



# PROJECT DELIVERY ACCELERATION

## TOOLBOX



Improvements to the  
Project Delivery Process



July 2012

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## INTRODUCTION

The Project Delivery Acceleration Toolbox (Toolbox) is a comprehensive report listing the California Department of Transportation's (Department) efforts (past and present) to accelerate the delivery of transportation projects. This document also identifies proposed tools for the Department to implement over the next few years. This document will be modified often to reflect the most current and continuing improvement efforts of the Department. The purpose of this document is to provide the Department's employees, as well as our external partners, valuable tools to accelerate project delivery. The Toolbox is on the Department's Project Delivery website: <http://www.dot.ca.gov/hq/oppd/projaccel/index.htm>.

The Toolbox contents are separated into four sections: Newly Implemented Improvements, Past Implemented Improvements, Proposed Improvements, and Status of Improvements. All sections are organized by Department functional division (i.e., Budgets, Planning, Programming, etc.). The first section notes the improvements that have been implemented from November 2008 thru June 30, 2012. The last section lists all improvements in a spreadsheet format for quick reference and indicates the status of each improvement.

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## NEWLY IMPLEMENTED IMPROVEMENTS

### 1 BUDGETS

*Currently there are no Newly Implemented Improvements.*

### 2 CONSTRUCTION

#### 2.01 *Critical Path Method (CPM) Specifications Improvements*

The requirement for a contractor-provided CPM schedule has been expanded to all construction contracts and is now included in the Standard Specifications.

An effort is underway to evaluate and simplify the CPM specifications. Schedule and float ownership will be better defined. Construction is evaluating the use of appropriate software and the loss of P3 software. The CPM concurrence process will be improved through allowance of interim baseline acceptance, acceptance with exceptions, and better policy on using withholds. Allowance of resource based CPMs are being evaluated and developed for optional use on complex and long duration projects.

#### 2.02 *Notice of Claim*

Construction has developed a revision to construction contracts to better define the trigger for a dispute. A request for information is required prior to any notice of dispute by the contractor. This will help to resolve differences in a timely manner, often without entering the dispute resolution process, which also will improve partnering. In addition, it will more clearly identify when the notice of potential claim process is triggered and will provide better notice of potential claims position for district construction. The contractor and the Department are expected to experience better planning of the project and expedite delivery of projects through expanded opportunities to modify, eliminate, or work around otherwise disputed work.

#### 2.03 *Resident Engineer (RE) Office Space*

Construction has developed an optional nonstandard, but authorized, special provision for the contractor to provide for the resident engineer's office as a part of the construction project. This is expected to reduce costs and red tape since this work would be competitively bid. In some instances where setting up an RE office is complicated and time consuming for the Department, this will allow resident engineers to focus on contract administration of their projects rather than spending the support costs for setting up an RE office when there is no office already available.



## **2.04 Smart (Flexible) Start**

Smart Start is a beginning of work specification that specifies the number of working days and the last allowable working day. This allows the contractor much more flexibility to coordinate limited crews and equipment deliveries to multiple projects more efficiently. These efficiencies should result in lower bidder proposals and accelerated project delivery.

## **3 DESIGN**

### **3.01 Design-Build**

Legislation authorized a Design-Build demonstration Program that allows the Department to award up to 10 projects and local entities to award up to 5 projects to a Design-Builder as a single entity responsible for both the design and construction of the project based on preliminary plans. This method, although dramatically different from the 100 percent complete project PS&E that are normally required before soliciting bids from potential contractors, may result in faster yet innovative delivery. This is a two-step procurement process with the first RFQ/SOQ step intended to prequalify the potential contractors followed by the second RFP/Proposal step leading to the selection of the winner either by low bid or by best value.

To date, eight (8) State projects and one (1) local project have been nominated. Seven (7) of the State projects have been awarded, the remaining project in the procurement process. No evaluation can be compiled at this time.

### **3.02 Roadway Design Software**

In 2011 the Department procured Roadway Design Software (RDS) Civil 3D, a commercial off the shelf product owned by Autodesk. The new roadway design system will have the following features to enhance project delivery:

- Accommodates departmental engineering and surveying process changes.
- Enables multiple users to access the project data simultaneously.
- Increases compatibility with the consultant community, local agencies, and other Departments of Transportation.
- Integrates and allows for direct output data to Contractor's software.
- Provides instantaneous Digital Terrain Modeling.
- Allows for capabilities to integrate GIS into the project delivery workflow process.

Training and software roll-out for the new software is scheduled for 2012. Full implementation of the software is scheduled to be completed in 2016 with the training of 4000 users.

### **3.03 2010-2011 PID Streamlining Effort**

The Division of Design is working in partnership with the Division of Transportation Planning to make major improvements in the way the PID program is managed, resourced and executed. Improvements will focus on how the PID program workload is developed and prioritized statewide, how the program is resourced, and what level of study and risk is need at this phase of the project development process. This process has challenged the Department's engineering studies required at the PID phase and the level of detail in capital estimates. The PDPM was updated November 2011 to reflect these changes.

### **3.04 Stormwater Management Design Tools**

The Office of Stormwater Management has developed a variety of tools and training to assist Project Engineers to evaluate, design and document compliance with stormwater requirements. The following tools are available on the Design Stormwater Management website:

- The Project Planning and Design Guide (PPDG) provides guidance on the process and procedures for evaluating project scope and site conditions to determine the need for incorporating Best Management Practices (BMPs) into projects. It also provides design guidance for incorporating and documenting those stormwater quality controls throughout the planning and design phases.
- Guidance for filling out the Storm Water Data Report (SWDR). Example SWDRs are available which cover each phase for 13 different project types. These examples demonstrate the expected level of detail necessary to document stormwater decision for a variety of project scopes.
- Guidance for evaluating Treatment BMP including design, plans, specifications, animated demonstrations, illustrations, application and siting requirements, preliminary design factors, BMP capital, Maintenance costs, etc.
- Erosion Prediction with Revised Universal Soil Loss Equation version 2 (RUSLE2):
  - RUSLE2 software model can be downloaded for use for predicting long-term, average annual erosion.
  - Eight hour training on RUSLE2 is available to train staff on using the software as a tool for predicting surface erosion and selecting temporary and permanent BMPs.
- Guidance on Risk Level Determination (RLD) that assesses the risk required by the new Construction General Permit (CGP) including a webinar with a question and answer session. A topography tool is also available to assist staff in developing a weighted average by area slopes.
- Guidance to estimate items for compliance with the Construction General Permit.
- Stormwater Design Training is available in the following areas:

- Storm Water Data Report (SWDR) Workshop covers expectation for SWDR submittals for approval. Course material is available on-line and the workshop is presented in the District as requested.
- Construction Site BMP training covers the principles of water pollution control related to construction projects. An emphasis is given to the selection and estimation of construction site BMPs. Course material is available on-line and the course is presented throughout the districts when warranted.

The Stormwater Management website is located at:

<http://www.dot.ca.gov/hq/oppd/stormwtr/>

## **4 ENGINEERING SERVICES**

### **4.01 Construction Contract Standards**

The 2010 Construction Contract Standards are published and available. The 2010 Standard Specifications have incorporated many of the 2006 Standard Special Provisions and the format of the Special Provisions is now aligned with the format of the Standards Specifications. The two changes will reduce the amount of work needed to produce a project's Special Provisions and reduce rework.

### **4.02 Draft Contract Resolution Database**

In 2011 DES-OE began the roll out of the Draft Contract Resolution Database (DCRD). The DCRD accelerates project delivery by making DES-OE's comments on project plans, specifications, and estimates readily accessible to the project delivery team for early response and resolution.

## **5 ENVIRONMENTAL**

### **5.01 Environmental Management System – PEAR and STEVE Tool**

The Standard Tracking Exchange Vehicle for Environmental Systems (STEVE) Tool was fully implemented as of March 2011. As a result of STEVE Tool's successful implementation, the PEAR project business requirements have been dexterously included as part of STEVE resulting in a cost effective solution. The Geographic Information System (GIS) information component currently in STEVE is very generic and incremental improvements are pursued through STEVE's annual maintenance:

[http://env.dot.ca.gov/env\\_mgmt\\_systems/steve\\_pear/index\\_steve\\_pear.shtml](http://env.dot.ca.gov/env_mgmt_systems/steve_pear/index_steve_pear.shtml)

The STEVE Tool has achieved multiple business objectives including but not limited to:

- Facilitating the sharing and tracking of environmental information
- Providing a single source for environmental information retrieval
- Expediting environmental process by reducing delays in reviewing environmental documents
- Managing resources by monitoring the environmental process from project initiation through project completion

### **5.02 Environmental Engineering – Noise**

DEA's Noise and Vibration Program has created a GIS based Statewide Soundwall Inventory which will simplify the reporting process to the Federal Highway Administration.

