

    b. 30% PS&E

    c. 60% PS&E

    d. 95% PS&E

    e. DSDD & other delegated design products

7. QMA Plan & Documentation*

    a. QMA Team Lead and members

    b. QMA comments & resolution (attach QMA spreadsheet)

    c. QMP evaluation results

    d. Multi-functional inpendent reviews:

        - Constructability review
        - Safety review
        - District circulation review

8. Issue Detection & Resolution*

Issue	Description	Date	Related functions	Resolution	Follow up (Management's decision / Risk Register / Customers' response, etc)
1					
2					
3					
…					

**If your district uses documentation systems such as an issue tracking database or quality activity filing systems, please refer to those systems.*

Attachment 2. Quality Review Checklists (Example)

Quality reviews (QC/QA) are required for all design products and it is suggested to perform quality reviews for the following milestones:

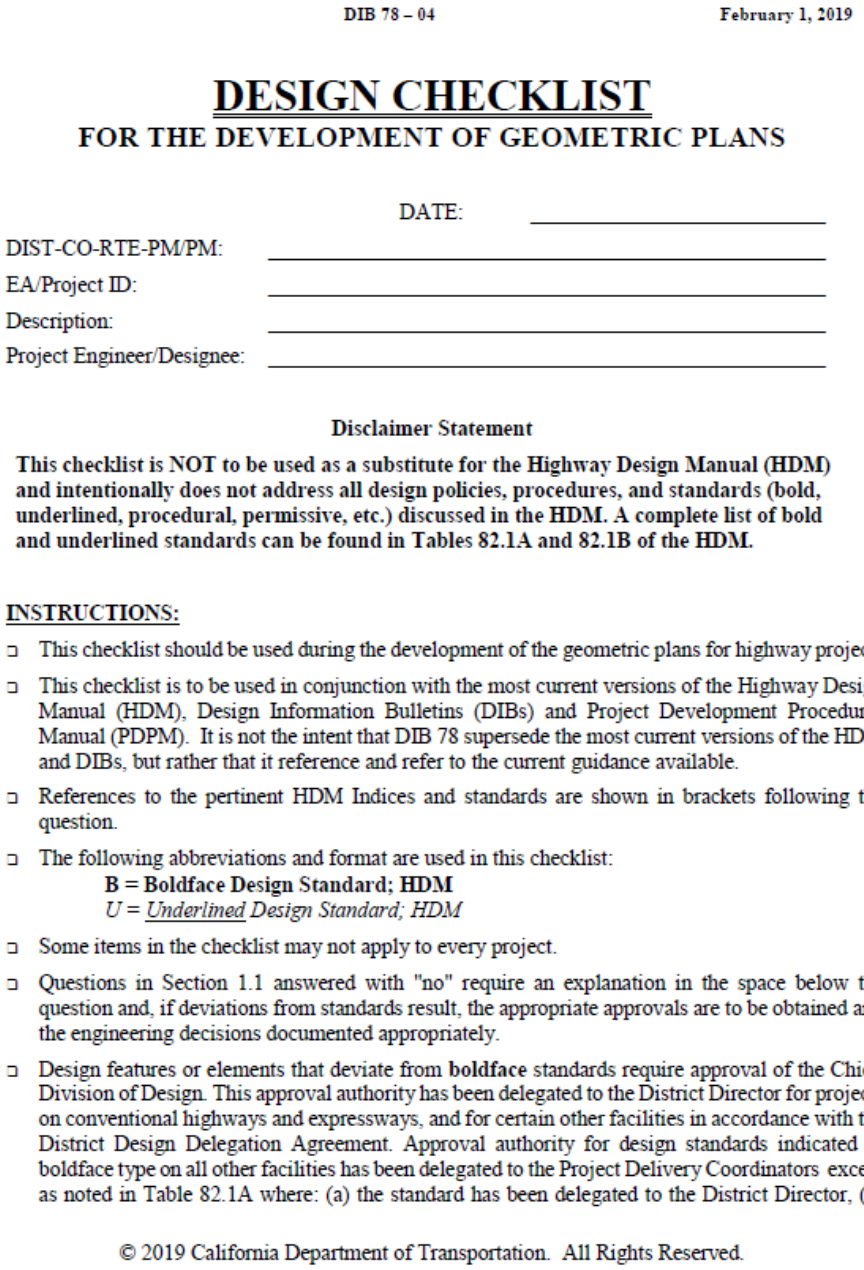
- DPR (During PA&ED)
- PR (During PA&ED)
- 30% PS&E
- 60% PS&E
- 95% PS&E

Districts can utilize checklists developed by DOD or district own checklists. It is suggested to add evaluation criteria to the checklist like an example below.

EA (EFIS ID): 07-xxxxx (07xxxxxxxx)			
Peer Reviewer: *Name / Signature*	**Date:** _____	**Functional Unit:**	**Design**
I certify that a thorough and complete quality review has been performed by my staff.			
Design Senior: *Name / Signature*	**Date:** _____		
Criteria	**Good**	**Acceptable**	**Needs improvement**
Is the 60% PS&E legible?	☐	☐	☐
Is the project purpose and need consistent with the PR?	☐	☐	☐
Is the design consistent with the Environmental document?	☐	☐	☐
Are there constructability issues?	☐	☐	☐
Are the drawings easily understood?	☐	☐	☐
Is the project report consistent with the drawing?	☐	☐	☐
Are the right-of-way and environmental mitigation requirements included in the design?	☐	☐	☐
If different from approved project report, is the program change request approved?	☐	☐	☐
Are there safety review issues?	☐	☐	☐
Are there draft special provisions requiring approvals?	☐	☐	☐

1. The Design Checklist (HDM Standards) developed by DOD will be found at:

https://dot.ca.gov/-/media/dot-media/programs/design/documents/dib78-04-a11y.pdf



DIB 78 – 04 February 1, 2019

DESIGN CHECKLIST
FOR THE DEVELOPMENT OF GEOMETRIC PLANS

DATE: _____

DIST-CO-RTE-PM/PM: _____

EA/Project ID: _____

Description: _____

Project Engineer/Designee: _____

Disclaimer Statement

This checklist is NOT to be used as a substitute for the Highway Design Manual (HDM) and intentionally does not address all design policies, procedures, and standards (bold, underlined, procedural, permissive, etc.) discussed in the HDM. A complete list of bold and underlined standards can be found in Tables 82.1A and 82.1B of the HDM.

INSTRUCTIONS:

- This checklist should be used during the development of the geometric plans for highway projects
- This checklist is to be used in conjunction with the most current versions of the Highway Design Manual (HDM), Design Information Bulletins (DIBs) and Project Development Procedures Manual (PDPM). It is not the intent that DIB 78 supersede the most current versions of the HDM and DIBs, but rather that it reference and refer to the current guidance available.
- References to the pertinent HDM Indices and standards are shown in brackets following the question.
- The following abbreviations and format are used in this checklist:
  B = Boldface Design Standard; HDM
  U = Underlined Design Standard; HDM
- Some items in the checklist may not apply to every project.
- Questions in Section 1.1 answered with "no" require an explanation in the space below the question and, if deviations from standards result, the appropriate approvals are to be obtained and the engineering decisions documented appropriately.
- Design features or elements that deviate from **boldface** standards require approval of the Chief, Division of Design. This approval authority has been delegated to the District Director for projects on conventional highways and expressways, and for certain other facilities in accordance with the District Design Delegation Agreement. Approval authority for design standards indicated in boldface type on all other facilities has been delegated to the Project Delivery Coordinators except as noted in Table 82.1A where: (a) the standard has been delegated to the District Director, (b)

2. Examples of Quality Review Checklists developed by districts.

   - NR Quality review checklists: https://district3.onramp.dot.ca.gov/projectdev/guidelines

- D4 Quality review checklists: http://d4intranet/Design/FormsChklist/FC.html
- D7 Quality review checklists: https://district7.onramp.dot.ca.gov/qms-information
- D7 Design Standard Decision Document (DSDD) checklist: https://district7.onramp.dot.ca.gov/downloads/district7/files/design/Eng_Svcs/DDL/D-7_DSDD_Preparation%20and%20Review%20Guidance.pdf
- D8 Quality review checklists: https://district8.onramp.dot.ca.gov/design-qcqa

3. For 95% PS&E review, Best Bid Standards (BBS) checklist should be applied in addition to the typical district quality checklists. The BBS is developed by DES - Office Engineer and is a live document updated every year. https://des.onramp.dot.ca.gov/office-engineer/construction-contracting-coordination-and-quality-program

BEST BID STANDARD LIST - 12/31/2019

BBS ID	Section	Subsection	BBS	Risk Category	*References* *Guidance*
58	Contract Consistency	Contract Documents/Database	Number of working days and construction windows must be consistent within contract documents (NTB&SP, Project Database). If Plant Establishment and/or Permanent Erosion Control Establishment is a bid item, the working days must be listed separately for these items.	High	***Reference:*** *Public Contract Code Section 10120.*
59	Plans	Inappropriate or Missing Notes, Legends, Abbreviations & Details	Items shown as "Not a separate bid item." must be designated with an (N).	Medium	***Reference:*** *Plans Preparation Manual - Section 2-2.19 Summary of Quantities.*
60	Others	Missing Information Handout	All supplemental project information listed in the NTB&SP must be complete and available as indicated. Digital files must be included as supplemental information for compliance with PD-06.	High	***Reference:*** *2018 Standard Specifications - Section 2-1.06B Supplemental Project Information, Project Delivery Directive PD-06 Sharing of Electronic Files.*
61	Specifications	Inappropriate or Insufficient Notice to Bidders and Special Provisions	The general work description specified in the NTB&SP must provide sufficient information for prospective bidders to determine the nature of the work.	Medium	***Reference:*** *Public Contract Code- Section 10141.*
62	Specifications	Inappropriate or Insufficient Notice to Bidders and Special Provisions	The Contractor license(s) specified in the contract must be able to perform the majority of the work.	High	***Reference:*** *California Business and Professions Code - Section 7059(b).*
63	Others	Missing Submittal/Job File Requirement	Job file must be complete in accordance with DES-OE submittal/award requirements.	Low	***Reference:*** *CCD Guide - Section 10.3.1 CONSTRUCTION CONTRACT SUBMITTALS TO DES-OE.*
64	Contract Consistency	Specifications/Estimate (Bid Item List)	Each bid item must be covered by the Standard Specifications or the Special Provisions.	High	***Reference:*** *CCD Guide - Section 6.6 ASSEMBLY OF SPECIAL PROVISIONS.*
65	Plans	Inappropriate or Missing Notes, Legends, Abbreviations & Details	All appropriate plans and details must be included in the contract plans, including RSPs.	High Medium	***Reference:*** *Public Contract Code - Section 10120.*
66	Specifications	Missing Specifications	NSSP for one-time item code must be included, unless work is covered by Standard Specifications.	High	***Reference:*** *CCD Guide - Section 6.6 ASSEMBLY OF SPECIAL PROVISIONS.*
67	Contract Consistency	Plans/Specifiations/Estimate (Bid Item List)/ PLAC	All work is covered by the items shown in the Bid Item List (missing bid items).	High	***Reference:*** *Public Contract Code - Section 10120.*
68	Specifications	Inappropriate or Insufficient Notice to Bidders	The call out number must be rounded per the "Call Out Number Rounding Guide". (BBS retired on 11/3/15)	Retired	*RTL Guide – Section 10.7.7 PS&E INFORMATION, e. Estimate.* *DES Decision Document - Call Out Number Rounding.*
69	Contract Consistency	Contract Documents/Database	Federal Trainees information must be correct and entered into the project database.	Medium	***Reference:*** *CCD Guide - Section 7.7.4 FEDERAL TRAINEE PROGRAM.* ***Guidance:*** *Include supplemental funds for the federal trainee program for federally funded projects with at least 100 working days.*
70	Specifications	Missing Specifications	The CCD Guide requirements must be followed for Sole Source or Proprietary Products.	Medium	***Reference:*** *Deputy Directive - DD 45 New Product Evaluation. CCD Guide - Section 6.10 PROPRIETARY PRODUCTS, COST EFFECTIVENESS/PUBLIC INTEREST FINDING GUIDELINES (2020).*

Attachment 3. P-S QMP/Application Evaluation & Verification Form (Example)

The P-S QMP/Application Evaluation & Verification Form can provide feedback to the PDT on potential issues and is a tool for the QMA Team Lead to make the recommendation to management if the design products are ready for approval. If any of the checklist items are *No*, the QMA Team provides the comments to the PDT to resolve prior to recommending approval.

☐ DPR/PR ☐ 30% PS&E ☐ 60% PS&E ☐ 95% PS&E

☐ DSDD ☐ Other delegated documents _____

Principles	P-S QMP/Application addressed?	Yes	No	If no, please comment.
Strategic Plan – General	Key deliverables identified & delivered?	☐	☐	
Strategic Plan - QC	QC plan applied & documented results?	☐	☐	
Strategic Plan - QA	QA plan applied & documented results?	☐	☐	
Strategic Plan - QMA	QMA plan applied & documented results?	☐	☐	
Issue Detection	All issues including risks tracked and documented?	☐	☐	
Issue Resolution	All issues including risks resolved and documented?	☐	☐	
Leadership	Management engagement on elevated issues & risks?	☐	☐	
Customer Focus	Customer & stakeholder engagements are documented?	☐	☐	
Workforce	The PDT is well represented by each functional unit?	☐	☐	

QMA Team Lead Name / Signature: _____ /_____ **Date:** _____

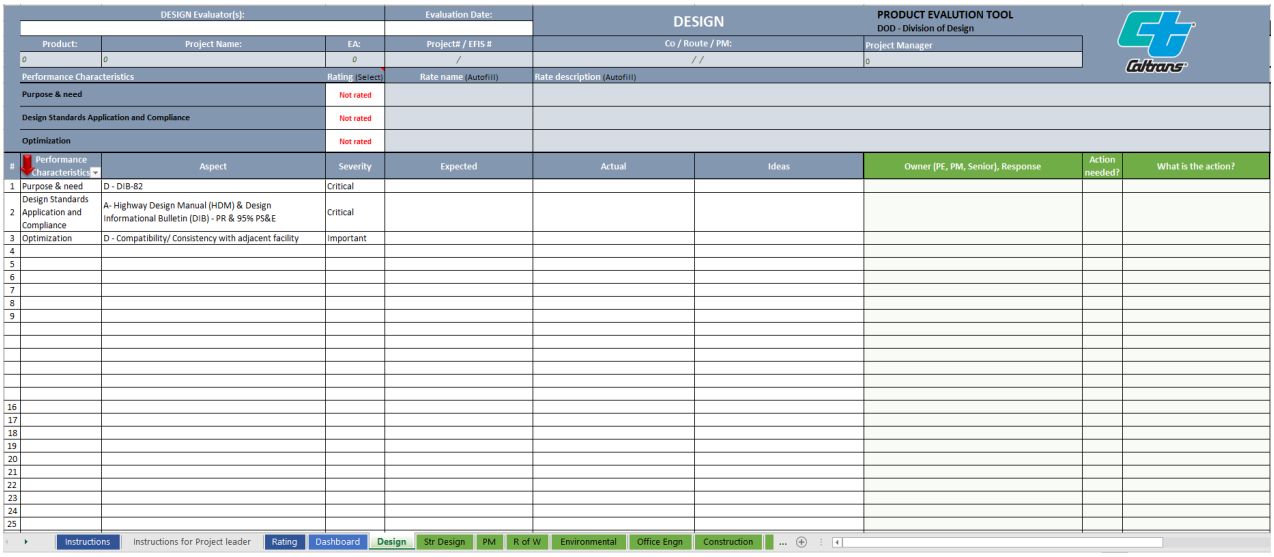
Attachment 4. QMA – Design Product Evaluation Criteria (Example)

The Design Product Evaluation Criteria and tool developed by HQ DOD are available for QMA (https://design.onramp.dot.ca.gov/node/1462). The screenshots below are samples of the criteria and tool.

Design Product Evaluation Criteria

Design – Designs Standards Application and Compliance					
Aspect	**5** **State of the Art**	**4** **Good**	**3** **Acceptable**	**2** **Needs Attention**	**1** **Needs Significant Attention**
Highway Design Manual (HDM) & Design Informational Bulletin (DIB) - PR & 95% PS&E	Most minimum standards exceeded and few design exceptions (not because of constraints but to improve the design).	Some minimum standards exceeded or met, and approved design exceptions.	All design standards minimums met or design exceptions approved.	Non-standard features – no approved design exceptions	Non-standard features – no approved exception, Issues with approval. Requires re-design to get design exception approved.
Highway Design Manual (HDM) & DIB - PID, DPR, 30% PS&E, 60% PS&E	Most minimum standards exceeded and few design exceptions (not because of constraints but to improve the design).	Some minimum standards exceeded or met, and approved design exceptions.	All design standards minimums met or design exceptions approved.	Non-standard features – no approved design exceptions. May require minor re-design to get design exception approved.	Non-standard features – no approved exceptions; No conversations with PD Coordinator or District Liaison; Critical issues with approval; Requires major re-design to get design exception approved.
DIB-82	Most minimum standards exceeded	All minimum standards met or exceeded.	All minimum standards met or approved design exception.	Non-standard features – no approved design exceptions. Requires minor re-design to get design exception approved.	Non-standard features – no approved exception. Requires major re-design to get design exception approved.
AASHTO/Local Standard - Local facilities	All local roads exceeded CT or AASHTO standards.	All design guidance and standards met and some exceeded.	Most design guidance and standards met or exceeded, and documented concurrence for variations.	Design guidance and standards not fully met – no documented concurrence for variations.	Non-standard features – no documented concurrence for variations, Issues with approval.
Project Development Procedures Manual (PDPM) - PID/PR/PSE	Meets all PDPM requirements with all issues clearly defined and fully discussed, and all alternatives sufficiently explored	Meets all PDPM requirements with all issues defined and discussed, and variety of alternatives explored.	Meets PDPM requirements with issues defined and may not be fully discussed, and few alternatives explored.	Does not meet PDPM requirements with issues not clearly defined or discussed, and only single alternatives explored, no other mentioned.	Does not meet PDPM requirements with issues not defined or discussed, and only single alternatives explored no other mentioned.
PDPM - New/Modified Public Road Connection.	Existing interchanges and/or local roads to be improved along with new connection to satisfactorily accommodate traffic demand. New public road connections and work on existing local roads will have positive effects on facility operation.	Demonstrated that the existing interchanges and/or local roads cannot be improved to satisfactorily accommodate traffic demand. New public road connections will have no detrimental effects that would diminish facility operation.	Demonstrated that the existing interchanges and/or local roads cannot be improved to satisfactorily accommodate traffic demand. New public road connections will affect but have no detrimental effects that would diminish facility operation.	Incomplete analysis or questionable that the existing interchanges and/or local roads cannot be improved to accommodate traffic demand New public road connections will have detrimental effects that would diminish facility operation or incomplete analysis.	No demonstration that the existing interchanges and/or local roads cannot be improved to accommodate traffic demand New public road connections will have detrimental effects that would diminish facility operation or no analysis.

QMA Tool (Excel Spreadsheet)



DESIGN Evaluator[s]:			Evaluation Date:	DESIGN	PRODUCT EVALUTION TOOL DOD - Division of Design	
Product:	Project Name:	EA:	Project# / EFIS #	Co / Route / PM:	Project Manager	
0	0	0	/	/ /	0	
Performance Characteristics		Rating (Select)	Rate name (Autofill)	Rate description (Autofill)		
Purpose & need		Not rated				
Design Standards Application and Compliance		Not rated				
Optimization		Not rated				

#	Performance Characteristics	Aspect	Severity	Expected	Actual	Ideas	Owner (PE, PM, Senior), Response	Action needed?	What is the action?
1	Purpose & need	D - DIB-82	Critical						
2	Design Standards Application and Compliance	A- Highway Design Manual (HDM) & Design Informational Bulletin (DIB) - PR & 95% PS&E	Critical						
3	Optimization	D - Compatibility/ Consistency with adjacent facility	Important						

Instructions | Instructions for Project leader | Rating | Dashboard | Design | Str Design | PM | R of W | Environmental | Office Engn | Construction

Appendix D:
Performance Metrics

Appendix D: Performance Metrics (Example)

The HQ DOD Quality Assurance Program (QAP), in coordination with District management, will establish the following performance metrics every fiscal year to track the Distrct's average project quality performance through construction.

The perfomance metrics below are sample metrics. The actual performance metrics will be provided to Districts annually.

Performance Metric	Performance Target for upcoming FY	Last FY's Average	5 Year Historical Average
Average # of BBS High Risk (DES- OE IQA)			
Average # of BBS Med Risk (DES- OE IQA)			
Average # of BBS Low Risk (DES- OE IQA)			
Average # of Addenda			
Average # of CCOs (Design / Unforeseen / BBS related)			

Appendix B - Caltrans QAP References and Guides for Design and Construction

- Caltrans Design QC/QA Checklists

DESIGN QC/QA CHECKLIST

rev 11/2020

FOR FREEWAY AGREEMENT (FA) AND CONTROL ACCESS HIGHWAY AGREEMENT (CAHA)

EA,(EFIS ID):		CO-RTE-PM	
Peer Reviewer Name **(QC)**:		PE Name:	
Design Senior Name **(QA)**:		Type of Agreement	
Peer Reviewer Signature:		Date:	

References to be used: HQ DOD "Route Matters and Freeway Agreements" Weblink, Project Development Procedure Manual (PDPM) Chapter 24 and Appendix CC, Plans Preparation Manual (PPM) Chapter 3, Design Delegation Master Agreement.

NO.	CHECKLIST ITEMS	STATUS	COMMENTS
	GENERAL REQUIREMENTS		
1	The scope of the project satisfy the requirements of executing a FA/CAHA as established by California Statutes described in PDPM Chapter 24.		
2	For Freeway realignment projects, the Route Adoption Map has been updated to reflect the change and the draft FA Exhibit Map conforms to the Route Adoption Map.		
3	For any new interchange or new public road connection to the Freeway and/or Expressway, approval from California Transportation Commission (CTC) has been achieved.		
4	For any new or modified Interstate access, the Determination of Engineering and Operational Acceptability has been completed by FHWA. FHWA must review and grant approval for the Environmental Document and Design for any proposed access modification on Interstates before execution of the final FA.		
5	The District FA Coordinator has been contacted for existing FA/CAHA within the project limits.		
	TEXT TEMPLATE		
6	Appropriate FA Text template has been used from Appendix CC of PDPM.		
7	No change has been made to the template except instructed in Appendix CC of PDPM. Any change to the template beyond the instructed has been approved by HQ Division of Legal.		
8	FA Text template is on 8"x11" paper.		
9	The header description of the FA/CAHA Text template matches with the title block description of Exhibit A		
10	If the facility is a Freeway, the CTC resolution for its declaration is in record/available.		
11	If the FA/CAHA is superseding more than one current FA/CAHA, all the superseded FA/CAHAs are listed in order and they are in record/available.		
12	In agreements for expressways that were either adopted as a controlled access highway or were adopted freeways that were subsequently denominated to a controlled access highway, “Controlled Access Highway” is substituted for the word “Freeway.”		
13	On City Agreements, "City" is substituted for "County" and "streets" is substituted for "roads" (except in "frontage roads").		
	LIMITS OF AGREEMENT		
14	The FA/CAHA covers one local agency, boundary limit line to boundary limit line. In case of a large city or county, or when the existing freeway agreement is recent, or when the project is at a specific location such as the modification of one interchange, it may not cover the entire city/county limit.		
15	The limits of the FA/CAHA must be the same or within the project limits covered by the project’s Environmental Document (ED) for an original FA. The superseding FA limit does not need to be same as the project limits or be covered by the project’s ED. The FA may be extended to cover larger areas as long as revisions are not made to the traffic circulation outside of the project limits shown in the FA to be superseded.		
15	The limits of the FA/CAHA is determined on the basis of the criteria mentioned in Article 1 "Determining the Limits of Agreement" of Appendix CC of PDPM.		
17	The beginning and ending post miles of the FA is rounded to the nearest 0.1 mile.		
	EXHIBIT MAP (EXHIBIT A). For detailed instruction refer to PDPM Appendix CC.		
18	The Exhibit A map is 11-inch by 4-foot length or less. If a longer exhibit map is needed, additional sheets are labeled like “Sheet 1 of 3,” “Sheet 2 of 3,” etc. added below Exhibit A call out.		
19	Title block description of Exhibit A matches with the header description of FA template text. It does not include city limits to specify the limits of the agreement, rather uses a reference street or road. Does not include the Project EA or number or dates.		
20	Type of Exhibit A is Symbolic type and or Geometric is consistent with the guideline provided in PDPM and PPM.		
21	In agreements for expressways that were either adopted as a controlled access highway or were adopted freeways that were subsequently denominated to a controlled access highway, “Controlled Access Highway” is substituted for the word “Freeway.”		
22	Legends: Standard symbols are used as listed in PDPM Appendix CC and shown in PPM Figures 3-2.4B through 3-2.4E for Symbolic exhibit and Figure 3-2.4A from Geometric exhibit.		
23	Only Symbols that are actually being used are shown.		
24	Only English units of measure is used.		
25	Limits of agreement: Include leader line with “Limit of Agreement,” “Route #” and “PM #” in large-bold text at the begin limit and end limit of agreement.		
26	Exhibit A should be drawn with post miles increasing left to right.		

27	No capitalized compass direction, north arrow with correct orientation in the center of the map and "Exhibit A" callout is at the top right corner of the map.		
28	Bar scale from 1:1,000 to 1:5,000 is used. Map border is 3/8-inch from top, bottom, and right side of paper edge and 2 inches from the left side is used.		
29	Freeways are shown as two parallel lines per direction. Local streets or roads are shown as two parallel lines only, truncate at intersections. If a street ends, are shown either as cul-de-sac or a closed line.		
30	No open ended streets are shown unless they continue past the border of the exhibit map. At least one main street along both sides of freeway is shown.		
31	Geometrics of all freeway-to-freeway interchange connectors are shown.		
32	At freeway-to-freeway interchanges, the entire interchange is shown on each route's FA exhibit map. Freeway off-ramp connectors are darken that are part of the agreement from start point at mainline to end at gore area with other route.		
33	Latest city and county boundary limit lines are added using the standard line type as depicted in the PPM. "City name Limit Line" is added in the respective side of limit line and city or county name is added in large bold text.		
34	All separation structures, including pedestrian overcrossings and railroad separations are shown and bridge railings are shown using standard symbols for overcrossing and undercrossing.		
35	All local street or road names, railroad names, rivers and any major facility like an airport are shown.		
36	Road closure symbols are shown where any streets or isolated ramps are closed due to final project design.		
37	If a ramp is moved (closed and relocated) within an interchange, it is not shown with the closure symbol unless access in that direction is prohibited.		
38	All the streets or roads to be constructed or reconstructed as part of the project are cross-hatched.		
39	Preferred project alternative described in Project Report is shown on the Exhibit map.		
40	Direct Access Ramps are shown with Interchange symbol and a note added to call those out.		
41	Nonmotorized facilities, such as bike trails are marked distinctly and shown. Private driveways are not shown.		
42	Any superfluous information such as all contour lines, minor drainage areas, overhead utilities, parcel lines, right-of-way lines, buildings, shopping centers, bridge numbers and names, road delineation are not shown.		
43	Traffic direction arrows at each end of the freeway are shown.		
44	City streets are extended through the interchange circles. Interchange are shown with a circle symbol and standard arrow. Ramps are not shown. Separations are indicated with standard arrow without circles.		
45	Partial interchanges that provide at least one ramp on each direction are shown as a standard full interchange. Partial interchanges which do not provide one ramp on each direction, it could be a single ramp or an on-ramp and an off-ramp in the same direction, are indicated with a note what ramps are provided, on-ramp or off-ramp and direction.		
46	Braided ramps or ramps that do not connect to the same grade separation street are shown with elongated circles. Isolated hook ramps are shown in geometric form.		
47	If the city or county limit line goes through a portion of an interchange, or along the mainline with the ramps ending at a different local agency, the mainline is crosshatched within the interchange symbol (circle).		

Directions: √ = Yes/Addressed/Incorporated, U = Unavailable information, I = Incomplete/No (needs to be incorporated), P = Pending, N/A = Not Applicable

I certify that a thorough and complete quality review has been performed for this FA/CAHA by the PE and the Peer.			
Design Senior Signature:		Date:	

QC/QA REVIEW CHECKLIST
DSDD

EA (EFIS Proj ID): _____ Co-Rte-PM: _____

Peer Reviewer's Name (QC): _____ Design Group _____

Peer Reviewer's Signature Date Completed QC Review:

Design Seniors Name (QA) Date Completed QA Review

	*Status
General:	
The design concept proposed in this project has been discussed with the District Design Liaison (DDL), Project Delivery Coordinator (PDC) and/or the Office Chief and conceptual approval has been secured for the non-standard features (new and existing) documented in the DSDD.	
The DSDD followed the latest template and instructions available in D8 Design Website at https://district8.onramp.dot.ca.gov/design-qcqa.	
Each section of the DSDD contains only the relevant and appropriate information that is instructed to be included by PDPM Appendix BB .	
The DSDD is written grammatically correct, with complete sentences, correct tenses, appropriate punctuations that convey proper meaning.	
The DSDD triggers the need to perform a Highway Safety Manual (HSM) analysis and has been completed.	
Previous suggestions/comments have been addressed	
Cover Page:	
The DSDD includes correct project information and have the correct signatories included on the cover page.	
Section 1: Proposed Project	
Section 1A includes the complete description of the proposed project and refer to a legible project vicinity and location map which shows the project extent and surrounding features.	
Section 1B includes the complete geometric and operational description in the existing condition. Describe the highway and structure geometric features near the proposed nonstandard features, including existing nonstandard features. Provide a similar, but brief, description of adjacent highway segments.	
Section 1C includes the discussion of all Safety Improvements proposed in the project within State Right-of-Way.	
Section 1D includes the total cost of the project segregated as three major components only: Roadway, Structure and Right of Way (including Utilities).	
Section 2: Features Requiring Design Decision Documentation	
If this is a supplemental DSDD, discussion of previously approved DSDD has been included. (Date approved and features approved)	
Section 2.I discusses boldface standards that require HQ Approval. If no features requires HQ Approval, then a statement is included to indicate this and why.	
Section 2.II discusses delegated boldface standards that requires District approval. If no features requires District approval, then a statement is included to indicate this and why.	
Section 2.III discusses underline standards that requires District approval. If no features requires District approval, then a statement is included to indicate this and why.	
Nonstandard Feature	
Several nonstandard design features occuring at same location and have similar justifications, are combined with corresponding HDM Index no. and Design Standard listed.	
Each nonstandard design feature is designated with an appropriate symbol and is presented in tabular form with station information; standard, proposed and existing condition and referenced the attachment/exhibit number where it is shown.	
Design Standard for Which Documentation is Required	
Each nonstandard design feature includes only the bold or underlined statement stated in the HDM with correct index and topic number and title.	
Reasons for Not Using Design Standard	
The reasons cited for not using design standard are best possible engineering jutifications including substantiated analysis or facts. Priority or more weight should not be put on items such as schedule deadlines, being proposed in future project (that is not programmed for PS&E), funding concerns/project budget, additional R/W, and insignificant/unsubstantiated environmental impacts.	
If the proposed design reduces any existing nonstandard or standard design feature, it is clearly explained that the nonstandard feature will meet the desired performance and how it is a trade-off to the existing condition.	
If there is sufficient room to attain standard within existing right of way, or outside of right of way without causing significant impacts (environmental or community), the limitation of not utilizing that room is clearly explained for each nonstandard design feature.	
If environmental, right of way, community and economic impacts are given as a reason, it is clearly explained what is the specific significant impact and why it is unreasonable.	
Added Cost to Make Standard:	
Estimated cost of making each nonstandard feature standard, includes three major components: Roadway, Structure and Right of Way (including Utilities)	
Section 3: Traffic Data	
This section contains AADT, Design Peak Period Hourly Volume, Design Year Volume and Construction Year Volume (if applicable) for the facility segment near the nonstandard design features.	
Section 4: Collision Analysis	
A summary and analysis of TASAS data for the latest 3 to 5 years has been included.	
A review of the collision patterns and analyses (including performance based analyses where applicable) have been provided to show that the non-standard feature(s) will not contribute to any increase in collision.	
If any proposed nonstandard feature is related to any specific collision type and it is infeasible or impractical to eliminate that feature, appropriate mitigation measures have been proposed where applicable.	
Section 5: Future Construction	
Any future project(s) which is committed to address any non-standard feature(s), is included with corresponding programming source and year and concurred by the appropriate approval authority.	
Section 6: Review and Concurrence	
The names of all relevant reviewers and space for their initials have been included.	
Required (in-house): DDL & District Traffic Operations Engineer	
Required (oversight): DDL, District Traffic Operations Engineer & Oversight Project Engineer	
Required (Encroachmnet Permits): DDL, District Traffic Operations Engineer & Enchroachment Permit Engineer.	
Others: Included as required by HDM or Caltrans Policies	
Section 7: Environmental Determination/Document	
An appropriate statement has been included for the type of Environmental Document used in the project as instructed in PDPM Appendix BB.	
Section 8: Attachments	
Location Map (North Arrow, Legible, Routes Labeled, Project Location identified)	
Appropriate attachments are included to clearly present each non-standard feature.	
Information contained in the attachments are consistent with the information provided in the body of the DSDD.	
If this is a suplemental DSDD, attach previously approved DSDDs (cover sheet only).	
Any unnecessary documents (e.g. TASAS Table B and C, PID, PR, ED etc) are not attached.	
Attachments are Black and White and in standard paper sizes of 8.5x11, 8.5x14 or 11x17 only	
Directions: √ = Yes/Addressed/Incorporated, U = Unavailable information, I = Incomplete/No (needs to be incorporated), P = Pending, N/A = Not Applicable	
*** All items must be incorporated or identified as N/A before DSDD can be circulated for QMA review**	
	Rev. 11/05/2020

DESIGN QC/QA CHECKLIST
PS&E DESIGN PACKAGES

Rev 11/5/2020

EA (EFIS Proj ID): _____ Co-Rte-PM: _____

Peer Reviewer's Name (QC): _____ Design Group: _____

Peer Reviewer's Signature | Date Completed QC Review | % PS&E

Design Seniors Name (QA) | Date Completed QA Review

	* Status
Appropriate PS&E Elements checklist (30%, 60%, or 95%) is filled out and PS&E contains all the required elements	
Senior filled out appropriate PS&E screencheck checklist (30%, 60%, or 95%) and PS&E package is complete for QMA review	
All previous suggestions and comments have been addressed	
Completed Design Information Bulletin No. 78 - Design Checklist.	
Structures studies performed and Foundations Report completed	
Materials investigation conducted Materials Report completed	
Development of workable construction staging plans complete and shown on plans.	
Identify existing conflicts (trees, gas lines, service lines, etc.) to proposed drainage facility improvements (e.g. ditches, culverts, inlets, down drains, etc.)	
Coordination with UEW on potholing and utility relocation needs have been conducted (should also discuss potential need to pothole service lines)	
Coordinate with UEW to identify utility facility conflicts	
Utility plans developed in corrdination with UEW	
Utility plans conform to Caltrans policy on high & low risk facilities.	
Obtain all the functional unit's SSPs and nSSPs, electronically.	
Construction easements adequate	
Confirm "Check By" and "Calculated -Designed By" boxes are completed.	
Adequate access for residents & businesses in areas under construction.	
Necessary construction details covered in project plans.	
Proposed "work-arounds", if needed, are clearly defined.	
Drainage interface with adjoining projects.	
Consistency between roadway and structure plans.	
Confirm if project impacts raiload and coordination with railroad has begun	
Conduct a field review with maintenance & construction personnel as required.	
Sign plans are covered in construction staging.	
Traffic Handling plans show how traffic is being handled for each traffic stage.	
Title sheet and full plan sheets use latest border templates with accurate project information and correct functional unit Engineers information.	
Title sheet meets criteria on Section 2-2.2 of the current Plans Preparation Manual.	
Plans and details are coordinated and consistent.	
Drafting consistent with Plans Preparation Manual.	
All items of work have been clearly identified and labeled on the plans by using current list of bid item names and they match the descriptions on the quantity sheet tables.	
Check with Landscape Architect to determine if test element would be needed for existing landscape and irrigation deficiencies?	
Non-standard design features identified.	
Submittal of 100% PS&E to Constructability Unit 1-2 months prior to scheduled DOE submittal is on track (time required to obtian Constructability Concurrence)	
DOE submittal checklist has been updated	

Key Quality Issues (Continued)	* Status
Quantities on quantity sheets add up correctly.	
Correct standard units of measures are used.	
Quantities are rounded up correctly per Section 7.4.2 of current RTL Guide.	
Ensure proper pavement markings and adequate pavement delineation.	
Ensure Traffic Ops Safety was consulted with in determining the proper MGS or concrete barrier placement and length	
Use Superelevation to locate "sag point" to prevent drainage problems.	
Ensure the placement of safety shapes where req'd at retaining walls and bridge railing.	
Check with Landscape Architect to determine if there is a need for seed collection and plant growth.	
Check with Landscape Architect to determine if project needs Permanent Erosion Control Establishment (PECE)?	

