

ARTICLE 9

QUALITY MANAGEMENT PLAN

For Locally Implemented Projects on the State Highway System

General Guidance:

The purpose of the Quality Management Plan is to facilitate an effective and efficient process for the development, review and approval of PIDs for State Highway System (SHS) projects sponsored by others. The project sponsor and/or implementing agency must develop and follow a Quality Management Plan that meets the standards of professional practice and satisfies requirements of the project scope and schedule. The Project Managers from Caltrans and the Lead Agency shall ensure that all Project Development Team (PDT) members, including consultants, utilize the Quality Assurance/Quality Control (QA/QC) elements as described in this document during the production and review of PIDs. QA/QC will be performed before deliverables are submitted to Caltrans for review.

Each team member must understand the project objectives, apply sound engineering principles and is expected to produce quality, accurate, and complete documents within the project schedule and budget. Project documents will be prepared in accordance with current Caltrans regulations, policies, procedures, manuals, and standards including compliance with Federal Highway Administration (FHWA) requirements.

The information provided in the Quality Management Plan describes the quality procedures that will be implemented for work performed during all phases of development, review and approval of locally sponsored and/or implemented PIDs.

The Quality Management Plan template is to be modified to fit project needs, reporting relationships, and general circumstances.

Quality Management Plan

For Preparation of Project Initial Documents for Locally Implemented Projects on the
State Highway system

Date

EXAMPLE AGREEMENT COVER SHEET

Abstract: This section briefly addresses the quality assurance and quality control procedures that will be implemented for the development, review and approval of Project Initial Documents (PIDs) for Highway System Projects Sponsored and/or implemented by local and regional agencies and others.

QUALITY MANAGEMENT PLAN FOR (Project Name)

Approved by _____ Date
Name, Caltrans Project Manager

Approved by _____ Date
Lead Implementing Agency

Name, Lead Agency Project Manager

Approved by _____ Date
Name, Consultant Project Manager

TABLE OF CONTENTS

Introduction
Quality Control Reviews
Checking of Calculations.....
Checking of Drawings.....
Quality Assurance.....
Reporting Structure.....
QA/QC Duties and Responsibilities.....
Document Control.....
Control of Subconsultants.....

EXHIBITS

- Exhibit A Example General List of Deliverables and Assigned QC Reviewers**
- Exhibit B Example Quality Control Review Form**

Introduction

The purpose of the Quality Management Plan is to facilitate an effective and efficient process for the development, review and approval of Project Initial Documents (PIDs) for State Highway System (SHS) projects sponsored by others. The project sponsor and/or implementing agency must develop and follow a Quality Management Plan that meets the standards of professional practice and satisfies requirements of the project scope, cost, and schedule. The Project Managers from Caltrans and the Lead Agency shall ensure that all Project Development Team (PDT) members utilize the Quality Management Plan elements as described in this document during the production and review of PIDs. QA/QC will be performed before deliverables are presented to Caltrans for review. Each team member must understand the project objectives, apply sound engineering principles and is expected to produce quality, accurate, and complete documents within the project schedule and budget. Project documents will be prepared in accordance with current Caltrans regulations, policies, procedures, manuals, and standards including compliance with Federal Highway Administration (FHWA) requirements.

The following information describes the quality procedures that will be implemented for work performed during all phases of development, review and approval of locally implemented PIDs.

Quality Control Reviews

1. Quality Control (QC) Reviews shall be conducted for all deliverables. A project schedule shall be developed with the consensus of the PDT that identifies anticipated reports, submittal dates and review periods.
2. Prior to submission to Caltrans, each deliverable will be subject to review by senior staff and the Local Agency Project Manager.
3. Project documents will be reviewed for conformance with project design criteria, legibility, and completeness and compliance with regulatory and code requirements.
4. All QC comments will be evaluated by the lead author for the document, discussed with the QC reviewer as needed and, if appropriate, incorporated into the deliverable. The Local Agency and Caltrans Project Manager will review and approve the resolution of each comment.
5. The Project Quality Control Coversheet, as shown in Appendix B, shall be used to document all quality control reviews.

Checking of Calculations

Final report calculations associated with the conceptual alternatives, cost estimates, and traffic technical reports shall be checked for reasonableness. All calculations shall be reviewed by the Lead.

Checking of Drawings

Conceptual geometric plans figures, mapping, and preliminary bridge plans (if applicable) shall be checked in accordance with established standards (e.g. Highway Design Manual and local standards).

Quality Assurance

The Project Managers from Caltrans and the Lead Agency, along with its consultant(s) will be responsible for the development of deliverables and assure that the stated quality control procedures are being followed. A Quality Assurance Log that includes dates when documents were received reviewed, and names of the QC reviewers shall be maintained for each report or work product.

Reporting Structure

An organization chart that describes the reporting structure and assigned staff that are involved in the QA/QC shall be developed at the beginning of the PID project.

QA/QC Duties and Responsibilities

Quality control begins with assigning the most appropriate person to each task. Each member of the team should be responsible for controlling the quality of the product, beginning with the project staff through to the Project Managers. The qualifications of the team members overseeing and doing the work should be identified. All team members should be in constant communication with the each other and their respective Principals and Project Managers in regards to project status, schedule, and any issues that might arise during the development of the PID.