The inventory is available at the following page:

<http://svctenvims.dot.ca.gov/soundwall/>

### **5.03 Environmental Commitment Tracking**

Pursuant to the FHWA Stewardship Agreement and the Department's Strategic Plan, Environmental is emphasizing the need to track the Department's implementation of environmental commitments made during the project delivery process. Each district is required to establish and maintain an Environmental Commitment Record (ECR) for each capital project (environmental commitments for Local Assistance projects are also required, as described in the Local Assistance Procedures Manual, Chapter 6, Section 6.3). The Environmental Branch Chief or designee, in coordination with appropriate representatives from other functional areas, denotes completion of individual commitments on an on-going basis. When all commitments are completed on capital projects, the Environmental Branch Chief or designee, in conjunction with the Resident Engineer, prepares the Certificate of Compliance (CEC) with Environmental Mitigation Requirements.

The ECR and CEC forms are posted on the SER:

<http://www.dot.ca.gov/ser/forms.htm>

See Rick Land's June 10, 2005 memo regarding ECRs:

[http://www.dot.ca.gov/ser/downloads/memos/DDDs\\_const\\_design\\_env\\_proj\\_mgmt.pdf](http://www.dot.ca.gov/ser/downloads/memos/DDDs_const_design_env_proj_mgmt.pdf)

To the extent that the Department is able to document compliance with environmental commitments, the Department builds credibility that will help foster better relationships with the resource agencies and the public and may accelerate project delivery.

#### **5.04 Purpose and Need**

As a follow-up to the earlier efforts on purpose and need, such as DD-83, Design and Environmental jointly developed an on-line purpose and need training class that was made available in June of 2009.

The training class may be accessed at:

<http://www.dot.ca.gov/hq/env/training/index.htm>

#### **5.05 NEPA/404 MOU Training**

The new NEPA/404 MOU was signed in April 2006, and is substantially different from the prior 1994 NEPA/404 MOU. The Environmental Management Office has developed an on-line NEPA/404 MOU Training course, which was posted in June of 2009.

The training class may be accessed at:

<http://www.dot.ca.gov/hq/env/training/index.htm>

### **6 LOCAL ASSISTANCE**

#### **6.01 Environmental Study Scoping and Screening Tools**

The Preliminary Environmental Study (PES) form provides local agencies with an easy-to-use checklist to scope their project's environmental issues, as well as all studies required for their project. This ensures not only that local agencies plan for and carry out all required studies but also that they do not spend time and money on unnecessary studies. DLA developed an additional environmental screening tool in 2011 to expedite delivery of non-infrastructure projects. A Preliminary Environmental Screening Form for Non-Infrastructure Projects [PES(NI)] became available July 7, 2011 (DLA Office Chief Bulletin (OB 11-10)).

This screening form is designed to shorten the NEPA compliance process for local agency federal aid "non-infrastructure" projects by screening non-infrastructure project types for their potential for environmental effects. Projects that have one or more elements with potential environmental effects use the normal environmental process, scoping with the normal PES. Projects with no environmental effects, as determined with the PES(NI) form, do not need to undertake further studies. They do not complete the regular PES form, Air Quality Checklist or Categorical Exclusion Checklist, nor do they need to request approvals from district cultural, biological or air quality specialists. This saves local agencies and Department staff both time and money.

The screening form is available at:

[http://www.dot.ca.gov/hq/LocalPrograms/DLA\\_OB/DLA\\_OB.htm](http://www.dot.ca.gov/hq/LocalPrograms/DLA_OB/DLA_OB.htm)

## 6.02 *New Policy Guidance and Forms for Non-Infrastructure Projects*

Local Assistance has developed policy guidance and new forms to assist agencies in delivering non-infrastructure projects such as “Safe Routes to School” and “CMAQ Equipment retrofit” projects. These include a R/W short form, a “Non-infrastructure Request for Authorization” short form as well as the non-infrastructure PES form mentioned above.

## 7 MAINTENANCE

*Currently there are no Newly Implemented Improvements.*

## 8 PROJECT MANAGEMENT

### 8.01 *PM Directive (PMD018): Management of Capital Outlay Support*

In accordance with standard project management procedures and best practices, every project will have a workplan. Workplans for capital projects provide the basis for approved project support budgets on all projects authorized for continued development using Capital Outlay Support (COS) resources. Workplans provide the basis for over 80 percent of the Department’s annual budget request for the COS program. This Directive includes a number of business rules to ensure the quality and integrity of COS workload.

PMD018 can be found at:

[http://onramp/hq/pm/dpmwp/content/PGD/DirectivesAndMemos/PGD\\_PMD018.pdf](http://onramp/hq/pm/dpmwp/content/PGD/DirectivesAndMemos/PGD_PMD018.pdf)

In addition, a Memorandum for “Managing Project Capital Outlay Support” was developed. The Memorandum addresses the approach that will be taken by the HQ Division of Project Management to monitor COS costs within budget on capital projects for which the Department has delivery responsibility.

This Memorandum can be found at:

[http://onramp/hq/pm/dpmwp/content/PM/COS\\_Overview/Memos/Managing\\_Project\\_Capital\\_Outlay\\_Support.pdf](http://onramp/hq/pm/dpmwp/content/PM/COS_Overview/Memos/Managing_Project_Capital_Outlay_Support.pdf)

### 8.02 *PM Directive (PMD019): Managing Capital Improvement*

The Department manages the scope, cost, and schedule of Capital Improvement Projects (CIP) from inception through completion. This directive focuses on the management of project funding and costs when projects are split or combined into one or more construction contracts.

A CIP Split/Combine is the process which documents and implements the business decision to either split the scope of work for a CIP into multiple construction projects or combine two or more scope(s) of work into a single construction project.

The new Directive can be found at:

[http://onramp/hq/pm/dpmwp/content/PGD/DirectivesAndMemos/PGD\\_PMD019.pdf](http://onramp/hq/pm/dpmwp/content/PGD/DirectivesAndMemos/PGD_PMD019.pdf)

### **8.03 Capital Project Workplan Handbook**

The Workplan Handbook provides an overview of the procedures, methods, and tools relating to the Department's use of project workplans in managing capital improvement projects and provides references to more detailed policies, guidance, training, and other documentation. The Department's publication, the *Caltrans Project Management Handbook* (PMHB) describes the Department's project management practices which are aligned with industry standards such as the *Project Management Body of Knowledge (PMBOK)*. This handbook covers general concepts that will apply to most projects but individual Districts will also have their own specific procedures and tools that implement the principles of managing project workplans.

The Workplan Handbook can be found at:

[http://onramp/hq/pm/dpmwp/content/PM/COS\\_Overview/Guides/Project\\_Workplan\\_Handbook.pdf](http://onramp/hq/pm/dpmwp/content/PM/COS_Overview/Guides/Project_Workplan_Handbook.pdf)

### **8.04 Capital Outlay Support (COS) Charging Practices Guidelines**

The purpose of these Guidelines is to furnish information and provide an overview of charging practices used in COS. These Guidelines provide a reference source for uniformity and are intended to ensure COS complies with all departmental policies and procedures.

The Charging Practices Guidelines can be accessed at:

<http://cap3.dot.ca.gov/EVRStest//ProperChargingPractice/index.html>

### **8.05 Project Management Online Reporting Tool**

This Online Reporting tool has been developed to generate a number of useful Project Management reports. Available reports are:

- District Charge Matrix Report
- Cost Unit Charges Report
- Project Expenditure Details Report
- XPM Workplan Report
- P1B Report
- D07 CTIPS View Report

The tool can be accessed at:

<http://cap3.dot.ca.gov/EVRStest/SourceVsChargeDistrict/search.html>

### **8.06 Workplan Standards Guide (WSG) – Issue Management System**

This tool is developed to submit and track change requests to the current version of the Caltrans Work Breakdown Structure (WBS).

It can be accessed at:

<http://sv06web1.dot.ca.gov/ppm/pmsu/apps/wsghq/wsgims.cfm>

### **8.07 Support Budget Overrun Documentation**

In the 2010/11 Fiscal Year Headquarters began a formal process of identifying support cost overruns, by component, and requiring the districts to address these cost overruns by developing and implementing a financial plan. In many cases there is no opportunity to revise the budget in the programming document to cover the cost overruns because the component is either completed or the project has progressed beyond the point when a revision can be made. Previously, it had been suggested that the districts process an “Administrative Project Change Request (PCR)”, using the PCR format for these types of projects. Since a “Program Change Request” cannot be considered in these cases, and subsequent to a PM Board decision, it was decided to utilize a 1-page format in what is being called a “Support Budget Overrun Documentation” (SBOD) process.

The SBOD process will be available only in the following cases:

- Projects on which expenditures of one or more support component has exceeded the programmed budget, and on which that component will be completed on or before June 30, 2011;
- Projects that are in construction and on which construction support expenditures will exceed the programmed budget.

## **9 RIGHT OF WAY AND LAND SURVEYS**

### **9.01 Survey File**

The Project Development Procedures Manual (PDPM) Appendix QQ and CADD User Manual (Sections 3.6 & 3.7) have been updated to improve Survey File (SF) delivery and the quality of the plans, specifications, and estimates (PS&E). The SF is a compilation of electronic design data generated during the development of the PS&E. The SF data must be accurate, complete and timely to minimize costly delays, claims, contract change orders, and re-staking charges during construction. Electronic SF’s have the potential to facilitate the use of automated machine guidance technology in construction.