DESIGN QC/QA CHECKLIST
PS&E DESIGN PACKAGES

Rev 11/5/2020

EA (EFIS Proj ID): _____ Co-Rte-PM: _____

Peer Reviewer's Name (QC): Design Group:

Reviewed the SWDR and all BMP requirements have been implemented	
Complete Streets elements have been considered	
Bridges with sidewalks shall have fences on top of the bridge railings.	
Check with Landscape Architect if there is a need for Model Water Efficient Landscape Ordinance (MWELO)?	
Key Maintainability Issues	
Confirm coordination with Maintenance has occurred in identifying potential maintenance needs (i.e. MVP on mainline & ramps)	
Provide Access Gates every 200 feet in soundwalls (for inspection & maintenance).	
Provide Pedestrian Gates around bridges for Inspection Work.	
Pave all miscellaneous areas such as gore areas and narrow islands.	
Maintenance vehicle pullouts, access gates & roads, walks, fencing included, and roadside facilities considered	
Low maintenance landscape, fire, vegetation control treatment areas addressed	
Key Safety Issues	
Where practical, signing and lighting facilities should be located adjacent to outside shoulders not in the median.	
Traffic Control Boxes should be located as far away from the edge of shoulder as practical or be placed behind an existing concrete wall, MGS or bridge abutment.	
All objects (i.e. trees, utility poles, fire hydrants, exposed headwalls, drainage ditches, slopes greater than 4:1, etc.) within the CRZ have been identified and will be shielded, relocated outside the CRZ, redesigned, or have been documented through an approved DSDD.	
Place Cable Railing on Retaining Walls where required.	
High Risk Best Bid Standard	
The quantities in the Bid Item List match the summary of quantities shown on the contract plans	
Item codes, descriptions, and units of measure used in the Bid Item List matches the Standard Bid Item list	
One-time item codes match the Bid Item List and is referenced to the appropriate Standard Specification Section in SSP1-1.01	
Final Pay item quantities are verifiable from the contract document and match the quantities shown on the Bid Item List except as follows: rounding of quantities under 5 to the nearest tenth decimal place, roundinjg of quantities over 5 to the nearest whole number.	
Project exceeds current Minor B threshold cost and includes Time Related Overhead (TRO).	
TRO unit of measure is given in working days for Unit Price Contracts or Lump Sum for Cost Plus Time Contracts	
Estimate includes "Mobilization" if Construction is at least 50 working days (not including plant establishment). Mobilization is listed as the last bid item.	
If project is primarly Structures work, Mobilization, may be included for projects that are less than 50 working days. Mobilization is typicall not included in projects that are mostly building work.	
SSPs required per instructions and those required in the current SSP Index are included in the Special Provisions	
Section 8 "Prsecution and Progress" o the Contract Special Provisions are currect based on the project criteria	
Identified environmental permit, license, agreement, and certification (PLAC) requirements are addressed in the contract documents and are valid	
Railroads within the project limits are shown on the Title Sheet and have a clearance letter and reailroad clauses are included in the contract documents	
Plans are in compliance with the Utility Policy Certification and Utility Matrix (refer to Appendix LL of the PDPM)	
Construction easements that are shown in the R/W Cert. are also shown on the plans	
If project has an environmental sensitive area (ESA), it is shown on the plans and specified in the Special Provisions.	
The given umber of working days and the construction window is consistent throughout the contract documents (i.e. Notice to Bidders & Specail Provisions)	
If Plant Establishment and/or Permanent Erosion Control Esablishment is a bid item, the working days is listed seperately for these items	
All supplemental project information listed in the Notice to Bidders and Special Provisions are completed and available as indicated.	
Each bid item is covered by a Standard Specification or Special Provision	
All appropriate plans and details are included in the contract plans, including RSPs	
NSSP for one-time item codes are included, unless work is covered by Standard Specifications	
All work is covered by the items shown in the Bid Item List	

DESIGN QC/QA CHECKLIST
PS&E DESIGN PACKAGES

Rev 11/5/2020

EA (EFIS Proj ID): _____ Co-Rte-PM: _____

Peer Reviewer's Name (QC): Design Group:

Unit of measure on the contract plans does use the standard unit of measure from the Standard Bid Item List	
If this project is using the A+B Bidding requirements, the liquidated damages specificied in the Standard Specifications, Road User Cost and min/max working days if applicable, that are listed in the database MERGE file match the amounts shown in the Bid Book	
Department payments for Rain Event Action Plan and Storm Water Annual Report is included in the Bid Item List as specified in the Standard Specifications Section 13-3.04.	

Directions: √ = Yes/Addressed/Incorporated, U = Unavailable information, I = Incomplete/No (needs to be incorporated), P = Pending, N/A = Not Applicable

*** All items must be incorporated or identified as N/A before PS&E can be circulated for QMA review**

QMA REVIEW CHECKLIST

Rev. 11/2020

PS&E DESIGN PACKAGES

EA (EFIS Proj ID): _____ Co-Rte-PM: _____

Name of Delineator: _____ Date: _____ Functional Unit: **DELINEATION/DRAFTING**

_____ _____

Name and Signature of Functional Manager Date

I certify that a thorough and complete quality review has been performed by my staff:

General	30%	60%	95%
Previous suggestions and comments have been addressed			
High Risk Best Bid Standards	**30%**	**60%**	**95%**
There are railroads within the project limits and are shown on the Title Sheet and have a clearance letter and reailroad clauses are included in the contract documents			
Construction easements that are shown in the R/W Cert. are also shown on the plans			
The project has an environmental sensitive area (ESA) and is shown on the plans.			
TITLE SHEET			
District/County/Route and disclaimer.			
Location map indicating the appropriate county outlined and crosshatched.			
North Arrow, No Scale.			
Project Contract No. in lower right border.			
Seal/Signatures.			
Description in accordance with the Plans Preparation Manual.			
Identify all routes on strip map (do not use route shields).			
Label waterways/railroads and all relevant street names.			
All Text conforms with PPM Standards			
Show Construction Limits or Location of construction including stationing and PM's or KP's.			
Show Destinations with arrow on Strip Map.			
Show City Limits/County Limits/Post Mile equations at county lines, on Strip Map.			
Bidders note (lower left).			
Show City names of Incorporated areas (caps), Unincorporated areas (upper/lower case).			
Bridges shown by symbol. If structure plans are included; show bridge name, type (O.C. or U.C.) and number.			
Complete the Index of Plans for AADD *** NOTE for AAOE no Index of Plans			
Design oversight approval for consultant projects. Left margin (printed name, signature, registration no., date of signature and oversight			
All Features in the Project Title must be identified on the Strip Map.			
PLAN SHEETS	**30%**	**60%**	**95%**
Seal & Signature of the Project Engineer.			
Proper sheet name in lower right corner including the correct sheet identification code (as per PPM) and plan sheet number.			
Scale is correct (if applicable).			
North arrow is shown on all applicable sheets (use appropriate size).			
Use standard line symbology (dropout where applicable).			
Show existing features (appropriately as per Caltrans standards).			
All text conforms with PPM standards.			
Drainage/Profile grids. Use grids in ctcellib.			

Directions: √ = Yes/Addressed/Incorporated, U = Unavailable information, I = Incomplete/No (needs to be incorporated), P = Pending, N/A = Not Applicable

PLOTTING	30%	60%	95%
Display all used levels (V8).			
Plot view set at 0 degrees for all dgn files.			
Create 'i' file for each 'dgn' or 'add' file.			
Plot verification, batch plot using 'i' files not dgn files. Create pdf file(s) using 'i' files.			
Consultant project; spot check by comparing final plot, batch plotted with 'i' file, with hardcopies from consultant.			
Electronic Date/Time/File Name stamp (unaltered) prints within cut lines.			
Plot files generated from fenced cut lines.			

QMA REVIEW CHECKLIST

Rev. 11/2020

PS&E DESIGN PACKAGES

EA (EFIS Proj ID): Co-Rte-PM:

Consultant project; spot check by comparing final plot, batch plotted with 'i' file, with hardcopies from consultant.			
PS&E DIRECTORY	**30%**	**60%**	**95%**
All files are in PS&E server location with correct file protection for DES-OE access.			

Additional Comments:

Directions: √ = Yes/Addressed/Incorporated, U = Unavailable information, I = Incomplete/No (needs to be incorporated), P = Pending, N/A = Not Applicable

DESIGN QC/QA CHECKLIST

FOR ROUTE ADOPTION (RA) MAPS

Rev. 11/2020

EA,(EFIS ID):		Co-Rte-PM	
Peer Reviewer Name **(QC)**:		PE Name:	
Design Senior Name **(QA)**:			
Peer Reviewer Signature:		Date:	

References to be used: HQ DOD OPS "Route Matters and Freeway Agreements" Website, Project Development Procedure Manual (PDPM) Chapter 2 and 23, Plans Preparation Manual (PPM) Chapter 3.

NO.	CHECKLIST ITEMS	STATUS	COMMENTS
	GENERAL REQUIREMENTS		
1	The need for a new Route Adoption CTC action item proposed in this project has been discussed with the Deputy District Director of Design and the District Design Liaison.		
2	The preparation of the RA map takes into consideration detailed information in the PDPM Chapter 23, PPM Chapter 3 and the dgn RA map Location Map and Vecinity Map template from the HQ DOD OPS website.		
3	The RA map only contains required, relevant, and appropriate information as shown in the examples of the PPM Chapter 3.		
	RA MAP EXHIBIT		
4	Does the RA map follow the title block and certificate formats for the various types of Route adoptions?		
5	Existing divided freeways, and expressways with two or more lanes are shown by two parallel lines. Freeway to freeway interchanges are shown. Other freeway interchange geometrics are only drawn if required for clarity.		
6	Existing state highway is shown by two parallel lines and further identified by the phrase, “Existing State Highway.” Local streets or county roads are shown using two parallel lines.		
7	The route adoption limits in the title block should refer to delineated features, for example: streets, roads, and rivers.		
8	A heavy solid line showing the location of the proposed state highway and identified by the phrase “Location of State Highway.”		
9	The designation of the termini for the location of the highway as “Beginning of Adoption” and “End of Adoption.”		
10	A solid dashed line showing the location of an adopted, unconstructed freeway and labeled with the date of the freeway adoption.		
11	Superseded highway to be relinquished needs to be labeled as such.		
12	Does the map (except for the re-designation map) show the Caltrans District delegated Design Official Engineer's certification and signature at the top right corner of the map?		
13	Is the CTC Executive Director's certification and signature shown at the bottom left corner of the map?		
14	For freeway adoptions, is the phrase “A FREEWAY” added to the title block (bottom-right), and the wording “and declared a freeway” is added to the CTC Executive Director’s certification?		
15	For controlled access highway adoptions, is the phrase “A CONTROLLED ACCESS HIGHWAY” added to the title block, and the phrase “and declared a controlled access highway” added to the certification?		
16	For conventional highway adoptions no special designation needs to be added to the title block or the certification.		
17	For transfer of highway location, the title block for the map include “Transfer of Highway Location”		
18	RA map clearly show the new route to be adopted.		
	LOCATION MAP AND VICINITY MAP		
19	A Location map is an 8 ½” x 11” map with two drawings, one is an area map of the proposed project showing the district, county or city limit lines, all state highways and major local roads. The second drawing, below the location map,is a California County map showing the county where the project is located.		
20	The location of the requested route alignment is in the central portion of the map with a text box "ROUTE TO BE ADOPTED" pointing to the route.		
21	Location map follows examples in Figures 3-2.3F and 3-2.3G on Chapter 3 of the PPM.		
22	Vicinity map follows example in Figure 3-2.3H on Chapter 3 of the PPM.		

Directions: √ = Yes/Addressed/Incorporated, U = Unavailable information, I = Incomplete/No (needs to be incorporated), P = Pending, N/A = Not Applicable

I certify that a thorough and complete quality review has been performed for this RA Map by the PE and the Peer.

Design Senior Signature:		Date:	

QC/QA REVIEW CHECKLIST
EXCEPTION TO LANDSCAPE ARCHITECTURE POLICY

EA (EFIS Proj ID): _____ Co-Rte-PM: _____

Design Unit _____

LLA Name: _____ Lanscape Architect Unit: _____

Peer Reviewer's Name (QC): _____ Lanscape Architect Unit: _____

Peer Reviewer's Signature (QC) Date Completed QC Review:

Landscape Architecture Office Chief (QA) Date Completed QA Review

Checklist Items	* Status
General:	
The exception proposed in this project has been discussed with the Landscape Architecture Office Chief, District Landscape Architect (DLA), Landscape Construction Office Chief, and the Maintenance Superintendent and all concur with pursuing the exception(s) documented in the Exception Memo.	
The Licensed Landscape Architect (LLA) followed the latest template and exception considerations detailed in the PDPM Chapter 29, Section 2 have been met.	
The relevant boxes were selected for the policy exemption(s) being requested.	
The Exception Memo only contains relevant sections and appropriate information for the policy exemption(s) being requested. Sections of policy exceptions NOT being requested have been deleted from the template.	
The Exemption Memo is written grammatically correct, with complete sentences, correct tenses, appropriate punctuations that convey proper meaning.	
The LLA has reviewed the Project Report, the scope of the project, and determined that all the landscape items are included in the proposed improvements.	
The Landscape Architecture Office Chief concurs with the justification in the Exception Memo.	
The Landscape Architecture Office Chief has verified that all peer review comments have been addressed.	
The Project Manager has been updated on the status of the Exception Memo and the schedule has been discussed.	
The Exemption Memo includes correct project information and correct signatories are included on the last page. Landscape Architect's seal has current expiration date.	
The LLA commits to file the Exemption Memo in Headquarters' Data Retrieval System, District Database, and Project History File.	
Separate Contract Requirement for Highway Planting Work on Roadway Construction Projects (Only applicable when requesting this exception)	
The LLA has verified an estimated cost of $300,000 or more for highway planting.	
The LLA has verified that it is more cost-effective to include the landscape work with the roadway project work.	
Maximum Cost per Acre for Planting (Only applicable when requesting this exception)	
The LLA has queried recent cost data as it applies to new planting and new water service. Escalation is considered with project schedule.	
Plant Establishment Periods (Only applicable when requesting this exception)	
The LLA has verified that the plant establishment period is defined by the project type.	
The LLA has considered an extension to plant establishment if stormwater treatment BMPS are included.	
Landscape Maintenance of Highway Planting that Exceeds the Maximum Cost per Acre (Only applicable when requesting this exception)	
The LLA has verified that the highway planting cost exceeds the maximum costs per acre in the Project Initiation Document.	
Maintenance and Constructions comments have been addressed and incorporated into the exception request memo	

Directions: √ = Yes/Addressed/Incorporated, U = Unavailable information, I = Incomplete/No (needs to be incorporated), P = Pending, N/A = Not Applicable

Rev. 11/2020

*** All items must be incorporated or identified as N/A before exception can be circulated for QMA review**

QC/QA REVIEW CHECKLIST
Utility Encroachment Exception

EA (EFIS Proj ID): _____ Co-Rte-PM: _____

Peer Reviewer's Name (QC): _____ Design Group _____

Peer Reviewer's Signature Date Completed QC Review:

Design Seniors Name (QA) Date Completed QA Review

Rev. 11/2020

Checklist Items	Complete Yes/No/NA	Comments for Incomplete	Adressed/corrected
General:			
The design concept proposed in this project has been discussed with the District Design Liaison (DDL), and Office Chief and conceptual approval has been secured for the nonstandard encroachments or nonstandard encroachment features documented in the Exception.			
The Exception followed the latest template and instructions available in PDPDM, Chapter 17, Section 4, Article 1.			
Each section of the Encroachment contains only the relevant and appropriate information that is instructed to be included by PDPM, Chapter 17, Section 4, Article 1 .			
The Exception is written grammatically correct, with complete sentences, correct tenses, appropriate punctuations that convey proper meaning.			
Previous suggestions/comments have been addressed			
Project Description			
Includes the complete description of the proposed project and refer to a legible project vicinity and location map which shows the project extent and surrounding features.			
Describe the highway and structure geometric features near the proposed nonstandard encroachments or nonstandard encroachment features, including existing nonstandard features.			
Discussion of future maintenance of utilities, including: -Alternatives that have been considered for accessing facilities from outside of the State right of way and reasons they are not viable -Responsible party for facility maintenance -Anticipated frequency of facility maintenance -Any other necessary requirements for methodology, special equipment, or traffic handling plan			
Encroahment Policy Exeption Being Requested			
Indicate the proposed nonstandard encroachments or nonstandard encroachment features that are being requested with statement from the Encroachment Permits Manual, chapter 600 with correct reference.			
Cost			
The cost estimates for implementating alternative alignments or, locations show that the alternatives are viable.			
Alternative			
Alternatives have been considered for accessing facilities from outside of the State right of way, and reasons they are not viable.			
Justification			
The encroachment will not adversely affect the safety, design, construction,			
The encroachment will not interfere with or impair the present use or future expansion of the highway.			
The facility must be located such that it can be serviced, maintained, and operated without being accessed from through-traffic roadways or ramps. Special cases may occur where the means of access are unavailable or impractical due to terrain or environmental constraints.			
Review and Concurrence			
The names of all relevant reviewers and space for their initials have been included.			
When structures are involved, Exception has also been signed by Structures Design and Structures Maintenance.			
Required Signature of District Director of Operations			
Required Signature of District Director of Maintence			
Required Signatureof District Director of Right of Way			
Required Signature of District Director of Design			
Attachments			
Information contained in the attachments are consistent with the information provided in the body of the Encroahment Exception.			
Detailed map (title sheet) showing the general alignment of the highway, crossroads, frontage roads, ramps,and major geographic features.			
Detailed plans (typical cross sections, layouts, profiles, and construction details) showing the limits of the highway right-of-way, the highway and highway features, including drainage systems, fencing, access gates, limits of slopes, maintenance access points, environmental constraints, or other factors that may affect the scope of work. Plans must show proposed access to Encroachment for Maintenance.			
Postive Location (Horizontal and Vertical) is provided for High Priority Utilities. All other utilities are shown in approximate location.			
Copies of any easement, joint use agreement, or consent to common use agrrement for existing facilities with prior and superior rights (if any) held by the utility owner.			
Attachments are Black and White and in standard paper sizes of 8.5x11, 8.5x14 or 11x17 only			

All items must be completed or identified as N/A before exception can be circulated for QMA review

QC/QA REVIEW CHECKLIST
Utility Policy Exception

EA (EFIS Proj ID): _____ Co-Rte-PM: _____

Peer Reviewer's Name (QC): _____ Design Group _____

Peer Reviewer's Signature Date Completed QC Review:

Design Seniors Name (QA) Date Completed QA Review

Checklist Items	Complete Yes/No/NA	Comments for Incomplete	Adressed/corrected
General:			
The design concept proposed in this project has been discussed with the Office Chief and conceptual approval has been secured for the noncompliance with utility policies.			
The Exception followed the latest template and instructions available in PDPDM, Chapter 17, Section 4, Article 1.			
Each section of the Utility Policy Exception contains only the relevant and appropriate information that is instructed to be included by PDPM, Chapter 17, Section 4, Article 1 .			
The Exception is written grammatically correct, with complete sentences, correct tenses, appropriate punctuations that convey proper meaning.			
Utility Policy Exeption Being Requested			
Describe the proposed utility and utilty policy exception.			
Justification			
Include justification of the policy exception			
Recommends approval of the proposal			
Review and Concurrence			
The names of all relevant reviewers and space for their initials have been included.			
All items must be completed or identified as N/A before exception can be circulated for QMA review			

QC/QA PROJECT REPORT REVIEW CHECKLIST

EA: **Project ID:** **CO-RTE-PM:**

Project Engineer:_____ ☐**Original** ☐**1st revision** ☐**2nd revision**

Peer Reviewer Name (QC):_____ **Date Checked:**_____

Design Senior Name (QA):_____ **Date QA Completed:**_____

I certify that the QC review has been performed, all comments addressed, and document is ready for QMA review.

YES	NO	N/A	
☐	☐	☐	**PROJECT REPORT REVIEW SCHEDULER FILLED OUT.**
☐	☐	☐	**PROJECT TASK LOG IS UPATED AND CURRENT.**
☐	☐	☐	**PROJECT REPORT FOLLOWS TEMPLATE AS STATED IN THE APPENDIX K OF THE PDPM.**
☐	☐	☐	**ALL PREVIOUS COMMENTS HAVE BEEN ADDRESSED**
☐	☐	☐	**DOES PROJECT REQUIRE HIGHWAY SAFETY MANUAL (HSM) ANALYSIS?**
☐	☐	☐	**PROJECT MEETS THE REQUIREMENTS FOR A HIGHWAY SAFETY MANUAL (HSM) ANALYSIS**
☐	☐	☐	**HSM ANALYSIS CONDUCTED**
☐	☐	☐	**PROJECT COST IS OVER $25 MILLION AND A VALUE ANALYSIS HAS BEEN PERFORMED (REFER TO MEMO FOR VA REQUIREMENTS)**
☐	☐	☐	**JOINT FIED REVIEW HAS BEEN CONDUCTED OR HAS BEEN SCHEDULED**
☐	☐	☐	**OBTAIN ELECTRONIC COPY OF PROJECT INITIATION PROPOSAL (PIP).**
☐	☐	☐	**OBTAIN COPY OF ROUTE CONCEPT REPORT (RCR).**
☐	☐	☐	**OBTAIN COPIES OF PREVIOUS REPORTS (IF ANY).**
☐	☐	☐	**OBTAIN COPIES OF PREVIOUS DESIGN EXCEPTION FACT SHEET (IF ANY).**
☐	☐	☐	**OBTAIN COPIES OF AS-BUILT PLANS.**
☐	☐	☐	**OBTAIN COPIES OF RIGHT OF WAY RECORD MAPS.**
☐	☐	☐	**OBTAIN COPY OF BRIDGE LOG WITHIN YOUR PROJECT LIMITS.**
☐	☐	☐	**OBTAIN COPY OF PAVMENT MANAGEMENT SYSTEM (PMS) INVENTORY DATA.**
☐	☐	☐	**PROJECT REQUIRES INTERSECTION CONTROL EVALUATION (ICE)**
☐	☐	☐	**PE HAS REQUESTED TRAFFIC OPERATIONS TO PERFORM AN ICE**
☐	☐	☐	**REQUEST ENVIRONMENTAL DOCUMENT (INCLUDING AIR, NOISE & VISUAL).**
☐	☐	☐	**REQUEST AERIALLY DEPOSITED LEAD AND/OR HAZARDOUS MATERIALS STUDIES.**
☐	☐	☐	**REQUEST PERMIT TO ENTER (IF REQUIRED).**
☐	☐	☐	**REQUEST PERMIT TO CONSTRUCT (IF REQUIRED).**
☐	☐	☐	**REQUEST TRAFFIC ACCIDENT STATISTICS.**
☐	☐	☐	**REQUEST HEADQUARTERS CONCEPTUAL APPROVAL FOR SAFETY IMPROVEMENT PROJECT (IF REQUIRED).**
☐	☐	☐	**REQUEST TRAFFIC FORECASTING DATA.**
☐	☐	☐	**REQUEST RIGHT OF WAY DATA SHEET.**
☐	☐	☐	**REQUEST UTILITY SEARCH.**
☐	☐	☐	**REQUEST PROJECT CATEGORY APPROVAL.**
☐	☐	☐	**MAKE SURE SAFETY COMMITTEE IS INCLUDED REVIEW (SPECIFICALLY TRAFFIC SAFETY).**
☐	☐	☐	**TRAFFIC SAFTY WAS ASKED ABOUT THE NEED FOR SAFETY ANALYSIS REPORT**
☐	☐	☐	**REQUEST STORM WATER DATA REPORT (SWDR).**
☐	☐	☐	**REQUEST TRANSPORTATION MANAGEMENT PLAN (TMP).**
☐	☐	☐	**REQUEST SURVEYS WORK (IF REQUIRED)?**

QC/QA PROJECT REPORT REVIEW CHECKLIST

☐	☐	☐	**REQUEST GEOTECHNICAL RECOMMENDATION (IF REQUIRED)?**
☐	☐	☐	**REQUEST ADVANCE PLANNING STUDY (IF REQUIRED).**
☐	☐	☐	**REQUEST CULVERT STATUS REPORT**
☐	☐	☐	**REQUEST HYDROLOGY REPORT FOR OFFSITE DRAINAGE SYSTEMS**
☐	☐	☐	**REQUEST SIGNED RISK REGISTER**
☐	☐	☐	**REQUEST FUNDING TABLE**

☐	☐	☐	**PREPARE TITLE, TYPICAL CROSS SECTION, LAYOUTS, PROFILES & SUPERELEV.**
☐	☐	☐	**PREPARE DSDD FOR BOLDFACED STANDARDS (IF REQUIRED).**
☐	☐	☐	**PREPARE DSDD FOR UNDERLINED STANDARDS (IF REQUIRED).**
☐	☐	☐	**PREPARE 11-PAGE COST ESTIMATE (http://design.onramp.dot.ca.gov/useful-spreadsheets).**
☐	☐	☐	**PREPARE RIGHT OF WAY REQUIREMENT MAPS (IF REQUIRED).**
☐	☐	☐	**PREPARE SAFETY ANALYSIS (IF REQUIRED).**
☐	☐	☐	**DELIVERABLES FROM OTHER FUNCTIONAL UNITS INTEGRATED INTO REPORT.**

☐	☐	☐	**DOES DOCUMENT FOLLOW FORMAT AS SPECIFIED IN THE PDPM**
☐	☐	☐	**IS LCCA NEEDED?**
☐	☐	☐	**DID YOU FOLLOW THE DESIGN INFORMATION BULLETIN 78-03?**
☐	☐	☐	**DID YOU FIELD REVIEW THE SITE WITH MAINTENANCE?**
☐	☐	☐	**DID YOU FIELD REVIEW THE SITE WITH HQ AND/DISTRICT COORDINATORS?**
☐	☐	☐	**DID YOU CHECK THE BRIDGE RAIL UPGRADE REPORT (IF REQUIRED)?**
☐	☐	☐	**DID YOU CHECK THE STRAIN REPORT (IF REQUIRED)?**
☐	☐	☐	**DID YOU RUN SPELLING AND GRAMMAR CHECK ON YOUR DOCUMENT?**
☐	☐	☐	**DID YOU PROOFREAD AND PERFORM QUALITY CONTROL ON YOUR DOCUMENT?**
☐	☐	☐	**DID YOU UPDATE THE SHOPP PROJECT OUTPUT?**
☐	☐	☐	**DID YOU UPDATE PRSM WITH PROJECT MAJOR QUANTITIES?**
☐	☐	☐	**DID YOU DISCUSS WITH PDT/PM PROJECT IMPACTS ON COMMUNITY AND LOCAL ROADS?**

Appendix B - Caltrans QAP References and Guides for Design and Construction

- Caltrans Geometric Approval Drawing (GAD) Guidelines

District 8 Geometric Approval Drawing (GAD) Guidelines

I. PURPOSE OF GAD

A GAD is a set of plans with sufficient detail to show the roadway features in a particular build alternative. The intent of the GAD is NOT to prevent modifications during the Plans, Specifications, & Estimate (PS&E) phase, but is used as the foundation for development of final design plans. The purpose of a GAD is to:

1. Establish the project base map
2. Establish horizontal/vertical alignments
3. Allow Traffic Operations to confirm that the proposed geometrics will meet operational needs
4. Identify major design elements (e.g. pavement, walls, bridge limits, sidewalk, driveways, gore treatment, etc.)
5. Ensure proper application of design standards
6. Minimize design risks during PS&E phase.

II. CONSEQUENCES OF NOT PREPARING A QUALITY GAD

1. Major design changes that cause significant scheduling delays.
2. Multiple circulation of the GAD for District review than originally planned.
3. Proposed alignments, lane add/drops, and queue lengths do not operate at desired Level of Service (LOS), which results in major design changes in the PS&E phase.
4. Identification of non-standard design features in the PS&E phase that cannot be approved, resulting in design revisions, cost increases and schedule delays.
5. Additional environmental impacts and footprint creep that requires clearance during the PS&E phase that causes Environmental Document revisions, cost increase and schedule delays.
6. Excessive potential risks identified during the PS&E phase that may result in cost increase and schedule delay.

III. PROJECTS REQUIRING A GAD

The Caltrans Design Office Chief shall determine if a GAD is required. If uncertain, it may be necessary to seek advice from the Caltrans Design Liaison. It is the Design Office Chief's responsibility to notify the Project Development Team (PDT) early in the Project Approval and Environmental Document (PA&ED) phase of the need to develop a GAD. A GAD is required for projects that involve any of the improvements listed below:

1. New roadway alignment
2. New interchange or intersection
3. Change in configuration of an existing interchange or intersection
4. Realignment of existing roadway (vertical or horizontal)
5. Removal of an existing ramp (entrance or exit)
6. Addition of a new ramp (entrance or exit)

Note: Only the Caltrans Design Office Chief assigned to the project may authorize the development of a GAD for projects that DO NOT fall under Section III requirements of this guideline.

IV. WHEN TO PREPARE A GAD

A. EVALUATION OF ALTERNATIVES

During the PA&ED phase, geometric concept drawings are first developed for alternative evaluation purposes. These drawings are developed at a sufficient level that will allow the evaluation of each alternative for its ability to meet the operational purpose and need for the project. These drawings are not subject to GAD requirements/procedures outlined in this document.

B. SELECTED ALTERNATIVE

A GAD shall be prepared for the selected (locally preferred or preferred) build alternative after the alternatives have been evaluated. If the preferred alternative changes, a new GAD shall be developed for it. It is recommended that the Responsible Engineer host a GAD scoping meeting with Caltrans Design, and Traffic Operations to coordinate specific features of the project.

V. INFORMATION REQUIRED FOR GAD PREPARATION

The information identified under this section are separate reports, exhibits, and collected data used to prepare Geometric Approval Drawings.

A. TOPOGRAPHIC INFORMATION & SURVEY DATA

Topographic information and survey data is needed to determine the approximate cut and fill line. Discussions with Surveys Division should be held in order to determine the appropriate level of accuracy the project requires for the GAD.

B. SIGHT DISTANCE

Corner Sight Distance calculation diagrams should be provided at intersections to illustrate that optimal sight distance is provided to motorists for judging relative position and speed of approaching traffic. Caltrans Design or Traffic Operations Office Chief determines if Corner Sight Distance calculation diagrams are needed for GAD approval.

Decision Sight Distance exhibits should be provided at exit-ramps and lane drops to demonstrate that motorists are provided sufficient time for making a decision. Caltrans Design or the Traffic Operations Office Chief to determine if Decision Sight Distance exhibits are needed for GAD approval.

C. FORECASTING DATA

Caltrans Planning Division must approve current, opening, and horizon year traffic volumes for operational improvement projects. Horizon year **(20 Year Horizon)** traffic volumes are the calculated volumes 20 years from the day the facility is scheduled to open to traffic. Forecast volumes typically need post processing (modified traffic volumes that consider special land uses not in the 'Model') and account for truck factors in any modeled volumes.

Forecast volumes should be detailed enough to show turning movements for the present, future and design year traffic volumes. In projects that have non-signalized intersections, traffic volumes 5 years from opening date are required to determine the need for traffic signals.

D. OPERATIONAL ANALYSIS

The following information and questions are used to determine if the selected alternative and proposed alignments address operational purpose and need:

1. Traffic Studies/Reports/Diagrams

   - **Traffic Impact Analysis,** also known as **Traffic Operational Analysis Report**, must be approved by Caltrans Traffic Operations prior to GAD submittal.

   - Determining the Level of Service (LOS) at **Merge, Diverge, and Weaving** locations/segments are required as these are critical decision points of traffic.

   - Determining the **Freeway Mainline** LOS is required in order to define the future LOS along the mainline with and without proposed improvements.

   - **Time-Space Diagram** shall be developed at the request of Caltrans Traffic Operations Office Chief to show how the signals will operate as a system when multiple intersections exist within project limits. Caltrans Traffic Operations Office Chief may request a Time-Space Diagram for Roundabouts outside project limits.

   - A **Traffic Signal Warrant** study is required when non-signalized intersections are to be signalized. A Similar warrant is needed when proposing an All-Way Stop Control.

- **Truck Turn Diagram** templates shall be provided to verify that large vehicles can properly traverse an intersection. STAA truck turn templates must be used for STAA routes.

- **Intersection Analysis** shall be conducted at the request of Caltrans Traffic Operations to verify that enough lanes are being provided to achieve an acceptable LOS.

- **HOV or Managed Lane Ingress/Egress** is performed to define the volume/capacity ratios (v/c) or LOS along the mainline with and without the proposed access point.

- **Micro-Simulation Modeling** shall be conducted at the request of Caltrans Traffic Operations Office Chief if additional documentation has been found necessary to support the contention that the selected alternative would address project purpose and need.

2. What to Consider for Operational Needs

- Has Caltrans Traffic Operations informed you that the Managed Lane ingress/egress locations and CHP enforcement areas comply with HOV Guidelines?
- Are turn lanes/pockets long enough to store design year volume per signal cycle for that move, and do they allow for deceleration in accordance with HDM Index 405.2(b)?
- Has the need of HOV preferential lanes for all freeway entrance-ramps been analyzed where HOV lanes are provided or planned on the mainline?
- Are auxiliary lanes needed as required under HDM Index 504.5?
- Does this project trigger the need to re-evaluate the Intersection Control Evaluation (ICE) per TOPD 13-02?
- Have you considered implementation of Managed Lane requirements per TOPD 11-02 Managed Lanes?
- Does the facility accommodate all users?
- Does the facility serve as part of the Extra Legal Load Network (ELLN)?
- Is the facility within the influence area of an Airway-Highway Clearance envelope or approach surface?

VI. DESIGN INFORMATION BULLETIN (DIB) 78

DIB 78 lists geometric design criteria to be incorporated into a project design. DIB 78 must be completed by the Responsible Engineer during the development of the GAD, included with the GAD, and submitted to the Caltrans Design Office Chief prior to District review circulation.

VII. DOCUMENTS REQUIRING APPROVAL PRIOR TO GAD APPROVAL

A. TRAFFIC OPERATIONAL ANALYSIS REPORT

Traffic Operational Analysis report must be approved by the Caltrans Traffic Operations Office Chief before its information can be used to finalize the GAD. Things to consider when developing the report are:

1. If traffic flow fails within Caltrans' jurisdiction, modification to the design will be required until the analysis shows an acceptable Level of Service (LOS).

2. If traffic flow fails outside Caltrans' jurisdiction (e.g. City owned roads), an explanation should be provided and concurrence from the City/County must be obtained.

3. Should a Modified Access Report (MAR) or New Connection Report (NCR) be needed, coordinate with Caltrans Design/FHWA Liaison to ensure the analysis provides supporting information for Federal Highway Administration (FHWA) to approve the MAR or NCR. Otherwise, additional analysis could be requested by FHWA.

B. DESIGN STANDARD DECISION DOCUMENT

Development and approval of a Design Standard Decision Document is not required prior to approval of the GAD. The Responsible Engineer must obtain "Conceptual" approval of all identified non-standard features from the Caltrans Design Liaison. Should design decisions be necessary for proposed non-standard features that do not comply to non-delegated boldface standards, "Conceptual" approval will also be required from the Project Delivery Coordinator.

"Conceptual" approval must be received in writing or email. It is the responsibility of the Responsible Engineer to maintain the records for proof of conceptual approval. Refer to Attachment "D" for "Conceptual" approval process.

NOTE: Development and approval of the Design Standard Decision Document is required prior to the approval of the Project Report per Appendix K of the Project Development Procedures Manual (PDPM).

C. TRUCK TURN TEMPLATES

The Truck Turn Templates shall be submitted to Traffic Operations-Truck Services for review and approval. GAD will not be signed until the Truck Turn Templates show that large vehicles can properly traverse the proposed/modified intersections.

VIII. GAD CONTENTS

The GAD is comprised of a Plan View, Profiles, Superelevation Diagrams, and Typical Cross Sections. The drawings shall comply with the CADD User's Manual and the Plans Preparation Manual. The drawings shall be signed and stamped with a valid Registered Professional Engineer seal.

A. PLAN VIEW

The plan view strip map shall be within the project limits indicated in the Project Report & Environmental Document. Plan view drawings shall be prepared to scale that adequately shows design features, at either 1" = 50' or 1" = 100'. If a different scale is necessary, it must be approved by Caltrans Design Office Chief prior to first review submittal. Strip map length shall not exceed 6' (72"). Although it is preferred to use one strip map, multiple strip maps may be necessary to cover the entire project. Plan view strip map shall also be provided in pdf format.

Refer to Attachment "A" for the list of required elements that must be shown on the plan view. It is recommended that this list be used as a guide to confirm all required elements are shown on the plan view. Additional elements may be shown only if the Responsible Engineer determines it is necessary.

B. PROFILES

Place the profile below the superelevation diagram and at the same horizontal scale. When possible, the profile along with the superelevation diagram should be placed above the plan view on the same strip map. If not possible, a separate strip map for the profile and superelevation diagram should be provided of the same size and horizontal scale as plan view. Should a separate strip map be necessary, it shall also be provided in a pdf format.

Refer to Attachment "A" for the list of elements that must be shown on the Profile. It is recommended that this list be used as a guide to confirm all required elements are shown on the profiles. Additional elements may be shown only if the Responsible Engineer determines they are necessary.

C. SUPERELEVATION DIAGRAMS

The superelevation diagram should be placed above the profile at the same horizontal scale. When possible, it is preferred to place the superelevation diagram along with the profile above the plan view on the same strip map. If not possible, a separate strip map for the superelevation diagram and profile should be provided at the same size and horizontal scale as the plan view. Should a separate strip map be necessary, it shall also be provided in a pdf format.

Refer to Attachment "A" for the list of required elements that must be shown on the Superelevation Diagrams. It is recommended that this list be used as a guide to confirm all required elements are shown on the superelevation diagrams. Additional elements may be shown only if the Responsible Engineer determines they are necessary.

D. TYPICAL CROSS SECTIONS

Typical sections need only show 'typical' cross sections of the various roadbeds. 'Typical' denotes the normal tangent alignment that reflects how the proposed design is accommodated in the existing topographic area (cut / fill). No specific scale is needed on the typical section, but they must be proportional and consistent with the plan view, superelevation diagram, and profile. Should a separate strip map be necessary, it shall also be provided in a pdf format.

Refer to Attachment "A" for the list of required elements that must be shown on the Typical Cross Section. It is recommended that this list be used as a guide to confirm all required elements are shown in the typical cross sections. Additional elements may be shown only if the Responsible Engineer determines it is necessary.