The duties and responsibilities of each of the project members in coordinating and guiding the project efforts are described below:

- a. Principals-in-Charge (PICs)** – Responsible for allocation of resources and monitoring of the project to ensure adherence to the project objectives, schedule, budget, approvals, and ensuring that the QC/QA plan is in place and being implemented. Provides periodic audits of technical work and performance of respective staff.
- b. Caltrans Project Manager** - Responsible for Independent Quality Assurance as described in the Cooperative Agreement.
- c. Local Agency Project Managers** – Responsible for completion of project scope and tasks, and adherence to project schedule and budget, including QA/QC program. The Project Managers allocate resources to various elements of the work, establish and implement the Quality Management Plan, schedule the various activities and adjust plans as the work progresses to identify potential problem areas and resolve them in a timely manner. Responsible for technical review and approval of project documents before issuance to the reviewing agency; certifies that each submittal has been prepared and checked in accordance with Caltrans standards, policies, and procedures, sound engineering practices and represents a quality product; and maintains frequent contact and communication with the Caltrans Project Manager to assure satisfaction with the progress and performance.
- d. Consultant Project Manager** - The Consultant Project Manager reviews and monitors the implementation of the QA/QC practices and processes and ensures consistency with Caltrans standards, policies, and procedures. The Consultant Project Manager identifies the quality control actions required to be taken, the resources to be applied to these quality control actions,

and interaction of these activities with the other elements of work. In this process, it is essential that the Consultant Project Manager clearly identify the personnel involved and their duties; allocate time, effort, and resources to the quality control function; and reviews and revises the allocated resources appropriately as the work progresses. The Consultant Project Manager is responsible for production of the technical work produced by their staff. They also assist the Project Managers in the execution of the Quality Management Plan. The Consultant Project Manager reports administratively to the Project Managers and works closely with them in the early identification and resolution of any product deficiencies. This includes but is not limited to:

- Perform periodic reviews of quality control documentation;
 - Identification and control of nonconforming conditions
- d. Technical Staff** – Technical staff are responsible to their Consultant Project Manager for the quality of the work produced within their respective disciplines. In this capacity, technical staff establishes operating guidelines and areas of responsibility within the activity; monitors the work periodically to assure adherence to the contract scope of services and to the established reviewing procedures to ensure consistency with Caltrans standards, policies, and procedures, advises the Consultant Project Manager regarding the progress of work and of any circumstances that may require particular attention; reviews work prior to submittal to the Project Managers for quality control review; resolves QC review comments; insures comments are incorporated into the final document and reviews completed work before it is transmitted to the Project Managers for approval and submittal to the reviewing agencies.

Document Control

The designated agency or consultant shall make available and maintain electronic records and hard copies of drafts and final reports for inspection upon request during the development of the PSR-PDS.

Control of Sub-Consultants

If a portion of the scope of work is subcontracted out by the implementing agency's consultant, then all sub-consultants will have the same responsibilities as the Lead Agency consultant.

EXHIBIT A

EXAMPLE GENERAL LIST OF DELIVERABLES AND ASSIGNED QC REVIEWERS

Task No	Deliverable	Consultant Reviewer	Lead Agency Reviewer
1.0	Project Management Plan	Name	Name
1.1	Project Schedule		
1.2	QA/QC Plan		
2.0	Draft Project Purpose and Need		
3.0	Corridor Study Base Mapping		
4.0	Alternatives Evaluation & Screening		
4.1	Right of Way Data Sheet and Cost Estimate Mapping		
5.0	Traffic Analysis Workplan		
6.0	Environmental Evaluation Workplan		
7.0	Stormwater Data Report		
8.0	Geometric Evaluation Workplan		
9.0	Other discipline areas to be evaluated		
10.0	Draft PID Report Review		
11.0	Final Report Approval		

EXHIBIT B - EXAMPLE QUALITY CONTROL REVIEW FORM
Quality Control Review Sign-Off Form

Client: _____	Date to Reviewer: _____
Project Name: _____	Review Deadline: _____
Client & Job Number: _____	Actual Review Date: _____
Project Manager: _____	Deliverable Due Date: _____
Reviewer: _____	Actual Hours: _____
Production Coordinator: _____	Project Type: _____
Item Reviewed: _____	Task/Activity: _____
Project Task or Phase: _____	
Deliverable %: _____	Internal Review External Review

Type of Review	Comment Sheet Attached/Emailed	Completed by Reviewer	
		Initial	Date
Reports:			
Environmental			
Master Plans			
Reports and Documents			
Technical Memorandum			
Other:			
Design:			
Architectural			
Calculations			
Civil			
Cost Estimates			
Electrical			
Spec and/or Front-Ends			
Instrumentation & Control			
Mechanical			
Plan & Profile (Pipeline)			
Process			
Structural			
Stormwater			
Other:			
Miscellaneous:			
Submittal/Previous QC Backcheck			
Drafting Backcheck			
Project Guide			
O&M Manuals			
Survey Datums & Sea Level Rise			
Other:			

Notes:
 Please return "signed" QC Review Sign-off Form and markups to your assigned Production Coordinator.

Signatures:

_____	_____
Project Manager	Date - Response to Comments
_____	_____
QC Reviewer	Date - Resolution Accepted

Instructions:

1) Project Manager fills out QC Review form & transmits to assigned QC Reviewer with document(s); 2) After review, QC Reviewer returns reviewed document/completed QC Review form to PM with comments; 3) Project Manager is responsible for reviewing comments, making appropriate changes/notations, & informing QC Reviewer of changes made; 4) QC Reviewer completes form upon resolution.

QA-QC Program Coord.

_____	_____
Signature	Date

Source Acknowledgement: Project Quality Management Plan developed for SR 152 Corridor Management Study, prepared for VTA by HDR Engineering, Inc., July 2009.