Additional tools are available on the Office of Land Surveys Intranet site at:  
<http://pd.dot.ca.gov/row/offices/landsurveys/Standards & Procedures/Constructability/Survey File Deliverables/>

## 10 TRANSPORTATION PLANNING

*Currently there are no Newly Implemented Improvements.*

## 11 TRANSPORTATION PROGRAMMING

### 11.01 *Delegation of FSTIP Administrative Modifications to MPOs*

The Department worked with Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) to develop revised Federal Transportation Improvement Program (FTIP)/ Federal Statewide Transportation Improvement Program (FSTIP) Amendment and Administrative Modification Procedures. These revised procedures allow the Department to delegate authority to the Metropolitan Planning Organizations (MPOs) to approve administrative modifications to the FSTIP thereby saving up to three weeks in the approval time. Additionally, the revised procedures increased the threshold of cost increase allowing more changes to be done through administrative modifications rather than amendments to the FTIP/FSTIP.

### 11.02 *Electronic Funds Request*

Programming worked with the Division of Budgets to develop an electronic request for funds to streamline the procedure for requesting project allocations for CTC meetings.

### 11.03 *Electronic Posting of CTC Book*

Programming worked with the California Transportation Commission to work out a method for posting book items concurrent with the posting of the CTC meeting agenda which posts ten days prior to the meeting. Now Commissioners, Regional partners and Districts can all view the book items prior to the meetings.

## PAST IMPLEMENTED IMPROVEMENTS

### 1 BUDGETS

#### 1.01 *Flexible Match and Tapered Funding*

The Department has been using flexible match credits and tapered funding on a project-by-project basis. A proposal for using these innovative financing methods is submitted to the FHWA before starting any federally eligible work on the project. The approval is documented in the request for authorization and project agreement for each project.

A flexible match credit allows a wide variety of public and private contributions to be counted toward the non-federal match for Federal-aid projects. Flexible match credit allows for early acquisition of right-of-way (R/W) prior to the completion of Federal environmental clearance and federal authorization, this allows for earlier R/W purchases without jeopardizing federal funding. For example, the Department can use flexible match credit for non-federal funding for R/W acquisition and support costs. Also, flexible match allows various forms of non-federal funds, donations, etc. to be credited toward the federal match requirement without regard to achieving the required proportionate match for each bill to FHWA. Usually, non-federal funds are applied at the beginning of the project schedule for a flexible match scenario.

Tapered funding allows reimbursement of the full federal share of a project before the non-federal matching funds are spent. Tapered funding allows projects to begin with federal funds and prior to other funding being fully available at the start of the project. For example, federal and matching funds ratios for a local project can be met by using federal funding first then using local funding to pay the final project cost as long as the overall minimum matching requirements for the project is met.

### 2 CONSTRUCTION

#### 2.05 *Critical Path Method Scheduling*

Critical Path Method (CPM) scheduling shows the work as planned and documents the actual work as it occurs. Using CPM encourages contractors to plan their work and stay on schedule. A CPM schedule alerts the Department to potential delays. State-owned float is the quantity of days that reviews of submittals are completed earlier than as required in the contract. Because State-owned float is banked to offset State-caused delays, the Engineer has an incentive to review contractor submittals quickly.

The requirement for use of the critical path method in the contractor's schedule has been extended to all contracts and is included in the *2010 Standard Specifications*.

## **2.06 Constructability Reviews**

In 1997, a policy guideline was issued requiring project constructability reviews. Prior to this policy there was no requirement for construction staff input prior to draft project plans and specifications review. Constructability reviews are Construction's opportunity to recommend plan and specification changes to save money, accelerate construction, confirm biddability, and ensure constructability. In 2010 Project Delivery Directive #5 was created requiring all major projects on the State Highway System to incorporate constructability reviews, including those 100% locally funded. The Directive further requires that the deputy district director or region division chief of construction concur that the responses to comments generated from the constructability review are adequate. This concurrence is necessary for completion of the constructability review.

## **2.07 Cost-plus-Time (A + B) Bidding**

In A+B bidding the successful bidder has the lowest combination of the "A" contract amount, which is the total bid price of all contract items, plus the "B" amount, which is the total number of working days bid by the contractor to complete the project multiplied by the "Cost per Day" which is calculated by the Department. Cost per day is the standard liquidated damages plus additional liquidated damages. Additional liquidated damages is the lesser of road user costs (as calculated by the District Traffic Engineer) or 0.1% of the engineer's estimated cost of construction. On some projects, costs other than road user costs may be considered for additional liquidated damages. These could include costs resulting from delays to adjacent projects, social/economic impacts or business revenue loss.

Contractors who bid on A+B contracts generally bid fewer working days than calculated by the Department (average is 27% fewer working days). A+B bidding was piloted in 1993. In 1995, FHWA determined that A+B bidding was no longer experimental and agencies were allowed to use A+B bidding on projects without FHWA prior approval. New specifications and guidelines for using A + B bidding on projects were issued in September 2002. A+B bidding is routinely used on projects with an engineer's construction cost estimate of \$5 million or more and with a daily road user cost of \$5,000 or more. There is a Division of Construction exception process that allows use of A+B bidding on projects with lower estimates. The Department continues to increase the number of projects advertised with A+B bidding.

## **2.08 Incentives/Disincentives**

Incentives/Disincentives (I/Ds) encourages a contractor to meet the contract's specified schedule. The value of the incentive and disincentive are usually based on liquidated damages and/or road user costs. Historically, use of I/Ds began on emergency contracts. Guidelines for employing I/Ds on all projects (including non-

emergency projects) were issued in June of 2000. I/Ds are used only on projects with a greater daily road user cost of \$5,000 or more.

The Division of Construction website provides an Office of Contract Administration authorized nonstandard SSP (nSSP) for district use. The nSSP includes instructions and is not required to be submitted to the Division of Construction for approval when no unauthorized revisions are made.

The nSSP may be accessed at:

<http://projdel.dot.ca.gov/construction/contractmanagement/nssp.htm>

## **2.09 A + B with I/Ds**

In special circumstances, A+B bidding and I/D can be used together when there are critical internal milestones to encourage timely delivery of the milestone to minimize overall contract time. When I/Ds are used in conjunction with A+B bidding, caution is taken to ensure costs do not overlap, since both I/Ds and the “Cost per Day” used in the “B” calculation of A+B bidding are based on road user costs.

## **2.10 Internal Milestones**

Internal milestones can be incorporated into the specifications of a contract during the design phase. These needs are usually identified during constructability reviews. Internal milestones can ensure speedy construction up to the milestone(s) and/or ensure a given segment of construction is completed at a given time to satisfy various needs or requirements, such as private business needs, right-of-way requirements, or cooperation with overlapping or adjacent projects.

## **2.11 Joint Contractor/State Value Analysis Study Immediately After Contract Approval**

A special provision called “Value Analysis (VA) Study Workshop,” is included in all contracts estimated to cost \$5 million or more. This specification provides an opportunity for the Department and contractor staff to meet to generate and develop ideas for reducing the contract’s cost, time, or traffic congestion. With no reduction in traffic congestion, the Department and contractor split the cost and time savings evenly if any are determined. If a reduction in traffic congestion is determined, the contractor’s share in cost and time savings increases to 60%.

## **2.12 Construction Contract Time**

A policy was implemented in February 2001 to determine the original construction contract time. This policy requires project engineers to use standard industry production rates and critical path method (CPM) schedules on all major projects

(costing \$1,000,000 or more). Previously, project engineers would review projects of similar cost and scope, or use in-house production rates to determine construction contract time.

In addition, the Department is also utilizing new technologies to decrease construction contract time on some specialized projects. One of these technologies is Fast Setting Hydraulic Cement Concrete, however, it has high cost and limited use. Also there are specifications or other methods that allow for speedy construction and reduce contract time, such as 6 or 7-day workweeks, internal milestones with and without incentives and disincentives, A+B bidding, and paid acceleration by change order.

### **2.13 Differing Site Conditions Management Review Committee**

Differing Site Conditions (DSC) disputes can be particularly complex, difficult to analyze, and require the consideration of various sources of information. DSC disputes often occur during the subsurface work performed early in a project, and can be prolonged disputes that are costly to the Department when not resolved early. DSC disputes are relatively common on contracts with subsurface work such as construction of piling, cofferdams, or other foundation work when the log of test borings provided during the design process are either outside the vicinity of the work or outdated.

In February 2002 a new process was implemented to clarify the Department's position on DSC disputes. After the Contractor provides a request for information and disagrees with the resident engineer on the information provided, and files a notice of potential claim regarding a DSC a management review committee is then involved early in the potential claim process. The management review committee consists of the Deputy District Director of Construction (chairperson), the structure construction area manager, and the construction coordinator. This process allows the Department to maintain statewide consistency in dealing with DSC disputes.