IX. REVIEWS

A. REVIEWERS

1. Caltrans Design/FHWA Liaison
2. HQ Project Delivery Coordinator
3. Caltrans Traffic Operations
4. Caltrans Truck Services
5. Caltrans Design Oversight (oversight projects only)
6. Caltrans Ramp Metering (if applicable)
7. Caltrans Landscape Architecture (if applicable)

The Caltrans Design Office Chief may decide to circulate the GAD to additional reviewers.

B. STANDARD REVIEW TIME

Caltrans standard review time is twenty (20) working days. The Responsible Engineer shall respond to all comments and resubmit the GAD for review within twenty (20) working days of receiving comments. Delay in resubmitting the GAD will result in additional review time pending the Caltrans Reviewer's workload at the time of resubmittal.

X. RESOLVING ISSUES/CONFLICTS

During GAD development, issues associated with items 1 through 5 listed below must be resolved prior to GAD approval.

1. Change in project alignments
2. Expands project footprint
3. Additional impacts on the defined Area of Potential Effect
4. Additional needs for permanent right of way
5. Unacceptable Level of Service (LOS)

Caltrans Traffic Operations and Design Office Chief shall make every effort to resolve issues without delaying the PA&ED phase. If this cannot be done, the Caltrans Design Office Chief shall notify the Project Manager and take the proper steps to adjust the schedule as needed.

Issues unrelated to items 1 through 5 above that may delay the PA&ED phase do not need to be addressed for GAD approval. Such issues shall instead be recorded in the "Risk Register" by the Project Manager and addressed during the PS&E phase.

XI. GAD APPROVAL

After the GAD has been reviewed and properly modified, the Responsible Engineer may request circulation for Caltrans Approval. Caltrans approval of the GAD is obtained when **concurrence is given by the Caltrans Traffic Operations Office Chief** and **approved by Caltrans Design Office Chief**. Caltrans GAD approval must be obtained prior to Project Report approval. Final PA&ED approval follows GAD approval (Refer to Attachment "A" for proper signature block). GAD approval

does not preclude revisions of the base plans later in the process, should it become apparent that changes are needed to satisfy project purpose and need.

The Caltrans Design Office Chief may decide to accept the approved GAD in lieu of the 30% PS&E package. A memo addressed to the Project Manager shall document the decision.

XII. REVISIONS TO APPROVED GAD

If the Caltrans Design Office Chief or Design Liaison decide that major revisions to the approved GAD are needed prior to approval of the Project Report, then resubmittal and approval of the revised GAD will be required.

Minor GAD revisions do not require resubmittal and approval, but may be handled in an informal manner; however, it is recommended that such modifications be documented in writing. Minor revisions are those that do not require a design decision document for features that do not meet a boldface or underline standard, and do not affect scope, environmental footprints, and right of way requirements. 'Clouding' can be used to distinguish minor revisions. Only revised sheets shall be resubmitted for filing purposes only.

Revisions to the GAD will not be required after approval of the Project Report has been issued. Geometric changes can be addressed during the development of detailed project plans and/or Supplemental Design Decision Document in the PS&E phase.

XIII. GAD SUBMITTAL FLOWCHART

See Attachment "C"

ATTACHMENT A

GAD ELEMENTS

ELEMENTS REQUIRED FOR GAD

PLAN VIEW

No.	ELEMENT	DONE
1	Project limits	
2	Access control limits	
3	Striping and delineation	
4	Cut & fill line	
5	Alignment information	
6	Alignment Curve data	
7	Curb Return Radius	
8	Proposed right of way	
9	Existing right of way	
10	Topographic features	
11	Directional movement markings	
12	Maintenance Vehicle Pullouts (MVP)	
13	California Highway Patrol (CHP) enforcement areas	
14	Permanent Concrete Barrier / Walls (e.g. retaining walls, sound walls, etc.)	
15	Bike lanes and pedestrian facilities	
16	Major drainage structures and conveyance systems (e.g. box culverts, ditches, swales, etc.)	
17	Non-detailed curb ramps	
18*	AM/PM peak turning & through movement volumes for Existing Year and Horizon Year (opening & 20 year horizon) at improved intersection	
19*	AM/PM peak volumes (opening & 20 year horizon) of existing intersection adjacent to the improved intersection	
20*	AM/PM peak **exit volumes** (opening & 20 year horizon) at exit ramp's ingress point from the state route	
21*	AM/PM peak **mainline through volumes** (opening & 20 year horizon) at exit ramp's ingress point	
22*	AM/PM peak **entrance volumes** (opening & 20 year horizon) at entrance ramp's egress point onto the state route	
23*	AM/PM peak **mainline through volumes** (opening & 20 year horizon) at entrance ramp's egress point	

***** Refer to Attachment "B" for Traffic Volumes Diagram

ELEMENTS REQUIRED FOR GAD

PLAN VIEW

(continued)

No.	ELEMENT	DONE
24	AM/PM Level of Service (LOS) rating at intersections	
25	AM/PM Level of Service (LOS) rating at ingress points of exit ramps from mainline	
26	AM/PM Level of Service (LOS) rating at egress points of entrance ramps onto mainline	
27	Design designation information (mainline & crossroads)	
28	Outline of bridges	
29	Crosswalk location	
30	Railroad (label minimum horizontal distance)	
31	High Risk Utilities (label minimum horizontal distance)	
32	Maintenance access widths near walls & pinch points	
33	Location of known non-standard design features (proposed & existing) if non-standard feature is associated to any of the elements listed above. (Call-outs on the Plan View may be provided by number then use a table to describe the non-standard feature associated with that number)	

ELEMENTS REQUIRED FOR GAD

PROFILES

No.	ELEMENT	DONE
1	Original grade (OG) & final grade (FG)	
2	Vertical stopping sight distance	
3	Calculated speeds based on sight distance provided by the design	
4	Percent (%) grades	
5	Begin of vertical curve (BV) & end of vertical curve (EV)	
6	Crest point of vertical curve	
7	Sag point of vertical curve	
8	Vertical curve lengths	
9	Vertical clearance at bridges	
10	Identify controlling location of profile	
11	Grade break	
12	Design speeds	
13	Passing sight distance if two (2) lane road	
14	Major utilities and drainage structures (e.g. box culverts)	
15	Outline of bridges	
16	Identify begin/end of alignment, other alignments and add station equations	
17	Vertical distance to railroads	
18	Vertical distance to high risk utilities	
19	Location of known non-standard design features (proposed & existing) if non-standard feature is associated to any of the elements listed above. (Call-outs on the Profiles may be provided by number then use a table to describe the non-standard feature associated with that number)	

ELEMENTS REQUIRED FOR GAD

SUPERELEVATION DIAGRAMS

No.	ELEMENT	DONE
1	Identify begin/end of alignment and axis of rotation	
2	Edge of travelled way (ETW)	
3	Edge of shoulder (ES)	
4	Superelevation rate of ETW	
5	Superelevation rate of ES	
6	Call out other superelevation rates as needed	
7	Begin of superelevation transition	
8	End of superelevation transition	
9	Begin of horizontal curve	
10	End of horizontal curve	
11	Radius of curvature	
12	Design Speeds used for superelevation rates	
13	Run-off lengths	
14	Misc. “controlling” superelevation tie-ins and location of bridge structures as Begin Bridge (BB) and End Bridge (EB)	
15	Direction of curvature (left or right)	
16	Location of known non-standard design features (proposed & existing) if non-standard feature is associated to any of the elements listed above. (Call-outs on the Superelevation diagrams may be provided by number then use a table to describe the non-standard feature associated with that number)	

ELEMENTS REQUIRED FOR GAD

CROSS SECTIONS

No.	ELEMENT	DONE
1	Original grade (OG) & final grade (FG)	
2	Lane width and traffic directional movement arrows	
3	Shoulder width	
4	Median width	
5	Sidewalk/pedestrian pathway width	
6	Horizontal and Vertical Clearances	
7	Curbs, gutters, hinge points, ditches, benches, & toe of slope	
8	Percent (%) cross slopes	
9	Side slope rates (horizontal:vertical)	
10	Existing right of way width	
11	Proposed right of way width (include width from top or bottom of slope)	
12	Show existing roadway features (e.g. bridge columns, abutments walls, retaining and sound walls, concrete barriers, etc.)	
13	Show and label proposed roadway features	
14	Bike lane width	
15	Show slope rounding	
16	Bridge cross section must also be shown on roadway cross sections	
17	Railroad (label minimum horizontal & vertical distance)	
18	High Risk Utilities (label minimum horizontal & vertical distance)	
19	Location of known non-standard design features (proposed & existing) if non-standard feature is associated to any of the elements listed above. (Call-outs on the cross sections may be provided by number then use a table to describe the non-standard feature associated with that number)	

ELEMENTS REQUIRED FOR GAD

SIGNATURE BLOCK

Prepared By: *{Responsible Engineer's Name}*

_____

*Submitted By: *{Local Agency Representative's Name}*

_____ *Date* _____

Concurred By: *{Caltrans Traffic Operations Office Chief}*

_____ *Date* _____

Approved By: *{Caltrans Design Office Chief}*

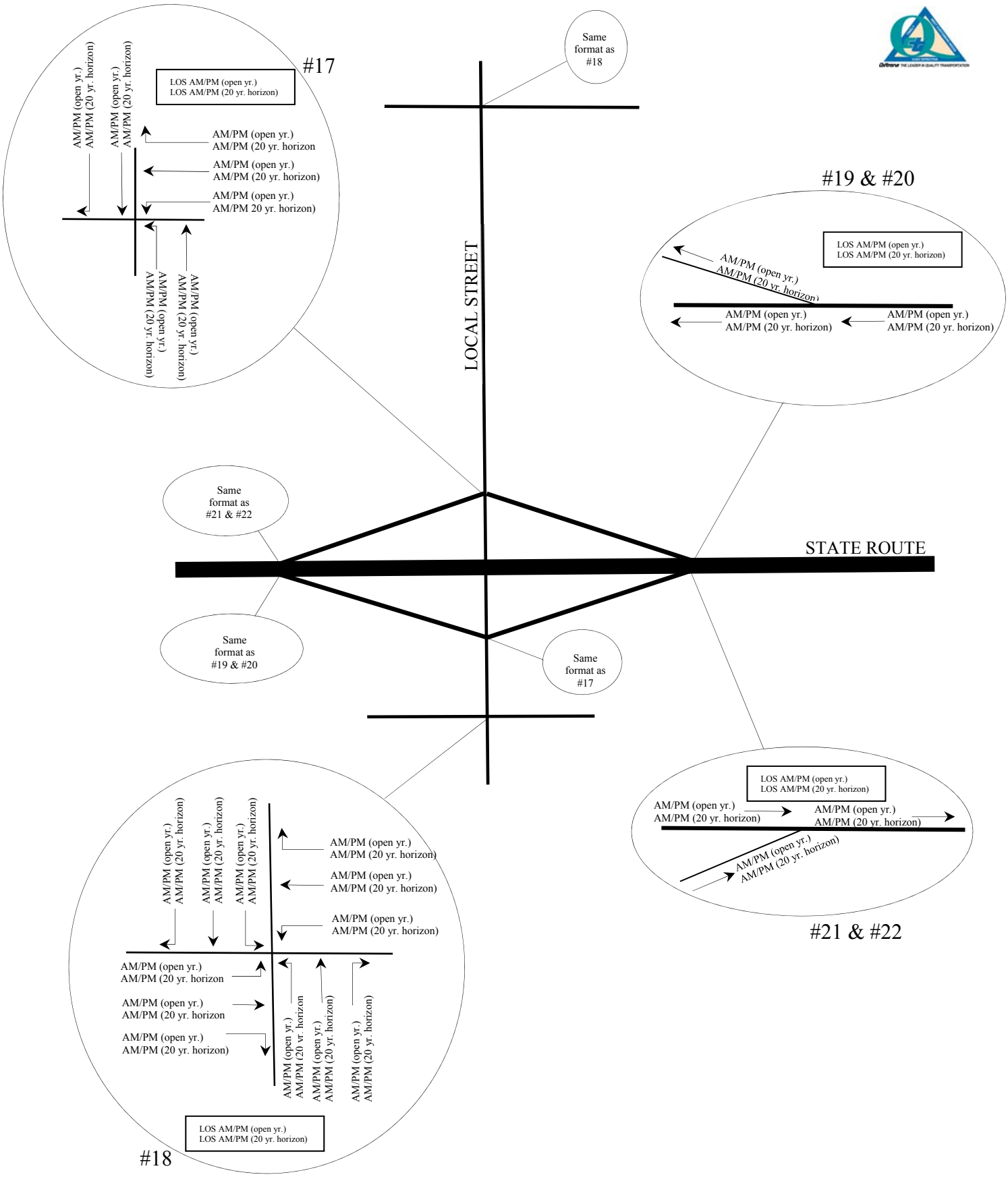
_____ *Date* _____

Reviewed by Caltrans Design Liaison: Initial _____

* Only required for Oversight Projects

ATTACHMENT B

TRAFFIC VOLUMES DIAGRAM



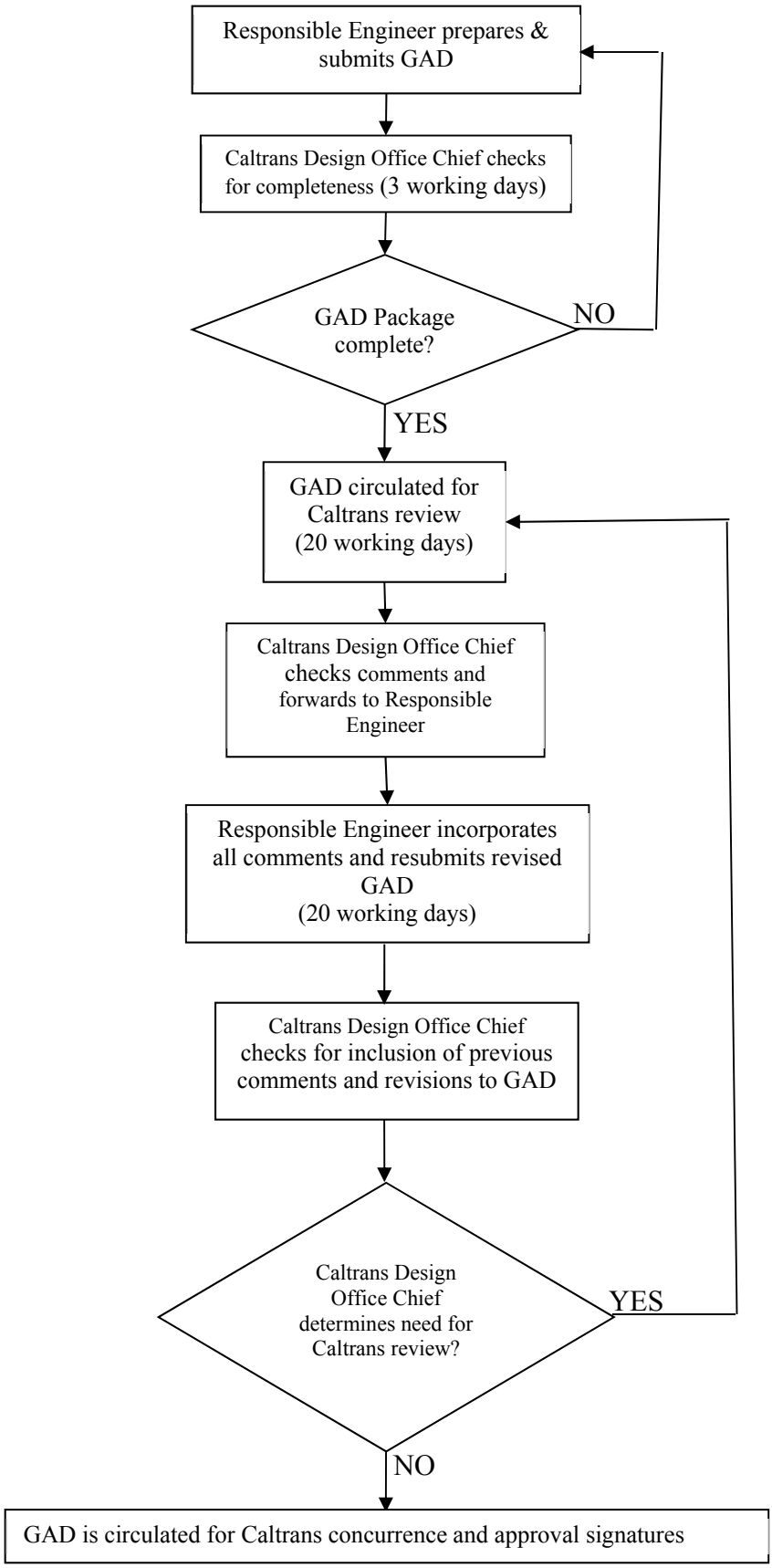
TRAFFIC VOLUMES DIAGRAM

NO SCALE

ATTACHMENT C

GAD FLOWCHART

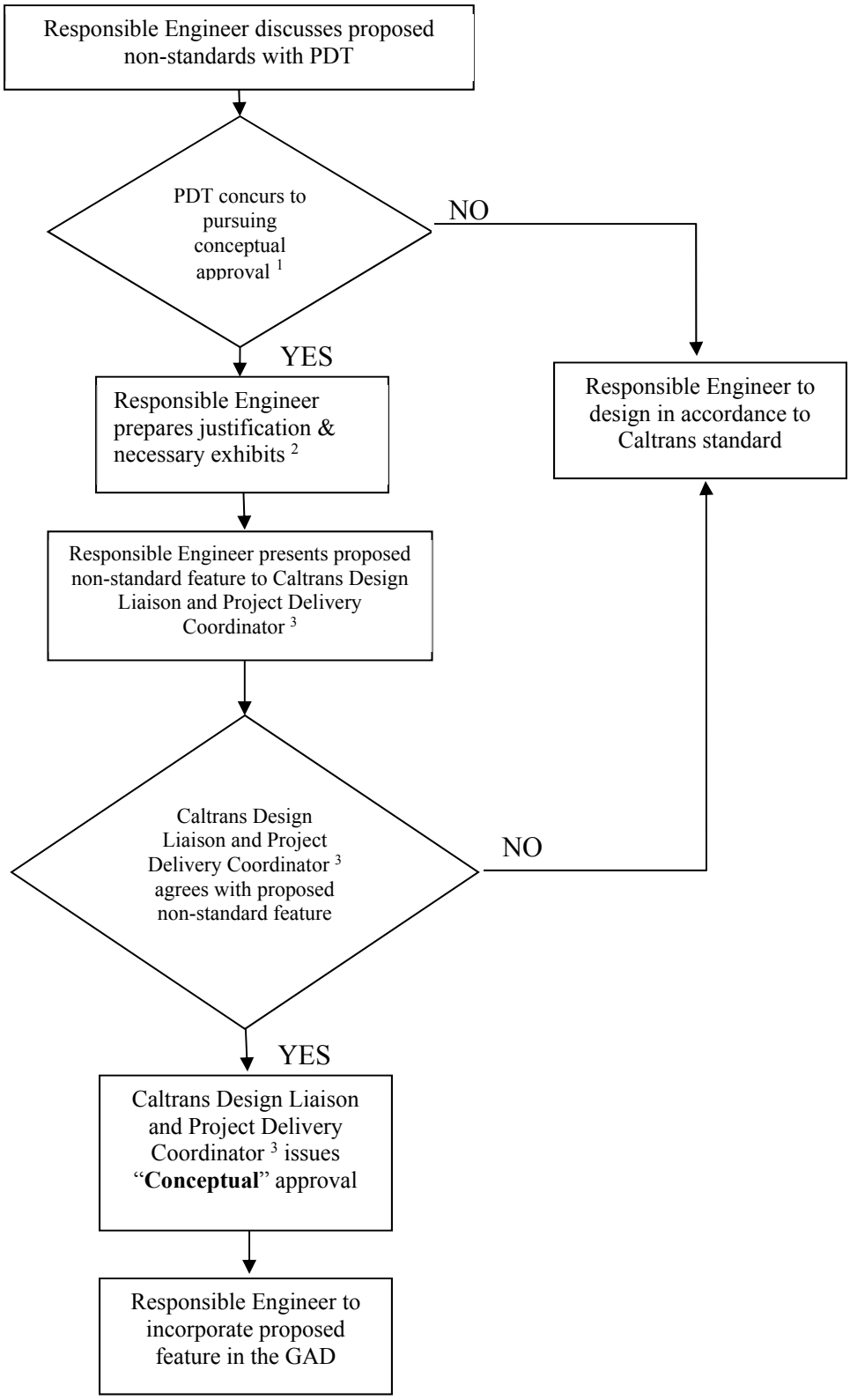
GAD APPROVAL PROCESS



ATTACHMENT D

CONCEPTUAL APPROVAL PROCESS FOR NON-STANDARD DESIGN FEATURES

CONCEPTUAL APPROVAL PROCESS



[1] Concurrence to pursue design decision by PDT does not guarantee conceptual approval
[2] Coordinate with Caltrans Design Liaison to determine required exhibits for presentation
[3] Required when proposing non-standard feature that is not in compliance to a non-delegated boldface standard

Appendix B - Caltrans QAP References and Guides for Design and Construction

- Caltrans Construction Development (CCD) Guide
    - Caltrans Best Bid Standards Checklist

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
PROGRAM PROJECT MANAGEMENT AND
OFFICE ENGINEER

CONSTRUCTION CONTRACT DEVELOPMENT GUIDE

VERSION 5.0 (July 1, 2019)

INTRODUCTION

The Construction Contract Development (CCD) Guide captures many of the requirements governing construction contracting from Federal and State laws, the Federal Highway Administration and Department Policies. It replaces the RTL Guide and provides guidance to support the Department's change to full delegation of the Authority to Advertise/District Delegation (AADD) for all districts. The basis for many of the Department's construction contracting policies is Public Contract Code Section 100-102 "Purpose and Preliminary Matters, which establishes the objectives of protecting public funds from misuse, stimulating competition conducive to sound fiscal practices, and eliminating favoritism, fraud, and corruption," and 23 CFR 635.104, 23 CFR 635.112 and 23 US Code Section 112. The Streets & Highway Code authorizes the Department to establish standards for the construction and maintenance of the state highways and the Government Code provides Caltrans and Caltrans employees with Design Immunity as long as our contracts are prepared in conformity with approved standards.

TABLE OF CONTENTS

PURPOSE, BACKGROUND, PROCESS OVERVIEW AND ACRONYMS

I. PURPOSE

The Construction Contract Development Guide (CCD Guide) describes activities, roles and responsibilities required by Department, Local Agency and Consultant staff to submit construction contract documents, to advertise, open bids, award and approve construction contracts.

The CCD Guide applies to projects defined by Section 10105 of the Public Contract Code regardless of funding source.

II. BACKGROUND

Section 10120 of the Public Contract Code (part of the State Contract Act) states:

"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."

In the Public Contract Code section cited above, the terms "full, complete, and accurate“ can be defined as follows:

- "Full" means that all existing and proposed elements necessary to bid and build the project within the scope are included.
- "Complete" means that all elements are detailed.
- "Accurate" means that all elements comply with statutory and departmental requirements, field conditions are correctly depicted, and the Plans, Specifications, and Estimate are consistent.

Division of Engineering Services, Program Project Management and Office Engineer (PPM&OE) advertises contracts after district certification of compliance with policy, statutory, and regulatory requirements. The district must complete these requirements before PPM&OE places a project on the list of projects proposed for advertisement.

Projects are advertised after they are Ready to List (RTL) and funds are allocated in an amount sufficient to cover the capital construction estimate. Once advertised, contracts proceed to bid opening, award, and approval. To complete the award process, funds must be sufficient to provide the total capital construction funds required based on the final low bid amount to the lowest responsible bidder. In addition, the bidder must be validated as the lowest responsive and responsible bidder according to the appropriate policies, statutes, and regulations governing State and Federal contracts. PPM&OE has the primary responsibility for contract advertisement, bid opening and award with input from the districts and Divisions.

III. PROCESS OVERVIEW

The following is a list of products from district submittal of the Construction Contract Submittal to PPM&OE through contract approval.

- Contract Ready for Advertising
- Advertised Contract
- Independent Quality Assurance (IQA)
- Bids Opened
- Contract Award
- Contract Execution

IV. ACRONYMS

AED	Agreement End Date
AGC	Association of General Contractors
BBS	Best Bid Standards
ER	Emergency Relief
EVCA	Energy and Utility Contractors Association
FFAR	Federal Funds Authorization Request
FHWA	Federal Highway Administration
FSTIP	Federal Statewide Transportation Improvement Program
FTIP	Federal Transportation Improvement Program

FY	Fiscal Year
G-11	(a CTC resolution)
GES	(Identification Code Prefix for Training Classes)
HDM	Highway Design Manual
HM	Hot Mix Asphalt
HQ	Headquarters
IA	Independent Assurance
I/D	Incentive/Disincentive
IH	Information Handout
LAPM	Local Assistance Procedure Manual
LD	Liquidated Damages
LS	Lump Sum
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act of 1969
NR	North Region (Districts 1, 2&3)
NSSP	Non Standard Special Provision
NTB&SP	Notice to Bidders and Special Provisions
OCCS	Office of Construction Contract Standards
OCIP	Office of Capital Improvement Programming
OTS	Office of Traffic Safety
PA/ED	Project Approval/Environmental Document
PCC	Portland Cement Concrete
PCE	Project Coordination Engineer
PD	Project Development

PDF	Portable Document Format
PDPM	Project Development Procedures Manual
PDWD	Project Delivery and Workload Development
PDWT	Project Development Workflow Tasks Manual
PE	Project Engineer
PIF	Public Interest Finding
PISA	Project Information Systems and Analysis
PLAC	Permits, Licenses, Agreements, and Certifications
PPM	Plans Preparation Manual
PPU	Plans Preparation Unit
PRC	Public Resources Code
PS&E	Plans, Specifications, and Estimate
QA	Quality Assurance
QC	Quality Control
RE	Resident Engineer
RR	Railroad
RSP	Revised Standard Plan
RSS	Revised Standard Specification
RSTP	Regional Surface Transportation Program
RTEA	Regional Transportation Enhancement Authority
RTL	Ready-To-List
RUC	Road User Cost
R/W	Right of Way
SCCA	Southern California Contractor Association

SE	Specification Engineer
SHOPP	State Highway Operations and Protection Program
SMARA	Surface Mining and Reclamation Act
SOE	Structure Office Engineer
SP	Special Provisions
SSP	Standard Special Provision
STIP	State Transportation Improvement Program
SWPPP	Storm Water Pollution Prevention Plan
TAEMWW	Transportation Architecture, Electrical, Mechanical, Water and Waste Water
TERO	Tribal Employment Rights Ordinances
TIF	Tagged Information File
TMP	Traffic Management Plan
TRO	Time-Related Overhead
TSI	Transportation System Information
UCON	United contractors
UDBE	Underutilized Disadvantaged Business Enterprises
USC	United States Code (Federal)

SECTION 1 REQUIREMENTS FOR READY TO LIST

1.1 PURPOSE

This section provides general references for the Ready to List (RTL) Milestone.

1.2 RESPONSIBILITIES

See Chapter 2 – Roles and Responsibilities of the Project Development Procedures Manual (PDPM) http://www.dot.ca.gov/hq/oppd/pdpm/pdpmn.htm

1.3 REQUIREMENTS

1.3.1 RIGHT OF WAY (R/W)

Right of Way Certification

References:

Title 23 of the Code of Federal Regulations (CFR) Sections 635.309 and 710.311, Right of Way Manual Chapter 14 and Right of Way policy memos.

Railroad Clearance

References:

Title 23 CFR 646.216 and 635.309, Right of Way Manual Chapters 8 and 14, CCD Guide Section 6.11. Provide copies of the Railroad Clearance Memorandum from Division of Right of Way, plus an electronic copy, in Microsoft Word format, and provide RR Agreements as Supplemental Project Information in the Information Handout.

1.3.2 ENVIRONMENTAL CERTIFICATION

References:

Title 23 CFR 771.129(c), PRC 21000 et seq., and the Department's Standard Environmental Reference.

Compliance:

Provide an electronic copy to PPM&OE. Provide the signature date and the expiration date, which is either 12 months after the date of signature or the earliest PLAC or other commitment expiration date, whichever occurs first.

1.3.3 DESIGN REQUIREMENTS

a. Standards

See Chapter 80 of the Highway Design Manual:
http://www.dot.ca.gov/design/manuals/HTML

b. Water Conservation

http://www.dot.ca.gov/design/lap/sustainability/water-conservation.html

c. Agency Agreements

Include copies of fully executed agreements with the Construction Contract Submittal.

1.3.4 FHWA

a. Stewardship Agreement References:

http://www.dot.ca.gov/design/fhwa/stewardship/2015.html

b. Public Interest Finding (PIF) References:

https://budgets.onramp.dot.ca.gov/downloads/budgets/files/fedresources/PIF%20Guidelines%20Jan%202019.pdf

1.3.5 TRAFFIC OPERATIONS

Overview:

Deputy Directive DD-60-R1, Traffic Management Plans, requires Transportation Management Plans (TMPs) for all planned construction, maintenance, and encroachment permit activities on the State Highway System. The District Traffic Manager or the District Transportation Management Plan Manager verifies that the TMP is updated at RTL.

Reference:

Project Development Workflow Tasks Manual (PDWT), Transportation Management Plan Guidelines and DD-60-R2.

Table 1-1
Expiration and Update Requirements for RTL Documents

Document	Expires After	Must Be Valid at (Milestone)	Contact Division of	Reference
R/W Certification	1 Year	Advertisement Date	Right of Way & Land Surveys	R/W manual Section 14
R/R Clearance Memo	PS&E changes impacting R/R are made	Project listed for advertisement	Right of Way & Land Surveys	R/W manual Section 8
Environmental Certification	Permit requirements change	Project listed for advertisement	Environmental Analysis	http://www.dot.ca.gov/hq/env/
DTM or TMP Manager verification	PS&E changes impacting the TMP are made	Project listed for advertisement	Traffic Operations	DD-60-R2
PE Seal on individual Plan Sheets	Perpetual*	Date of signature	Design (Office of Professional Development)	Business and Professions Code
PE Seal on Title Sheet	Perpetual*	Date of signature	Design (Office of Professional Development)	Business and Professions Code
PE Seal on Special Provisions	Perpetual*	Date of signature	Design (Office of Professional Development)	Business and Professions Code
Project Engineer's Certification of Utility Facilities	Perpetual*	Project listed for advertisement	Design (Office of Professional Development)	PDPM, Appendix LL
Storm Water Data Report	When revised permit conditions require a change	Project listed for advertisement	Design	Storm Water Data Report Caltrans Storm Water Quality Handbooks / Project Planning and Design Guide May 2007 See Appendix E
Hazardous Waste Report	PS&E changes impacting area of contamination requirements change	Project listed for advertisement	Environmental Analysis	PDPM CH. 18

* The seal is valid in perpetuity as long as there have been no revisions to the sheet on which the seal is affixed. (An example of a revision is when CCOs are approved during the construction phase of the project and the engineer of record is not available to approve the change. A licensed engineer can sign off on the change, and that individual would be responsible for the change as well as any other items related to that change.)

SECTION 2 RTL CERTIFICATION

2.1 PURPOSE

The RTL Certification documents the completion of all applicable Ready to List requirements. Projects are deemed RTL when the supervisor of the PE approves the final RTL Certification signed and sealed by the PE certifying that all applicable design, right of way, environmental, regulatory, and statutory conditions have been addressed in the plans, specifications, and estimate.

With full AADD, RTL dates are set by the Districts. RTL Certification is required by the Division of Transportation Programming as part of the CTC allocation funds request. (This RTL certification section and the requirements of the RTL Certification are set by the Division of Transportation Programming and is included in the CCD Guide only for reference.)

2.2 RESPONSIBILITIES

2.2.1 PROJECT ENGINEER

The PE is responsible for the Plans, Specifications and Estimate and is the Engineer of Record signing and sealing the Title Sheet of the Plans. This also applies to consultant designed projects.

The PE certifies that the project meets all the criteria for RTL. By sealing and signing the final RTL Certification, the PE certifies that all applicable design, Right of Way, environmental, regulatory, and statutory conditions have been addressed in the plans, specifications, and estimate. By exercising responsible charge of RTL certification, the PE either personally performs the work or has determined the applicability of design criteria and technical recommendations provided by others before incorporating such criteria or recommendations (Business and Professions Code 6700-6706.3, and Board Rules and Regulations Relating to the Practices of Professional Engineering and Professional Land Surveying, California Code of Regulations, Title 16, Division 5, §§-400-476).

Business and Professions Code, section 6735.5 states: “The use of the word 'certify' or 'certification' by a registered professional engineer in the practice of professional engineering or land surveying constitutes an expression of professional opinion regarding those facts or findings which are the subject of the certification, and does not constitute a warranty or guarantee, either expressed or implied.”

2.2.2 DESIGN ENGINEER OR MANAGER

The Design Engineer or Manager is the supervisor of the PE. The Design Engineer's or Manager's approval indicates the PE has the knowledge and experience to assure that the RTL requirements are complete.

2.2.3 DISTRICT OFFICE ENGINEER

Assists the PE in preparing and submitting the RTL Certification and receives the completed RTL Certification for AADD projects.

2.2.4 STRUCTURE OFFICE ENGINEER

Ensures that structure PS&E submittals and responses to draft contract comments to the district office engineers are prepared and processed in conformance with the Department's policies, procedures, adopted standards, and the requirements in this Guide.

2.3 COMPLETION AND SUBMITTAL OF RTL CERTIFICATION FORM

- AADD Projects

  The PE obtains the RTL Certification Form from the DOE. The Form is available in the DOE AADD Database. With the assistance of the DOE, the PE completes and submits the signed and sealed form to PPM&OE before the project is submitted for listing for advertisement.

- Informal Projects

  A Director’s Order is required for all informal projects, otherwise it is an AADD project. For informal projects, the PE completes the draft RTL certification form and the DOE submits the signed Form to the DES Deputy Chief - Office Engineer together with the plans, specifications and estimate (PS&E) for informal contract processing. The draft RTL certification identifies the completed requirements as well as pending requirements and target dates for completion. As the project is processed, PPM&OE will verify the completion of the pending requirements. After verification by PPM&OE that all applicable requirements are completed the DOE prepares and sends the Final RTL Certification to the PE to seal and sign and for the PE’s supervisor signature of approval. PPM&OE must receive a completed Final RTL Certification for a project to achieve RTL milestone.

SECTION 3 CONSTRUCTION CONTRACT SERVICES AND AUTHORITY TO ADVERTISE

3.1 PURPOSE

This section describes the:

- PPM&OE services to process a construction contract ready for advertisement.
- District requirements for the District Director to approve a construction contract for advertisement.

3.2 BACKGROUND

District/Region Directors are delegated the authority to approve and are solely responsible for authorizing the advertisement of construction contracts, excluding informal bid construction contracts, in accordance with state and federal law. Executive authorization to approve construction contracts for advertisement is based on the manager's staff having the knowledge and ability to produce full, complete, and accurate plans, specifications, and estimate (PS&E) in compliance with statutory requirements and Department policies.

3.3 RESPONSIBILITIES

3.3.1 DISTRICT DIRECTORS

- Certifies by signing the Authority to Advertise (A2A) form that the contract complies with statutory requirements and Department policies for advertisement. See Appendix C for the A2A form.

3.3.2 PPM&OE, DEPUTY DIVISION CHIEF

- Assures that an independent review (Independent Quality Assurance (IQA)) is performed on a statistically significant number of construction contracts submitted for advertisement.

3.3.3 PPM&OE, OFFICE CHIEF OF CONSTRUCTION CONTRACTING COORDINATION & QUALITY

- Provides feedback to districts on the performance measures indicated in the AADD Delegation of Authority agreement provided to each district/region.

3.3.4 PROJECT MANAGER

- Establishes and maintains project schedules. Resources project production through PPM&OE based on established Workload Estimate Norm or based on agreement with PPM&OE Office Chief of Construction Contracting Coordination and Quality Program.

- Resources and supports the District's functional units in delivering a full, complete, and accurate Construction Contract Submittal Package to the District Director.

- Takes a lead role in obtaining signoffs for Risk Management accountability checkpoints.

- Provides a signed Risk Register Certification to the DOE for RTL.

3.3.5 DISTRICT OFFICE ENGINEERS

- Ensures the quality of construction contract documents produced by the district.

- Delivers a full, complete and accurate construction contract submittal package to PPM&OE.

SECTION 4 CONSTRUCTION CONTRACT ADVERTISEMENT, AWARD AND BID OPENING

4.1 PURPOSE

This section provides an overview of the construction contract advertisement, bid opening and award process, roles and responsibilities.

4.2 BACKGROUND

PPM&OE advertises, open bids and awards Minor A, major maintenance and major highway construction contracts.

4.3 RESPONSIBILITIES

4.3.1 PROJECT MANAGER

- Ensures sufficient funds are available for construction contract advertising and award.
- Prepares, reviews or approves the contract award recommendation or request to reject bids.

4.3.2 PROJECT ENGINEER, DESIGN ENGINEER, AND CONSULTANT OVERSIGHT ENGINEER

Provides information or clarification needed by PPM&OE and may prepare and sign contract award recommendation or bid rejection request.

4.3.3 DISTRICT OFFICE ENGINEER

- Acts as liaison for PPM&OE and the district to resolve issues in a timely manner.
- Responds to bidder inquires.
- Prepares and submits addenda
- Prepares, reviews and either concurs with or approves contract award recommendation or request to reject bids.

4.3.4 DIVISION OF ENGINEERING SERVICES-OFFICE ENGINEER

- Prepares final contract documents and posts on the Internet for advertisement.

- Advertises, opens bids and awards construction contracts to the lowest responsive and responsible bidder.
- Processes requests to reject bids.
- Responds to bid protests.
- Responds to requests for relief of bid.
- Responds to requests for subcontractor substitution.
- Facilitates pre-award qualification meetings, if required.
- Chairs good faith effort reconsideration meetings, if required.

4.3.5 DIVISION OF BUDGETS-OFFICE OF FEDERAL RESOURCES

Prepares the Federal Detail Estimate and provides a copy to PPM&OE within ten days after receipt of the low bid BEES (copy of the estimate with the low bidder's prices, supplemental work, Department-furnished materials and contingencies).

4.3.6 FEDERAL HIGHWAY ADMINISTRATION ENGINEER

- For project of Division interest, approves the plans, specifications and estimate in accordance with the Project Oversight Agreement.
- Approves major addenda in accordance with the Stewardship Agreement.
- Concurs with contract award or bid rejection in accordance with the Stewardship Agreement.

4.4 LISTING PROJECTS FOR ADVERTISEMENT

PPM&OE identifies a weekly list of projects that are RTL and funded on a list of "Projects Tentatively Proposed for Advertisement." Funded is defined as funds allocated and approved by the Department & FHWA (if federally funded) including Federal Authorization (E-76) approval in an amount sufficient to cover the capital cost of construction. Projects identified on the list proceed to final bid document preparation and advertisement.

4.4.5 LISTING EXCEPTION PROCESS TO ADVERTISE PRIOR TO CTC ALLOCATION

Projects meeting the criteria may be considered for the exception.
See https://design.onramp.dot.ca.gov/node/989 for information on AB4 process

Exception request forms must:

- Exception request forms must: Be signed by the District Director
- Be approved by the Chief, Division of Design
- Electronically submitted to scheduling.oe@dot.ca.gov and AB4Allocate@dot.ca.gov
- Have contract documents concurrently submitted to PPM&OE. Submittals must comply with Section 10 of this guide.

Projects must meet the following conditions in order to be considered for approval of the exception request:

- Signed Ready-to-List (RTL) Certification*.
- Signed Right of Way certification level 1, 2 or 3W*.
- Executed cooperative agreement, if applicable*.
- Federal funding authorization (E-76), if applicable*.
- Construction and Right of Way capital and support budget are within 120 percent of the programmed amount**.
- Signed Authority to Advertise (A2A) form*.
- Copy of Funds Request submitted to HQ Budgets*.

**Part of the Submittal to PPM&OE*
***Part of Exception Request Form*

4.4.6 SUBMITTALS FOR EXCEPTION PROCESS TO ADVERTISE PRIOR TO CTC ALLOCATION

Exception project submittals to PPM&OE must comply with Section 10 of this CCD Guide. Table 10-1 Requirements for Construction Contract Submittal to PPM&OE applies to exception projects, with the following modifications:

- Item J. Funding Package will not be required at submittal, in its place a copy of the Funds Request will suffice. After the CTC vote, the Funding Package must be submitted to PPM&OE.
- A copy of the exception request form must be included with the submittal.

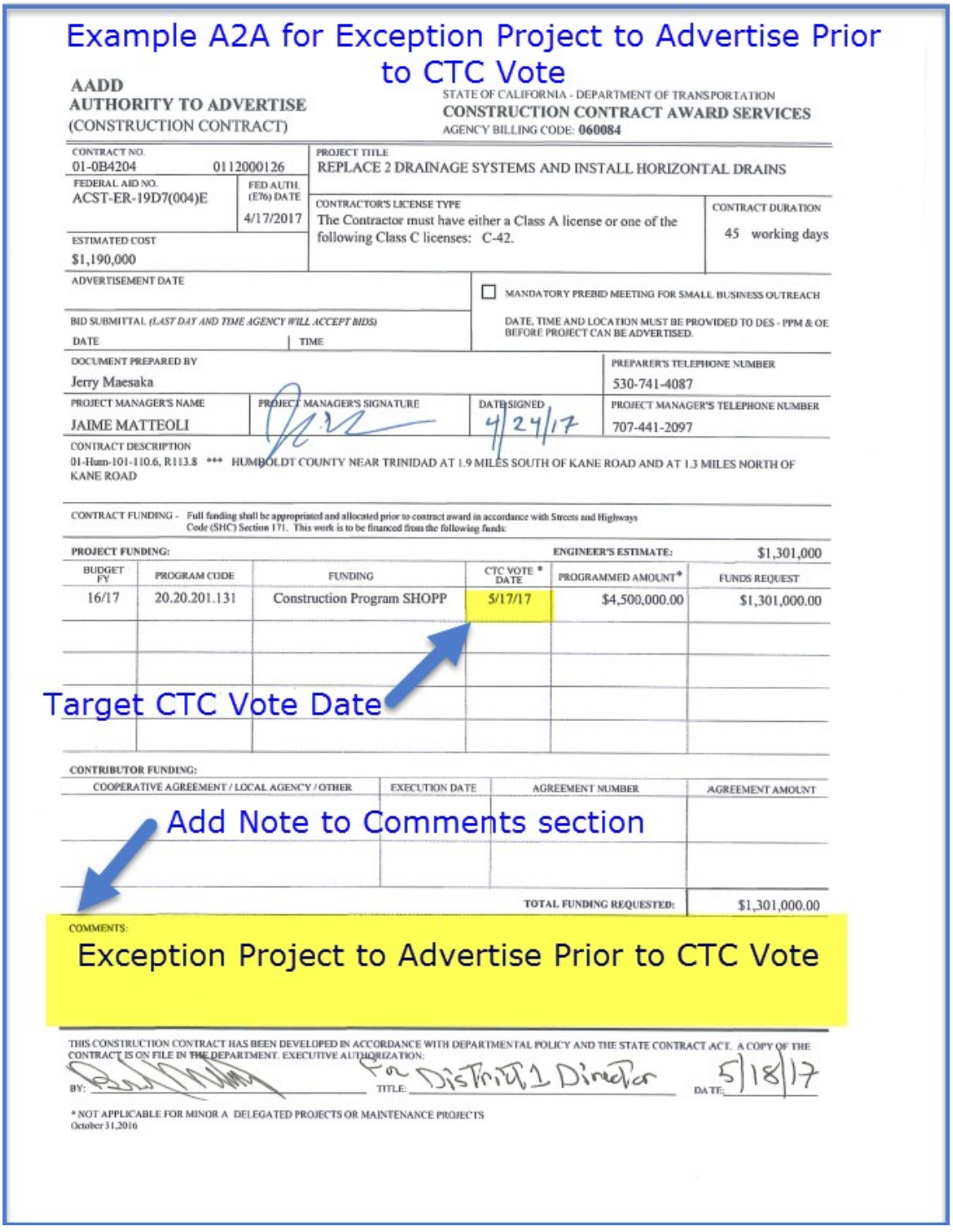
4.4.7 SCHEDULING BID OPENINGS FOR EXCEPTION PROCESS TO ADVERTISE PRIOR TO CTC ALLOCATION

Exception projects bid opening will be scheduled a minmum 10 working days after the CTC vote. This is to allow the Department sufficient time to verify that the project funding is approved and in place to facilitate award of the advertised project. State contract law requires that the Department no award a project without the funding being in place. Once bids are opened, no changes to the contract documents can be made, including delays to secure funding, this is why it is imperative that no project is bid opened before the funding is in place.

Exception projects that are not voted on the scheduled CTC vote, can not be bid opened, and must have either a postponement addenda or a project cancellation addenda issued.

4.4.8 AUTHORITY TO ADVERTISE FOR EXCEPTION PROCESS TO ADVERTISE PRIOR TO CTC ALLOCATION

- The Authority to Advertise (A2A) form for exception projects will be signed prior to the actual CTC vote date.
- In lieu of the CTC Vote Date, the "Target CTC Vote Date" will be used.
- Add Note to comment section: "Exception Project to Advertise Prior to CTC Vote"



4.5 FINAL BID DOCUMENT PREPARATION

When a project is listed for advertisement, PPM&OE prepares the final bid documents and during this period:

- The Office of Business and Economic Opportunity sets DBE or DVBE goals.
- PPM&OE prepares the Notice to Bidders and Special Provisions, Bid book and the Information Handout if applicable.
- PPM&OE reproduces the final delineated plans, the Notice to Bidders and Special Provisions, Bid book and the Information Handout if applicable.

4.6 ADVERTISEMENT

A project is ready for advertising when:

- Final bid documents are prepared and ready for posting on the Internet.
- Project has been advertised in the Department of General Services, California State Contracts Register.

PPM&OE uses the following guidelines for setting advertisement dates for all construction contracts except informal bid contracts.

4.6.1 ADVERTISING DATES

- Advertise on Mondays unless a Holiday (Government Code Section 6700-6720), then advertise on Tuesdays.

4.6.2 ADVERTISING DURATIONS

- Use durations concurred by the construction industry (AGC, UCON, & SCCA). Advertising periods typically range from three to seven weeks, or more depending on the complexity of the project.
- Do not count the week of Independence Day if holiday is during the week, the week of Thanksgiving, the last week of December, or the first week of January as part of the advertisement period.
- If advertising period is less than or equal to 6 weeks, do not count the week of Thanksgiving, the last week of December, or the first week of January as part of the advertisement period.
- If advertising period is more than 7 weeks and spans both events, count the week of Thanksgiving, the last week of December, and the first week of January as part of the advertisement period.

Durations are guided by the number of bid items.

Federal-aid projects require a minimum of 3 weeks of advertising unless an exception is granted by Federal Resources.

4.7 ADDENDA

An addendum is issued to correct errors, omissions, or conflicts in the bid documents. Project changes after bid opening can only be made by either:

- Writing a change order during construction.
- Rejecting all bids and re-advertising as a new project.

See Section 13, Contract Addenda, for instructions for preparing addendum letter.

4.8 BID OPENING

PPM&OE follows the bid opening rules:

1. Opens bids on Tuesdays, Wednesdays, or Thursdays in Sacramento.
2. Does not open bids:
    - The day before or after a holiday.
    - During the weeks of Independence Day, Thanksgiving or the last two weeks of December.
3. Limits bid openings for construction contracts to:
    - One large Northern California and one large Southern California contract maximum per day.
    - One day apart for each type and for each region or district for landscape, building, or electrical contracts.
    - Small contract bid openings during the first week of January. Optimal average 10 bid openings per day. Optimal minimum 5 bid openings per day. Third and fourth quarters may have maximum of 15 bid openings per day.
    - One day apart for similar EAs (e.g., 07-257301, 07-257401) and for similar types of contracts in same county and route.

SECTION 5 INDEPENDANT QUALITY ASSURANCE OF CONSTRUCTION CONTRACTS

5.1 PURPOSE

As required by the Decision Document delegating to District Directors the authority to approve construction contracts advertisement, PPM&OE will perform IQA on a representative number of projects to ensure proper application of the Best Bid Standards (BBS) by the Districts and to monitor, report and update the BBS as needed.

PPM&OE is responsible for performing Independent Quality Assurance (IQA) on construction contracts advertised for bid as an internal level of review in compliance with Government Code 13403.

This section provides information about the IQA program. The IQA program validates the proper application of the Best Bid Standards (BBS) by Districts as an integral part of the districts' Quality Management Systems (QMS).

5.2 RESPONSIBILITIES

5.2.1 DIVISION OF ENGINEERING SERVICES-PROGRAM PROJECT MANAGEMENT AND OFFICE ENGINEER

- Performs an IQA review on a representative sample of construction contract documents after advertisement to ensure proper application of the BBS by Districts.
- Provides feedback to the Districts regarding the IQA findings.
- Recommends corrective action to achieve construction contract documents to meet the Department's standards and policies.

5.3 BEST BID STANDARDS (BBS)

The Best Bid Standards (BBS) are a compilation of legal, policy, and procedural references used in the preparation and review of construction contracts. The BBS evaluate the Department's construction contracts for accuracy, legal compliance, and cost effectiveness which results in lower administrative costs, expedited processing, and bids that are more competitive.

For the BBS Guide and other related QMP documents see: http://des.onramp.dot.ca.gov/office-engineer/construction-contracting-coordination-and-quality-program

5.3.1 LEGAL BASIS FOR THE BBS

The BBS are necessary because the Department is required to provide accurate, legally compliant, and cost effective construction contracts for advertisement and award.

Public contracts must conform to:

- The State Contract Act
- The Government Code
- The Implied Warranty of Specifications
- The Implied Warranty of Full Disclosure
- The Implied Warranty Against Interference
- Federal Contract Administration Requirements (including Title 23)

The Department's contracts must also conform to the Streets and Highways Code.

The BBS, as well as Department policies and standards, are a result of Departmental and Federal agreements, and delegation of responsibility. Design staff maintain immunity for themselves and for the State by following these laws and requirements.

5.3.2 RISK CATEGORY

Each BBS has an associated risk category color code (High = Red, Medium = Orange, and Low = Yellow) based on risk severity. The risk category identifies and prioritizes construction contract quality infractions. The risk category color codes are described as follows:

High (RED): The BBS infraction places the award of contract in jeopardy and the BBS infraction must be addressed by an addendum.

Medium (ORANGE): The BBS infraction is a deviation of Departmental policy, or may adversely impact the cost in construction and expose the Department to risks regarding the FHWA stewardship agreement. This BBS infraction should be addressed by an addendum.

Low (YELLOW): The BBS infraction that results in variance from Departmental practices and procedures. Yellow classifications provide feedback for improvement of future project submittals.

SECTION 6 SPECIAL PROVISIONS

6.1 PURPOSE

This Section provides guidance for preparing the project special provisions. Preparation and QC/QA of the contract Special Provisions is the responsibility of the District.

6.2 BACKGROUND

The Standard Specifications, SSPs, and RSSs are the result of participation, extensive development, and concurrence from the Department's experts and applicable stakeholders. External stakeholders include industry, FHWA, and other agencies. Standard Specifications and SSPs are sponsored by owners who are responsible for the technical content.

See the Specification Style Guide and the Guide for Standard Specifications, SSPs, and Standard Plans for responsibilities, processes, and rules for the development of the standards.

Statewide specification uniformity makes bids more competitive and projects easier to administer. To expedite project delivery and minimize variation between projects, use the current SSPs published on the PPM&OE Website. SSP editing must comply with instructions within the SSP.

6.3 RESPONSIBILITIES

Regardless of the construction involved, all projects are district projects. Districts have overall responsibility for the special provisions. Districts must ensure structure specifications do not conflict with other specifications. The details of responsibilities for the special provisions are as follows:

6.3.1 DISTRICT PROJECT ENGINEER

- Coordinates special provision work with the DOE from project development through award.
- Ensures SSPs are used and edited under the instructions in the SSPs.
- Ensures NSSPs included in the special provisions are necessary, developed, and approved by the appropriate owners before submitting to the DOE.

6.3.2 DISTRICT AND STRUCTURES SPECIFICATION ENGINEER

- District SE or PE signs, seals and dates the special provisions for district work.
- SOE SE signs, seals and dates the special provisions for structure work.
- Multiple specification engineers may be involved for work such as highway, traffic, pavement, structures, landscape, buildings, mechanical, water, waste water, electrical and architects.
- Assembles, edits, and uses QC for special provisions.
- Assists with NSSP development and verifies owner approval.
- Verifies consistency between the plans, Bid Item List, and special provisions.

6.3.3 DISTRICT OFFICE ENGINEER

- Provides QA to verify that the applicable SSPs are selected and correctly edited.
- Ensures NSSPs are necessary and consistent with the Specification Style Guide.
- Formats NSSPs.
- Coordinates Construction Contract Submittal.

6.3.4 DISTRICT OFFICE ENGINEER SITE COORDINATOR

- Acts as the liaison with PPM&OE for computer issues.
- Ensures that DOE computers are equipped with the tools and configuration necessary to submit Construction Contract Submittal.
- Acts as the point of contact in the district for specification-related computer problems.
- Takes responsibility for other computer-related functions (e.g., annual equipment inventory).

6.3.5 DIVISION CHIEF OF PROGRAM OR FUNCTION

- Designates specification owners.
- Provides resources to support the specification owners.

6.3.6 SECTION COORDINATOR

- For section coordinator responsibilities go to the Guide for Standard Specifications, SSPs, and Standard Plans.

6.3.7 SPECIFICATION OWNER

- For specification owner responsibilities go to the Guide for Standard Specifications, SSPs, and Standard Plans.

6.3.8 DIVISION OF ENGINEERING SERVICE-PROGRAM PROJECT MANAGEMENT AND OFFICE ENGINEER, DEPUTY DIVISION CHIEF

- For PPM&OE, Deputy Division Chief Responsibilities go to the Guide for Standard Specifications, SSPs, and Standard Plans.

6.3.9 DESIGN, OFFICE CHIEF OF OCCS

- For OCCS Office Chief responsibilities go to the Guide for Standard Specifications, SSPs, and Standard Plans. The Guide to Standard Specifications, SSPs, and Standard Plans can be found at: http://oe.dot.ca.gov/construction_contract_standards/specifications/guides/S3_guide_01-03-08.pdf

6.4 SPECIAL PROVISIONS

6.4.1 GENERAL

Sections of the special provisions match the sections of the Standard Specifications.

6.4.2 SECTIONS 1 THROUGH 9

SSPs for Sections 1 through 9 revise the general provisions of the Standard Specifications. Sections 1 through 9 apply to all contracts unless specified as applicable under certain conditions. If a bid item is not used for work required by Sections 1 through 9, payment is included in the contract bid items per Section 9-1.03, “Payment Scope”, of the Standard Specifications. SSPs for Sections 1 through 9 include specifications for:

- Requirements and instructions to bidders
- Requirements for award and execution
- Control of the work and materials
- Relations with other entities
- Public and worker safety
- Start of job site activities
- Items for partial payment
- Payment, including measurement for payment

Cost-Plus-Time Bidding

To determine if a project is required to have cost plus time bidding (formerly A+B bidding), use the guidelines published by the Division of Construction.

Incentive/Disincentive Provisions

Incentive/Disincentive provisions require justification and are customized for each project. Work with PPM&OE and the Division of Construction as early as possible to develop specifications.

Supplemental Project Information and the Information Handout

The Department is required under contract law principles such as the Spearin and Superior Knowledge Doctrines to disclose to bidders information otherwise unavailable that is vital to contract performance.

Information included in the contract as supplemental project information, including the Information Handout, must be referred to from the special provisions because Section 2-1.06B of the Standard Specifications states that the information is made available as specified in the special provisions. The supplemental project information is made part of the contract by reference to it from the specifications and by the inclusion in the list of contract parts in Section 5-1.02 of the Standard Specifications.

Project-Related Permits, Licenses, Agreements, Certifications (PLACs)

Comply with Chapter 13 of the PDPM. See website: http://www.dot.ca.gov/hq/oppd/pdpm/chap_pdf/chapt13.pdf

Although PLACs are part of the contract:

- The plans and specifications must describe any work that the Contractor must complete. For example, if a PLAC states that a tortoise fence must be constructed, the plans and specifications must describe the tortoise fence.

- If a PLAC states that a requirement must be described in the plans or specifications, the plans or specifications must describe the requirement.

- If a PLAC describes options and the Department has chosen one option, the specifications must specify that option.

- If a PLAC provides requirements but does not designate the responsibilities of each party, the specifications must specify the responsibilities of each party.

- If a PLAC designates responsibilities to the Department, and the Department requires the Contractor to act such that the Department is in compliance with the PLAC, the specifications must specify that the Contractor must perform the act.

- For convenience to the Contractor, the specifications must include any time constraints included in the PLAC.

Working Days

Districts are responsible for the submittal of the total project working days. Structures determine the number of working days for structure work. Districts merge the working days for highway and structure work. Round up working days to the nearest 5 days. Do not add days for work that can be done concurrently with the controlling activity. Do not add days for extra work. If necessary, days for extra work are added by change order.

For work that is not done concurrently with the controlling activity, consider:

- 7 or 14 day waiting period before placement of pavement markers on new hot mix asphalt

- Curing time for concrete

- 30-day minimum for obtaining railroad insurance

- Time specified for performance of utility work

- Landscaping, irrigation, and plant establishment work

- Collection of site specific seed for erosion control work
- Plants that must be propagated from plants on the job site
- Review time for contractor submittals (e.g., SWPPP, progress schedule, material lists, working drawings and plans, aggregates, concrete mix designs, asphalt mix designs, and other submittals specified in the special provisions, RSSs, or Standard Specifications)
- Lead time for delivery of steel products, electrical equipment and special materials
- Special days or time constraints for traffic

Liquidated Damages

Liquidated damages (LD) recover additional Department costs due to the Contractor's failure to complete the contract within the specified time and are based on the estimated cost of field construction engineering and field office expenses.

Section 8-1.10, “Liquidated Damages,” of the Standard Specifications includes standard LD amounts for projects $250 million or less. Section 8-1.10 also includes a standard liquidated damages amount for plant establishment work.

For a cost-plus-time bid type project, include the corresponding LDs based on the contract bid items total from the table in Section 8-1.10, Liquidated Damages, of the Standard Specifications and the road user cost (RUC). The LDs amount and RUC are the cost per day in the total basis for bid comparison purposes. See website for PD-14 for the Policy and Guidelines for use of Cost-Plus-Time Bidding: http://www.dot.ca.gov/hq/projdev/directive/PD-14-Cost-and-Time-Bidding.pdf

For a unit price or Lump Sum (LS) bid type project, do not include LDs in the special provisions.

Internal Time Limits

Contact Design Office of Construction Contract Standards for assistance.

Guidance

Internal time limits can be used to meet internal milestones without approval.

6.4.3 SECTIONS 10 THROUGH 16

SSPs for Sections 10 through 16 revise general construction specifications of the Standard Specifications. These sections apply to all contracts unless specified otherwise. If a bid item is not used for work required by Sections 10 through 16, full compensation is covered by Section 9-1.03, “Payment Scope”, of the Standard Specifications.

SSPs for Sections 10 through 16 include specifications for:

- Quality assurance
- Sustainable materials
- Temporary traffic control
- Water pollution control
- Environmental stewardship
- Existing facilities
- Temporary facilities

6.4.4 SECTIONS 17 THROUGH 88

SSPs for Sections 17 through 88 revise construction specifications of the Standard Specifications for specific bid items. SSPs for Sections 17 through 88 include:

- Grading
- Bases and pavements
- Structures
- Drainage
- Miscellaneous construction
- Traffic control facilities
- Electrical

6.4.5 SECTIONS 89 THROUGH 98

SSPs for Sections 89 through 98 revise materials specifications of the Standard Specifications. SSPs for Sections 89 through 98 include:

- Concrete
- Geosynthetic materials
- Asphalts and asphaltic emulsions
- Paints
- Epoxies

6.5 SPECIAL PROVISIONS FOR MINOR B CONTRACTS

For Minor B contracts, districts compile and submit the special provisions to the Division of Procurement and Contracts. If the project includes structures work, SOE submits their portion of the special provisions to the district.

6.6 ASSEMBLY OF SPECIAL PROVISIONS

Obtain the tools including macros for special provision assembly from the DOE site coordinator.

The bid items set forth the construction specifications that apply. The first 2 digits of the item code correspond to the specification section number with the same first 2 digits except for bid item code 999990. In cases where the first 2 digits of the item code does not match the specification section number, use SSP 1-1.01.

Use the first 2 numbers of the bid item along with the SSP index to assist in selection of SSPs that apply to a project.

Use the Special Provision (SP) template to create a document and insert the necessary SSPs. The SP template contains all the main section headings. Insert the SSPs under the appropriate heading in numerical order. Use the current template and SSPs published by OCCS.

Ensure that each bid item is covered by the Standard Specifications or the special provisions. Your review of the Standard Specifications, which includes the revised standard specifications, is critical. If a work component is not covered by the Standard Specifications, add the appropriate SSP. If an appropriate SSP does not exist, create an NSSP.

Use the 2015 special provision template to create NSSPs. This template is available at the PPM&OE Website.

6.7 SPECIAL PROVISIONS FOR BUILDING CONSTRUCTION PROJECTS

Building construction projects are construction or remodeling work which includes roadside rest areas, maintenance stations, vehicle inspection facilities, equipment buildings, toll plazas, etc.

Do not use a bid item for mobilization if the LS price of the building work is greater than 50 percent of the total bid items. Mobilization is included in the LS price for the building work.

6.8 EDITING AN SSP

Use the guidance in Appendix G.

Follow the instructions included in an SSP. If you must add or delete language not covered by the SSP instructions, follow the procedure for an NSSP.

For provisions that require a contact, provide the contact's title, address and phone number. Do not use proper names except in provisions for railroad specifications.

6.9 NSSP

An NSSP is:

- A specification that is not published by OCCS.
- An SSP with added or deleted language not covered by the SSP instructions.

Use of NSSPs should be limited and must be justified. Districts are responsible for documenting justification and obtaining specification owner approval for each NSSP unless the owner has delegated NSSP authority to the district.

For NSSPs the Engineer in charge of a project maintains the span of control by consulting with the SSP owner who is responsible for approving the proposed NSSP and making recommendations.

For each project, the use of an NSSP requires approval by the owners and concurrence either by district or HQ Construction.

For an NSSP and associated project details, the written approval by the owner and concurrence by construction is a statement that the technical content of the NSSP is adequate.

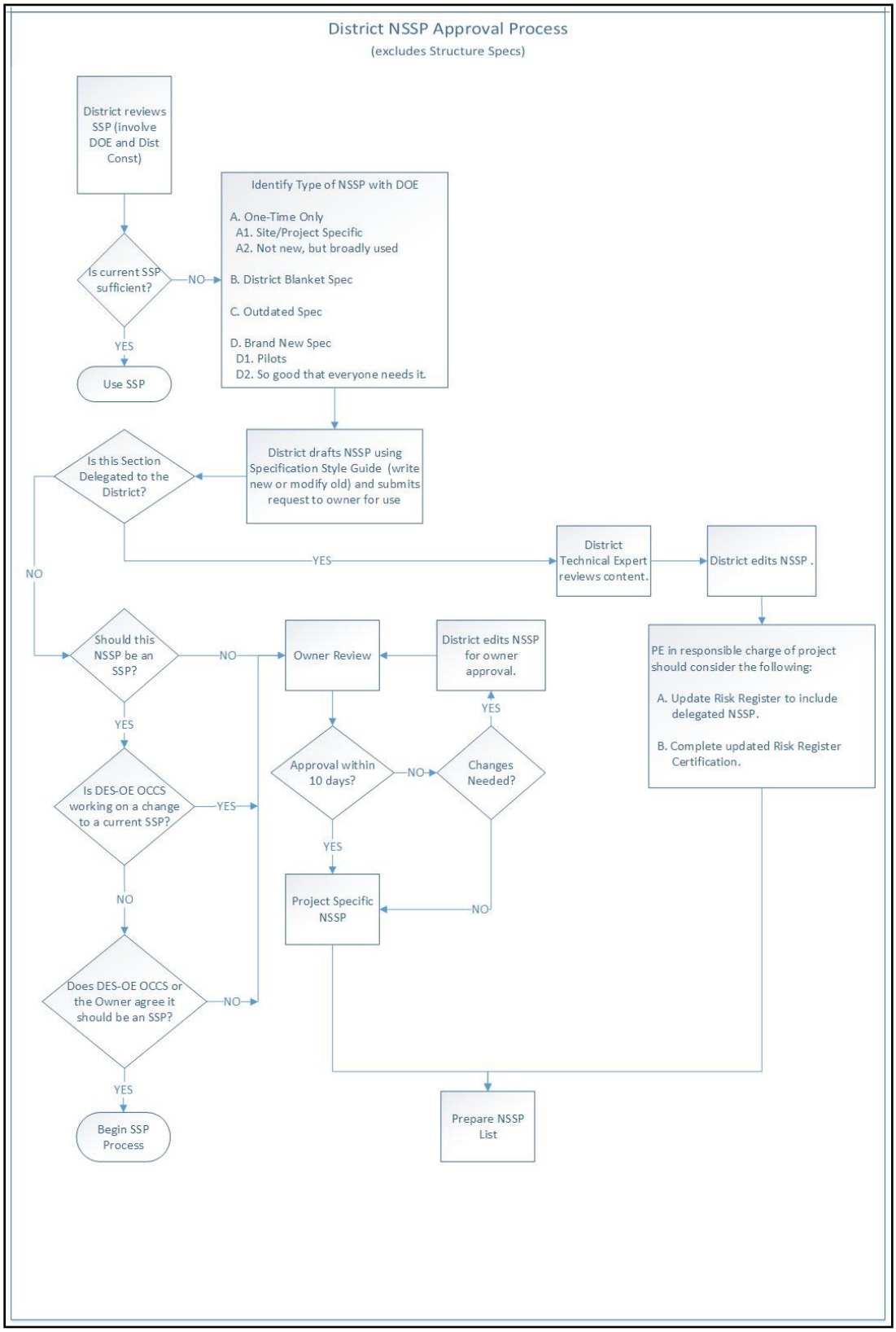
For a delegated NSSP and associated project details, the districts are accountable for the technical content of the NSSP and for consulting with the specification owner before district’s approval of the NSSP. The districts should consider including the NSSP in the Risk Register.

6.9.1 DISTRICT NSSP PROCESS

To create an NSSP comply with the following:

- For All NSSPs:
    - Before developing an NSSP, confirm with the DOE that it is necessary.
    - The draft NSSP must conform to the Specification Style Guide. Request assistance and review by the DOE. If an NSSP is generated by editing beyond the instructions of a SSP, use the edit notation for SSPs shown in Appendix G. For an all-new specification, use the SSP template and place “NEW," the date, and the author's initials in the header.
    - Include the NSSP in the special provisions submitted to PPM&OE. Check the field in the Construction Contract Submittal Memorandum noting that NSSPs are included in the project. The DOE incorporates NSSPs in the special provisions and submits a copy of each justification along with a copy of each NSSP.
    - Prepare the list of NSSPs for the project. Each NSSP must list when it received owner approval and construction concurrence or if it is a delegated NSSP. A copy of the NSSP approval must be included as part of the project submittal to PPM&OE, including specifications with district delegated NSSP authority.
- For all NSSPs from non-delegated Specification Sections:
    - Begin the NSSP development and review process early. Plan a strategy with the DOE for developing the NSSP with input from specification owners and stakeholders (e.g., Legal, Construction, and FHWA). To assist specification owners, stakeholders, and reviewers, provide a concise explanation of the purpose and need for the NSSP. Attach relevant plan sheets.
    - Request a review from the specification owners and District Construction. Check with the reviewers after the first week to see whether they have questions.
    - After obtaining approval from the owners and District Construction concurrence, e-mail copies of the NSSPs, and the justification summary to HQ Construction Engineering for IQA.
- For all NSSPs from delegated Specification Sections:
    - If the project has delegated NSSPs the Risk Register and Certification should be updated to note this.

- The NSSP process is also described in the following flow chart.



6.9.2 DISTRICT SPECIAL PROVISIONS

District special provisions are NSSPs that have been developed for use on a district-wide basis and are limited to situations where the standards do not adequately address a district's needs. To request new district special provisions, use the NSSP process.

6.9.3 LOCAL AGENCY SPECIFICATIONS

Avoid the use of local agency specifications. If the use of the technical content from a local agency specification is necessary, process the specification as an NSSP.

6.9.4 LOCAL INFRASTRUCTURE SPECIFICATIONS

Section 77 in the Standard Specifications is reserved for local infrastructure specifications. Examples of local infrastructure include city water and power, utility lines, and telecommunication cable. Submit these specifications as NSSPs for review by both OCCS and HQ Construction. Obtain approval from OCCS for format. Obtain approval from HQ Construction for contract administration. Staff in HQ and DES do not have technical expertise to sign and seal local infrastructure specifications. These NSSPs must be sealed and signed by the engineer from either the District, consulting firm, municipality, agency, utility, or company involved. The engineer must be registered in the State as a civil engineer or other applicable engineering classification.

6.10 PROPRIETARY PRODUCTS

Proprietary products include brand and trade name products and products so narrowly specified that only a single provider can meet the specification. When possible, avoid the use of proprietary products. Typically, the use of proprietary products requires project-specific details and an NSSP unless an SSP exists for that product. Proprietary product requirements apply to:

- Temporary and permanent work
- Products required by local entities

Pub Contract Code § 3400 and 23 CFR 635.411 govern the use of proprietary products.

Deputy Directive 45, New Product Evaluation requires District Directors to ensure that only those products evaluated and approved following Caltrans' policy and procedures are implemented and used in their respective districts.

For use of proprietary products, the specification must include:

- The term “or equal” unless not required by law
- Company name, address, and phone number (unless readily available)
- If applicable, the distributor name, address, and phone number
- The quoted price and its expiration date when only one manufacturer is specified. A price quote is not required if the product is available from multiple suppliers.

For use of proprietary products, the Job File must include:

- Approval memo for highway items by the District Director, Chief Deputy District Director, or District Deputy Director of Design.
- Approval for structure items by the DES Chief.
- Approved PIF or a copy of the approved Statewide PIF when one or two manufacturers are listed.
- The PIF must document the needs and justification for the use of a proprietary product. Use the PIF database to create the PIF.
- For federally funded projects, the Office of Federal Resources will approve the PIF.
- For non-federally funded projects, the project engineer will approve the PIF.
- Construction concurrence and a copy of the NSSP.
- Price quote documentation when one manufacturer is specified. If there are multiple suppliers for the proprietary product, the price quote is not required. Documentation must be signed by a responsible company official and includes:
- Company name, address and phone number
- Product price
- Price expiration date of the price
- Whether the price includes tax
- Delivery location
- Agreement to sell to any contractor

If a proprietary product is to be used experimentally and the project has federal funds, Districts submit the PIF to the Department's Federal Resources Office, Division of Budgets, for processing. PIFs will be forwarded for FHWA approval to the Chief, State Project Development Procedures and Quality Branch. Along with the PIF, include a work plan that indicates specific functional managers and units assigned responsibility to objectively follow-up, evaluate, and document the effectiveness of the product. Further details on the work plan and approval procedure are found in the Construction Manual. For additional information see the Cost Effectiveness/Public Interest Finding Guidelines found at:

http://des.onramp.dot.ca.gov/office-engineer/public-interest-findings-pifs-and-approved-pifs

6.11 RAILROAD INVOLVEMENT

Preparation of railroad agreements takes considerable time. As soon as possible, the project engineer must contact District Right of Way for confirmation of involvement of a railroad.

Typically the railroad is involved when work is in or over the railroad right of way. This should be considered even for minor work such as attaching guard railing to the abutment of an underpass, jacking a pipe beneath the railroad roadbed, or entering railroad property for access to the work or to construct a fence.

If there is a railroad shown on the Title Sheet of the project plans, contact District Right of Way.

District Right of Way provides the information to complete the railroad provisions before construction contract submittal.

Include an electronic copy of railroad provisions with the construction contract submittal to PPM&OE. Railroad provisions will be added to the contract as supplemental project information. List railroad provisions in SSP 2-1.06B.

6.12 ALTERNATIVE MATERIALS AND CONSTRUCTION METHODS

Department policy is to allow optional materials and construction methods whenever feasible. In some cases it may also be necessary to include alternative bidding when the payment of the item involved is changed because of the alternative, e.g., steel bridge versus concrete bridge or different types of seal coats. Some SSPs include alternatives and therefore are not to be revised to eliminate predetermined options.

6.13 MATERIALS ELIGIBLE FOR PARTIAL PAYMENTS

With the adoption of Section 9.16C into the RSS dated October 19, 2018, it is no longer necessary to list the items that meet the criteria for progress payment.

6.14 CLIMATE AREAS

The Websites for the highway environmental areas and the structure freeze thaw areas are:

Climate Areas

Memo to Designers 8-2, "Protection Against Deicing Chemicals and Freeze-Thaw Environment":
http://www.dot.ca.gov/des/techpubs/manuals/bridge-memo-to-designer/page/section-8/8-2.pdf

Attachment 1, "Table 1":
http://www.dot.ca.gov/des/techpubs/manuals/bridge-memo-to-designer/page/section-8/8-2-a-1.pdf

Attachment 2, "California State Highway Environmental Areas":
http://www.dot.ca.gov/des/techpubs/manuals/bridge-memo-to-designer/page/section-8/8-2-a-2.pdf

Attachment 3, "Table 2 Freeze-Thaw Areas":
http://www.dot.ca.gov/des/techpubs/manuals/bridge-memo-to-designer/page/section-8/8-2-a-3.pdf

SECTION 7 PREPARING THE PROJECT COST ESTIMATE

7.1 PURPOSE

This section provides guidance for preparing the project cost estimate.

7.2 BACKGROUND

Prepare the project cost estimate using the Department's best cost forecasting capabilities and BEES. The BEES printout of the project cost estimate is called the engineer's estimate.

Documents pertaining to this section include:

- Basic Engineering Estimating System (BEES) User Guide and Reference Manual
- Certification of Project Cost Estimate, memorandum signed by Robert Pieplow, dated January 5, 2012
- PD-04 Project Contingencies and Supplemental Work, project development directive

The project cost estimate includes:

- Bid item quantities, units of measure, and item costs
- Supplemental work items and costs
- Department-furnished materials costs
- Department expense costs
- Contingencies
- Funding segregation with identification of funding participation levels

The amount of allocated funds should not influence the estimate. Reducing the estimate to be within the allocated amount or within the limit for projects will not reduce bids. Bid overruns can cause serious problems such as delay of award, rejection of bids, and re-advertisement.

Project construction funds (capital outlay) are only for project improvement and not for maintenance.

Construction contracts must not include purchasing supplies or equipment for the Department. State law prohibits using capital outlay funds for such purchases. For example, it is prohibited to require the Contractor to provide a changeable message sign for Department use either during construction or after construction is complete.

7.3 RESPONSIBILITIES

7.3.1 GENERAL

Details on responsibilities for approval of supplemental work and nonstandard contingencies are in the Project Development Directive PD-04 Project Contingencies and Supplemental Work.

FHWA approval is required on federal-aid projects for items not on the FHWA pre-approved supplemental work list.