### **2.14 Time-Related Overhead**

The Department has developed and implemented use of a Time Related Overhead (TRO) specification to provide timely compensation to its construction contractors for owner-related delays. The Department initiated a pilot program in August 2000 to include the TRO bid item and specifications in construction contracts greater than \$5 million. Results from a formal evaluation of the pilot program were favorable. Benefits of using TRO specifications include:

- Allowing compensation for a bid item based upon competitive bidding driven by market forces and contractor efficiencies
- Permitting administration of overhead compensation at the resident engineer's level

- Providing “real time” project management, allowing the project manager and resident engineer to quickly quantify delay cost impacts as the proposed changes or disputes occur
- Reducing contentious, non-partnering atmosphere and eliminating polarized positions on overhead disputes during contract administration
- Resolving delay issues before the completion of the work
- In most cases, eliminating time-consuming, complex, and expensive audits

The Department’s management plans to continue the use of the TRO contract item and specifications in State Highway projects with an estimated construction cost of \$5 million or more. One TRO specification is used for contracts with A+B bidding. This specification is bid at lump sum cost of overhead. The other TRO specification is used on contracts without A+B bidding and is bid at a daily rate of overhead.

### **2.15 Increased Construction Cost Savings to the Contractor for Reducing Traffic Congestion**

The Department initiated a legislative proposal to encourage contractors to submit more cost reduction proposals to reduce or avoid traffic congestion during construction of a project. As a result, AB 1530 became effective on January 1, 2002. This bill increased the contractor’s compensation to 60% of the cost reduction if the changes significantly reduce or avoid traffic congestion during construction. Prior to this bill, the contractor received 50% of the cost reduction as an incentive even if traffic congestion was reduced.

### **2.16 Contract Incentives/Disincentives to Promote Timely Construction Completion**

To ensure timely completion of transportation projects, the contract specifications should specify time after contract approval to start and the time of completion (contract sections: “Beginning of Work” and “Time of Completion”). If time of completion is not met, the resident engineer makes deductions on progress pay estimates to collect liquidated damages for not meeting this milestone. The damages are assessed under the contract provision “Liquidated Damages”. Liquidated damages usually consist of Department support costs with field/corporate overhead mark-up.

District construction may also recommend during constructability reviews to include additional features in the contract for ensuring timely completion of parts of the contract, such as contract incentives or disincentives as appropriate. Incentives or disincentives are usually based on road user costs and may be included in the contract if approved by the District Director. Sometimes costs associated with delaying adjacent, overlapping, or following contracts may be included in the incentives or disincentives as well. Road user costs are typically included as an

incentive/disincentive if the project engineer can determine at daily road user delay cost for the motorist.

### **2.17 Traffic Contingency Plans**

Construction has improved guidelines and policy regarding effective use and requirements of contingency plans. Contingency plans help to keep the contractor and their construction activities on schedule, minimize road user delay costs, and allow safe passage through the jobsite when there are delays or factors beyond the contractor's control. The contractor must submit a plan that ensures lanes are opened at a specific time regardless of progress of the work so that the travelling public is allowed safe and clear passage through construction zones when the contractor and their construction activities are scheduled to be off the road.

### **2.18 Alternative Dispute Resolution**

On contracts of \$10 million or greater, a mandatory dispute review board (DRB) must be established. The DRB is a three-person board that hears presentation of information from the contractor and the State, reviews the information, discerns facts, and makes a recommendation to both parties as to which party should be considered correct in the dispute. The DRB provides reasons for their recommendation. This provides the district/region resident engineer and contractor an objective, third-party opinion valuable in helping to settle disputes early in the dispute resolution process and keeping the contract on schedule.

Construction implemented specifications, guidance and agreements for a dispute resolution advisor (DRA) on all contracts between \$3 million and \$10 million in 2008. The DRA is a one-person board performing a function very similar to that of a Dispute Review Board.

### **2.19 Policy to Pay for Acceleration Costs During Construction When Cost Effective**

Legislation was approved and policy was established to pay for the cost of acceleration during construction when it is cost effective. Cost effectiveness is defined as avoiding motorists' delays. This type of acceleration is paid by change order.

### **2.20 Lane Closure Software**

Construction, Traffic Operations and Maintenance have developed an interim lane closure request/processing/tracking system to reduce the amount of time to request and accept closures.

**2.21 On-line Debarment List of Debarred Contractors**

In 2000, the California Legislature passed AB 2275, which authorizes the Department to regulate actions against parties who willfully conceal, misrepresent, or alter quality control results. The debarment process is intended for conspicuous patterns of fraudulent test and inspection reports. Names of debarred contractors are listed on the Internet. This ensures true test results and will minimize delays and re-work due to fraudulent test results.

This list is on the Construction website at:

<http://www.dot.ca.gov/hq/construc/debarred.doc>

**2.22 55-Day Beginning of Work**

Construction has implemented a 55-day beginning of work specification that requires certain documents significant for the planning and scheduling of a construction contract to be submitted by the Contractor and approved or accepted by the Engineer prior to the start of construction activities. Standard submittals required prior to construction activities are the baseline CPM schedule, water pollution control program or storm water pollution prevention plan, dispute review board nominee, notice of materials to be used, and (traffic) contingency plan. This specification is intended to avoid contractor's delays by getting the contractor "in and out" of the jobsite as expeditiously as possible. As of September 2011, the contractor can no longer earn float by completing the submittals prior to 55 days after contract approval. Contract time begins either when the contractor begins work activities or at 55 days after contract approval, whichever occurs first.

**2.23 Expansion of Subcontracting**

The level of subcontracting allowed on construction contracts was expanded from 50% to 70% in 2008. This allows experienced contractors to leverage resources and perform more work using subcontractors. Use of the specialty designation for the calculation of prime contractor work was eliminated under this initiative.

Performance bonding is waived on non-emergency contracts valued less than \$150,000 (Minor B) contracts and on emergency force account and emergency limited bid contracts regardless of the estimated construction cost. Bonding was identified as a major barrier to entry for small and micro businesses.

Expanded contracting opportunities for smaller businesses grow the construction industry through mentoring, experience, and better capitalization; ultimately expanding the bidding pool. This is expected to drive delivery cost down and accelerate project delivery during workload peaks.



**2.24 Elimination of Contract Retention**

Contract retention is a withholding of money without cause during the performance of the work. Retention was eliminated on federally funded contracts in 2006 to comply with the Code of Federal Regulations. Prime contractors are contractually prohibited from retaining from their subcontractors. State law prohibiting retention went into effect 1 January 2009. The elimination of retention reduces cash flow constraints and financing costs for contractors. This allows the contractor to better utilize their physical resources to build projects faster. The Department has not seen an increase in the number of contractor defaults or termination of contracts because of this change in Federal and State law and does not anticipate any negative impacts due to this change.

To protect the interests of the State and Sureties, the Department implemented a withhold for cause provision in its contracts when the contractor does not maintain satisfactory progress. The Department is further indemnified by payment and performance bonding that are included on federally funded and state-only funded contracts.

**2.25 Owner Controlled Insurance Program**

The Department is currently implementing an Owner Controlled Insurance Program (OCIP) on selected large transportation improvement construction contracts. This program was driven by Agency and was supported by the Administration. An OCIP is a centrally procured and managed insurance and risk control program implemented for a single construction project or a series of construction projects. Rather than each contractor providing its own insurance and passing this cost to the Department through the construction contract, the Department purchases certain lines of insurance (such as general liability, excess liability, and workers compensation) to cover most of the contractors on a job site.

Aggressive risk control and claims management measures are then implemented for the project. Potential cost savings arise from the prevention of losses, reduction of the cost of those losses through consolidated claims management, reduction in cost of claims through a single insurer's legal defense, and reduction in premiums from the negotiating clout achieved by combining multiple insurance programs into one. In addition to achieving cost savings, OCIPs may be used to obtain insurance coverage and limits otherwise unavailable for a construction project thus allowing increased participation by small business contractors who may not be able to afford such limits. The OCIP sponsor procures and manages the insurance policies covering the interests of all or most of the contractors on the project. The key element of an OCIP is the owner maintains control of the insurance program, risk management program, and claims management program for the entire construction project. This approach differs from the traditional approach from which each contractor on a job site procures and maintains its own insurance policy with vastly different, terms, conditions, limits, and insurance coverage.

## 2.26 Partnering

Partnering is a way of conducting business in which two or more organizations make long-term commitments to achieve mutual goals. It promotes open communication, trust, understanding and teamwork. Key project delivery team members for both the Department and the contractor are to use the Department partnering programs best practices as identified in the Field Guide to Partnering on Department Construction Projects. The best practices include partnering kick off session, team charter, dispute resolution ladder, monthly surveys; follow up partnering session and a close out session. The project team members attend partnering sessions, use partnering tools for effective dispute resolution, and actively engage each other throughout the life of the construction contract. The benefits of partnering include increased project safety, quality, and job satisfaction as well as reduced delays, claims, and contract cost.