For Federal aid projects, FHWA approval is required for contingencies (1) greater than 5 percent and (2) when the increase in contingencies is greater than $200,000.

7.3.2 PROJECT ENGINEER

- Generates the District portion of the project cost estimate.
- Ensures the project cost estimate is complete and accurate including:
  - Complete and accurate bid item quantities for both district and Structures work.
  - Consistency between the plans, specifications, and estimate.
  - Appropriate final pay designations.
- Coordinates with SOE for common bid items.
- Obtains approval for supplemental work when this work totals more than 5 percent of the project cost estimate.
- Ensures accurate funding segregation when applicable.
- Prepares justification for Department-furnished materials and Department expenses.

7.3.3 OTHER FUNCTIONAL DISTRICT ENGINEERS

- The other function district Engineers submit complete and accurate contract quantities for their portion of the project to the Project Engineer.

7.3.4 STRUCTURE OFFICE ENGINEER

- Generates the portion of the project cost estimate for structures work.
- Ensures their portion of the project cost estimate is complete, accurate, and consistent with the plans and specifications.
- Ensures the final pay designation is appropriate for Structures work.
- Coordinates with the District for common bid items and working days.
- Reviews the combined project cost estimate and resolves issues with the District as necessary.

7.3.5 DISTRICT OFFICE ENGINEER

- Verifies the project cost estimate is complete and consistent with the plans and specifications.
- Coordinates with SOE on combined bid items and working days.
- Verifies final pay designation is appropriate.
- Verifies the funding segregation is complete and accurate.

7.3.6 DIVISION ENGINEERING SERVICES, OFFICE ENGINEER

- Assigns one-time item numbers for nonstandard items.
- Locks BEES after project is received in PPM&OE and listed for advertisement.
- Maintains standard bid item codes.

7.3.7 DESIGN ENGINEER OR PROJECT MANAGER

- Ensures the estimate complies with standard contingencies, pre-approved supplemental work items, and standard limits on supplemental work costs.
- Ensures the PE obtains applicable approvals.

7.3.8 DISTRICT PROJECT DELIVERY DEPUTY

When delegated, the District Project Delivery Deputy must certify project cost estimates over $1,000,000.

7.3.9 DISTRICT DIRECTOR

- Certifies the project cost estimate for all projects.
- Recertifies the project cost estimate for certifications.

7.4 BASIC ENGINEERING ESTIMATING SYSTEM (BEES)

7.4.1 GENERAL

This system:

- Provides data files required for the project information systems and analysis (PISA).
- Provides data needed by the bid opening and progress pay systems.
- Produces segregated estimates according to funding sources.

For each project BEES limits the maximum number of bid items to 350. BEES limits the combined number of supplemental work items and state-furnished items to 50.

For projects that include Structures work, the DOE submits a project cost estimate that is a combination of the estimate from the District and SOE. Structures work may include railroad work, temporary structures, supplemental work, Department-furnished items, and Department expenses. For a given project, BEES permits separate storage of the District from the SOE estimate. The District and SOE must use the same EA and keyword when inputting their portion of the items into BEES. Phase 1 must be used for the EA. If the District and SOE do not use the same EA and keyword, BEES cannot generate a combined estimate. District files are designated with “H” and SOE files are designated with “B”. The combined file is designated with “C”. Each office is responsible for completing and updating their portion of the estimate. BEES reports may be generated for just the “H” or “B” portions or may be generated for the combined “C”. When BEES generates a combined estimate, the quantities for District and structures are integrated. If District and SOE estimates have the same bid item but different unit prices, the District unit price prevails. Before finalizing the estimate, District and SOE estimators should concur on the pricing for items with the same bid item.

The PE reviews all items and ensures that quantities and costs are not duplicated. Duplication may occur for items such as temporary railing or retaining walls. For project with work where a portion of an element (such as a retaining wall) is designed by both the District and Structures, the same bid item should be used. If the Structures portion is designated as final pay, final pay designation should also be used for the District portion. In the rare case where it is appropriate to pay for the same work with different bid items, the plans must clearly show the limits for payment.

If federal or local funding is included, segregate the estimate before submitting the construction contract to PPM&OE under Section 7.11.

PPM&OE locks the estimate in BEES when the Construction Contract Submittal is received by PPM&OE.

7.4.2 ROUNDING QUANTITIES

The project contains two kinds of quantities:

- Actual calculated quantities shown on the plans to help the Contractor and the Engineer complete the project.
- Rounded quantities shown on the bid item list to simplify bidding.

Quantities on plans must be actual calculated quantities and never rounded quantities.

When applicable, round the quantities in BEES and on the bid item list. Round using the total quantities and not partial quantities or subtotals. Typically, quantities should be rounded up. Do not round such that the quantity is changed by more than 25 percent. Do not round structure bid items.

Do not round final pay quantities unless the quantity is more than 5. In this case, round up to the nearest whole number. For example, round 6.3 to 7 do not round 4.3.

For quantities greater than 1,000, round to no more than three significant figures. The significant figures are those figures of a number that begin with the leftmost figure and extend to the last nonzero figure to right. For example:

- 5,050 and 1,620,000 are correctly rounded.
- Round 1,103 to 1,110.
- Round 2,234,541 to 2,240,000.

For quantities less than 1,000, round to no more than two significant figures. For example, round 426 to 430.

Avoid decimal quantities. Consider using a unit of measure that avoids this problem such as using 1,000 lb. and not 0.5 ton. Do not use more than 1 decimal place in a BEES quantity. Currently the programs used for opening bids and accounting during construction accept only 1 decimal place. Any quantity with two or more decimal places must be corrected prior to bid opening, even if an addendum is required.

It is not always possible to eliminate using one decimal place for small quantities. For example, 1.4 lb. of seed for erosion control cannot be rounded up to 2 lb. or down to 1 lb. without changing the quantity by more than 25 percent. For decimal quantities less than 5, round to one decimal place. For quantities of 5 or more, round to the nearest whole number.

7.5 ESTIMATING COSTS

7.5.1 GENERAL

The estimate must be current, and complete at RTL milestone and must be the final project cost estimate that is submitted with the construction contract package.

If the CTC votes on the project funding, the project cost estimate should be reviewed and updated before being listed for the CTC vote. Data entered into the BEES should not be changed after the CTC vote.

If a CTC vote is not required, estimates should be reviewed and updated as necessary before funds are allocated. Data entered into the BEES should not be changed after funds are allocated.

Estimating is not an exact science and analysis should include evaluation of the following issues:

a. COST FLUCTUATION

The project cost estimate must be reviewed and corrected as conditions change and costs fluctuate.

Construction costs may fluctuate due to issues including:

- Material shortages which may develop at unexpected intervals and cause an increase of the material prices.
- Wage increases which typically occur at a somewhatpredictable rate.

- Time of the year that the contract is advertised.
- Changing economic conditions and indications.

b. TRAFFIC CONDITIONS

Traffic conditions can have a significant effect on costs. Adjust unit prices to reflect special difficulties, dangers, and expenses caused by traffic. Bidders are inclined to raise their bids for projects with difficult traffic conditions.

c. RESTRICTIVE WORK HOURS OR METHOD OF WORK

Restricting the working hours or the method of work on a project may have a major effect on costs. If the special provisions limit work to nighttime or short shifts, increase unit prices to reflect:

- The cost of premium wages for night work
- Premium payment for partial shifts
- General decreases in productivity and efficiency

Night work for HMA can be especially expensive where small quantities are involved. HMA plants do not usually operate at night. Small quantities and night deliveries increase the unit prices.

d. SMALL QUANTITIES

Small quantities of work and materials will nearly always have higher unit prices than identical work in larger quantities. Equipment and labor must be distributed over a much smaller base. Production is usually inefficient and slow for small quantities and this also increases unit costs.

e. SEPARATED OPERATIONS

Separated operations will generally have higher unit prices. Staged construction, specified order of work, or scattered locations may require portions of the work to be constructed as separate operations. Each operation may require separate equipment and labor. In this case the unit prices should then be based on the smaller operations and not on the total quantities for the project. Consider separated operations when estimating mobilization.

f. HANDWORK AND INEFFICIENT OPERATIONS

Handwork, small, and low production rate operations (even though equipment may be used) have higher unit costs than work adaptable to machine operation, mass production, and high production rates.

g. ACCESSIBILITY

Difficult job site access increases cost.

Work on an existing interchange may require long out-of-direction movements by construction personnel and equipment if the Contractor must observe one-way ramp movements or enter or leave at restricted locations (such as only ramps or interchanges). Hauling materials for earthwork under these conditions can be especially expensive.

Work at the top of retaining walls, on slopes, or where workers must climb slopes to get to the work area is expensive. This is true regardless of whether the operation is handwork or is done by equipment. Work that is easy to do on level ground or a gentle slope may be almost impossible to do on steep slopes.

h. GEOGRAPHIC LOCATION

Geographically remote locations usually result in higher unit prices.

Where applicable, the unit prices should include consideration of the Contractor's costs for the worker's subsistence.

The source of supplies and the distance to the job site from these sources should also be considered.

i. CONSTRUCTION SEASON

The time of the year when the Contract is awarded may affect cost. Contractors are usually more available for work early in the spring and will therefore bid more competitively at that time. Later in the spring or summer, many contractors have on-going contracts to keep them busy and therefore tend to bid higher or not at all.

For contracts awarded near the end of summer or end of the construction season for a given location, it is important to determine if construction can be finished before the construction season ends. If the Contract cannot be finished before the end of the construction season, bidders increase their bids to cover work delays due to bad weather and winter suspension. Even if bidders reasonably expect to finish before winter, they increase their bids to cover costs from delays due to early

rains. This is especially true if construction involves work in or around drainage channels, rivers, rainy areas, and snow areas.

7.5.2 PRICING METHODS

a. GENERAL

There are two methods commonly used for estimating prices. One method uses previous bid prices as a basis for establishing prices. The other method makes a complete analysis of production rates, labor costs, and material costs. One or both methods can be used.

b. PREVIOUS BID PRICES METHOD

Basing estimates on previous bid prices is probably the most widely used and the most practical method. When using this method, consider:

- Using approximately the same size and type of projects that have similar quantities for individual items.
- Using an average price from the 3 lowest bidders, using prices from the 2nd lowest bidder, or using the District 8 costdatabase.
- At a minimum, revising previous bid prices by the projected change in the California Construction Cost Index between the date of the old bid and the anticipated date of the new bid. See Section 8 for typical schedules to calculate the time to the probable new bid opening date.
- Adjusting the reference bid price to reflect conditions of the project, such as type of terrain, geographical location, soil, traffic, and other related factors.
- Not using lump sum bid prices or unit prices for items of work (such as culverts) that include varying amounts of other related work.
- Using comparable months. Seasonal work items vary by the time of year.

To estimate the price of individual items, start with bid prices from similar projects. Pricing tools available on the PPM&OE Internet siteinclude:

- Contract Cost Data. These books are published annually.
- Quarterly California highway construction cost index

- Asphalt price index
- Bid summary results from projects with bid opening (1) within the last six weeks (2) less recent

Item cost databases are available on the PPM&OE Intranet site. These FileMaker Pro databases containing all contract items with quantities and prices used in the past four quarters and the past several years, listed by item code number. District 8 maintains a comparable Intranet site that does not require FileMaker Pro.

The scheduling chart showing average times from submittal of construction contract to award is available on the PPM&OE Intranet site. This can be used to help determine the time of year that bid opening will occur.

c. COMPLETE ANALYSIS METHOD

This method is not usually practical for estimating all bid items. It may be practical for estimating earthwork items where rock or unusual haul is required, or for lump sum items such as signals and lighting. Use the following steps:

1. Compile a materials list.
2. Estimate materials costs using available price lists.
3. Estimate production rates.
4. Determine labor and equipment costs based on production rates.
5. Calculate the subtotal.
6. Add overhead and profit.

It is important to consider subsistence cost and premium pay for overtime on night work. On larger projects with long time limits, determine if the majority of a bid item is paid early or late in the project. To estimate items that cannot be completed early in the project, it may be necessary to forecast wage scales and material cost increases to accurately estimate bid item costs.

7.6 BID ITEMS

7.6.1 GENERAL

Bid items are listed in numerical sequence. Item descriptions must match the item descriptions in the Coded Contract Items Lists shown on the PPM&OE Website.

The Coded Contract Item list is reviewed periodically. Items that are no longer supported by the specifications are deleted and items required by revised and new specifications are added.

7.6.2 TIME-RELATED OVERHEAD

The bid item for TRO compensates the Contractor for overhead expenses such as those for a field and home office. Include this bid item on all projects over $5 million and with at least 100 working days. The district must obtain approval from the Chief, Division of Construction, or the Chief of Construction's delegate, to not use TRO on a qualifying project. Requests for approval should be sent to: HQ Construction Engineering@DOT <HQ.Construction.Engineering@dot.ca.gov>.

The district calculates the base TRO item by using 10 percent of the sum of all contract bid items excluding Mobilization. Do not include Supplemental Work, Department Furnished Materials and Contingencies. Contract bid items should not be reduced to compensate for the cost of the additional TRO item if the historical data used to estimate the unit costs reflects that reduction.

The TRO base percentage may be adjusted to reflect unique project or district circumstances. The TRO base percentage should be modified by using recent cost data from similar projects with TRO and by taking into consideration project conditions such as project size, duration, location and other conditions that could influence TRO.

7.6.3 MOBILIZATION

The bid item for mobilization compensates the Contractor for preconstruction construction expenses due to preparatory work and assembly of staff.

Include mobilization for contracts with at least 50 working days not including plant establishment days. Mobilization may be included for projects with less than 50 days if the work is primarily structures work. Mobilization is not typically included on contracts that are mostly building work.

BEES automatically calculates the amount for mobilization based on the percentage entered. Enter the percentage into BEES as a decimal such as

0.1 for 10 percent or 0.02 for 2 percent. The percent for mobilization should be based on the evaluation of cost data from recent similar projects and other considerations such as project scope, location, and unique conditions.

7.6.4 NONSTANDARD ITEMS

If the work is not accurately represented by a standard bid item, you may establish a nonstandard bid item. Ensure that payment is covered by the specifications, and if necessary develop an NSSP to cover payment. For use of nonstandard bid items, consult with the owner of the associated specification.

Nonstandard bid items must be consistent in style with standard bid items.

To create a nonstandard bid item in BEES:

- Find a bid item code (1) not already being used for the Contract and (2) with the most similar bid item description and most applicable unit of payment. Use only the units of measure and abbreviations shown in the BEES manual.

- Make the bid item code nonstandard by adding “A” to the end (such as 390104A).

- Do not create a nonstandard bid item for an item that was on the bid item list and now is not on the list. If the item no longer exists in the bid item list then it has been deleted.

- Add nonstandard items to the table in SSP 1-1.01.

Before advertisement, PPM&OE replaces the nonstandard bid item code with a unique, one-time bid item code. These one-time bid item codes are shown in the bid item list in the Bid book. PPM&OE corrects SSP 1-1.01 with the final nonstandard bid item codes.

7.6.5 FINAL PAY DESIGNATION

Bid items may be designated as final pay if the quantity can be independently verified.

Final pay bid quantities must be correct. The Contractor will not receive payment for less than or more than the quantity shown. Do not round the quantities for items designated as final pay, except as described in Section 7.4.1.

Show the final pay designation on the bid item list for both nonstandard and standard bid items.

Do not show the final pay designation on the plans.
Use Table 7-1 to determine which items may be designated as final pay.

Table 7-1
Guidance for Final Pay Designation

Items	Work
Architectural Treatment	Bridges, Walls
Bar Reinforcing Steel	Box Culverts and Wingwalls
Bar Reinforcing Steel (Bridge)	Bridges
Bar Reinforcing Steel (Bridge, Retaining Wall, Soundwall, Tunnel, or Pumping Plant)	Bridge, Retaining Wall, Soundwall, Tunnel, or Pumping Plant
Bridge Deck Drainage System	Bridges
Channel, Stripping or Tunnel Excavation	Channels, Tunnels
Class 1 Concrete (Structure)	Box Culverts and Wingwalls
Communication Conduit (Bridge)	Bridges
Concrete Closure Wall	Bridges
Conduit	Communication
Deck Seal and waterproofing	Bridges
Earth Retaining Structure	Retaining Structures
Erect Precast Concrete	Bridge
Erect Structural Steel Bridge	Bridges
Furnish and Install Sign Structure (Tubular, Truss, Lightweight, etc.)	Overhead Sign Structures
Furnish Structural Steel Bridge	Bridges
Grind Bridge Deck	Bridges
Handrailing	Bridges
Minor Concrete (Minor Structure)	Drainage Inlets and Pipe Headwalls
Miscellaneous Iron and Steel	Frames and Grates
Miscellaneous Metal (Bridge)	Bridges
Miscellaneous Metal (Restrainer)	Bridges
Miscellaneous Metal (Retaining Wall)	Retaining Wall
Miscellaneous Metal (Tie Rod, Restrainer)	Bridges
Pervious Backfill Material	Bridges, Retaining Walls
Pipe (Supply Line)	Irrigation Systems
Place Deck Overlay (Concrete)	Bridges
Place Polyester Concrete Overlay	Bridges
Pumping Plant Metal Work	Pumping Plant
Railings and Concrete Barrier on Structures	Bridges
Rock Slope Protection measured by CY	RSP
Seal Concrete Surface	Bridges

Items	Work
Shotcrete	Bridges, Walls
Sound Wall (Masonry Block)	Walls, Bridges
Sprinkler Control Conduit Bridge	Bridges
Structural Concrete, Approach Slabs (except Type R)	Bridges
Structural Concrete, Bridge	Bridges
Structural Concrete, Bridge Footing	Bridges
Structural Concrete, Deck Overlay	Bridges
Structural Concrete, Pier Column	Bridges
Structural Concrete, Pumping Plant	Pumping Plants
Structural Concrete, Retaining Wall	Retaining Walls
Structural Concrete, Sound Wall	Sound Walls
Structural Concrete, Tunnel	Tunnels
Structural Concrete, Tunnel Footing	Tunnels
Structural Steel	Bridges
Structural Steel (Bridge)	Bridges
Structure Backfill (Bridge)	Bridges
Structure Excavation (Bridge, Tunnel)	Bridges, Tunnels
Timber and Lumber	Bridges, Retaining Walls
Treat Bridge Deck	Bridges

7.7 SUPPLEMENTAL WORK

7.7.1 GENERAL

Supplemental funds are used for either (1) work that may or may not be required to complete the project, or (2) work that is not bid. When approved, supplemental funds may be used for work that is anticipated but cannot be quantified. Supplemental work must be within the scope of the Contract.

Do not use supplemental items to:

- Cover an incomplete design or lack of quantities.
- Add more contingency funds.
- Pay for work that should be paid by maintenance funds. Maintenance work is not eligible for federal funding.
- Pay for work not performed by the Contractor such as the inspection of work by the railroad.

Supplemental work must be identified, justified, and approved. Approval request forms and procedures are provided in project development directive PD-04 Project Contingencies and Supplemental Work. The items for supplemental work are numbered 066XXX. Items pre-approved by FHWA are shown in Table 7-2:

Table 7-2
FHWA Pre-Approved
Supplemental Work Items
(Approved 3/18/19)

Item Code	Supplemental Work Item	Rationale/Comments
066008	Incentive Payment	For Incentive/Disincentive (I/D) guidelines see *CCD Guide,* Sections 6.4 and 12.4, Discussion of selected standard special provisions and the Brent Felker memorandum dated June 12, 2000, with the subject Delegation of Authority for Use of A+B Bidding and Incentive/Disincentive Provisions. I/Ds must be approved case-by-case for both rationale and cost basis. Excluded from limitation.
066015	Federal Trainee Program	*Federally funded projects with at least 100 working days.* Cost is for training expenses as part of the contractor's equal employment opportunity affirmative action program according to Title 23 Code of Federal Regulations, "Highways." The contractor is to provide on-the-job training to develop full journeymen in the types of trades or job classification involved in the contract.
066016	Just-In-Time Training (JITT)	For SSP 40-1, used for continuously reinforced concrete pavement (CRCP), or if District Construction recommends JITT for concrete pavement, then the Contractor provides JITT and the Department pays for half the cost of the training.
066041	Bird Protection	The Engineer orders the Contractor to construct exclusion devices, take nesting prevention measures, and remove and dispose of partially constructed and unoccupied nests on a regular basis to prevent their occupation, or perform any combination of these.

Item Code	Supplemental Work Item	Rationale/Comments
066070	Maintain Traffic	Cost is to cover the 50 percent State share of flagging and 100 percent of other traffic-handling equipment and devices used in carrying out provisions in Sections 7-1.08 and 7-1.09 and the special provisions ordered by the resident engineer. Exclude from limitation up to $600 per day for "Maintain Traffic" (include in the limitation estimated costs in excess of$600 per day) and up to $1,200 per day if there are advance flagmen. The daily rates are for typical eight-hour shifts and may be increased accordingly if multiple closures or shifts are anticipated and explained in the justification. Include costs over these amounts in the percentage limitations.
066094	Value Analysis	*Section 4-1.07C applies to non-building-construction contract with a total bid of over $5 million.* The $10,000 is required by SSP for a "Value Analysis[11] workshop. This is value-analysis effort after the award of the contract. The purpose of the workshop is to identify value-enhancing opportunities and to consider modifications to the plans and specifications that will reduce either the total cost, time of construction, or traffic congestion without impairing the essential functions or characteristics of the project.
066595	Water Pollution Control Maintenance Sharing	Cost is to cover the 50 percent State share for maintaining the temporary water pollution control items identified on the approved water pollution control cost breakdown.
066596	Additional Water Pollution Control	Cost is to cover overruns on bid items in the event of heavier- than-normal rainfall during the life of the project.

Item Code	Supplemental Work Item	Rationale/Comments
066597	Stormwater Sampling and Analysis	These funds compensate the contractor for performing stormwater sampling. These costs can vary widely because of the frequency of storm activity during the life of the project and the sampling frequency required. Samples for the applicable non-visible pollutants and a sufficiently large, uncontaminated background sample are collected during the first two hours of rain event discharge that results in a sufficient discharge for sample collection. Because of the uncertain frequency of testing required, this work is included in supplemental funds.
066610	Partnering	*Contract over $1 million, partnering is encouraged.* *Contract over $10 million and 100 or more working days, partnering is required.* The State promotes the formation of a partnering relationship with the contractor to effectively complete the contract to the benefit of both parties. The State pays the cost for providing the "Training in Partnering Concepts" trainer and training site, and the State and contractor pay equally for the "Partnering Workshop" facilitator and workshop site. Excluded from limitation.
066670	Payment Adjustments for Price Index Fluctuations	*Use for projects with paving asphalt items.* The cost is to compensate the contractor for price fluctuations of the asphalt used in hot mixed asphalt, asphaltic emulsion, and so forth that may occur during performance of the contract. Excluded from limitation.

Item Code	Supplemental Work Item	Rationale/Comments
066919	Dispute Resolution Board	*Section 5-1.43E(3) applies to a contract with a total bid of over $10 million and 100 or more original working days.* Dispute Resolution Board is to assist in the resolution of disputes or potential claims arising out of the work of the contract. The engineer and contractor establish the board cooperatively upon approval of the contract. The State and the contractor pay the cost equally. Excluded from limitation.
066921	Dispute Resolution Advisor	*Section 5-1.43E(2) applies to a contract with a total bid from $3 million to $10 million and 100 or more original working days.* Disputes Resolution Advisor assists in the resolution of disputes or potential claims arising from the work of the contract. The engineer and contractor establish the advisor cooperatively upon approval of the contract. The State and the contractor pay the cost equally. Excluded from limitation.
066395	HMA Smoothness Incentive	*Use for projects placing HMA pavement.* The cost to compensate the contractor for producing smoother pavement. The Special Provisions require contractors to meet smoothness ranges depending on the existing road conditions and the HMA thickness being placed. To encourage contractors to perform above the required smoothness range, an incentive is paid up to a set maximum. **Target MRI (in/mi)** — **Supplemental Funds Formula** 60 — $9,000 X Pavement Lane Miles 75 — $4,500 X Pavement Lane Miles Percent Improvement < than 0.3' HMA Layer Thickness (excluding OGFC) — $4,500 X Pavement Lane Miles ≥ than 0.3' HMA Layer Thickness (excluding OGFC) — $9,000 X Pavement Lane Miles OGFC OGFC on existing pavement or cold planed surfaces — $4,500 X Pavement Lane Miles On new HMA (No Incentive) — $0 X Pavement Lane Miles Excluded from limitation.

7.7.2 PARTNERING

In order to effectively complete contracts to the benefits of both parties, the Department promotes the formation of "Partnering" relationships. Include supplemental funds in the estimate to cover the Department's required and potential share of the cost. Estimate the cost using Table 7-3 as a guide.

Table 7-3 Partnering

Bid Item Total		Number of working days *		Supplemental funds
Over	To	Over	To	
$1 million	$10 million	0	50	$7,000
$1 million	$10 million	50	150	$12,000
$1 million	$10 million	150		$20,000
$10 million	$25 million	0	200	$20,000
$10 million	$25 million	200	300	$35,000
$10 million	$25 million	300		$50,000
$25 million		0	400	$50,000
$25 million		400	600	$70,000
$25 million		600		$90,000

* Exclude plant establishment days.

7.7.3 DISPUTE RESOLUTION

When applicable include supplemental funds for either a dispute resolution advisor or a dispute resolution board. Do not include funds for both on the same contract.

a. DISPUTE RESOLUTION ADVISOR

If the project bid item total is at least $3 million and not more than $10 million, and if the project has 100 or more working days, include the supplemental item for a dispute resolution advisor. The recommended costs $5,000.

b. DISPUTE RESOLUTION BOARD

If the project cost estimate is over $10 million, and if the project has 100 or more working days, include the supplemental item for a dispute resolution board. Estimate the cost using the Table 7-4 as a guide.

Table 7-4 Dispute Resolution Board

Total working days	Supplemental funds
100 to 200	$7,500
201 to 400	$15,000
401 to 600	$22,500
601 to 800*	$30,000*

*Increase supplemental funds by $7,500 for each additional block of 200 working days in conformance with the pattern shown above

7.7.4 FEDERAL TRAINEE PROGRAM

For federally funded projects with at least 100 working days, include supplemental funds for the federal trainee program. Trainee funds are required for each of the following work categories:

- Earthwork (except for imported borrow)
- Pile driving
- Portland Cement Concrete (except for precast concrete)
- Masonry
- Bar reinforcing and prestressing steel
- Structural steel erection
- Electrical
- Buildings

Use Table 7-5 to calculate the number of trainees for each work category:

Table 7-5 Federal Trainee

Cost for work category	Number of trainees	Cost for work category	Number of trainees
400,000	0		
≥ 400,000	1	16,000,000	15
700,000	2	18,000,000	16
1,000,000	3	20,000,000	17
1,500,000	4	23,000,000	18
2,000,000	5	26,000,000	19
2,500,000	6	29,000,000	20
3,000,000	7	33,000,000	21
4,000,000	8	37,000,000	22
5,000,000	9	41,000,000	23
6,500,000	10	45,000,000	24
8,000,000	11	50,000,000	25
10,000,000	12	> 50,000,000	*
12,000,000	13		
14,000,000	14		

***** 25, plus 1 additional trainee for every $5,000,000 over $50,000,000

The number of federal trainees for the Contract is the sum from all work categories. Calculate the contract cost using $800 per trainee.

7.7.5 PAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS

In order to limit the financial exposure of both the Department and the construction industry to dramatic swings in the crude oil prices, for all projects with HMA pavement, include supplemental funds for payment adjustments for price index fluctuations.

The calculated amount may vary substantially from the actual amount since the change in crude oil prices cannot be predicted with accuracy.

Estimate the cost using the formula:

Price Index Fluctuations = Fs x Qt x Ic

Where:

- Fs = Supplemental work allotment factor:
- Use 0.15 for projects with less than 250 working days
- Use 0.25 for projects with 250 to 500 working days
- Use 0.35 for projects with more than 500 working days
- Qt = Total estimated asphalt quantity contained in materials for pavement structural sections and surface treatments to be placed in the work. Use the formulas in specification section 9-1.07B.
- Ic = California Statewide Crude Oil Price Index. Use the current month's index. Update your estimate as close to advertisement as possible.

Include with your construction contract submittal:

- List of materials containing asphalt and the values used for X (percent asphalt content as specified in specification section 9-1.07B), such as:
- HMA:Xa =_____%
- Total estimated asphalt quantity (Qt) used for the supplemental item for price adjustments for price index fluctuations
- California Statewide Crude Oil Price Index month
- California Statewide Crude Oil Price Index

7.8 DEPARTMENT-FURNISHED MATERIALS

Items for Department-furnished materials are numbered 066XXX.

(Subject to Change)

FHWA has pre-approved the following Department-furnished items:

- Laminated wood box posts and metal caps
- Monument disks
- Traffic signal controller assemblies, including wired cabinets and loop detector units
- Changeable message signs and assemblies
- Salvaged material in stock, such as temporary traffic signals and flashing beacons
- Battery backup system (BBS), electronics assembly

If items on the FHWA pre-approved Department-furnished material list are included in a contract, the PE must sign a letter justifying the cost of each item and send it to the Office of Federal Resources. A copy of this letter must be included in the construction contract submittal.

For items not on the FHWA pre-approved list, the PE must generate a PIF. A new PIF is required for each contract.

Table 7-6 FHWA Approved Department Materials Approved as of 12/11/17)

	FEDERALLY PARTICIPATING DEPARTMENT-FURNISHED MATERIALS	RATIONALE There is a history of very long delays by the manufacturers of some products. Procurement of those products, by the department, starts early to meet construction deadlines. All items listed here are obtained by the department, for convenience and cost savings, in competitive bid contracts from qualified vendors.
1	Laminated wood box posts and metal . caps	Avoid project delays due to order delays of not commonly available materials. The department benefits by purchasing in large quantities.
2	Survey Monuments	Statewide uniformity allows replacement with department stock. Volume purchase by State benefits due to typical project small quantities.
3	Traffic signal controller assemblies, including wired cabinets and traffic detector units	Avoid project delays due to fabrication, delivery, testing, operational unit programming, modifications, and retesting requirements. Volume purchase benefits the department due to typical project small quantities. Require statewide uniformity, compatibility, and maintenance factors.
4	Changeable message signs and assemblies	Avoid project delays due to fabrication, delivery, testing, operational unit programming, modifications, and retesting requirements. Require statewide uniformity, compatibility, replacement exchangeability, and maintenance factors. Volume purchase benefits the department due to typical project .small quantities.
5	Salvaged (recycled) material. e.g. temporary traffic signals, and flashing beacons	Salvaging and recycling materials are resource conservation efforts. The service of salvaging is Contractor Furnished, but the department has to furnish these "salvaged materials" to the contractors for reuse on projects.
6	Battery Back Up System (BBS) - Electronics Assembly	The electronics portion of the BBS is highly customized and complex. Statewide uniformity and operational compatibility with state systems. The cabinet and batteries of the BBS will be contractor furnished. Volume purchase benefits the department due to typical project small quantities. Require statewide uniformity, compatibility, and maintenance factors.

7.9 DEPARTMENT EXPENSES

Department expenses are directly related to project construction and do not include work done by the Contractor. FHWA has approved the following Department expenses as eligible for federal reimbursement as shown in Table 7- 7.

Table 7-7 FHWA Approved Department Expenses Approved as of 12/11/17)

	FEDERALLY PARTICIPATING DEPARTMENT-FURNISHED EXPENSES	RATIONALE Department expenses are directly related to project construction and do not include work done by the Contractor.
1	Railroad Work	This is any work done by railroad agency according to 23 CFR 635.205(b).
2	Traffic Management Plan	Required on all capital construction projects on the State highway system to minimize motorist delays. Incorporates traffic mitigation strategies with innovative public and motorist information techniques and tools to plan for and manage the traffic impacts.
3	Construction Zone Enforcement Enhancement Program (COZEEP)	The COZEEP is jointly operated by Caltrans and CHP to increase the safety of motorists and construction workers in State highway project construction zones. COZEEP is used to increase traffic enforcement above normal levels during the various construction stages when lane closures and diversions increase the potential for traffic accidents within the highway construction project zone. (This is inter-agency agreement to improve and enforce traffic safety in construction zone)
4	Electrical Service Connection	Expenses necessary to connect power supply at the service point to the utility company facilities. This is needed for the power company to install meter and service conductors to the service cabinet on the job site. The connection work is done by public utility companies according to 23CFR 635.205(b). (This is service connection prearranged by Caltrans and done by utility company).
5	Telephone Service Connection	Expenses necessary for telephone company to connect telephone service to the telephone demarcation cabinet or controller cabinet on the project. The telephone demarcation cabinet will be furnished and installed by the contractor. This is connection work done by public utility companies according to 23 CFR 635.205(b) (This is service connection prearranged by Caltrans and done by utility company).

6	Water Services Connection	Expenses necessary for connecting water services to the irrigation systems for planting and maintaining existing plants within the project limits. For convenience, the contractor is allowed to use water from department facilities where available within project limits. The connection work is done by public utility companies according to 23 CFR 635.205(b). (This is service connection prearranged by Caltrans and done by utility company).
7	Annual Fee to State Water Resources Board	Payment for National Pollutant Discharge Elimination System (NPDES) permit annual fees, as a Construction General Permit (CGP). The payment covers the permit for required annual fee for each active construction project based upon its disturbed soil area in excess of 1 acre.
8	Disposal of Wood Waste (Guard Rail)	Treated Wood Waste (TWW) is generated during the removal of treated wood post used with metal beam guard railing. This is considered as hazardous waste by the Department of Toxic Substances Control (DTSC) who creates a Generator Identification Number (GIN) for projects that generate more than 10,000 pounds of TWW per site. the Board of Equalization charges Generator Fee for projects with GIN and this fee will be best handled as Department Furnished Expense.
9	Resident Engineer's office rental and maintenance cost	CURRENTLY NOT FEDERALLY ELIGIBLE - Resident Engineer and staff need to have an office close to the job site for administration of the contract. In this case, the cost of the office would be distributed proportionally among the projects involved according to their estimated use of the office.

A PIF is not required for the FHWA pre-approved Department expense items. However, if these items are included in a contract, the PE must sign a memo justifying the cost of each item and send it to the Office of Federal Resources. A copy of this memo must be included in the construction contract submittal package.

To request Federal participation for items not pre-approved by FHWA, the PE must generate a PIF and obtain approval. A new PIF is required for each contract.

7.10 CONTINGENCIES

Contingency funds are included to compensate the Contractor for work:

- Not covered by the bid items
- Not covered by supplemental work
- Within the scope of the Contract
- Necessary for completion of the Contract
- Ordered by the Engineer

The standard contingency is 5 percent of the project cost estimate and calculation is automated by the BEES program. The contingency percentage in the BEES will be rounded by ± 0.1% so that the project total dollar amount is rounded to the nearest thousands.

Document the need and cost for nonstandard contingencies. The maximum contingency is 10 percent.

Requests for use of nonstandard contingencies must be approved by the Chief, Division of Design. Forms and procedures are included in the project development directive PD-04 Project Contingencies and Supplemental Work.

7.11 SEGREGATING THE ESTIMATE

7.11.1 GENERAL

It is the District's responsibility to segregate the BEES. Projects with multiple funding sources, Federal-aid, or Structures items must have a segregated BEES estimate identifying the funding sources and levels of funding. Enter all segregated estimates into the BEES during project design. Because funding segregations are required in the funding summary, estimates must be segregated when the District submits the construction contract to PPM&OE. Incorrectly segregated estimates may delay contract award.

a. Use the following segregation headings:

i. All Federally reimbursed items should go in one segregation.

ii. Use the default segregation heading “STATE FUND.”

iii. All Non-Federally reimbursed items should go in one segregation with segregation heading “FEDERALLY NON-PARTICIPATING.”

iv. Establish additional segregations for items that are reimbursed through a cooperative agreement (city, county, utility) with segregation heading as labelled in the agreement (CITY OF MODESTO, SAN JOAQUIN COUNTY, PG&E etc.).

7.11.2 FEDERAL AID

Federal-aid contracts must be segregated by:

a. District work.

b. Structures work. Separate each structure by component level.

c. Work paid for by others. When funding is from other sources, the project cost estimate must be segregated and each funding source must be identified. If there is a cooperative agreement on a project, a copy of the agreement must be included with the construction contract submittal and must also be sent to the Office of Federal Resources. Other funding sources may include:

i. Cities, counties, or local transportation agencies contributing to construction costs under cooperative agreements.

ii. Utility agreement.

iii. Right-of-Way contract.

iv. Cooperative agreement that requires anyone other than the State to pay for any of the bid items or supplemental work.

v. Purchase order, or other instrument.

d. Utility relocation when done by contract item work (by right-of-way, utility, or railroad agreement).

e. Work done on the same Contract but outside of the federal-aid-project limits.

f. By Program Element Component (PEC) Code (for example a project may be programmed with both SHOPP and STIP funds)

g. Resident Engineer's Office will not be federally reimbursed.

7.12 DETERMINING CONTRACTOR'S LICENSE REQUIREMENTS

Contractor license requirements are shown in the notice to bidders. The Contractor's classification must cover the majority of the work.

For all projects, the District determines the applicable contractor license classifications. For informal projects, PPM&OE makes this determination. See the Description of CSLB License Classifications at http://www.cslb.ca.gov/.

SECTION 8 TASK MANAGEMENT

8.1 PURPOSE

This section describes how to set up project work plans for construction contract submittal, RTL, advertisement for bids, bid opening, award and approval, factors that affect schedules, monitoring tools, and roles and responsibilities of staff.

8.2 BACKGROUND

PPM&OE staffing and the ability to deliver district projects are dependent on district allocations. Allocations are dependent on the workload and schedules in project work plans. Executing the work plan requires close coordination between district and PPM&OE staff.