For more information, download the *Field Guide to Partnering on Caltrans Construction Projects* from the Departments Partnering Program website at:

<http://www.dot.ca.gov/hq/construc/partnering.html>

## 2.27 Emergency Contracting Innovations

The standard confirmation of verbal agreement, director's order, the emergency force account boilerplates, and the emergency limited bid contract boilerplate were simplified and streamlined in 2008. The time to negotiate and sign emergency force account contracts with construction contractors was cut 68% on average. This positions the Department to respond more quickly and accurately to emergencies that threaten public safety and infrastructure.

Emergency relief guidelines were issued in 2008 to improve the precision of emergency contract cost and schedule estimating. Construction policy was also issued to clearly define roles and responsibilities for handing projects off from the Division of Maintenance to the Division of Construction. Communication between the divisions was improved through posting of key information on the internet and intranet that is linked through both internet and intranet portals. Accelerated project delivery resulted from improved efficiency.

# 3 DESIGN

## 3.05 Re-engineering the Project Development Process

Three pilot teams implemented a "reengineered" process, producing State Highway Operation and Protection Program (SHOPP) projects that focused on three key elements:

- Utilizing multifunctional work teams responsible for the project from inception through construction,

- Allocating funding on a program level, rather than project by project, based on a performance-based long term preservation plan, and
- Advertising and awarding construction contracts on a corridor or geographical basis, with individual projects being let on a task order basis (Master Contracts).

The key benefits realized from the pilots included:

- The use of multifunctional teams significantly enhanced the project team dynamics, developed ownership of the projects by all team members, and increased project team communications. This resulted in instant feedback between functions, less rework within projects, less delays between functional units, and overall accelerated delivery of projects.
- Providing funding on a program level rather than a project level provided the project owners (maintenance and operations) greater flexibility in using funds to address the immediate needs. The project owners also maintained a greater level of control of the project scope, helping to ensure that the project delivered was the project that was originally envisioned. The 10-year SHOPP and the Department's delegated authority for voting of rehabilitation funds were somewhat based on this concept.

Traffic Operations is currently utilizing a multifunctional team as an option to deliver safety projects. The team has developed and is implementing a two page Project Report/Project Study Report (PR/PSR). The team has also developed a procedure to complete surveys early and to start the environmental process prior to the Project Initiation Document (PID) being signed. The team has found that on a large portion of the projects they are able to make Ready to List (RTL) within 18 months of the project being amended into the SHOPP.

While the full "re-engineered" process was never fully implemented, several ideas have been utilized on a limited basis. District 2 is using the multi-functional team approach for safety projects and the North Region is using this approach for projects in the Tahoe area. District 11 has implemented Corridor Management where a Corridor Manager oversees a multi-functional team delivering projects within a specified highway corridor. Design-Sequencing was developed from the idea of bringing contractors on board earlier than 100% project plans, specifications and estimate (PS&E).

### **3.06 Increased Response to Statewide Cooperative Agreements**

A Cooperative Agreement (Co-op) is a formal, legally binding contract between the State of California and a public agency (city, county, transportation authority, RTPA, MPO, Federal Agency, State Agency, Tribal Governments, etc) when there is an exchange of effort, funds, materials, or property.

A Co-op documents the terms and conditions under which both parties will perform work or accomplish a desired outcome, including a commitment to abide by state and federal law and Department policy and procedures.

In 2009, the Division of Design issued DD-102 which created a performance measure, resolution mechanism, and statewide database to track the development and execution of Co-ops. According to DD-102, all Co-ops will be completed within 60 days or less. Once a draft Co-op is returned to the District with comments from the public agency, the District, public agency and headquarters have 60 days in which to resolve all comments and develop a Co-op that the parties are willing to sign.

### **3.07 *Pre-Approved Cooperative Agreements with District Director Authority***

The Project Agreement Construction Tool (PACT) was developed by the Division of Design and has been in operation since March 2008 to assist the Districts in developing pre-approved Co-ops for basic project development agreements. This tool provides a well-prepared Project Development Team the opportunity to get a Co-op written in a single meeting. In support of the pre-approved PACT agreement the signature authority for pre-approved PACT agreements is now delegated to the District Director.

Review and approval of changes to a pre-approved PACT agreement follow a new and efficient process which assures the appropriate District and headquarters staff are engaged and concur with any change so that Department policy is protected and review redundancy is eliminated.

### **3.08 *On-line Training for Cooperative Agreements***

An on-line course on Cooperative Agreements is available through Design's Internet web site. It covers the fundamentals of the what, why, who, when, and how of Cooperative Agreements. It is available to everybody including the Department, public agencies, and consultant staffs.

On-line course may be accessed at:

<http://dot.ca.gov/hq/oppd/ca/>

### **3.09 *Landscape Architecture PS&E Guide***

The Landscape Architecture PS&E Guide (Guide) assists the Department's Landscape Architects in the preparation of design work. It includes guidance on all elements of project development from planning to final PS&E and through construction. The Guide includes information specific to preparing Planting and Irrigation Plans, Specification and Estimates. In addition the Guide provides design

guidance and tools such as checklists, memos of instruction, procedures, standards, and policies related to landscape architecture.

The Guide was updated in January 2008, First Edition (US Customary Unit) and replaced the Landscape Architecture Standards Manual (Metric). The Guide is available on-line at:

[http://www.dot.ca.gov/hq/LandArch/lap\\_guide/index.htm](http://www.dot.ca.gov/hq/LandArch/lap_guide/index.htm)

An updated version of the Guide will be available in 2012.

### **3.10 Design-Sequencing**

Legislation authorized a Design Sequencing Pilot Program that allows the Department to award a limited number of design-sequenced projects to a contractor based on plans that are a minimum of "30 percent" complete. This method, although dramatically different from the 100 percent complete project PS&E that are normally required before soliciting bids from potential contractors, may result in faster delivery. For the twelve projects constructed to date, the time savings has ranged from 14 months delay to 18 months saved with an average time savings of approximately 1 month when compared to the original Design-Bid-Build timeline.

Developing a PS&E package is a process that can take many years to complete for large or complex projects, where various functional units must complete a monumental amount of supporting work, in the proper order, to orchestrate a 100 percent PS&E package. With design sequencing, flexibility is worked into a normally rigid process. It allows each construction sequence to commence when design for that sequence is complete, instead of requiring the design for the entire project to be completed before beginning construction.

### **3.11 Look Ahead Report for Contracts to be Advertised**

A website has been developed to provide a single reliable source of information to the contracting industry regarding the Department's planned construction contracts to assist industry to better plan for its resource, equipment and material needs. The projects are listed about 12 months in advance and are updated at least monthly.

The Look Ahead Report can be viewed at:

<http://www.dot.ca.gov/hq/esc/projects/lookahead/>

### **3.12 Project Change Control**

The Department is implementing "change control" techniques. The focus of change control is to keep projects on schedule by reducing design changes after completing PA&ED. These changes can result in significant delays especially if they affect right of way requirements or environmental approval. Change control is accomplished by:

- (1) Establishing change control teams to coordinate project lock-in process to manage scope changes after PA&ED,
- (2) Determining what controlling “work packages” could cause significant scope changes and developing project schedules that complete these controlling work packages at the earliest opportunity, and
- (3) Using a Project Study Report – Project Development Support (PSR-PDS) document. A PSR-PDS is a programming document for PA&ED support used on all STIP and special funded projects, unless a PSR is requested and is approved by the District Director. Upon completion of the PA&ED support programmed with the PSR-PDS document, the remaining support components, and right-of-way and construction capital can be programmed with a greater level of confidence and lower risk. (See Section 10 – Transportation Planning.)

### **3.13 Value Analysis**

The Department’s Value Analysis (VA) program can assist in determining the best solution to meet a project’s purpose and need, advancing project performance objectives, and/or identifying opportunities for cost savings. VA can serve as an effective tool to help manage the project scope, cost and schedule. The VA methodology requires a multi-disciplinary team to provide a comprehensive review and analysis of the project. Including key project stakeholders on a VA Team can expedite the project development process by facilitating consensus. VA is also used to develop and analyze project staging and scheduling alternatives to identify opportunities for accelerating a project’s completion. The Department encourages the application of VA studies on a wide range of projects, products, and processes.

Timing is a critical factor in any successful VA study. The potential for improving the quality or cost effectiveness of the project is best at the early stages of a project’s development as the degree of improvement potential decreases as the project develops. Typically, a study should be conducted no later than PS&E being 30% complete.

Congress has passed legislation mandating the Department to perform a VA study on all projects (as defined in the environmental document) over \$25 million (capital plus support) on the Interstate and National Highway System. Also mandated are studies for bridge projects over \$20 million. All projects with federal funding being designed by the Department, Local Agencies, consultants, or others meeting these requirements must have a VA study performed.

### **3.14 Project Development Process – On Line Course**

An introductory project development on-line course was implemented in 2005. The course includes a general overview of the project development process from

planning through construction. The course audience includes Department staff, local agencies, and consultants. On-line sessions are available once a month.

The on line course may be accessed at:

<http://www.dot.ca.gov/hq/oppd/pdp/index.htm>

### **3.15 Design Training Curriculum**

The Design Training Curriculum is a cluster of courses that provides knowledge and training in a specific field enabling the student to learn practical, up to date skills and information applicable to various job assignments. An individual who has completed the relevant curriculum program should have the skills and knowledge to successfully complete assigned work. The Department can focus Design training on 'need to know training' required for employees to be effective in their job assignments. An increase in productivity and quality should result as well as increased job satisfaction and a personal sense of accomplishment.

The Curriculum consists of programs focused on an entry-level engineer or technician new to the Design function, on the Project Engineer level, and the Design Senior Level. Additional specialties in core disciplines are being added. The Landscape Architecture Program has implemented a curriculum for Landscape Technicians, and the Landscape Architect class series.

### **3.16 PE Academies**

Project Engineer Academies are held a couple of times a year to educate project engineers on new policies and procedures and techniques to accelerate project delivery.

More information may be accessed at:

<http://onramp.dot.ca.gov/hq/design/projdev/academy.php>

### **3.17 Records Management**

To centralize document storage, 20 years worth of studies and design exceptions were scanned for the Document Retrieval System (DRS). The DRS will be based on a cloud model for cataloging executed or approved PIDs, PR and design exceptions. The Division's purpose in scanning these documents is to centralize the document storage based on a cloud model. The Division's DRS will be the future filing system for executed or approved PIDs, PR and design exceptions.

### 3.18 *Disposal Site Quality Team*

The Disposal Site Quality Team was formed in July 2000 to address the Department and FHWA policies on disposal sites. There has been controversy regarding responsibility for compliance with CEQA, NEPA, and other state and federal regulations that may apply to disposal sites during the project development process and throughout construction. Some resource agencies require identification and environmental “clearance” of disposal sites prior to issuance of permits or other agreements, such as biological opinions for sensitive species impacts. This causes interagency conflicts, project delays, and unnecessary expenditures of time and money. The team developed guidance to clarify responsibility for compliance with environmental requirements pertaining to disposal sites. This guidance also implemented policy on designation of optional disposal sites.

For further details, see Karla Sutliff's December 13, 2001 memo:

<http://www.dot.ca.gov/ser/downloads/memos/disposal/DisposalSiteMemo.pdf>

For guidance on the consideration of optional material disposal, staging, or borrow sites, see Design Information Bulletin 85:

<http://www.dot.ca.gov/hq/oppd/dib/dib85.pdf>

## 4 ENGINEERING SERVICES

### 4.03 *Training by DES-OE*

DES-OE provides classes to enable the Districts to deliver full, complete, and accurate project plans, specifications, and estimate in compliance with the law and Department policies and best practices. Compliance at submittal accelerates the project to contract avoiding the delay and cost of rework.

DES-OE provides a list and schedule of their classes on its website:

<http://oe.dot.ca.gov/>

### 4.04 *Risk Advertising Votes*

In 2009 the Risk Advertisement process was replaced by the Risk Vote process. A Risk Vote is a California Transportation Commission (CTC) action requested by the District Director to vote (allocate) funds on Capital on System projects with outstanding constraints that create a risk of contract award within six months of vote. Approval of the Risk Vote is contingent on signed concurrences from functional authorities who concur that the risks are acceptable and the California Department of Transportation supports the vote action. Risk votes can accelerate a project to construction by allowing a project to be funded before all Ready to List constraints are cleared before advertisement.



Risk Vote Guidance is available at

<http://www.dot.ca.gov/hq/transprog/allocation/RiskVoteGuidance.pdf>

#### **4.05 Soundwall Specification**

The Division of Design and DES-OE worked together to develop an alternative soundwall Standard Specification to facilitate the inclusion of alternative soundwalls in PS&E packages.

The specification allows the Designer to consider a variety of pre-approved alternative soundwall types during the design process. This is in response to the requests from communities and local and regional partners who are seeking innovative alternatives to masonry block wall and pre-cast concrete noise barrier structures that have dominated the soundwall market to date.

For the 2006 Standards, the alternative sound wall specification is in SSP 51-561 located on the DES-OE website.

For the 2010 Standards, the alternative sound wall specification is in SSP 58-4.01A located on the DES-OE website.

#### **4.06 Accelerated Bridge Construction**

Accelerated Bridge Construction (ABC) continues to receive tremendous attention nationally, with much progress towards standardizing details and tools to facilitate its use over the past decade. In fact, ABC is now a part of FHWA's Every Day Counts (EDC) initiative. California is currently working jointly with Oregon State Department of Transportation, Washington State Department of Transportation, and FHWA in the development of an ABC Decision Making Tool that will become a part of the Department's project development process. This tool will consider ABC as an alternative in the planning phase for many of Department projects. The Decision Making Tool should be available for use by late 2012. In California, ABC has not been as widely employed to address specific project goals due to concerns with seismic safety. In fact, the successes realized across the nation on projects using ABC tools to reduce construction impacts to the traveling public are largely centered in regions of low seismic vulnerability. Department engineers are leading a national initiative considering issues related to ABC in seismic regions. An internal work team comprised of Structure Design, Structure Construction, Earthquake Engineering, Structure Office Engineers and Materials Engineering and Testing Services representatives developed two documents in 2008; the *ABC Lessons Learned report*, and a *Strategic Action Plan for ABC Implementation in California*. The ABC Team Advisory Council will be releasing an updated version of the Strategic Plan in September of 2012. These documents and tools will assist Department engineers and planners as they look to ABC to reduce impacts to the traveling public from construction activity.

## 5 ENVIRONMENTAL

### 5.06 “Mare Island Accord”

Because of Department/Federal Highway Administration (FHWA) partnering initiatives, the Department, the FHWA and the U.S. Environmental Protection Agency (EPA) entered into a formal partnering agreement (Partnership) in July 2000. The Partnership committed to quarterly meetings of senior management, shared training and outreach, and other activities to foster better interagency relationships and communication. In addition, the Partnership committed to supporting a number of initiatives that would benefit transportation planning, project delivery, and environmental protection, including:

- The Merced Partnership for Integrated Planning (PIP) pilot was formed to study integrative planning and project development. The Merced PIP is an innovative approach to developing a regional transportation plan that included use of GIS resource layers, early collaborative work with resource agencies, extensive public outreach, and a focus on scenario planning. This project was at the forefront of the national effort to link transportation planning and National Environmental Policy Act (NEPA). Lessons learned and best practices identified during the Merced PIP will benefit other regions of California.
- Formation of the Cumulative and Indirect Impact Analysis Work Group, which completed guidance to help transportation and resource agency staff address two of the most complex issues in environmental impact analysis. Cumulative impact analysis is required by NEPA, CEQA, and the Endangered Species Act, and consists of the assessment of the incremental environmental effects of the project when considered with past, present, and reasonably foreseeable projects. (See Section 5.15 below for further discussion.) Indirect impact analysis and disclosure are required by both NEPA and CEQA. Indirect impacts are generally defined as effects that are caused by a project, but unlike direct effects, occur later in time, or are further removed in distance from the project. For more detail, see:  
[http://www.dot.ca.gov/ser/Growth-related/IndirectImpactAnalysis/gri\\_guidance.htm#intro](http://www.dot.ca.gov/ser/Growth-related/IndirectImpactAnalysis/gri_guidance.htm#intro)
- Revision of the 1994 *Memorandum of Understanding – National Environmental Policy Act and Clean Water Act Section 404 Integration Process for Surface Transportation Projects in Arizona, California and Nevada* (NEPA/404 MOU). The new NEPA/404 MOU was executed in Spring 2006 (see Section 5.08 below).

The above initiatives are all complete. The Partnership principals and middle managers continue to meet regularly to discuss emerging problems, issues, opportunities and agency priorities. This has resulted in improved interagency relationships and a better understanding of each agency's mandates and challenges.

**5.07 Coast Highway Management Plan, Big Sur Coast**

Under an interagency agreement, initiated in April 1999, the Department and the California Coastal Commission have agreed to jointly develop a management plan for the Big Sur Coast that includes the following goals:

1. Provide a coordinated approach to maintaining the State Highway 1 corridor along the Big Sur Coast.
2. Streamline interagency coordination and regulatory approvals for transportation projects associated with State Highway 1.
3. Coordinate with public agencies adjoining State Highway 1 that manage natural and recreational resources, such as State Parks, Los Padres National Forest, and Monterey Bay National Marine Sanctuary.

The Department has funded a position with the Coastal Commission to assist in preparing portions of the management plan addressing coastal shoreline access, visual resources, land uses, and other pertinent issues. A Programmatic Biological Opinion under Section 7 of the Federal Endangered Species Act for Smith's Blue Butterfly has been completed. (The host plant for this species grows right to edge of pavement.) Resource agency coordination with the Monterey Bay National Marine Sanctuary, County of Monterey, U.S. Forest Service, and the California Coastal Commission on the plan continues to strengthen Department's relationships with these public entities.