8.3 RESPONSIBILITIES

8.3.1 PROJECT MANAGER

- Negotiates work agreements with DES-Project Liaison Engineers (PLE) and PPM&OE Task Manager to develop project work plans.
- Negotiates Contract for Delivery (CFD) schedules with PPM&OE Task Manager prior to commitment to the Director.
- Before submitting a project to PPM&OE, verify Project E-FIS ID number and Phase 1 is open and all PPM&OE units are resourced in PRSM for timesheet charging in accordance with latest WEN. If a project is split or combined, please notify PPM&OE Task Manager immediately for new Project E-FIS ID. Do not close Phase 1 until 10 business days after Approve Contract (Milestone 500).
- Verifies district functions are resourced for WBS 265 activities.
- Submits constraint documentation in a timely manner to meet requested schedules.
- Submits Funding Package and secures authorization, allocation and approval of funds for advertising and awarding contracts in an amount sufficient to cover the capital cost of construction.
- Monitors project progress and is proactive in resolving District and HQ issues.

8.3.3 DIVISION OF ENGINEERING SERVICES-OFFICE ENGINEER TASK MANAGER

- Develops PPM&OE workload and duration estimating tools.
- Develops workload projections and resource needs.
- Validates project resources and schedules in PRSM at time of construction contract submittal and accepts contract for processing once all requirements are met.
- Negotiates and validates PPM&OE fiscal year resource allocations.
- Monitors and reports on PPM&OE activities (start, finish, percent complete, expended hours and hours to complete).
- Monitors and negotiates changes to project schedules and resources.

8.3.4 PPM&OE SCHEDULING ENGINEER

- Receives construction contract submittal and verifies completeness.
- Validates completion of advertising requirements.
- Sets advertising and bid opening dates.

8.4 ESTABLISHING MILESTONE TARGET DATES

PPM&OE's ability to deliver projects to Advertisement and Award is dependent on the districts providing resources and activity durations. Project Managers should use the current PPM&OE Workload and Duration Estimating Table (http://www.dot.ca.gov/hq/esc/oe/rtl/ResourceTable.pdf) or Scheduling Tool (http://oe.dot.ca.gov/project_control_and_support/task_management/DES-OE-Scheduling-Tool.xls) when developing project work plans. PPM&OE Milestones and Activities are described in the WBS 265 in the Work Plan Standards Guide (http://projmgmt.onramp.dot.ca.gov/). Districts should schedule target RTL dates such that the number of projects and dollars are spread evenly through the quarters of the fiscal year. This will result in more bidder competition and lower bids. Projects must be RTL and funded to be advertised. Funding allocations and approvals should be timed concurrently with RTL target dates.

Project Managers should also consider:

- Ideal begin construction date.
- Funding source and availability.
- Ability to meet Best Bid Standards for Construction Contracts.
- Set durations and provide resources to DOE and PPM&OE accordingly.
- FHWA requires an Agreement End Date (AED) to be assigned to the project. The AED will be 21 months after the M800 milestone and the project manager must ender this date in the FFAR form.

8.4.1 CONTRACT FOR DELIVERY (CFD)

The CFD is an annual contract signed between the District Director and the Caltrans Director for fiscal year project delivery. Project Managers should validate that their project milestones conform to the PPM&OE Workload and Duration Estimating table before the CFD is signed.

8.4.2 MINOR A PROJECTS

Schedule Minor A projects to meet an optimum begin construction date. Minor A projects and projects partially funded with Minor B funding must be awarded before the end of the fiscal year in which they are programmed.

At a minimum, use the PPM&OE Workload and Duration Estimating Norms or Scheduling Tool in Section 8.4 and work backwards from June 30 to schedule delivery. Be aware of CTC vote requirements if applicable. If you are applying federal funds to the project, be sure to allow for adequate processing time for the E-76 FHWA authorization process through HQ Division of Budgets, Office of Federal Resources.

Deliver the program early to avoid failures due to PPM&OE processing capacity issues, addenda delay, or contract award issues.

Late submittals contribute to unbalanced delivery and results in poor bid competition, higher bids, and the potential to miss the construction season.

8.4.3 MAJOR MAINTENANCE PROJECTS

Major Maintenance Projects are capital outlay projects funded by the Maintenance Programs and must comply with the same laws and Department project delivery policy requirements as Capital Program Projects.

Funding for Major Maintenance Projects is restrained by fiscal year. Bid opened Major Maintenance Projects that are not awarded in the fiscal year planned shall be funded first from the following fiscal year when the budget is approved.

At the beginning of each fiscal year the Maintenance Division provides PPM&OE with a list of Major Maintenance approved district projects. Projects delivered to PPM&OE not on the list will not be advertised until approved by the Maintenance Division.

Dollar ($) Projects

The Maintenance Program maximizes the construction of projects during the construction season uses a funding tool called $ Projects. $ Projects require specifications that inform the bidders that the contract will be awarded this fiscal year but work cannot begin until directed by the Department in the next fiscal year.

In accordance with the law, PPM&OE does not release the $ Project specification language until the Maintenance Program informs PPM&OE in writing that sufficient funds have been appropriated for such projects.

8.5 PROJECT SCHEDULE CONSIDERATIONS

8.5.1 NOT IN THE DELIVERY PLAN

PPM&OE will not list any projects if they are not listed in the Division of Project Management PDWD Delivery Plan. District must obtain approval for PPM&OE to proceed with project processing from the Chief, Office of Project Delivery and Workload and Development, Division of Project Management.

8.5.3 PROJECT FUNDING

Department policy and Federal Law (if federally funded) require districts to obtain CTC fund allocation and Federal Fund authorization respectively before contract advertisement.

Instruction for processing CTC fund allocation can be found on Transportation Programming's Office of Capital Improvement Programming Website (http://www.dot.ca.gov/hq/transprog/allocation_new.htm).

Instructions for securing Federal Fund authorization can be found at the Headquarters Division of Budgets, Office of Federal Resources Website (http://budgets.onramp.dot.ca.gov/welcome-office-federal-resources/federal-project-and-program-management).

A flow chart of the process after RTL that districts are responsible to follow to secure project funding is on the Division of Engineering Services, Office Engineer Website: (http://oe.dot.ca.gov/project_control_and_support/scheduling/flowcharts/rtl_to_adv_flowchart.pdf).

8.5.4 CONTINUING DISTRICT COMMITMENT TO PROJECT

Timely submittal of addenda and District recommendations for award are necessary to keep the project on schedule.

8.6 PROJECT MONITORING TOOLS

8.6.1 DIVISION OF ENGINEERING SERVICES-OFFICE ENGINEER INTERNET INFORMATION

The PPM&OE Internet site contains information on currently advertised and awarded roadway and structure projects on the California Highway System. This information consists of complete advertised sets of plans, special provisions, addenda, Federal Wages, Standard Plans, Standard Specifications, Asphalt Price Index, Construction Cost Index, Historical Cost Data, Bid Results, Plan Holders Lists, Bid Locations, Bidder Inquiries, and Award status.

8.6.2 DIVISION OF ENGINEERING SERVICES-OFFICE ENGINEER PROJECTS DATABASE

The PPM&OE Projects Database, accessible via FileMaker Pro, contains real-time status information for projects currently being processed by PPM&OE. District staff with FileMaker Pro or Internet Explorer can view a live Project Status report using the guidance at this Website (http://oe.dot.ca.gov/project_control_and_support/scheduling/manuals_guides/view-OE-Project-Status.docx).

SECTION 9 FUNDING PACKAGE

9.1 PURPOSE

This section provides information, requirements, roles, and responsibilities for delivery of a complete Funding Package. A complete Funding Package will assist the Department to effectively advertise and award construction contracts in a timely manner. See the website for additional information. (http://www.dot.ca.gov/hq/esc/oe/rtl/Funding/).

9.2 BACKGROUND

The State Contract Act requires the Department to verify sufficient project funding before advertisement. Apportionment to funding sources must be properly identified or fund authorizations cannot be completed in a timely manner before award.

The Funding Package was implemented by DES Decision Document 39, Funding Package, by Brent Felker, dated January 15, 2003, in the interest of consolidating the various pieces of funding information into one collective document. It serves as a checklist of items needed to obtain the project funding. It identifies the various project funding sources and allocations in a clear, concise, and comprehensive manner. It includes the supporting documentation necessary for encumbering each fund. The result should be a complete and detailed statement of how the project is to be financed.

The Funding Package consists of:

1. A funding summary.
    a. All funding sources and fund codes associated with the Phase 4 Construction capital phase of the project.
    b. Instructions on how contributor funding is to be used, either as a fixed dollar amount, a percentage of the cost of the job, or for specific items only.
    c. Instructions on how funds are to be charged if the bids come in over or under the estimated amount.
    d. The status of funding approvals including actual, target, and expiration dates.
    e. Signed Authority to Advertise
2. A copy of the current BEES file segregated by funding source.
3. Copies of all funding documents supporting each funding source.

9.3 RESPONSIBILITIES

9.3.1 PROJECT MANAGER

- Secures sufficient funding to cover the construction cost estimate before project advertisement and resolves any funding shortfall before contract award.
- Ensures that District Project Control setup initial phase 4 funding in the AMS advantage system.
- Maintains federal funding eligibility where applicable by programming projects in FTIP/FSTIP and securing FHWA E-76 approval before advertising (http://budgets.onramp.dot.ca.gov/welcome-office-federal-resources/federal-funding-policy).
- Obtains and provides PPM&OE with written verification from each contributing fund manager and any external entity (as applicable).
- After bid opening, notifies PPM&OE if fund splits due to savings or overages are different from the initial fund splits at advertisement. The notification must be accompanied by written approval by the fund managers and detailed instructions on how funds are to be charged.

9.4 FUNDING SOURCES

While some projects are funded entirely from one source (State, federal, contributor, local assistance, maintenance, etc.), most projects are funded by a combination of two or more of the following sources.

9.4.1 STATE / FEDERAL

- Funds provided by the State to be reimbursed at a given rate by FHWA or funds provided by the State only. All federally funded projects must be in the current FSTIP and have an FHWA approved E-76 before advertisement. See Transportation Programming home page for additional information (http://www.dot.ca.gov/transprogram/).

9.4.2 OUTSIDE CONTRIBUTOR

- A fully executed cooperative agreement between the Department and external entity is a requirement for RTL.

9.4.3 SUBVENTION FUNDS

- Outside contributors may elect to use Local/Federal funds such as: CMAQ, RSTP, Demo, Safe Routes to School, etc., which may have matching funds provided by the State or the Local Agency as described in the finance letter. Contact District Local Assistance Engineer (http://www.dot.ca.gov/hq/LocalPrograms/lpp/98-09/LPP06-04.pdf). All federally funded projects must be in the current FSTIP and have an FHWA approved E-76 before advertisement.

9.4.4 MAINTENANCE FUNDS

- State funds that must be authorized by Division of Maintenance before advertisement. 20.80.124 Pavement Preservation program projects are federally eligible and require FHWA authorization (E-76) before advertisement. For additional information see (http://onramp.dot.ca.gov/hq/maint/roadway/index.shtml).

9.4.5 OTHER FUNDING SOURCE

- Funds that do not fall into the above categories such as Office ofTraffic Safety (OTS), Emergency Relief (ER), etc.

9.5 FUNDING DOCUMENTS

9.5.1 FUNDING REQUEST

A copy of the signed AUTHORITY TO ADVERTISE Form is required to be included in the Funding Package with an identification of all the funds that exist on the project.

Download the Funds Request Form from Office of Capital Improvement Programming (OCIP) Website (http://www.dot.ca.gov/hq/transprog/allocation_new.htm).

The Funds Request Form is used to request State and/or federal funding on capital outlay projects (Minor A, Majors such as STIP and SHOPP).

When requesting a CTC vote, districts should submit a complete, final, signed Funds Request Form to Division of Budgets the Division of Transportation Programming by the date and time indicated on the Preparation Schedule on the CTC Liaison Web Site (http://onramp.dot.ca.gov/hq/transprog/octcl.html).

HQ Budgets and the Division of Transportation Programming will not accept Draft Fund Requests for placement of projects on a CTC Agenda.

9.5.2 BUDGET VERIFICATION OF HIGHWAY MAINTENANCE FUNDS

Required for Maintenance projects.

9.5.3 BUDGET VERIFICATION OF MINOR B FUNDS

Required when Minor B funds are to be used on a project.

9.5.4 BUDGET VERIFICATION FOR SPECIAL FUNDED PROJECTS

Required when special funds not voted by the CTC are to be used on a project.

9.5.5 COOPERATIVE AGREEMENT

Required when a local agency or outside contributor is providing construction funds. Cooperative agreements are legally binding contracts when fully executed.

9.5.6 LOCAL ASSISTANCE FINANCE LETTER

Required for local programmed federal aid on State highways. Finance letters are authorized by the Division of Local Assistance.

9.6 REFERENCES

- Project Development Procedures Manual (http://www.dot.ca.gov/hq/oppd/pdpm/pdpmn.htm)
- Local Assistance Procedures Manual (http://www.dot.ca.gov/hq/LocalPrograms/lam/lapm.htm
- Accounting Manual, Reimbursement Procedures Manual, and Coding Manual (http://accounting.onramp.dot.ca.gov/

SECTION 10 CONSTRUCTION CONTRACT SUBMITTAL REQUIREMENTS

10.1 PURPOSE

This section describes the requirements for construction contract submittals to PPM&OE. Informal bids project submittal requirements are described in Section 12, Informal Bids Projects.

10.2 RESPONSIBILITIES

10.2.1 DISTRICT OFFICE ENGINEER

The DOE is responsible for transmitting all construction contract submittal information to PPM&OE. This is required because construction contracts are submitted electronically using tools available only to the DOE.

10.2.2 STRUCTURE OFFICE ENGINEER

The SOE is responsible for transmitting structures plans (TIF or PDF), specifications, estimate, Information Handouts and other submittal documents to the DOE to be integrated and included in the construction contract submittal to PPM&OE.

10.3 CONSTRUCTION CONTRACT SUBMITTAL

The DOE sends construction contract submittal to PPM&OE and other involved addressees specified on the PS&E Distribution list attached to the Construction Contract Submittal Memorandum reference Appendix E.

10.3.1 CONSTRUCTION CONTRACT SUBMITTALS TO PPM&OE

Districts will be credited with a Complete Contract Submittal (PS&E) Date when PPM&OE receives the applicable electronic submittals, as described in Table 10-1. The district is responsible for submitting the combined roadway and structures PS&E to PPM&OE.

Send construction contract submittals as follows:

1. DOE copies the construction contract submittals documents into the PS&E Drop Box.

2. DOE sends a notification of the construction contract submittals to the e-mail address: scheduling.oe@dot.ca.gov. Do not attach the submittal documents to this notification e-mail unless directed by PPM&OE staff.

The construction contract submittal documents required for all projects are listed in the following Table:

Table 10-1

Requirements for Construction Contract Submittal to PPM&OE

Applicable Construction Contract Submittal Items	Acceptable Submittal Format
A. *Electronically Submitted Construction Contract Submittal Memorandum	PDF
B. *Construction Contract CCP Submittal Form (one PDF file)	PDF
C. *Standard Special Provisions (SSPs)	MSW
D. *Special Provisions Signature and Seal Sheets	PDF
E. *Signed Authority to Advertise (A2A)	PDF
F. *Supplemental Information Folder (folder includes IH & X-Section files, if applicable) (See Section 10-4)	FOLDER
G. Estimate with BEES – Combined	PDF
H. Cost Estimate Certification (CEC) Form	PDF
I. Environmental Certification	PDF
J. **Funding Package (Budget Verification, Funds Request, Funding Summary, Etc.)	PDF
K. Justification for Supplemental Items Memo	PDF
L. Justification for Department Furnished Items Memo	PDF
M. NSSP Approvals	PDF
N. Approved PIF's	PDF

O. Railroad Clearance Memo (when applicable)	PDF
P. Right of Way Certification	PDF
Q. RTL Certification	PDF
R. Special Notices (when applicable)	MSW
S. Structure Design Concurrence Memo For Building Projects	PDF
T. Storm Water Data Report	PDF
U. TMP Certification	PDF
V. Utility Certification	PDF
W. Federal Projects of Division Interest (PODI) Include Project oversight Agreement (POA)	PDF

Items with "" must be included before receiving a PS&E Received date or prior to Listing for Advertisement.
**Approved CTC exception projects, Funds Request in lieu of Funding Package.

A. CONSTRUCTION CONTRACT SUBMITTAL MEMORANDUM

The Construction Contract Submittal Memorandum transmits the Construction Contract Submittal Packages to PPM&OE, and other HQ divisions. A hard copy of the Memo must be signed by the District/Regional Office Engineer and the Project Manager. The hard copy may then be scanned and submitted electronically with the other Construction Contract submittal documents

The Construction Contract Submittal Memorandum Appendix E is a layout in the AADD database and must be obtained from the DOE. The Construction Contract Submittal Memorandum parts are:

A.1 CONTRACT INFORMATION

a. Priority

Indicate if submittal is a safety or informal project. PPM&OE processes informal project as top priorities. (Informal projects shall not be processed as AADD).

A.2 PROJECT INFORMATION

a. Contract Limits

County, routes and work begin and end points post miles.

b. Project Name

Same as the project name in PRSM.

c. Work Description

List types of work in general terms using a maximum of 70 characters. See website link to AADD Academy Modules: http://des.onramp.dot.ca.gov/office-engineer/aadd-academy-training

d. Project Plans Title Header

Same as the project location description on the title sheet.

e. Plans

Indicate what version of Standard Plans was used to prepare the project plans. Indicate the number of roadway, structure, and total plan sheets.

f. Specifications

Indicate what version of the Standard Specifications or General Conditions were used to prepare the special provisions.

g. Bid Type

Indicate the type of bid. Select one of three choices.

"Unit Price" – bid is the total of item cost (product of the quantity and unit price of each contract item.)

"Cost+Time" – bid is the sum of the total of item cost and the product of the number of working days bid to complete the work (excluding Plant Establishment) and the cost per day.

"Lump Sum" bid is a single amount for all the items of work.

h. Classification(s) of Contractor's License Required

Same as the contractor license requirements in the notice to bidders

i. Special Features

Enter the approval to use date if project has any of the following features:

- **Lump Sum**
- **Additive/Deductive Bid**
- **Escrow of Bid Documents**
- **Incentive/Disincentive (I/D)**

I/D are bonuses and deductions used for meeting internal time constraints and encouraging early contract completion. I/D may be used in conjunction with Cost+Time Bidding.

- **Pre-Award Qualifications**

See the memorandum, Pre-Bid and Pre-Award Qualifications Provisions, from Robert Buckley dated March 22, 2002 in regard to the approval requirements.

- **Tribal Employment Rights Ordinances (TERO)**

Required for projects with project limits in particular tribal lands. See Deputy Directive, DD-74R2 Tribal Employment Rights Ordinances (TERO) for requirements.

- **Time Related Overhead (TRO)**

See 7.6.2

- **Warranty**

Used only when a project has been approved for the warranty pilot program.

j. Prosecution of Work

- **Working Days**

The number of construction working days provided to finish the work excluding the plant establishment period. See 6.4.2 for points to consider when determining the number of working days.

- **Plant Establishment Period**

The number of working days provided to establish plants and maintain irrigation systems. Subtract plant establishment days that will be concurrent with any other construction operations.

- **Total Working Days**

The total sum of the construction and plant establishment (if applicable) working days.

k. Bid Price Estimate

Indicate the number of contract items, roadway construction cost, structures cost, building cost, total cost, BEES keyword, call out number, and the Certification of Project Cost (Price) and Estimate Approval date. The Project Database automatically calculates the call out number from the project cost. For information on the call out number, see DES Decision Document 45. Use a Rounded Engineer's Estimate for Call out Number, signed by Brent Felker, dated August 27, 2003.

l. FEDERAL PARTICIPATION

- **Oversight Determination**

Indicate whether the project is Project of Division Interest (PoDI)(formally called High Profile) regarding FHWA review and oversight. If PoDI, the date the PoDI Project Agreement with FHWA was executed is to be shown. See PDPM Chapter 2, Section 7, Figure 2, for determination of FHWA oversight. Contact the appropriate FHWA Engineer to confirm the determination.

- **Federal Aid Number(s)**

The Office of Federal Resources provides the Federal Aid Number(s).

A.3 WARRANTY OF PLANS, SPECIFICATIONS, AND ESTIMATES

a. Building Project

Indicate the date of Structure Design Final PS&E concurrence for a building project.

b. NSSP

Attach a list of Non-Standard Special Provisions with the name and date of owner approval.

A.4 WARRANTY OF NON-INTERFERENCE

a. Agency Agreement

Identify the agency, provide the date the agreement was issued.

b. Environmental Certification

Provide the signature date.

c. Permits

Complete the table listing permits that control the execution of the contract, including environmental permits. See 10.4.1 for a list of common permits.

Although copies of the permits are part of the Supplemental Project Information (items included in SSP 2-1.06B), the permits must also be listed in the Construction Contract Submittal Memorandum.

d. Railroad Clearance

If there is a Construction and Maintenance (C&M) agreement or service contract, include the railroad company name, and the date of the agreement.

e. Right Of Way Certification

Provide the date of the certification and the type of the certification.

f. Traffic Management Plan

Provide the name of the District Traffic Manager or Traffic Management Plan Manager and the date of verification.

g. Utilities Certification

Approval of High/Low risk utilities.

h. Water Availability

Identify the name of the agency that provided the water source commitment documentation and the date of the documentation.

A.5 WARRANTY OF INFORMATION

If a project has cross sections or an information handout, indicate the dates these documents were submitted to PPM&OE. A contract will not be advertised until these documents, if applicable, are submitted.

A.6 FUNDING

Indicate the date on the Authority to Advertise form. The total funding amount is calculated based on the funding information entered on the Authority to Advertise form in the PPM&OE databases.

A.7 PROJECT PERSONNEL DATA

List the names of the personnel involved in the preparation of the construction contract. The information is needed for communication purposes.

A.8 CONSTRUCTION DATA

Indicate the completion date of the constructability review.

a. Begin Construction Date Requested

Provide the requested begin construction date.

Constraints to Begin Construction. Describe conditions that impact the beginning of work. This information controls Advertisement and Bid Opening dates. These conditions could be permit requirements, temperature for HMA or seal coat placement, public events, coordination with other projects, etc. Indicate the description, location and dates work cannot be performed.

A.9 LANDSCAPE DATA

a. Highway Planting

Indicate the area of planting and irrigation work required due to new road construction or planting as a mitigation requirement.

b. Recycled Water

Indicate if the project will use recycled water. Indicate the estimated annual recycled water use for the project.

c. Worker Safety

Indicate the number of gates, area and quantity of maintenance access roads, area of paving and number maintenance vehicle pullouts.

A.10 RESEARCH, INNOVATION, AND SYSTEM INFORMATION DATA

Indicate the date Project Delivery Assets Form submitted to Division of RISI.

A.11 SIGNATURES

Obtain signatures from the Project Engineer, Project Manager and District Office Engineer.

A.12 CONSTRUCTION CONTRACT DISTRIBUTION LIST

Indicate and provide the applicable documents to Divisions that are identified.

B. CONSTRUCTION CONTRACT CCP SUBMITTAL FORM AND PLANS REQUIREMENTS

C.C. Plans Requirements include the followings:

- Project description information on the Title Sheet of the plans must have correct information before PPM&OE transfers the file to the PPM&OE Project Database.
- Title Sheet Strip Map Post Miles must have correct information before PPM&OE transfers the file to the PPM&OE Project Database.
- Index of Plan Sheets matches actual plan sheets submitted.
- Submittal does not contain missing, duplicated, or blank plan sheets.
- Plan sheet naming conventions are followed on the project plans.
- Plan sheet orientation is correct when plotted.
- Signed and dated Plans Approval date on the Title Sheet matches the AADD Database before PPM&OE transfers the file to the PPM&OE Project Database.

The district submits combined roadway and structure project plans as one file in PDF format using a CCP Submittal Form. The district numbers the plans, includes any Revised Standard Plans (RSPs) and completes the title block and plans approval date information and federal aid number, if applicable.

C. SPECIAL PROVISIONS

District submits special provisions in conformance with Section 6, Special Provisions.

D. SPECIAL PROVISIONS SIGNATURE AND SEAL SHEET

Signature and Seal sheets, as shown in Appendix A, have four elements:

- Contract number ending in a “4.”
- Design Oversight Approval. This block is to be used when the project, or any portion of the project specifications, has been developed by a consultant or local agency. The block must bear the printed name, signature, professional registration number and approval date of the licensed person providing design oversight for the entire project.
- The statement The Special Provisions contained herein has been prepared by or under the direction of the following Registered Persons.
- Space for signatures and seals for each professional discipline involved in the project. The signature and seal lines must bear the signature, registration seal, license number, and license expiration date of the licensed person knowledgeable about and in responsible charge of the specific work for each professional discipline involved in the project. As long as the document is signed and sealed prior to the licensee's registration expiration date, the document is valid in perpetuity - even if the contract is let after the noted expiration date. For a list of disciplines please see the Business and Professions Code Sections 6700-6706.3.

Professional seals should be combined on one sheet with a maximum of 4 per sheet.

If SOE prepares a portion of a project's special provisions, they must submit a completed signature and seal sheet to the district with their proposed final project special provisions. The DOE will combine the project special provisions and submit both the DES-SD and district signature and seal sheets to PPM&OE.

E. AUTHORITY TO ADVERTISE

The District or Regional Director signs the Authority to Advertise form and the DOE submits the completed form to PPM&OE.

F. INFORMATION HANDOUT

The district submits the Information Handout (IH) as one electronic file (eIH) in portable document format (PDF). The district submits the eIH with cover sheet to the PSE Dropbox.

10.3.2 CONSTRUCTION CONTRACT SUBMITTALS FROM DOE TO OTHER DIVISIONS

For projects with federal funds, the district must transmit the Federal Funds Authorization Request (FFAR) form, the preliminary E-76 and other required documents listed on the FFAR form to Division of Budgets, Office of Federal Resources Office before the construction contract is submitted to PPM&OE. DOE must send construction contract submittal information to other involved addressees specified on the PS&E Distribution list in the Construction Contract Submittal Memorandum as part of the funding process. Failure to comply will result in delays in project funding and advertisement. See the listing of Divisions at the end of the Construction Contract Submittal Memorandum in Appendix E.

DOEs must transmit all the required submittals to other divisions prior to the project being funded and submitted to PPM&OE.

10.3.3 ENGINEER'S ESTIMATE

District must have the Combined Estimate with phase 1 EA in the BEES. Only one BEES file for the project must be in the BEES when the project is submitted to PPM&OE. If there are multiple BEES files in the BEES (e.g., separate bridge, road and combined files) then the advertisement process is stopped until the District deletes all but the combined BEES file. Submit a copy of the Estimate to PPM&OE.

10.3.4 JOB FILE

The District is responsible for maintaining the project history file (Job File).

10.4 SUPPLEMENTAL INFORMATION AND THE INFORMATION HANDOUT

Documents required in the IH (as applicable for the project) include (but are not limited to) the documents described in the following sections.

10.4.1 PERMITS AND AGREEMENTS

- Railroad Agreements
- Department of Fish and Wildlife. See the Contract Requirements, Section 1602 of the California Fish and Game Code
- California Regional Water Quality Control Board
- United States Army Corps of Engineers
- Biological Opinions referenced by Permits

- Coastal Commission
- United States Coast Guard
- State Lands Commission
- Reclamation Boards
- Water Districts
- San Francisco Bay Conservation and Development Commission
- Tahoe Regional Planning Agency
- Transit Districts
- United States Forest Service
- California Department of Fish and Wildlife. See Fish and Game Code, Division 3, Chapter 1.5, Article 3
- Tribal Employment Rights Ordinances
- Encroachment permits from public agencies

10.4.2 FOUNDATION RECOMMENDATION REPORTS

Foundation recommendations, foundation review forms, pile indicator reports, drivability studies, and other pertinent structure foundation related materials must be submitted to PPM&OE for inclusion in the Information Handout. See memo, Foundation Data as Materials Information, signed by James E. Roberts dated November 16, 1994.

10.4.3 HAZARDOUS WASTE, ASBESTOS OR LEAD INVESTIGATION REPORTS

These reports are required by Federal and State regulations, State laws and Department policy. See Project Development Procedures Manual (PDPM), Chapter 18, Environmental Contamination and Standard Environmental Reference (SER) Volume I Chapter 10. Site Investigation reports are required for issues such as aerially deposited lead (ADL), naturally occurring asbestos (NOA), and contaminants in soil. A Hazardous Material Survey Report is required for all projects involving work on an existing building. Pertinent information from these reports such as analytical data and sampling location maps are included in the Information Handout. The entire reports are not included as they may contain recommendations for design options not included in the specifications.

10.4.4 MATERIALS INFORMATION

All test data applicable to material sites for a project should be furnished to prospective bidders. This information may include maps, test reports, tabulation sheets, SMARA status, copies of options or agreements with owners of the material sites and other information as specified in the Highway Design Manual.

10.4.5 GEOTECHNICAL DESIGN REPORTS

A Geotechnical Design Report is to be prepared by the Roadway Geotechnical Engineering Branches of the Division of Engineering Services, Geotechnical Services (or prepared by a consultant with technical oversight by DES-GS) for all projects that involve designs for cut slopes, embankments, earthwork, landslide remediation, retaining walls, groundwater studies, erosion control features, sub-excavation and any other studies.

10.4.6 WATER SOURCE INFORMATION

If a project will require significant amounts of water and is in an area under drought conditions or subject to water shortages, water source information must be provided to help prospective bidders locate possible water sources. Water source information includes correspondence and other documentation for all arrangements, whether formal or informal, that have been made to secure water needed for the project.

10.4.7 OPTIONAL DISPOSAL SITES

Sites for disposing residue from grinding or grooving the surface of HMA or PCC pavement and bridge decks must be submitted to PPM&OE as part of the Information Handout. For more information see Design Information Bulletin Number 84 on the Division of Design Website.

Generally, the information should include

- Cover page with project information
- Index of accompanying information
- Maps of Sites
- Copies of agreements with owners (if applicable)
- Copies of use permits and clearances or MOUs (when they have been obtained by the State)

10.4.8 CROSS SECTIONS

Electronic files and/or cross sections to conform to PD-06.

SECTION 11 PPM&OE DRAFT CONTRACT DOCUMENT PROCESSING

Districts are responsible for QC/QA.

SECTION 12 INFORMAL BID PROJECTS

12.1 PURPOSE

The purpose of this section is to define the roles and responsibilities of functional units involved in the delivery of informal bid project submittals to PPM&OE for advertisement. This section also lists the submittal requirements and describes the processing for informal bid contracts.

12.2 BACKGROUND

Informal bid contracts advertised, bid opened and awarded by PPM&OE are competitively bid; but are advertised, bids opened, and awarded in less time than statutorily required for other contracts. The statutory time limits are reduced to expedite the start of construction work to repair damage caused by an unexpected occurrence that poses an imminent danger to the traveling public, or that is in the best interest of the Department to prevent or mitigate the loss or impairment of life, health, property, or essential public services.

When an emergency exists informal bid processing is used to accelerate the processing time from receipt of the project for advertisement in PPM&OE to the start of work. Informal bid contracts are not exempt from statutory or policy requirements but during a catastrophic emergency, a Governor's Emergency Proclamation or Executive Order waives contracting statutes and regulations allowing the department to advertise and award contracts faster.

Projects processed for informal bid require a Director's Order, which is obtained with a Director's Order Request - Funds Request. The district will notify PPM&OE to discuss the tentative project schedule as soon as it is apparent that an informal bid project is to be submitted to PPM&OE for processing. The project schedule includes the following information to be used for the Director's Order Request - Funds Request:

- Project submittal date
- Advertising date
- Bid opening date
- Award date
- Start of work date
- Number of working days

PPM&OE will determine tentative advertisement, bid opening, and award dates based on the criticality of the project. Advertisement periods may be scheduled for as short as a few days or as long as 2 weeks.

If the project is eligible for federal funding, a draft copy of the Director's Order Request - Funds Request is to be sent to the Division of Budgets, Office of Federal Resources. Attach to the draft copy of the Director's Order Request - Funds Request a memorandum requesting preparation of a PIF with a brief justification for inclusion in the PIF NEPA document, and Right of Way Certification.

Director's Orders for informal bids must be approved before receipt of the complete submittal for Informal project to PPM&OE.

12.3 RESPONSIBILITIES

12.3.1 DEPUTY DIRECTOR, MAINTENANCE AND OPERATIONS

Approves the Director's Order Request - Funds Request. This responsibility may not be delegated.

12.3.2 DISTRICT DIRECTOR

- Signs the Director's Order Request - Funds Request. This responsibility may not be delegated unless the District Director is absent by reason of illness or vacation.

- Requests to Office of Business and Economic Opportunity a zero DBE or DVBE goal.

12.3.3 CHIEF, DIVISION OF MAINTENANCE

Recommends the approval of the Director's Order Request - Funds Request.

12.3.4 MAJOR DAMAGE ENGINEER

Reviews the Director's Order Request - Funds Request and signs in concurrence.

12.3.5 CHIEF COUNSEL

Reviews the Director's Order Request - Funds Request and signs in concurrence, if California Public Contract Code requirements are met.

12.3.6 CHIEF, DIVISION OF PROGRAMMING

- Reviews the Director's Order Request - Funds Request, signs in concurrence, and ensures approval of G-11 or other funds. See CTC Resolution G-00-11, Authorization for funding Emergency Condition Response Projects, dated January 20, 2000.
- Processes the Federal Authorization to Proceed, E-76, for federally funded projects.
- Ensures the PIF is processed when required.
- Ensures that G-11 or other funding is processed.

12.3.7 DIVISION ENGINEERING SERVICES-OFFICE ENGINEER

- Ensures the contract documents for informal bid contracts are properly prepared and approved.
- Coordinates the advertising, bid opening, and award to the lowest responsible bidder.

12.3.8 PROJECT ENGINEER OR OVERSIGHT ENGINEER

- Provides timely information or clarification needed by PPM&OE and DOE.

12.3.9 DISTRICT OFFICE ENGINEER

- Ensures that informal bid project submittal is complete and prepared and processed in conformance with the Department's policies and procedures.
- Ensures the appropriate distribution of the informal project is made per the Submittal Memo.

12.3.10 PROJECT MANAGER

Ensures all constraints are cleared before advertising.

12.4 INFORMAL PROJECT REQUIREMENTS

12.4.1 DISTRICT OFFICE ENGINEER

12.4.1.1 PROCESSING

Informal project requirements in addition to those outlined in Section 10, "CONSTRUCTION CONTRACT SUBMITTAL REQUIREMENTS," are as follows:

- Federal Aid Number to be established through coordination with Office of Federal Resources (for federally funded projects). Once established, the Federal Aid Number is to be identified on all contract documents where required.

- If federally funded, a completed PIF justifying less than 3 weeks advertisement or deviation from other federal standards is required. The PIF must be processed through Division of Budgets the Office of Federal Resources, and signed by the appropriate FHWA field engineer.

- Proposed Incentive/Disincentive provisions must conform to the requirements in the PD-14, Delegation of Authority for Use of *A+B Bidding* and *Incentive/Disincentive (I/D) Provisions* (*http://www.dot.ca.gov/hq/projdev/directive/PD-14-Cost-and-Time-Bidding.pdf*).

- For federally funded projects, implementation of E-76 through Office of Federal Resources must be dated no later than the advertisement date or Federal funding may be forfeited.

- One-time item code numbers are to be established and reflected in the BEES, Section 1-1.01 of the Specifications as well as the estimate in the Notice to Bidders and Special Provisions book, and the Bid book through coordination with PPM&OE BEES unit.

- Project specific conditions to be set and finalized as they relate to pre-bid meetings, inclement weather days, calendar versus working days, plant establishment work, etc. as applicable in the Notice to Bidders and Special Provisions book.

- Advertisement Date and Bid Opening Date to be established through coordination with PPM&OE Scheduling Unit.

12.4.1.2 SUBMITTALS

Pertinent Informal project documents are to be submitted to PPM&OE as follows:

- Construction Contract Submittal for Advertisement Memorandum with Informal Bid box checked and signed RTL Certification Form
- Approved Director's Order Request-Funds Request

- Damage Assessment Form, if applicable. See *Major Damage Restoration Coordinator's Handbook* for information about DAF's.

- Incentive/Disincentive provisions, when used, need District Director approval and supporting cost/benefit calculations to be submitted with the project.

12.4.2 PPM&OE- OFFICE ENGINEER

12.4.2.1 PROCESSING

PPM&OE gives the highest priority to informal bid contracts in scheduling for advertisement, bid opening and award. In order to meet the negotiated target dates for the expedited schedule, district and SOE personnel must make the same commitment.

12.4.2.2 ADVERTISEMENT

On rare occasion some emergency projects are issued exemptions from State and local permits by an executive order from the Governor. Other selected emergency projects may require contract constraints to be cleared before bid opening and be advertised on a risk basis that is, without all required documentation delivered to PPM&OE. The goal is to advertise emergency projects within a 2 week period after project submittal.

Projects will normally not be advertised until the following has been received:

- Permits, the Right of Way certification, and execution of agreements
- Supplemental Project Information
- An E-76 for federally funded informal projects defined as new construction or reconstruction on the Interstate following catastrophic failure. The E-76 must be dated no later than the advertisement date or federal funding may be forfeited.

12.4.2.3 BID OPENING AND AWARD

A critical informal bid contract may be scheduled for any day of the week.

SECTION 13 CONTRACT ADDENDA

13.1 PURPOSE

The purpose of this section is to define and describe the addendum process. It is also to ensure the respective units know their roles and responsibilities in addendum processing. Addendum processing must be given highest priority.

Addendum preparation is covered in the PPM&OE Website (http://oe.dot.ca.gov/statewide_oe_meeting/2018SWOE/Module_No._4.pdf).

13.2 BACKGROUND

An addendum is a change to the contract documents of an advertised project. Addenda are issued primarily to correct significant errors, omissions, or conflicts in the contract documents. For bidders an addendum is the instrument used to convey material changes made to the contract documents. Once bids have been opened project changes can only be made by rejecting all bids and re-advertising, or by issuing a change order during construction.

13.3 RESPONSIBILITIES

13.3.1 PROJECT ENGINEER/DISTRICT OFFICE ENGINEER

- Prepares plans, specifications, redlined copy of the project cost estimate, and Bid Item List for addendum.
- Contacts SOE and other functional units regarding additional addendum items.
- Consolidates all items from other functional units in addenda.
- Obtains approval from FHWA for addendum changes per Stewardship Agreement.
- Prepares specifications for addendum reviews.
- Processes addendum letters.
- Transmits addendum letters to PPM&OE.

13.3.2 PROJECT MANAGER

Concurs with addendum.

13.3.3 AFFECTED FUNCTIONAL UNITS

Concur with addenda.

13.3.4 DISTRICT OR REGIONAL DIRECTOR WITH AADD AUTHORITY

Approves and signs addendum.

13.3.5 PPM&OE

13.3.5.1 PPM&OE Construction Contracting Coordination and Quality Program Chief

- Establishes and maintains statewide policy and guidance for the preparation and processing of addenda.

13.3.5.2 PPM&OE AADD Coordinators

- Provides guidance and support to the districts in the preparation and processing of addenda.
- Acts as a liaison and is the single focal point of contact for communication and coordination between the district and PPM&OE functional units.
- Provides a final review of the draft addenda letters before they are sent to the district for director's signature.
- Maintains and revises the addenda letter templates.
- Maintains and revises addenda process and procedure guidance for the districts.

13.3.5.3 PPM&OE BID BOOK and Addenda Unit

- Provides clerical support in the preparation and processing of addenda.
- Posts addenda letters in PDF format on the PPM&OE Addenda website.
- Posts addenda on the electronic bid website, (BidX)
- Sends e-mail notification to selected Department staff and bidders that an addendum has been processed and posted.

13.4 EVALUATE NEED FOR ADDENDA

Evaluate the following when deciding to issue an addendum:

- Importance of the change
- Resources required and available to prepare, process, and issue the addendum
- Impact of issuing the addendum on project schedule including bid opening, award, and beginning of contract work

Contract changes proposed by SOE and other functional units must be requested through the district and processed by the DOE. By California Public Contract Code section 4104.5, addenda which have a substantial cost impact may not be issued within 72 hours of bid opening unless a postponement of the bid opening is provided. Substantial costs impact is determined by the awarding agency. DES Decision Document 38, 72 Hours Timely Notice to Bidders of Bid Opening Postponement, signed by Brent Felker, dated January 15, 2003 can be referred to for additional requirements.

Do not use addenda to correct significant errors, omissions, or conflicts in the contract documents, or materially change the scope, character, cost, or project limits, from those authorized in the NEPA approval, PS&E approval, or E-76 authorization without FHWA approval.

13.5 FHWA ADDENDA APPROVAL

FHWA approval is not required when an addendum changes portions of a project identified as a delegated project under the provisions of the active Stewardship Agreement. In the case of a PoDI project, FHWA approval is not required when an addendum changes portions of a project unless specifically required under the PoDI Project Oversight Agreement for the project. An executed Prior Approval-Contract Addendum form must be furnished to the Department by FHWA when the formal request for addendum approval is processed.

An addendum that changes the scope of a federal aid project is required to have an updated NEPA document and E-76.

The Department routinely approves the following types of addenda for federal aid projects:

a. Addendum affecting the Notice to Bidders such as:

   - Bid Opening Date, time, or location
   - Contractors Licenses

- Federal Minimum Wage Rates
- Pre-bid meeting information

b. Addendum correcting portions of a project that are not identified in the PoDI Project Oversight Agreement as requiring prior FHWA addendum approval.

13.6 ADDENDA PREPARATION

All addenda are issued to bidders electronically and are posted on the Caltrans Office Engineer Website. Electronic files added or replaced by addendum are to be included with the submitted addendum package.

PPM&OE no longer requires a hard copy Job File. The district has the sole responsibility for ensuring that any and all documents related to the project are included in the Job File that are kept in the districts.

13.6.1 ADDENDA

District prepared addendum: District prepares the addendum letter using the current addenda letter template downloaded from the PPM&OE website. District submits the addendum package to PPM&OE BBAU for processing. The delegated District or Region Director signs the addendum letter. Addendum preparation is covered in the PPM&OE Website.

PPM&OE prepared addendum: Addendum that only revise the Federal Wage Rates are prepared by PPM&OE BBAU and signed by the Senior AADD Coordinator. Addendum that address electronic bidding issues are prepared by the PPM&OE E-bid team and signed by the PPM&OE Systems Senior Engineer.

13.6.2 SCHEDULE

Addendum should be issued as soon as possible before bid opening. To process an addendum and to maintain the scheduled bid opening, PPM&OE must receive the addendum at least 24 hours before the addendum issue date. Addenda that affect how the bid is prepared, who might bid on the project, or which suppliers and subcontractors might be interested should be issued as quickly as possible to prevent bid proposal rework.

If the addendum impacts pre-bid submittal review time of prospective bidders, subcontractors, and suppliers District should postpone the scheduled bid opening to allow the prospective bidders enough time to adjust and prepare accurate bids.

By California Public Contract Code section 4104.5, addenda which have a substantial cost impact may not be issued within 72 hours of bid opening unless a postponement of the bid opening is provided. Substantial costs impact is determined by the awarding agency. Addenda that are issued 1 to 2 weeks before

bid opening should consider including a postponement of bid opening to allow the bidders enough time to incorporate addendum changes into their bids.

Requirements for addenda processing:

1) Within the 72 hour of Bid Opening date – signed addendum must be submitted no later than 1:00 pm for addendum to be posted on the same day. If after 1:00 pm, addendum date may need to be change and a new signature may be is required.
2) Same day of Bid Opening date – signed addendum must be submitted no later than 1:00 pm to postpone the Bid Opening date and any other changes to the PS&E.
3) Outside of the 72 hour of Bid Opening date, addendum must be submitted no later than 2:00 pm, if submitted after 2:00 pm, AADD Coordinator will work with district to determine if it is necessary to change the addendum date and get new signature.

Meeting these requirements will ensure that addendum can be posted the next business day.

Plan sheet revisions will require resubmittal of the CCP with the new addendum date.

ADDENDUM CHECKLIST

____ 1. Contact PPM&OE Bid Book & Addenda Unit to confirm addendum number, processing schedule, and addendum date.

____ 2. Postpone bid opening if necessary or appropriate.

____ 3. Confirm new bid opening date with PPM&OE Scheduling Unit.

____ 4. Use correct and current AADD addendum form letter and e-mail notification letter from PPM&OE Website at (http://des.onramp.dot.ca.gov/office-engineer/contracting-systems)

____ 5 Verify that the following project information is consistent between the addendum letter and the contract documents:

____ 5a. Contract No.

____ 5b. District, County, Route and Post Mile designations

____ 5c. Federal aid number(s), if project has federal funds

____ 5d. Project title

____ 5e. Bid opening date

____ 6. Follow instructions in the AADD Addenda Process Overview to prepare revised plan sheets, revised Bid Item List pages, and other attachments.

____ 7. The addendum date and number are correct on the letter and all attachments.

____ 8. References in the letter to project plan changes are accurate.

____ 9. Added plan sheets are numbered correctly.

____ 10. References in the letter to Notice to Bidders and Special Provisions book changes are accurate.

____ 11. Added specifications are numbered correctly.

____ 12. References in the letter to Bid Item List changes are accurate.

____ 13. Revised Bid Item List pages have the correct number of columns and are numbered correctly.

____ 14. Previous addenda for this project have been checked to avoid redundant changes

____ 15. Complete the "Addenda Data Info Form" and return to PPM&OE Bid Book & Addenda Unit.

SECTION 14 DISTRICT RECOMMENDATION FOR AWARD/REQUESTS TO REJECT BIDS

14.1 PURPOSE

This section provides guidance to the staff involved in the preparation of the District Recommendation for Contract Award and the Requests to Reject Bids.

14.2 RESPONSIBILITIES

14.2.1 PROJECT MANAGER

Reviews the award recommendation/request to reject bids prior to submittal to PPM&OE.

14.2.2 PROJECT ENGINEER, DESIGN ENGINEER, DISTRICT OVERSIGHT ENGINEER, AND CONSTRUCTION ENGINEER

- Performs an independent unbalanced bid analysis prior to preparation of the award recommendation for submittal to PPM&OE, and provides evaluation to the project manager, district project engineer, design engineer, oversight engineer, and construction engineer for the evaluation of submitted bids.
- Seeks independent bid summary review from the structure construction engineer when structures are involved.
- Documents discussions with bidders for clarification of bid items in question.
- Provides information or clarification needed by PPM&OE pertaining to items identified as mathematically and/or materially unbalanced.

14.2.3 DISTRICT OFFICE ENGINEER

- Acts as liaison for PPM&OE and the district to resolve issues in a timely manner.
- Performs an independent unbalanced bid analysis prior to preparation of the award recommendation for submittal to PPM&OE.
- Signs or concurs with the award recommendation or request to reject bids.

14.2.4 PPM&OE

- Performs quality assurance reviews on district recommendations and requests to reject bids to ensure unbalanced bid analysis are performed.

- Works with the DOE to resolve issues.

14.3 COMMUNICATIONS WITH BIDDERS PRIOR TO BID OPENING

Pre-bid opening communications with bidders should be limited to contacting potential bidders to make them aware of the project location, work type and bid opening date. It's permissible to ask them if they plan to bid and if not, why not.

Avoid bidder discussions regarding contract specifics that could be construed as bidder's inquiries, potential addenda, CCO's etc. Refer these type of questions through the bidder inquiry process.

14.4 DISTRICT RECOMMENDATION

PPM&OE is responsible for preparing and processing the documents needed to award a contract or reject a bid. Within one business day after bid verification, the PPM&OE Awards Unit posts the bid opening results in the Bid Summary Results website: (http://ppmoe.dot.ca.gov/des/oe/planholders/bidsum-result.php)

This bid summary shows each bid item, the total bid, and the listed subcontractors for each bidder on a project.

Districts/regions are responsible for recommending award of the contract or requesting rejection of bids. The recommendation to award is required for all projects. Unless extended by the PPM&OE Awards Unit, the recommendation or request to reject bids is due within five business days after bid opening. The recommendation to award for informal bid contracts is due one business day following the bid opening. Recommendations are sent by e-mail: HQ.DES.OEAwardRecommendation@dot.ca.gov. The recommendation is not to be revealed to bidders or external agencies. The Department's Awards Manual, Chapter 17 has examples of award recommendations and requests to reject bids.

The district/region shall use the following procedures to prepare all contract award recommendations. See Table 14-1, Special Bid Situations for more information.

The district must use the bid summary to perform an unbalanced bid analysis to determine whether to recommend award to the apparent low bidder. The district may also recommend rejecting an individual's bid or request rejecting of all bids, in the event that none of the bids are acceptable. District personnel are encouraged to confer with PPM&OE and appropriate Headquarters divisions before deciding whether a bid is acceptable.

The district is required to contact the apparent low bidder, at a minimum. PPM&OE recommends that the three lowest bidders (when there are at least three or more bidders) be contacted to discuss factors which may have influenced the bid and to gain insight into the contracting community's interpretation of the plans, specifications, and estimate and to identify discrepancies in submitted bids. Only personnel who are normally involved in the Award Recommendation process should participate in the discussion with the bidder(s), and all information must be kept confidential until the contract is executed or all the bids are rejected.

The recommendation must follow the Award Recommendation letter template posted at (http://oe.dot.ca.gov/construction_awards_and_support/Award_Recommendation_Letter-Template.docx). Other items to consider that are not already included in the template are:

A justification of significant bid items and the differences in price between the bid items and the Engineer's Estimate should be included in the table provided in the Award Recommendation Letter Template. Each item explanation should be based on the conversation with the bidder(s).The following common responses are not enough to justify large differences in bid item prices:

- The contractor is comfortable with his bid.
- The contractor has experience with this work.
- This is how the subcontractor bid this item.
- The bid is in conformance with other bidders.
- Caltrans estimating practices are usually not correct.
- Compared to the bids, the EE price is high/low.

The item bid cost difference justification must relate to the bidder's strategy for the specific item in question.

- Statement that the low bid has been reviewed for possible mathematical or material unbalancing per 23 CFR 635.102. Following are the U.S. Comptroller General's definitions of mathematically and materially unbalanced bids.

- A bid is mathematically unbalanced if the bid is structured on the basis of nominal prices for some work and inflated prices for other work; that is, each element of the bid must carry its proportionate share of the total cost of the work plus profits.

- A bid is materially unbalanced if there is reasonable doubt that award to the bidder submitting the mathematically unbalanced bid will result in the lowest ultimate cost to the Government.

- If applicable, a statement that local agency funds are (or are not) on deposit in accordance with cooperative agreement(s). If the funds are not on deposit, follow up with a confirmation once the funds are on deposit.

- If applicable, a statement that escrow by the three low bidders was successfully completed.

- If applicable, a statement that the days bid to complete an A+B contract are reasonable.

- If applicable, the Right of Way Certification has been updated.

- Any necessary clearances have been received or permits have been issued.

- Recommendation to award to the lowest responsive and responsible bidder of the bids received or to reject bids including justification for the recommendation.

- Signature or concurrence of the District/Region Office Engineer.

- In the event that there is insufficient funding to award the contract, PPM&OE will send the Project Manager a Notice of Funding Shortfall. The district should contact PPM&OE Awards Unit to discuss the alternatives identified in the notice. After discussion with the PPM&OE Awards Unit, include the District's resolution to the funding shortfall in the award recommendation. Requests to reduce supplemental work or Department-furnished material must be approved by the Office Engineer. Requests to change contingencies must be approved by the Chief Engineer.

- When bids are lower than the Engineer's Estimate, it is inappropriate to add supplemental work items or increase the amount of the existing items or the contingency amount.

14.5 REQUESTS FOR BID REJECTION

See Chapter 25 of the Awards Manual for bid rejection procedure. Requests for bid rejection must include:

- Description of significant differences between the Engineer's Estimate and the bids received.
- Description of the competition, whether or not it was adequate. Include reasons given by plan holders that chose not to bid.
- Description of any problems with the plans, specifications or estimate
- A review of bidder's inquiries and responses
- Alternatives to bid rejection including supplemental fund vote by the CTC or reduction in supplemental work, Department-furnished Materials or contingencies.
- Description of material changes to the plans, specifications or estimate for the re-advertised contract

Disposition of the contract files at PPM&OE, e.g. returned to the district, retained in PPM&OE or deleted.

14.6 BID RESPONSIVENESS, BIDDER RESPONSIBILITY, AND BID PROTESTS

Division of Engineering Services - Office Engineer (PPM&OE) is responsible to determine the responsiveness of bids, assess the responsibility of bidders, and respond to bid protests. The PPM&OE Office Chief of Awards is sub-delegated this authority.

A bid is nonresponsive if it does not conform to the requirements specified in the special provisions, Standard Specifications, and Bid book. Typical issues include:

- unenforceable bid bond
- incomplete information or missing documents
- conflicting information
- modification of the bid documents or qualifications placed on the bid

The term “responsible” refers to the ability of the Department to anticipate the contractor’s successful completion of the work as specified in the contract. Public Contract Code § 1103 states, “Responsible bidder”, as used in this part, means a bidder who has demonstrated the attribute of trustworthiness, as well as quality, fitness, capacity, and experience to satisfactorily perform the public works contract.” Determination of questions as to a bidder’s responsibility requires a formal hearing process (DES Decision Document #48).

Bid protests are typically submitted by bidders as to the responsiveness of the apparent low bid. They may also be submitted by a bidder whose bid has been determined to be non-responsive. PPM&OE determines the validity of protests in determining the responsiveness of the low bid.

PPM&OE informs the district of determinations of responsiveness and responsibility. A determination of a non-responsiveness bid or a non-responsible bidder results in a bid ranking change and requires the district to revise the District Recommendation based on the new apparent low bid.

Table 14-1 Special Bid Situations

In all Bid Situations an Unbalanced Bid Analysis is required.

Special Bid Situation	Response to Special Bid Situation
The district is unable to contact the low bidder or considers such contact as unnecessary or inadvisable.	Each district is required to contact the apparent low bidder, at a minimum. PPM&OE recommends that the three lowest bidders (when there are at least three or more bidders) be contacted in order to gain insight into the contracting community's interpretation of the plans, specifications, and estimate and to identify discrepancies in submitted bids.
Analysis of the bid reveals mathematical or material unbalancing.	The district must: • Document its findings in the Award Recommendation letter, along with a justification as to why the bidder may/may not be unresponsive. • Contact PPM&OE if the unbalancing is material.
Only one bid is received.	The district is to contact other proposal book holders to inquire as to the reasons for not bidding. This information may be useful in supporting a recommendation to reject the bid or award to the low bidder. The pertinent facts of this investigation should be included in the recommendation
The project has Cost+Time (formerly A+B) bidding provisions. In Cost+Time projects, the bidder bids on the items as well as the number of days to complete the project. Bidders are compared and ranked on the total.	• The district should analyze the low bidder's bid for days to complete the work to determine if the work can reasonably be accomplished within that timeframe. • Discuss the structure portions of the work with DES Design and DES Construction.

Special Bid Situation	Response to Special Bid Situation
The low bidder has a recent history of contract terminations for cause or documented performance problems on the Department's projects.	The district is to include specific contract history relating to the low bidder's performance problems in the recommendation and request a determination of the bidder's responsibility.
The low bid is 25 percent or more below the Engineer's Estimate.	The district should: • Review the Engineer's Estimate for errors in item quantities and/or prices. • Review all bidder's inquiries to see if there is a connection with the errors in item prices. • Contact the low bidder (preferably the three lowest bidders) to discuss significant bid items in relation to the Engineer's Estimate. If the bidder indicates a mistake was made in the bid, document your findings in the award recommendation letter. • Discuss the structure portions of the work with DES Design and DES Construction.

Special Bid Situation	Response to Special Bid Situation
The low bid is 10 percent or more above the Engineer's Estimate.	The district should: • Discuss the bid with the low bidder (preferably the three lowest bidders). • Determine if the competition was adequate. If bidding was limited, the district should contact the proposal book holders who elected not to bid to determine why they did not bid. • Determine if the timing of the bidding influenced the number of bidders or the bid amounts. • Determine if the Engineer's Estimate was realistic (discuss the structure portions of the work with DES-Design and DES Construction). • Determine if the project should be rescoped, and determine the consequences of any delay. • Mention the factors resulting in the high bid amounts in the recommendation.
No bids received.	The district must contact proposal book holders to inquire as to the reasons for not bidding, and PPM&OE to discuss alternatives, e.g., scheduling a new bid opening date or rescoping the project.

APPENDIX A SEALS

(SIGNATURE AND SEAL SHEETS){ XE“SIGNATURE AND SEAL SHEET:EXAMPLES”}

CONTRACT NO. 00-000004

DESIGN OVERSIGHT APPROVAL	REGISTRATION NO.	DATE
PRINTED NAME SIGNATURE		

Complete for projects prepared by consultants or local agencies only.

Approved as to impact on State facilities and conformance with applicable State standards and practices as described in the A & E Consultant Services Manual.

The special provisions contained herein have been prepared by or under the direction of the following Registered Persons.

STRUCTURES

REGISTERED CIVIL ENGINEER DATE

ROADWAY

REGISTERED CIVIL ENGINEER DATE

TRAFFIC

REGISTERED TRAFFIC ENGINEER OR
REGISTERED CIVIL ENGINEER DATE

LANDSCAPE

LICENSED LANDSCAPE ARCHITECT

ELECTRICAL (ROADWAY)

REGISTERED ELECTRICAL ENGINEER OR
REGISTERED CIVIL ENGINEER

DATE

ELECTRICAL (STRUCTURES)

REGISTERED ELECTRICAL ENGINEER OR
REGISTERED CIVIL ENGINEER

DATE

MECHANICAL

REGISTERED MECHANICAL ENGINEER OR
REGISTERED CIVIL ENGINEER

DATE

APPENDIX B AUTHORITY TO ADVERTISE AADD

AADD
AUTHORITY TO ADVERTISE
(CONSTRUCTION CONTRACT)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSTRUCTION CONTRACT AWARD SERVICES
AGENCY BILLING CODE: **060084**

CONTRACT NO.		PROJECT TITLE	
FEDERAL AID NO.	FED AUTH. (E76) DATE	CONTRACTOR'S LICENSE TYPE	CONTRACT DURATION
ESTIMATED COST			
ADVERTISEMENT DATE		☐ MANDATORY PREBID MEETING FOR SMALL BUSINESS OUTREACH	
BID SUBMITTAL *(LAST DAY AND TIME AGENCY WILL ACCEPT BIDS)* DATE	TIME	DATE, TIME AND LOCATION MUST BE PROVIDED TO DES - PPM & OE BEFORE PROJECT CAN BE ADVERTISED.	
DOCUMENT PREPARED BY			PREPARER'S TELEPHONE NUMBER
PROJECT MANAGER'S NAME	PROJECT MANAGER'S SIGNATURE	DATE SIGNED	PROJECT MANAGER'S TELEPHONE NUMBER

CONTRACT DESCRIPTION

CONTRACT FUNDING - Full funding shall be appropriated and allocated prior to contract award in accordance with Streets and Highways Code (SHC) Section 171. This work is to be financed from the following funds:

PROJECT FUNDING: **ENGINEER'S ESTIMATE:**

BUDGET FY	PROGRAM CODE	FUNDING	CTC VOTE * DATE	PROGRAMMED AMOUNT*	FUNDS REQUEST

CONTRIBUTOR FUNDING:

COOPERATIVE AGREEMENT / LOCAL AGENCY / OTHER	EXECUTION DATE	AGREEMENT NUMBER	AGREEMENT AMOUNT
		TOTAL FUNDING REQUESTED:	

COMMENTS:

THIS CONSTRUCTION CONTRACT HAS BEEN DEVELOPED IN ACCORDANCE WITH DEPARTMENTAL POLICY AND THE STATE CONTRACT ACT. A COPY OF THE CONTRACT IS ON FILE IN THE DEPARTMENT. EXECUTIVE AUTHORIZATION:

BY: _____ TITLE: _____ DATE: _____

* NOT APPLICABLE FOR MINOR A DELEGATED PROJECTS OR MAINTENANCE PROJECTS
October 31,2016

APPENDIX C BUDGET VERIFICATION OF HIGHWAY MAINTENANCE FUNDS

BUDGET VERIFICATION
Highway Maintenance Funds
(Program 20.80)

☐ AADD ☐ Standard
DISTRICT:
RESPONSIBLE DISTRICT:
PROJECT EA: PHASE #: 4
PROJECT ID:

WORK TYPE:

PECT (check one)			
20.80.110.000 Flexible Roadbeds	☐	20.80.251.000 Roadside/Drainage Major Maint	☐
20.80.120.000 Rigid Roadbeds	☐	20.80.220.000 Drainage (State Forces)	☐
20.80.122.000 Pvmt Preservation (State Funded)	☐	20.80.315.000 Bridge Preservation - Major Maint	☐
20.80.124.000 Pvmt Preservation (Fed Funded)	☐	20.80.380.000 Bridges/Superstructure Elements	☐
20.80.230.000 Slopes/Vegetation	☐	20.80.410.000 Lighting	☐
20.80.235.000 Stormwater	☐	20.80.470.000 Traffic Guidance Support	☐
20.80.270.000 Public Facilities	☐		

LOCATIONS:

Cty:	Rte:	Beg/End PM:	# of LM/Bridges/Culvers:			
Cty:	Rte:	Beg/End PM:	# of LM/Bridges/Culvers:			
Cty:	Rte:	Beg/End PM:	# of LM/Bridges/Culvers:			
Cty:	Rte:	Beg/End PM:	# of LM/Bridges/Culvers:		Total Lane Miles/ Culverts/Bridges	Note for # of; HM1 use Lane Miles HM2 use Culverts HM3 use Bridges
Cty:	Rte:	Beg/End PM:	# of LM/Bridges/Culvers:			

PROJECT DESCRIPTION:

ESTIMATE OF COST $ FISCAL YEAR(S): ☐ FULLY FUNDED ☐ $JOB

CONTRACT LANGUAGE:
- ○ Fully Funded:
- ○ Fully Funded 124 Projects:
- ○ Dollar Job:

SIGNATURE (District Maintenance Engineer) DATE

District Maintenance Funds have been allocated for this project:

SIGNATURE (District Resource Manager) DATE

SIGNATURE (Maintenance Budget Manager) DATE

HQ HM Coordinator concurs with fund allocation:

SIGNATURE (HQ Office of Major Maintenance Support) DATE

Revised - 12/2014

APPENDIX D CCP SUBMITTAL MEMO

(Enter Names as they appear in MS Outlook Directory and please TYPE ONLY in the data fields.)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CCP SUBMITTAL

(Rev 12/2014)

Date _____

☐ Original ☐ Revise/Replace ☐ Additional ☐ Addendum

PROJECT IDENTIFICATION

District-EA	Project ID	Phase No.	County/Route

Post Mile for Begin and End Construction Limits

Project Engineer (Signing Title Sheet)	Telephone No.	Project Manager	Telephone No.

DIRECTORY IDENTIFICATION

Node ID/Address/EA folder/subfolder(s)

Total PDF Sheets

CADD Contact Person	Telephone No.

Special Instructions:

DES-OE Project Plans Use Only:

Processed by:	Date received:	Date completed:

APPENDIX E CONSTRUCTION CONTRACT SUBMITTAL MEMO

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Serious drought.
Help save water!

To: **Division of Engineering Services,**
Office Engineer
Attn: Construction Contract Submittals

Date : _____

Project ID : _____

District EA: _____

PPNO : _____

From: **DISTRICT _____ , OFFICE ENGINEER**

Subject: **Construction Contract Submittal for Advertisement**

Contract Information:

○ Standard ○ Safety (201.010) ○ Informal Bid

Contract Limits:

County: _____

Route : _____

PM : _____

Contract Details:

General Work Description:

Project Plans Title Header: *(Insert the Title Sheet Header from the Project Plans)*

Project Plans For:

Description:

Plans:

Standard Plans Year: _____

Number of Sheets: Roadway: _____ Structures: _____ Total: _____

Page 1

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

APPENDIX F INFORMATION HANDOUT COVER TEMPLATE

See Link: (http://des.onramp.dot.ca.gov/office-engineer/construction-contracting-coordination-and-quality-program)

Double Click HERE to merge

{ XE "IH_D01-31-14" }
Page 1 of 2

INFORMATION HANDOUT (IH) COVER sheet: Use for IH cover.

INFORMATION HANDOUT

Contract number ending in phase number 4. Road includes District–County–Route–Post Mile. Project ID.

For Contract No. «Dist»-«Contract_No»
At «Road»

Identified by
Project ID «ProjectID»

IH Cover Sheet: Use for IH cover. Delete, replace, or add text to match the titles of the Information Handout contents. Use if supplemental project information includes an IH. Include cover if changes are made to IH due to an addendum.

PERMITS

California Department of Fish and Wildlife

U.S. Fish and Wildlife Service

United States Army Corps of Engineers

Non-Reporting Nationwide 404

United States Coast Guard

State of California Land Commission

WATER QUALITY

California Regional Water Quality Control Board

North Coast Region, San Francisco Bay Section, Los Angeles Region, Lahotan Region, Santa Ana Region, Central Valley Region, Central Coast, or Colorado River Basin
Board Order No. _____
NPDES Permit No. CAS _____

AGREEMENTS

California Department of Fish and Wildlife

Notification No. _____

National Marine Fisheries Services

Karuk Tribe MOU

1

APPENDIX G SPECIFICATION TOOLS AND GUIDANCE

SPECIFICATION TEMPLATES

The following 3 types of templates are used for specification development and processing:

1. "Macros" template contains all of the macros (e.g., strike and hide text, insert SSP).

2. "Normal" template is the customized global document template that contains the document settings (e.g., autocorrect, option settings).

3. "SSP" template contains the standard document paragraph styles.

Use the templates (and installation instructions) available at: (http://www.dot.ca.gov/des/oe/specification-templates.html)

SPECIFICATION TEMPLATE GUIDES

Specification template guides are documents created using the correct format and standard document paragraph styles. (Note: These guides do not replace the specification templates mentioned above. The templates must still be installed for specification work.)

For assembling a special provision package, use the SP_TEMPLATE.docx template guide available at: (http://www.dot.ca.gov/des/oe/specification-templates.html)
For specification development work, use the template guides available at (http://www.dot.ca.gov/des/oe/specification-templates.html)

SPECIFICATION EDITING

When editing specifications, use the following editing standards for uniformity and to identify the individual responsible for an edit:

- User·initials·are·“comment”·style.¶
- New·text·is·blue·and·underlined.¶
- Deleted·text·is·~~red strike and hide~~.
- Interpret the term "delete" in the instructions of the SP template and specifications as "strike and hide."

Do not use the Microsoft Word track changes function.

Do not use hyperlinks, comments, highlighted text, fields (headers are okay), embedded pictures, or bullets.

Check your document with hidden text turned on and turned off to ensure correct style and formatting in your document.

See list of tools and guidance at the end of this appendix for additional editing information.

SSP Editing by Specification Engineer or Owner

Identification	Commentary
District User Initials** (e.g., **JAD**)**	A District specification writer identifies an edit by adding his or her initials and a double asterisk. The identification precedes each edited paragraph. Information about the edit is added after the identification. For a large project that has many edits, adding the date of the edit is recommended.
## SOE User Initials Date (e.g., **## JAD XX/XX/XXXX**)	An SOE specification writer identifies an edit by adding his or her initials and a double pound. The identification precedes each edited paragraph.
Owner's first initial and last name** (e.g., **J.Duncan**)**	An Owner identifies an edit by adding his or her first initial, last name, and a double asterisk. The identification precedes each edited paragraph.
NEW + User Initials** (e.g., **NEW JAD**, NEW JAD ##,** or **NEW J.Duncan**)**	For adding a new section or subsection, add "NEW" to the beginning of the identification. A new subsection typically has a subsection title. For adding a new paragraph to an existing SSP, do not add "NEW" to the identification.

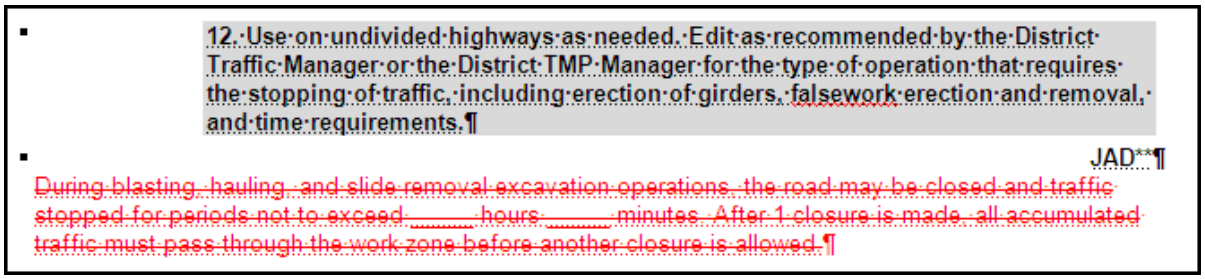
SSP Editing by PPM&OE Reviewer

Identification	Commentary
PPM&OE User Initials*** (e.g., **JAD*****)	A PPM&OE reviewer identifies an edit by adding his or her initials and a triple asterisk. The identification precedes each edited paragraph.
NEW +User Initials*** (e.g., **NEW JAD*****)	For adding a new section or subsection, the PPM&OE reviewer adds "NEW" to the beginning of the identification. A new subsection typically has a subsection title. For adding a new paragraph to an existing SSP, "NEW" is not added to the identification.
ADDED + User Initials*** (e.g., **ADDED JAD*****)	For adding a new SSP to the PS&E submittal, the PPM&OE reviewer adds "ADDED" to the beginning of the identification.
UPDATED + User Initials*** (e.g., **UPDATED JAD*****)	For updating the version of an SSP in the PS&E submittal, the PPM&OE reviewer adds "UPDATED" to the beginning of the identification.
DELETED+ User Initials*** (e.g., **DELETED JAD*****)	For removing an SSP from the PS&E submittal, the PPM&OE reviewer adds "DELETED" to the beginning of the identification. The entire SSP except the SSP No. and issue date are removed. The identification is inserted before the SSP number.

The following are examples of applying the editing standards mentioned above.

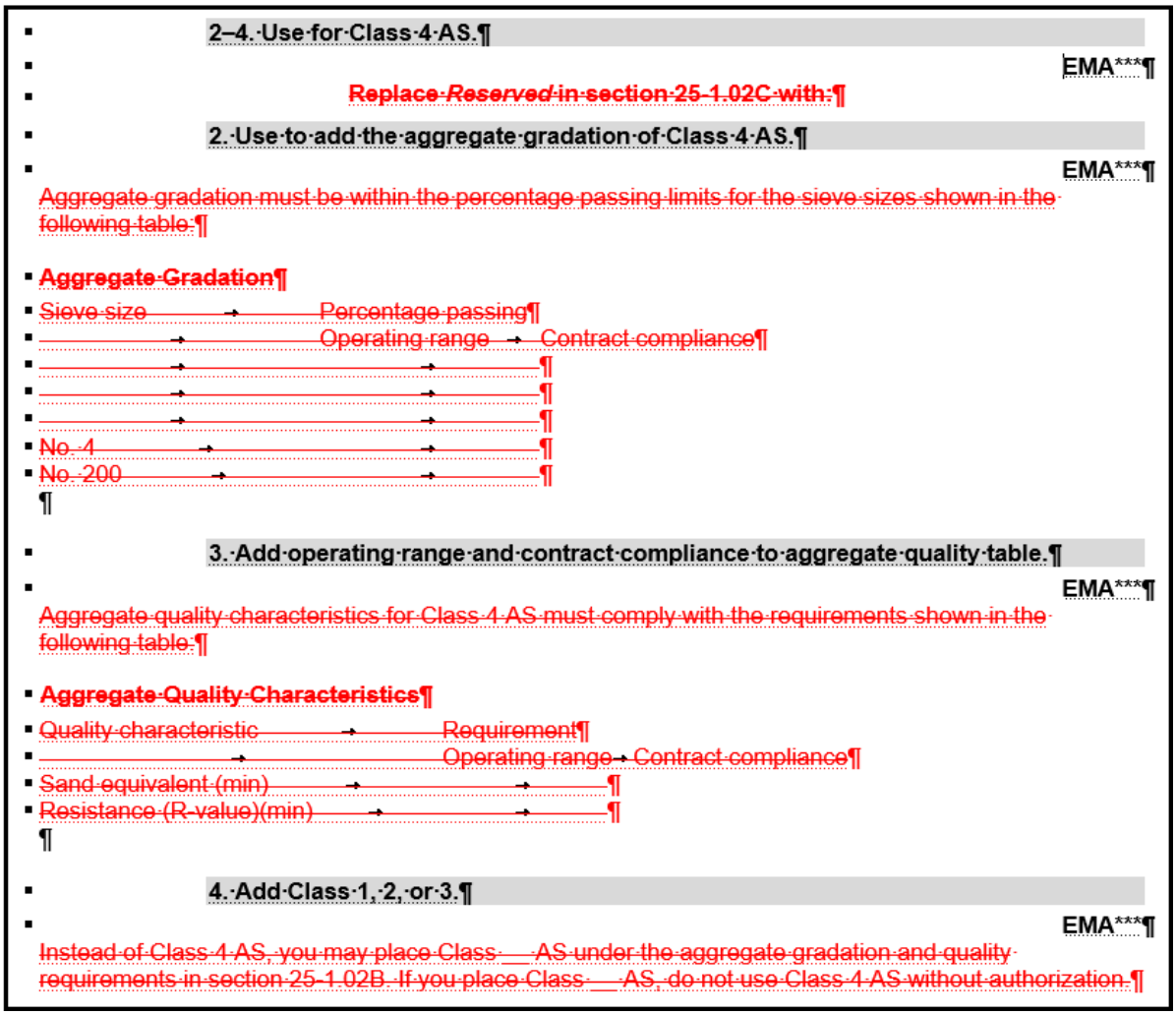
Edit a paragraph:

Strike and hide a paragraph:



Strike and hide a series of paragraphs:

(Note: Do not strike and hide the paragraph instructions.)



Strike and hide rows in the middle of the table:

(Note: Strike and hide the mark at the end of each row with each row.)

4.·Use·if·designated·holidays·are·specified·or·if·lane·requirement·charts·are·included.· Edit·for·holidays·that·do·not·generate·heavy·traffic·through·the·project.¶

JAD**¶

Designated·holidays·are·as·shown·in·the·following·table:¶

Designated·Holidays

Holiday	Date·observed
New·Year's·Day	January·1st
~~Washington's· Birthday~~	~~3rd·Monday·in·February~~
~~Memorial·Day~~	~~Last·Monday·in·May~~
Independence·Day	July·4th
Labor·Day	1st·Monday·in·September
Veterans·Day	November·11th
Thanksgiving·Day	4th·Thursday·in·November
Christmas·Day	December·25th

¶

Strike and hide the 1st or last row of the table:

(Note: If the 1st row below the column headings is struck and hidden, the double line format of the bottom border of the column headings gets replaced by a single line format. If the last row of a table is struck and hidden, the last remaining row will lose its bottom border. Therefore, for these instances, the following steps must be performed.)