**5.08 Renegotiation of NEPA/404 Integration Process MOU**

In 1994, the Department, the FHWA, the Federal Transit Administration (FTA), the U.S. Army Corps of Engineers (ACOE), the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) executed a Memorandum of Understanding (MOU) regarding integration of NEPA and procedures for implementation of Section 404 of the Clean Water Act. Due to changes in the ACOE's Nationwide Permit Program (NWP), as well as organizational changes within FHWA, the signatory agencies agreed in August 2000 to revise the MOU. The primary purpose of the integration process is to enable the ACOE to fulfill its NEPA responsibilities for its Section 404 permit action concurrently with the FHWA/Department NEPA process. A working group comprising of representatives of all agencies met regularly to revise the MOU and a final agreement was signed in April 2006.

The new agreement is significantly different from the 1994 MOU. The new MOU is more flexible, and is primarily intended for use on those projects that require an Environmental Impact Statement and have more than 5 acres of permanent impacts to waters of the U.S. The new MOU also raises the threshold for use of the NEPA/404 integration process, softens requirements for agency concurrence, and includes an improved process for issue resolution. The new MOU will continue to improve the coordination of the NEPA and Clean Water Act. On-line NEPA/MOU training is available at:

<http://www.dot.ca.gov/hq/env/training/index.htm>

### **5.09 Resource Agency Partnering Agreements**

Through a FY 2000 Finance Letter, the Department received an allocation of \$2.25M to fund positions in federal and state resource agencies to handle priority work within the transportation program. The additional resources support enhanced project review and coordination services, and provide for environmental streamlining to help with project delivery. The Department has executed agreements with these agencies that outline the coordination and review processes and performance measures for this partnering program. To help agencies manage their workload and establish priorities for staff time, the Department is providing each agency with information on current and future projects. Regular coordination meetings with the agencies and Department provide improved consultation and review procedures. The Department regularly monitors agency performance and assesses the need for additional positions based on workload and the ability of the agencies to fill additional positions. Currently, the program funds 32 positions in seven state and federal resource agencies. In addition, the Districts directly fund 5.5 positions with several federal and state resource agency partners

### **5.10 Programmatic Agreements with Resource Agencies**

Many environmental regulatory processes allow consultation or permitting on a programmatic basis. Depending on the process and resource type, programmatic approaches can be used for similar types of projects (e.g., the Programmatic CE described below); for similar projects/impacts on particular species (e.g., Programmatic Section 7 consultation under the Federal Endangered Species Act); or to substitute alternative procedures for those specified in regulation (e.g., Programmatic Agreement {PA} for Section 106 of the National Historic Preservation Act). In all cases, negotiation of Programmatic Agreements requires substantial initial effort by the Department, the FHWA, and the regulatory agency. Because Programmatic Agreements typically specify study protocols and/or mitigation methodologies they have potential to substantially streamline future project-level consultations and improve the accuracy of project schedules and estimates.

The Department has received a Programmatic Biological Opinion (Section 7) for the Valley Elderberry Longhorn Beetle and final agreements for the coastal red-legged frog. Additional Programmatic Biological Opinions have been received for the San Joaquin Kit Fox, Upland Species, Giant Garter Snake, and Desert Tortoise. Early efforts are underway to seek a PA for Coho Salmon. Additional programmatics are under consideration for the Sierra red-legged frog; various species on the north coast (e.g., marbled murrelet); and southern California species in the coastal sage scrub community. The Department has worked with FHWA and has received delegation to conduct informal Section 7 consultation and inferred presence of endangered species.

For historic and archaeological resources, Department staff has developed and is implementing a PA for Section 106, in consultation with FHWA and the State Office of Historic Preservation (SHPO). The Section 106 PA went into effect on January 1, 2004, and will expire December 31, 2013. Efforts to renew the Section 106 PA will begin in early 2012. Execution of this PA has streamlined the Section 106 process by reducing the number of individual consultations with the SHPO and is showing immediate successes.

The Department will continue to seek opportunities to use programmatic approaches, where the long-term benefits would outweigh the initial cost of developing the agreement. Opportunities for additional programmatic biological opinions are being explored and may be implemented.

### **5.11 Mitigation Banking and Process Improvements**

Mitigation banking involves the purchase of bank "credits" from the bank creator. Mitigation banking can help streamline project delivery by reducing the time needed for resource agency consultation regarding appropriate mitigation sites, and by moving the mitigation parcel acquisition process off the critical path for a proposed project. It also eliminates the requirements for the Department of on-going monitoring and management in perpetuity. A Mitigation Process Improvement Team has identified changes in Department policies and procedures that would simplify the Department participation in mitigation banks. The DEA is working with Transportation Planning, Districts, Infrastructure departments, resource agencies and others to develop new methods to plan for mitigation needs and collaborate with resource agencies consistent with the new Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) provisions and is developing two advance planning and implementation programs, Regional Advance Mitigation Planning (RAMP), and Statewide Advance Mitigation Initiative (SAMI). Mitigation banking policies and procedures are implemented; however, actual mitigation banking takes place on a project-by-project basis, thus is on-going.

RAMP is a multi-agency Work group being led by two infrastructure agencies, the Department and Department of Water Resources (DWR). The Work Group was formed in the spring of 2008 to explore the potential for implementing regional advance mitigation in California. The large majority of the Work Group committed to working together on RAMP through a Memorandum of Understanding.

The Department and federal and state resource and regulatory agencies in the RAMP Work Group have prepared a MOU that ensures support for SAMI and a commitment to start developing a program. SAMI may include establishment of mitigation and conservation banks, in-lieu fee programs, or other appropriate mitigation or conservation measures; some of which may be identified through the RAMP program. The goal of SAMI is for it to be very flexible in order to meet the Department's mitigation needs in advance of project delivery, and to provide an option for the Department to leverage funds for timely mitigation acquisitions.

### **5.12 Environmental Impact Statement (EIS) Review Process Improvement**

In an effort to improve the quality of NEPA documents and to facilitate the delegation of EIS approval from FHWA Region 9 to the FHWA California Division, in 1998 the Department and FHWA developed a process of concurrent review of EISs. Under the concurrent review process FHWA and the Department review EISs simultaneously. The process also served as a means for the Department to review and comment on the quality of district environmental documents. The process was reexamined to identify additional improvements and modified in November 2001 and again in March 2003. While major components of the revised process remain the same, the process was updated again in July 2007 to reflect the requirements of NEPA Delegation. The net effect of the NEPA Delegation process, and the prior concurrent EIS review process, has been an increase in quality and shorter review times. In October of 2007, DEA issued a Policy Memorandum which established procedures for determining the legal sufficiency of Environmental Impact Statements prepared under NEPA Delegation and in July of 2008, issued a second memorandum on the same topic which superseded the October 2007 memorandum.

### **5.13 Consistent Approach to Well-Defined Project Need and Purpose**

A good purpose and need can be an important means of avoiding ill-conceived projects. It is highly desirable to have a consistent purpose and need concept throughout, keeping in mind that the level of detail increases as the project concept is developed. A good purpose and need helps to prioritize projects for programming at the Project Initiation Document (PID) stage. The purpose and need is critical for defining a project's scope, formulating which alternatives to study, evaluating alternatives, and achieving environmental streamlining. The purpose and need can also help in identifying potential context-sensitive solutions.

In early 2002, the Department established an intra-department, inter-division team (Team) to examine the process by which a project's purpose and need are established and to recommend measures to ensure that projects' purpose and need statements are well reasoned and consistent from the earliest planning stages through the environmental analysis and project approval stage. The Team's recommendations have been finalized and a Deputy Directive (DD-83) addressing Purpose and Need has been implemented. In addition, resources on developing purpose and need statements have been posted online for use by the Districts. As a follow-up to the earlier efforts on purpose and need, such as DD-83, Design and Environmental jointly developed an on-line purpose and need training class that was made available in June of 2009 and may be accessed at:

<http://www.dot.ca.gov/hq/env/training/index.htm>

### **5.14 Preliminary Environmental Assessment Report**

In December 2001, the Department began to require the preparation of a Preliminary Environmental Assessment Report (PEAR) to support the Project Study Report – Project Development Support (PSR-PDS) for all projects on the State Highway System requiring an environmental document (EIS/EIR and ND/FONSI). The PEAR defines the scope of the subsequent environmental document by identifying the known environmental issues and constraints and informs the development of the work plan (cost and schedule) for the environmental component of the project. Because the PEAR includes the cost estimates for the preparation of the environmental studies and NEPA/CEQA document and the proposed schedule, the project development support element can be programmed more accurately. The Department expects that well scoped projects with a realistic environmental support component, schedule, and appropriate funding are better projects and will be approved faster. Use of the PEAR is mandated for all districts and regions. A statewide PEAR tool has been developed to facilitate uniform statewide preliminary environmental information development and use during the PID process (see Section 5.01). Developing better information on location of environmental resources of concern during the PID process will make completion of Project Approval/Environmental Document (PA&ED) more efficient. DEA, Planning and other functional units have been working to better resource PID efforts to produce better PIDs (e.g. PEARS).