1. Strike and hide the rows as shown above:

4.·Use·if·designated·holidays·are·specified·or·if·lane·requirement·charts·are·included.· Edit·for·holidays·that·do·not·generate·heavy·traffic·through·the·project.¶

JAD**¶

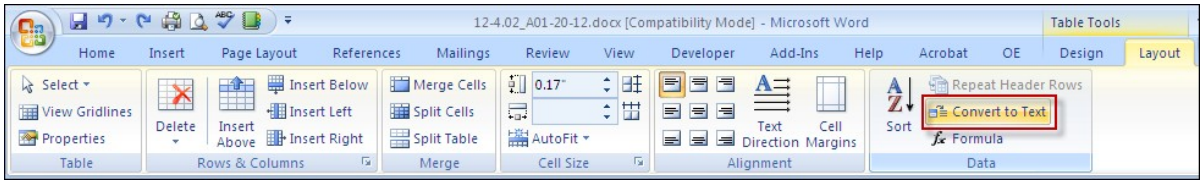
Designated·holidays·are·as·shown·in·the·following·table:¶

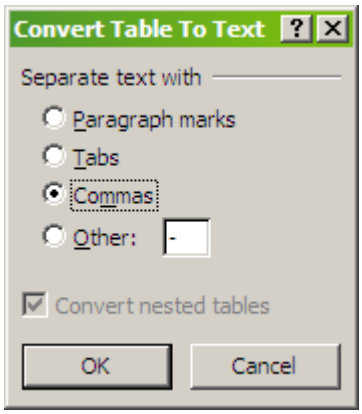
Designated·Holidays

Holiday	Date·observed
New·Year's·Day	January·1st
Washington's· Birthday	3rd·Monday·in·February
Memorial·Day	Last·Monday·in·May
Independence·Day	July·4th
Labor·Day	1st·Monday·in·September
Veterans·Day	November·11th
~~Thanksgiving·Day~~	~~4th·Thursday·in·November~~
~~Christmas·Day~~	~~December·25th~~

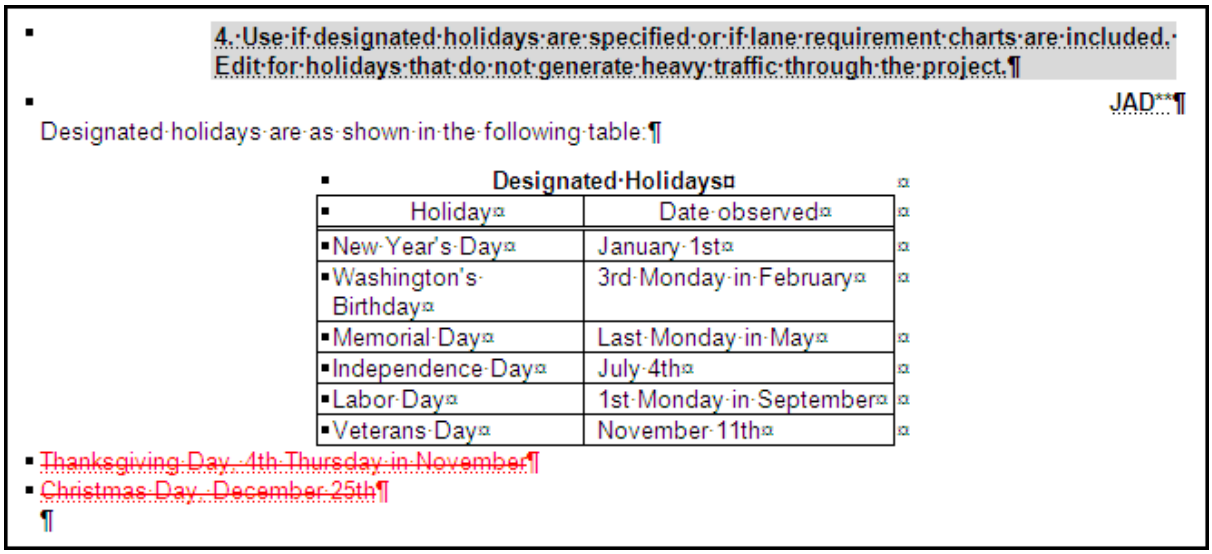
¶

2. Highlight the struck and hidden rows and convert the rows to text by selecting the command "Convert to Text" and separating the text using commas:





3. The converted rows will have this format:



4. Use if designated holidays are specified or if lane requirement charts are included. Edit for holidays that do not generate heavy traffic through the project.¶

JAD**¶

Designated holidays are as shown in the following table:¶

Designated Holidays

Holiday	Date observed
New Year's Day	January 1st
Washington's Birthday	3rd Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4th
Labor Day	1st Monday in September
Veterans Day	November 11th

~~Thanksgiving Day - 4th Thursday in November~~¶
~~Christmas Day - December 25th~~¶
¶

Strike and hide list items:

(Note: Renumber the list after list items are struck and hidden.)

- 20. Select appropriate methods and edit or delete pars. 21–33 to agree.¶
- 12-3.16G Service¶
- 12-3.16G(1) General¶
- JAD**¶

Use one of the following methods to provide power for the TSS:¶

1. Commercial power from an existing utility company¶
2. ~~Commercial power with a generator backup~~¶
23. Generator system with an additional generator as a backup¶

ADDITIONAL GUIDANCE

Specification Style Guide 2015
(http://www.dot.ca.gov/hq/esc/oe/construction_contract_standards/2010/Style_Guide_2010-2015.pdf)

NSSP Guidance
(https://oe.dot.ca.gov/construction_contract_standards/Guidelines-for-the-Development-of-Nonstandard-Special-Provisions.pdf)

Outline leveling
(http://www.dot.ca.gov/des/oe/specification-templates.html)

APPENDIX H RESERVED

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Exception Process to Advertised Prior to CTC Vote Memo

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Making Conservation a California Way of Life.

To: DEPUTY DIRECTORS
DISTRICT DIRECTORS
DIVISION CHIEFS

Date: September 27, 2018

File:

From: KARLA SUTLIFF
Chief Engineer
Project Delivery

Subject: **EXCEPTION PROCESS TO ADVERTISE PRIOR TO CTC ALLOCATION**

As per Section 8.5.3 of the Construction Contract Development Guide (CCDG), capital construction funds for programmed projects must be allocated by California Transportation Commission (CTC) prior to project advertisement. This memorandum establishes an exception process that would allow a programmed project to be advertised prior to CTC vote for capital construction funds allocation. The purpose of this exception is to take advantage of the opportunity to accelerate a project by advertising and allocating simultaneously.

Projects meeting certain criteria may be considered for the exception and the exception request needs to be submitted to the Division Chief, Division of Design, for review and approval. The following link provides the exception process information and requirements, as documented in the updated CCDG:

https://design.onramp.dot.ca.gov/node/989

The exception review and approval process is enacted to minimize the risks of postponing the bid opening or cancelling a project that may impact contractors' business and financial planning.

If approved, Division of Engineering Services will monitor the advertised projects to ensure that no project is bid-opened until after the project receives CTC allocation. If a project does not make the scheduled CTC vote, it may be necessary to postpone the bid opening or cancel the project.

If you have any questions, please contact Janice Benton, Chief, Division of Design, at (916) 654-3858 or <janice.benton@dot.ca.gov>.

c: Janice Benton, Chief, Division of Design
Shira Rajendra, Acting Chief, Division of Engineering Services

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

Exception Process to Advertised Prior to CTC Vote Request Memo

EXCEPTION APPROVAL FORM TO ADVERTISE PRIOR TO CTC ALLOCATION

(Rev 8/22/2018)

Project EA/Project ID: DD-12345/DD 1234 1234
County, Route, Post Mile: CO, Rte., PM/End PM
Description of Work: Description
Ready to List (RTL) Date: Date
Federal Aid Number/E-76 Approval Date: Federal Aid Number/E-76 Approval Date
Scheduled CTC Vote Date: Target Date.

District has determined that the project described above meets the criteria to advertise prior to CTC allocation.

☐ Yes	☐ No		RTL Certified.
☐ Yes	☐ No		Have Right of Way certification level of 1, 2 or 3W*.
☐ Yes	☐ No		Construction capital and support budget within 120% of the programmed amount.
☐ Yes	☐ No	☐ N/A	Executed cooperative agreement.
☐ Yes	☐ No	☐ N/A	Federal funding authorization (E-76).
☐ Yes	☐ No		Signed Authority to Advertise (A2A) form.
☐ Yes	☐ No		Funds request submitted to HQ Budgets for the next scheduled CTC meeting.

If approved, the exception will provide efficiencies of cost or schedule:

Enter anticipated cost or time savings with exception approval compared to without exception.

Requested by:

Click here to enter name., District Choose a District #. Director — Click here to enter a date. Date

For HQ Use Only

*For R/W Cert 3W, Concurrence by:

Jennifer Lowden, Chief, Division of Right of Way & Land Surveys — Date

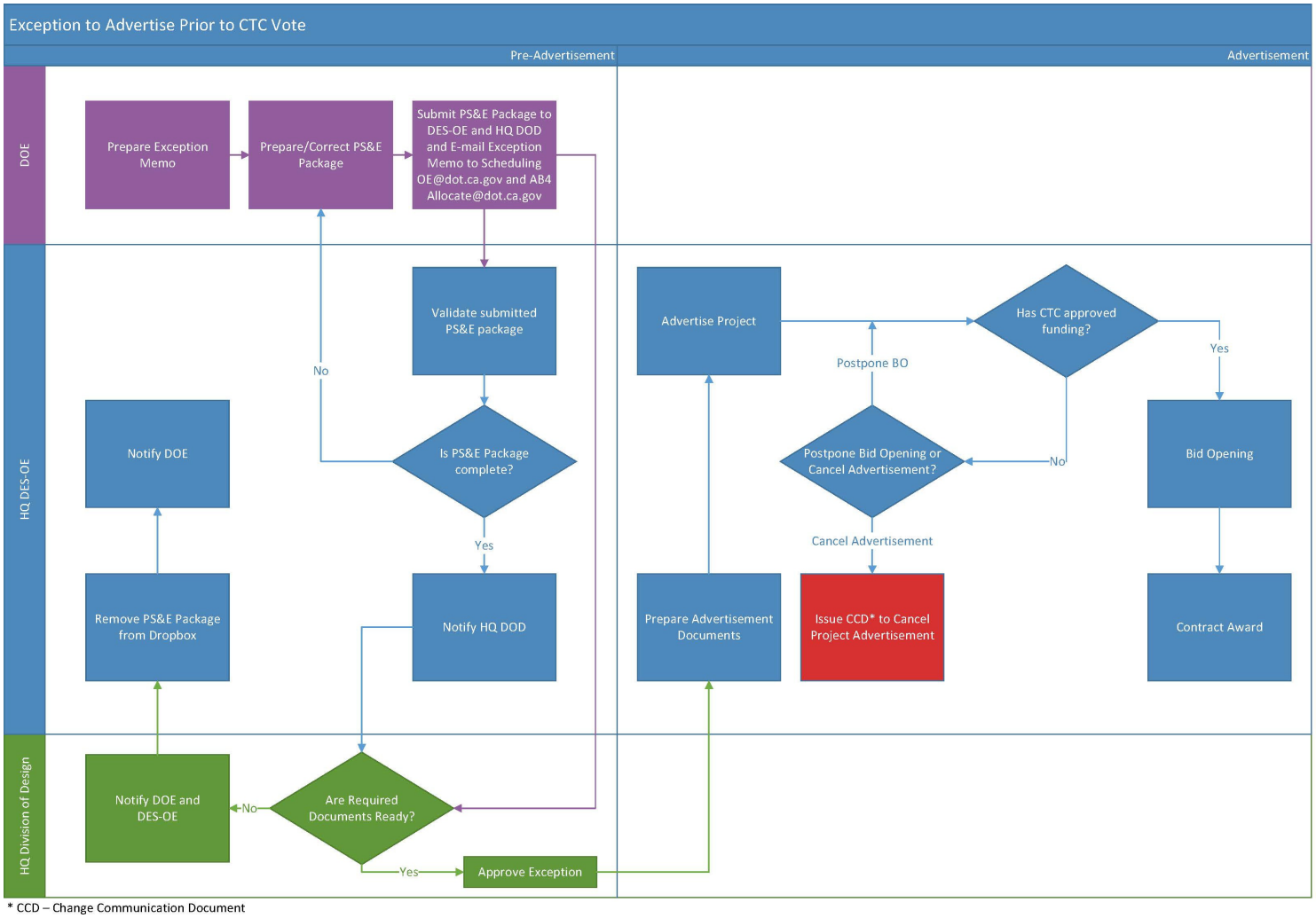
Approve Request to advertise prior to CTC Allocation

Approved by:

Janice Benton, Chief, Division of Design — Date

APPENDIX J EXCEPTION REQUEST FLOWCHART

Exception to Advertise Prior to CTC Vote Flowchart



* CCD – Change Communication Document

Advertisement Before CTC Vote Exception Projects

Reminders:

- **The clock does not start until DES-OE receives an Exception Request Approval from HQ Design.**
- **The Advertisement Before CTC Vote Exception is not a cure all for your project schedule.**
- **Gains made in early advertisement, can be lost or reduced if the CTC Vote is too far from your submittal date. Early advertisement does not mean early bid opening, or an early award.**

Part of the request for exception to advertise before CTC vote requires the district to submit the contract documents and a copy of the exception request to DES-OE.

Putting these files into the PS&E Drop Box is for HQ Design to access as part of their evaluation of the exception request package. DES-OE cannot assign a PS&E received date in the project database until they receive a signed exception approval from HQ Design, and DES-OE submittals confirms that the necessary files for advertisement have been received.

What is needed to evaluate if the "Ad Before CTC Vote Exception" tool is a good fit for your project?

1. A copy of the "CTC Vote Schedule" [See attachment]
2. A copy of the "Scheduling tool [See attachment]
   http://oe.dot.ca.gov/project_control_and_support/task_management/DES-OE-Scheduling-Tool.xls
3. Target Exception Request Approval from HQ Design [See attachment]
4. Estimated DES-OE PS&E Received Date (assume 1 working day from HQ Design Approval)

Using the Scheduling Tool you can determine:

Listing period 3 weeks [Time necessary to process and prepare the contract documents for Advertisement]

Advertisement Date = PS&E Rcv'd Date + 3 Mondays

Estimated Advertisement duration [Based on the $ size, # of plans, # of items]
*(*Actual Advertisement date based on content of scheduling calendar for all 12 districts.)*

Bid Opening Date is the greater of the two following:

The CTC vote Date + 2 Mondays, or

The Ad Date + Advertisement Duration

After an estimated Bid Opening Date is determined, [Actual date will be assigned by DES-OE] try and factor in potential risks during the Award process.

Bid Opening Durations can vary dramatically and are seriously impacted by:

1- Bids coming in over the project budget - Bids higher than the engineer's estimate may result in not enough money available to award the project. Adds time to Awards duration, and if additional funding is not available, all bids may be rejected, or may have to go to the CTC for a supplemental vote. (Very low probability if project is SB1 funded, unlikely since this was a CTC Exception project.)

2 - DBE/DVBE Project Goals not met, can result in reconsideration hearings, which pushes out Award durations. If the Office of Business Enterprise and Opportunity (OBEO) determines goals have not been met, and good faith efforts are inadequate, the project may have all bids rejected.

3 - Bidder Protests must be address before awarding the contract. Bidder Protests and the hearings to address them extend out Award Durations.

Some Evaluation Examples

Bid Opening are scheduled for Tuesday, Wednesday, or Thursday

Example #1

Let say you have a $2.5 M project, Current Date is February 1, 2018 and the CTC vote is 7 weeks out (March 22, 2018).

Standard process Time line

Submit to DES-OE March 29, 2018. PS&E Received Date (1 week after the CTC Vote)
3 Week listing puts us at the project being advertised April 16, 2018
Due to the size, we would expect an advertisement duration of 5 weeks
Bid Opens May 22-24-, 2018

Exception process Time line

Submit to DES-OE February 1, 2018. Date [Based on HQ Design Approval date of February 1, 2018]
3 Week listing puts us at the project being advertised February 20, 2018

Bid Opening Date is the greater of the two following:

The CTC vote Date + 2 Mondays, or	April 3-5, 2018
The Ad Date + Advertisement Duration	March 27-29, 2018

Bid Opens April 3-5, 2018.
Initial time savings to get to the Bid Opening is **7 weeks earlier**, than the standard practice.

==========

Example #2

Let say you have a $20 M project, Current Date is February 22, 2018 and the CTC vote is 4 weeks out (March 22, 2018).

Standard process Time line

Submit to DES-OE March 29, 2018. PS&E Received Date (1 week after the CTC Vote)
3 Week listing puts us at the project being advertised April 16, 2018
Due to the size, we would expect an advertisement duration of 6 weeks
Bid Opens May 29-31, 2018

Exception process Time line

Submit to DES-OE February 22, 2018. [Based on HQ Design Approval date of February 22, 2018]
3 Week listing puts us at the project being advertised March 12, 2018

Bid Opening Date is the greater of the two following:

The CTC vote Date + 2 Mondays, or , or	April 3-5, 2018
The Ad Date + Advertisement Duration	April 24-26, 2018

Bid Opens April 24-26, 2018.
Initial time savings to get to the Bid Opening is **5 weeks earlier**, than the standard practice.

==========

Example #3

Let say you have a $1.5 M project, Current Date is March 1, 2018 and the CTC vote is 3 weeks out (March 22, 2018).

Standard process Time line

Submit to DES-OE March 29, 2018. PS&E Received Date (1 week after the CTC Vote)
3 Week listing puts us at the project being advertised April 16, 2018
Due to the size, we would expect an advertisement duration of 4 weeks
Bid Opens May 15-17, 2018

Exception process Time line

Submit to DES-OE March 2, 2018. [Based on HQ Design Approval date of March 1, 2018]
3 Week listing puts us at the project being advertised March 19, 2018

Bid Opening Date is the greater of the two following:

The CTC vote Date + 2 Mondays, or	April 3-5, 2018
The Ad Date + Advertisement Duration	April 17-19, 2018

Bid Opens April 17-19, 2018.
Initial time savings to get to the Bid Opening is **4 weeks earlier**, than the standard practice.

==========

Example #4 (same project as example #3)

Let say you have a $1.5 M project, Current Date is January 8, 2018 and the CTC vote is 10 weeks out (March 22, 2018).

Standard process Time line

Submit to DES-OE March 29, 2018. PS&E Received Date (1 week after the CTC Vote)
3 Week listing puts us at the project being advertised April 16, 2018
Due to the size, we would expect an advertisement duration of 4 weeks
Bid Opens May 15-17, 2018

Exception process Time line

Submit to DES-OE January 9, 2018. [Based on HQ Design Approval date of January 8, 2018]
3 Week listing puts us at the project being advertised January 29, 2018

Bid Opening Date is the greater of the two following:

The Date for CTC vote Date + 10 working days, or	April 3-5, 2018
The Date for Ad Date + Advertisement Duration	February 27-28, March 1, 2018

Bid Opens April 3-5, 2018.
Initial time savings to get to the Bid Opening is **3 weeks earlier**, than the standard practice.

But for this case we had to advertise the project for 9 weeks, which is more than double the standard advertisement duration for a project this size.

Initial Time Savings Versus True Time Savings

A poor quality project can dramatically impact the advertisement duration. Quality issues discovered by bidder inquiries and IQA reviews often require addenda. It takes time for the districts to develop solutions and prepare these addenda. Depending on when the issues are discovered, and how long it takes to address them, bid opening delays are often required.

If your project has quality issues, these could result in problems or delays in Advertisement and Award, which can invalidate the time savings gained by using the exception process. There is no advantage advertising earlier if quality issues result in bid opening delays, and challenges and delays during award.
As is always the case, special tools and the benefits associated with their use are based on a solid quality project.

This tool, if used properly and in the right circumstance can benefit the Department, but if used poorly can result in increased costs, and longer durations.

As always use the right tool for the right job.

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Best Bid Standards Checklist _ 12/31/2020 ***Text in Blue indicates 2020 updates***

✓	BBS ID	Section	Subsection	BBS	Risk Category	References Guidance
	16	Contract Consistency	Plans/Estimate (Bid Item List)	Final pay item quantities must be verifiable from the contract documents, and match quantities shown on the Bid Item List except as follows: round quantities under 5 to the nearest tenth decimal place, round quantities over 5 to the nearest whole number.	High	**Reference:** *CCD Guide - Section 7.4.2 ROUNDING QUANTITIES and 7.6.5 FINAL PAY DESIGNATION.*
	17		Plans/Estimate (Bid Item List)	Quantities must be verifiable from the contract documents.	High	**Reference** *: Public Contract Code Section 10120. Plans Preparation Manual Section 2-1.1 Composition of Project Plans and General Preparation Procedures.*
	64		Specifications/Estimate (Bid Item List)	Each bid item must be covered by the Standard Specifications or the Special Provisions.	High	**Reference:** *CCD Guide - Section 6.6 ASSEMBLY OF SPECIAL PROVISIONS.*
	9		Specifications/Estimate (Bid Item List)	One-time item codes used must match the Bid Item List and be referenced to the appropriate Standard Specification Section in SSP 1-1.01.	High	**Reference:** *CCD Guide - Section 7.6.4 NONSTANDARD ITEMS.*
	67		Plans/Specifiations/Estimate (Bid Item List)/ PLAC	All work is covered by the items shown in the Bid Item List (missing bid items).	High	**Reference:** *Public Contract Code - Section 10120.*
	45		Plans/Specifications/Estimate (Bid Item List)/PLAC	Identified PLAC requirements must be addressed in the contract documents and are valid.	High	**Reference:** *Project Development Procedures Manual - CHAPTER 13 – Project Related Permits, Licenses, Agreements, Certifications, and Approvals. CCD Guide - Section 6.4 SPECIAL PROVISIONS.*
	48		Plans/Specifications/Estimate (Bid Item List)/PLAC	Construction easements shown on the R/W Certification must be shown on the plans.	High	**Reference:** *Plans Preparation Manual - Section 2-2.5 Layouts, Profiles and Superelevation Diagrams, Subsection Plan Content.*
	74		Missing Submittal/Estimate (Bid Item List)	For A + B Bidding requirements (Cost + Time), Liquidated Damages specified in the Standard Specifications, Road User Cost and minimum/maximum working days if applicable, listed in the database MERGE file must match the amounts shown in the Bid Book.	High	**Reference:** *Project Delivery Directive PD-14 Policy & Guidelines for use of Cost + Time Bidding Provisions, Memorandum from North Region dated March 3, 2016, Lean Working Days and Cost + Time Bidding.*
	58		Contract Documents/Database	Number of working days and construction windows must be consistent within contract documents (NTB&SP, Project Database). If Plant Establishment and/or Permanent Erosion Control Establishment is a bid item, the working days must be listed separately for these items.	High	**Reference:** *Public Contract Code Section 10120. Plans Preparation Manual Section 2-1.1 Composition of Project Plans and General Preparation Procedures.*
	57		Plans/Specifications	If an ESA exists, it must be shown on the contract plans and specified in the Special Provisions.	High Medium	**Reference:** *Plans Preparation Manual - SECTION 2-2.5 Layouts, Profiles and Superelevation Diagrams, subsection Plan Content. 2018 Standard Specification - Section 14-1.02 ENVIRONMENTALLY SENSITIVE AREA.*
	3		Plans/Estimate (Bid Item List)	Bid Item List quantities must match the summary of work quantities on the contract plans.	High Medium	**Reference:** *Public Contract Code Section 10120.* **Guidance:** *Per Standard Specifications section 9-1.06, there is a price adjustment criteria for both 25% increase and 25% decrease in quantity. Use high risk category in these circumstances.*
	46		Plans/Specifications/Estimate (Bid Item List)/PLAC	Railroads within the project limits must be shown on the title sheet and have a clearance letter and railroad clauses are included in the contract documents.	High Medium	**Reference:** *Plans Preparation Manual - Section 2-1.1 Railroad Involvement, Section 2-2.2 Title Sheets. Project Development Procedures Manual - Chapter 24 Freeway Agreements. CCD Guide-Section 6.11 RAILROAD INVOLVEMENT.*
	69		Contract Documents/Database	Federal Trainees information must be correct and entered into the project database.	Medium	**Reference:** *CCD Guide - Section 7.7.4 FEDERAL TRAINEE PROGRAM.* **Guidance:** *Include supplemental funds for the federal trainee program for federally funded projects with at least 100 working days.*
	53		Contract Documents/Database	Information shown on the NTB&SP, Bid Book, plans, BEES and database must be consistent. (last digit contract number = 4, title, project description, Dist/Co/Rt/PM, plans approval date, federal aid number, pre-bid meeting, call out number)	Medium	**Reference:** *Plans Preparation Manual - Section 2-2, CHECK LIST FOR TITLE SHEETS.*
	1		Plans/Estimate (Bid Item List)	Items of work shown on the contract documents must match the item descriptions in the Bid Item List.	Low	**Reference:** *Public Contract Code Section 10120.* **Guidance** *: The Structure plan details and notes do not always call out the bid item names exactly per the Bid Item List description. Item callouts in notes or details can be different for design efficiency and clarity. For example, in some projects "Structural Concrete, Approach Slab (Type N)" is called out only as "approach slab".*
	71		Contract Documents/Database	When SSP 8-1.04C is used and identifies SSPC-QP Certifications, the appropriate Section 59, "Mandatory SSPC-QP Certification" needs to be included in the project.	Low	**Reference:** *2018 Standard Specifications, Section 59-2 PAINTING STRUCTURAL STEEL.*

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✓	BBS ID	Section	Subsection	BBS	Risk Category	References Guidance
	47	Plans	Drafting Standards/Policy Requirements	The contract must be in compliance with the Utility Policy Certification and Utility Matrix (Appendix LL of the Project Development Procedures Manual).	High	**Reference:** *Project Development Procedures Manual - Appendix LL - Utility Policy Certification and Utility Matrix-07-08-16. CA Government Code - Section 4215 and Section 4216.*
	73		Drafting Standards/Policy Requirements	Units of measure on the contract plans must use the standard unit of measure from the Standard Bid Item List.	High	**Reference** *: Public Contract Code - Section 10120. Basic Engineering Estimating System (BEES) User Guide and Reference Manual - CHAPTER 9 & 19.*
	65		Inappropriate or Missing Notes, Legends, Abbreviations & Details	All appropriate plans and details must be included in the contract plans, including RSPs.	High Medium	**Reference:** *Public Contract Code - Section 10120.*
	59		Inappropriate or Missing Notes, Legends, Abbreviations & Details	Items shown as "Not a separate bid item." must be designated with an (N).	Medium	**Reference:** *Plans Preparation Manual - Section 2-2.19 Summary of Quantities.*
	2		Plans Consistency	Contract plan sheet quantity subtotals must add up to the quantity grand total.	Low	**Reference:** *Public Contract Code Section 10120.*
	4		Plans Consistency	Plan details must be accurate and consistent with the Plans Preparation Manual, Standard Plans, Revised Standard Plans, or details shown on other contract plan sheets.	Low	**Reference:** *Public Contract Code Section 10120. CCR Title 16, Section 415, Practice Within Area of Competence.*
	40	Specifications	Missing Specifications	SSPs required per instructions and those required in the current SSP Index must be included in the Special Provisions.	High Medium	**Reference:** *CCD Guide-Section 6.6 ASSEMBLY OF SPECIAL PROVISIONS.*
	42		Inappropriate or Insufficient Notice to Bidders and Special Provisions	Section 8 "Prosecution and Progress" of the Contract Special Provisions must be correct based on project criteria.	High	**Reference:** *CCD Guide-Section 6.4.2 SECTIONS 1 THROUGH 9.*
	62		Inappropriate or Insufficient Notice to Bidders and Special Provisions	The Contractor license(s) specified in the contract must be able to perform the majority of the work.	High	**Reference:** *California Business and Professions Code - Section 7059(b).*
	66		Missing Specifications	NSSP for one-time item code must be included, unless work is covered by Standard Specifications.	High	**Reference:** *CCD Guide - Section 6.6 ASSEMBLY OF SPECIAL PROVISIONS.*
	28		Specifications Consistency	Standard Plan List, Standard Special Provisions, and Revised Standard Specifications must be of the same year of publication and must be consistent with each other.	Medium	**Reference:** *Public Contract Code Section 10120.*
	70		Missing Specifications	The CCD Guide requirements must be followed for Sole Source Products. Sole source products require project-specific plan details and/or NSSP unless this item is already covered by existing SSPs, RSS or Standard Specifications.	Medium	**Reference:** *Deputy Directive - DD 45 New Product Evaluation. CCD Guide - Section 6.10 PROPRIETARY PRODUCTS, COST EFFECTIVENESS/PUBLIC INTEREST FINDING GUIDELINES (2020).*
	61		Inappropriate or Insufficient Notice to Bidders and Special Provisions	The general work description specified in the NTB&SP must provide sufficient information for prospective bidders to determine the nature of the work.	Medium	**Reference:** *Public Contract Code- Section 10141.*
	30		Editing/Style	SSPs must be edited per SSP Instructions. (including Standard Plans List)	Low	**Reference:** *CCD Guide - Section 6.2 BACKGROUND, Section 6.8 EDITING AN SSP. CCR Title 16, Section 415, Practice Within Area of Competence.*
	43		Editing/Style	All specification edits have been proofed and must comply with the Caltrans Specification Style Guide. (strikethroughs, underlines, initials etc.)	Low	**Reference:** *CCD Guide - Section 6.8 EDITING AN SSP, Appendix G, Specification Style Guide 2010/2015.*
	38		Specifications Consistency	The special provisions must be arranged according to the Standard Special Provisions number (SSP No.) within each section and each section must correspond to the appropriate section of the Standard Specifications.	Low	**Reference:** *CCD Guide-Section 6.4.1 GENERAL, Section 6.6 ASSEMBLY OF SPECIAL PROVISIONS.*
	39		Specifications Consistency	SSPs must be consistent with the RSS for contract advertisement.	Low	**Reference:** *CCD Guide-Section 6.6 ASSEMBLY OF SPECIAL PROVISIONS.*

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✓	BBS ID	Section	Subsection	BBS	Risk Category	References Guidance
	18	Estimate (Bid Item List)	Missing Item	Time Related Overhead (TRO) must be included on all projects exceeding the current minor B threshold cost. The TRO unit of measure must be Working Day (WD) for Unit Price Contracts or Lump Sum (LS) for Cost Plus Time Contracts. Exceptions to this policy must obtained from HQ Division of Construction.	High	***Reference:*** *Memorandum by Division of Construction Chief Engineer, dated November 13, 2019 - Time Related Overhead Item Use. CCD Guide - Section 7.6.2 TIME-RELATED OVERHEAD. 2018 Standard Specification - Section 9-1.11 TIME-RELATED OVERHEAD.* ***Guidance:*** *Beginning January 2, 2020, all projects exceeding the minor B threshold must include the time related overhead (TRO) bid item.*
	20		Missing Item	Mobilization must be included for contracts with at least 50 working days not including plant establishment days. Mobilization must be listed as the last bid item. Mobilization may be included for contracts with less than 50 days if the work is primarily structures work. Mobilization is typically not included on contracts that are mostly building work.	High	***Reference:*** *Memorandum by the Chief Engineer dated 2/4/2008 - Mobilization Contract Item. CCD Guide - Section 7.6.3 MOBILIZATION. Basic Engineering Estimating System (BEES) User Guide And Reference Manual - Chapter 8.*
	6		Estimate (Bid Item List) Consistency	Item codes, descriptions and units of measure used in the Bid Item List must be from the Standard Bid Item List.	High	***Reference:*** *CCD Guide - Section 7.6 BID ITEMS.*
	76		Estimate (Bid Item List) Consistency	Department payments for Rain Event Action Plan and Storm Water Annual Report must be included in the Bid Item List as specified in Standard Specifications Section 13-3.04.	High	***Reference:*** *2018 Standard Specification - Section 13-3.04 PAYMENT.*
	77		Estimate (Bid Item List) Consistency	Department payments for Dispute Resolution Advisor/Board on-site Meeting and Hourly off-site Dispute Resolution Advisor/Board-Related Tasks must be included in the Bid Item List as specified in the Revised Standard Specifications Section 5-1.43.	High	***Reference:*** *2018 Revised Standard Specification - Section 5-1.43. CCD Guide - Section 7.6.6 Dispute Resolution.*
	23		Inappropriate or Incorrect Item Code	Work paid for under one bid item must not be paid for under any other bid item.	Medium	***Reference:*** *2018 Standard Specification - Section 9-1.03 PAYMENT SCOPE, Paragraph 5.*
	12		Inappropriate or Incorrect Item Code	All Supplemental Work and Department-furnished items must be in compliance with PD-04, correctly coded and included in the Engineer's estimate. (Supplemental Work must conform to the 5% policy limit for projects, or there must be an approval to exceed the limit.)	Low	***Reference:*** *CCD Guide - Section 7.7 SUPPLEMENTAL WORK, Section 7.8 DEPARTMENT- FURNISHED MATERIALS, Section 7.9 DEPARTMENT-FURNISHED EXPENSES. Basic Engineering Estimating System (BEES) User Guide and Reference Manual - CHAPTER 6 & 8. Project Delivery Directive - PD-04 Project Contingencies and Supplemental Work.* ***Guidance:*** *Justifications for Supplemental Work must be included in the project submittal to PPM&OE. Supplemental Work items not on the FHWA pre-approved list must have an approval from the Chief of HQ Construction in the project submittal to PPM&OE.*
	22		Estimate (Bid Item List) Consistency	Nonstandard item of work descriptions must be checked with the Standard Bid Item List and are confirmed as nonstandard.	Low	***Reference:*** *CCD Guide - Section 7.6.4 NONSTANDARD ITEMS.*
	11		Incorrect Quantity/ Rounding	Except for Structure items, Bid Item List quantities greater than 1,000 must be rounded to three significant figures and less than 1,000 must be rounded to no more than two significant figures. For decimal quantities less than 5, round to one decimal place. For quantities of 5 or more, round to the nearest whole number.	Low	***Reference:*** *CCD Guide - Section 7.4.2 ROUNDING QUANTITIES.*
	14		Missing Final Pay (F) Designation	Final pay items must be verified from the Standard Bid Item List and are designated with an (F) in the Bid Item List.	Low	***Reference:*** *CCD Guide - Section 7.6.5 FINAL PAY DESIGNATION.*

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✓	BBS ID	Section	Subsection	BBS	Risk Category	References Guidance
	60	Others	Missing Information Handout	All supplemental project information listed in the NTB&SP must be complete and available as indicated. Digital files must be included as supplemental information for compliance with PD-06.	High / Medium	**Reference:** *2018 Standard Specifications - Section 2-1.06B Supplemental Project Information. Project Delivery Directive PD-06 Sharing of Electronic Files.* *Guidance : Use Medium risk for missing digital files for projects such as Concrete Slab Replacement, Contrast Surface Treatment work etc. that qualifies for digital files, based on the earthwork quantities, in the Supplemental Project Information according to PD-06.*
	52		Expired PLAC	Environmental Certification must be valid at advertisement.	Medium	**Reference:** *Project Development Procedures Manual - CHAPTER 13 - Project Related Permits, Licenses, Agreements, Certifications, and Approvals.*
	27		Missing Submittal/Job File Requirement	Proprietary items must have District Director/Deputy District Director or DES Chief approval memo in the project submittal to DES-OE. Sole source proprietary items must have a project engineer approved PIF in the project submittal to DES-OE.	Medium	**Reference:** *CCD Guide-Section 6.10 PROPRIETARY PRODUCTS, COST EFFECTIVENESS/ PUBLIC INTEREST FINDING GUIDELINES (2020). Public Contract Code Section 3400. Deputy Directive - DD 45 New Product Evaluation. PD-04 (pending HQ update).*
	25		Missing Submittal/Job File Requirement	Contingencies must be 5%, or approval to deviate must be provided.	Medium	**Reference:** *Project Delivery Directive - PD-04 Project Contingencies and Supplemental Work, Memorandum by Chief of HQ Division of Design dated August 23, 2019. CCD Guide - Section 7.10 CONTINGENCIES. Basic Engineering Estimating System (BEES) User Guide and Reference Manual - CHAPTER 8.* **Guidance:** *Any change to the standard 5% contigency for the final engineer's estimate requires approval from the Chief of HQ Division of Design.*
	24		Missing Submittal/Job File Requirement	Items not on the FHWA pre-approved or acceptable supplemental work item list are required to have a justification memo approved by the FHWA. All items that are Department-furnished must be included in the Department-Furnished justification memo.	Low	**Reference:** *Project Delivery Directive - PD-04 Project Contingencies and Supplemental Work. CCD Guide - Section 7.7 SUPPLEMENTAL WORK.*
	29		Expired PLAC	Professional seals in the NTB&SP and plans must be included and valid at date of signature.	Low	**Reference:** *CCD Guide - Section 10.3.1(D) SPECIAL PROVISIONS SIGNATURE AND SEAL SHEET. Business and Professions Code - Sections 6733, Memorandum dated December 22, 2009-Inclusion of Expiration Date on Engineering and Land Surveying Documents.*
	72		Expired PLAC	The Certification of Project Cost Estimate has been certified within 90 days of the CTC vote date.	Low	**Reference:** *Certification of Project Cost Estimates memo dated 1/5/2012.*
	31		Missing Submittal/Job File Requirement	NSSPs must be concurred by District Construction and approved by the appropriate owner(s) or person with approval authority identified in the SSP index. Concurrences and approvals must be included in the Job File.	Low	**Reference:** *CCD Guide - Section 6.9 NSSP.*
	75		Missing Submittal/Job File Requirement	Building Projects must have a concurrence memo from Structure Design/Construction.	Low	**Reference:** *Memorandum by Division of Engineering Services Chief dated May 29, 2015, Definition of Building Projects in Caltrans, Memorandum by Division of Engineering Services Chief dated August 4, 2014, Authority to Advertise District Delegation (AADD).*
	63		Missing Submittal/Job File Requirement	Job file must be complete in accordance with DES-OE submittal/award requirements.	Low	**Reference:** *CCD Guide - Section 10.3.1 CONSTRUCTION CONTRACT SUBMITTALS TO DES-OE.*