In January of 2009, the PEAR Handbook was updated to address changes and improvements in the Department's environmental scoping process and was posted on-line. It may be accessed at:

<http://www.dot.ca.gov/ser/pear.htm>

In April of 2011, the PEAR template was also updated and posted on-line, it may be accessed at:

<http://www.dot.ca.gov/ser/pear.htm>

In July of 2011, DEA issued a Policy Memorandum which clarified the types of PIDs prepared by the Department, when a PEAR is required, and to provide guidance to the districts on the appropriate level of effort to be expended on the PEAR documentation. This memo may be accessed at:

[http://www.dot.ca.gov/ser/downloads/memos/pid\\_pearclarification.pdf](http://www.dot.ca.gov/ser/downloads/memos/pid_pearclarification.pdf)

### **5.15 Multi-Agency Working Group to Address Assessment of Cumulative Impacts**

Cumulative impact is defined as the impact on the environment, which results from the incremental impact of the project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes them. Cumulative analysis is a requirement of NEPA, CEQA, and the Endangered Species Act; definitions do not match from one set of regulations to the next. In California, with steadily increasing population leading to fragmented and

shrinking habitat, this analysis has become both increasingly important and increasingly contentious over the last few years.

In 2004, as part of the Merced Partnership in Planning, the Department completed an interagency pilot project to increase mutual understanding of agency mission, jurisdiction, definitions and requirements as they relate to cumulative impact analysis. Key players included the Department, EPA, U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and the local land use and transportation agencies. In June 2005, the Department, FHWA, and EPA developed guidance for cumulative and indirect impact analysis. Guidance on indirect impacts was posted online in July 2006. The Department has been training staff on this guidance for several years. Collectively, these measures are designed to increase predictability of resource agency response to the analysis, improve delivery planning, and streamline project delivery.

#### **5.16 *Annotated Outlines for Environmental Documents and Standard Formats for Biological Assessments***

Department staff from headquarters and districts/regions statewide formed a team that has developed annotated outlines for environmental documents. This effort has served a number of purposes:

- Improving the quality of the content of environmental documents
- Facilitating reviews by state and federal resources, and regulatory agencies by providing a consistent format
- Promoting statewide consistency within the Department in both preparing the documents and in direction given to consultants preparing environmental documents.

The Department also formed a team of staff biologists to develop standardized formats for the biological technical reports that support the environmental document and Section 7 consultation.

The Department believes that standardized documents will expedite project review and approval since the review agencies will become familiar with the format and know where to find certain types of information. In addition, a standardized format will improve the organization of environmental documents by allowing context, impacts, and mitigation of each issue to be addressed together in one section, and by decreasing the potential for contradictions that can result from issues being discussed in different sections.

Annotated outlines are available on the Standard Environmental Reference (SER) for CEQA/NEPA documents (Initial Study/Environmental Assessment, Environmental Impact Report/Environmental Assessment, and Environmental Impact Report/Environmental Impact Statement) and for NEPA-only documents (Environmental Impact Statement and Environmental Assessment).



A template for the Biological Assessment required under Section 7 of the Federal Endangered Species Act was posted in August of 2009 and updated in June of 2011. Standard templates for the Natural Environment Study (NES) were also posted in August of 2009.

SER Forms and Templates are available at the following link:

<http://www.dot.ca.gov/ser/forms.htm>

### **5.17 Standard Environmental Reference (SER)**

The Department developed the SER to meet federal and state environmental requirements. The SER is designed for use by the Department as the guidance for preparing and processing its own environmental documentation, and by local agencies for federal-aid projects. The SER is the result of a process improvement team recommendation examining means to improve local agency transportation project delivery. Updates, refinements and additional information are continuously added to the SER. The SER provides guidance on the preparation of environmental documents to comply with NEPA, CEQA and other environmental laws, regulations, and Executive Orders, and provides related Internet sites. The SER also links users to detailed guidance on the preparation of the technical reports, which support the environmental documents. The purpose of SER is to ensure that State and local agency projects comply with federal and State environmental requirements in a consistent manner, educate users, and assist local agencies in consultant scopes of work.

### **5.18 NEPA Delegation Pilot Program**

In Section 6005 of the SAFETEA-LU, California was named as one of five pilot states eligible to apply for delegation of FHWA's NEPA responsibilities for one or more highway projects in the state, and for FHWA's coordination and consultation responsibilities under other federal environmental laws. The goal of the Pilot Program is to allow states to demonstrate approaches to streamlining the environmental processes while maintaining environmental protections. Having the Department approving NEPA documents in-house and coordinating directly with federal resource agencies rather than transmitting documents through FHWA for approval will accomplish this. The Division of Environmental Analysis actively worked with FHWA, local partners, and federal resource agencies to apply for and successfully implement delegation.

Effective July 1, 2007, the Department assumed all of FHWA's responsibilities under NEPA for projects on the State Highway System (SHS), and for federal-aid local streets and roads projects under FHWA's Surface Transportation Project Delivery Pilot Program, pursuant to 23 CFR 773. The Department also assumed all of FHWA's responsibilities for environmental coordination and consultation under other federal environmental laws pertaining to the review or approval of projects under the Pilot Program. Under the Pilot Program, the Department is required to comply with

all applicable federal environmental laws and with FHWA environmental regulations, policies, and guidance.

The Department has been successfully operating under the program for over four years. Through the program the median time to complete environmental approval for a routine environmental document has been reduced by over one year. Program success led Congress to extend the Pilot Program by one year, until August 1, 2012.

### **5.19 Categorical Exclusions**

In 2007, the responsibility for making Categorical Exclusion (CE) determinations was assigned to the Department by FHWA through the Section 6004 CE MOU, and the Pilot Program MOU, Section 6005 (NEPA Delegation). Section 6004 of SAFETEA-LU, "State Assumptions of Responsibilities for Categorical Exclusions" allows any state to enter into an MOU with FHWA to assume responsibility for determining whether a proposed project qualifies as a CE specifically designated by the U.S. Department of Transportation Secretary. States may also assume Federal environmental consultation and coordination responsibilities for those projects. The assigned responsibility for CE determinations under Section 6004 is limited to those actions specifically listed or referenced in the Section 6004 CE MOU between FHWA and the Department, executed on June 7, 2007. FHWA and the Department executed the second CE MOU on June 7, 2010. The MOU needs to be renewed every three years for the program to continue.

The Pilot Program MOU, in addition to assigning the Department the authority to approve environmental documents, also assigns the Department the authority to approve those categorically excluded activities not covered under Section 6004 CE MOU, pursuant to Section 6005 of SAFETEA-LU. Because the Department has been assigned the authority to make CE determinations, the 2003 Programmatic Categorical Exclusion (PCE) is now suspended.

A number of tools have been developed to assist the districts in preparing Categorical Exclusions under the Section 6004 CE MOU and the Pilot Program MOU and are posted at the SER Forms and Templates page at the following link:

<http://www.dot.ca.gov/ser/forms.htm>

## **6 LOCAL ASSISTANCE**

### **6.03 Use It or Lose It**

Implementation of the "use it or lose it" provisions provided a significant incentive for on-time delivery of locally designated, federally funded RSTP/CMAQ projects. This legislation was enacted to provide a disciplined, structured and accountable environment for the delivery of local RSTP and CMAQ projects. The legislation states that RSTP and CMAQ funds not obligated within the first three years of federal eligibility are subject to redirection by the CTC in the beginning of the fourth

year. The Department submits progress reports on impacted fund balances to the CTC.

Local agencies may check their impacted fund balances each month online at: <http://www.dot.ca.gov/hq/LocalPrograms/AB1012/ab1012.htm>

#### **6.04 On-line Manuals, Guidelines, Guidebooks, Bulletins, and Notices**

Local Assistance policy and guidance documents are now available exclusively on-line. These documents provide local agencies with specific guidance for delivering state or federally funded projects off the state highway system. On-line Local Assistance documents include:

- Local Assistance Procedures Manual
- Local Assistance Program Guidelines
- Local Programs Procedures
- Office Bulletins
- Quality Assurance Program Manual for Local Agency Projects
- Caltrans Oversight Information Notices (COINs)
- Transportation Funding Opportunities Guidebook
- Consultant Selection Guidebook
- Sample Boiler Plate for Construction Contracts
- Various project delivery, process review and other informational and oversight reports

Documents may be accessed at:

<http://www.dot.ca.gov/hq/LocalPrograms/public.htm>

#### **6.05 Improved Program Management Direction and Communications**

The Division of Local Assistance (DLA) collaborates with its external stakeholders to improve the delivery of transportation projects. Two significant examples include the hosting of the quarterly Highway Bridge Advisory Committee and the bi-monthly City-County-State-Federal Cooperative Committee. Internally, DLA hosts monthly Council meetings (consisting of the Division Chief, Office Chiefs and District Local Assistance Engineers), established in 1999 to 1) identify issues, 2) recommend corrective actions to help local agencies achieve efficient, effective, and timely delivery of transportation projects, and 3) strengthen the state/local partnerships.

The Planning and Local Assistance Network (PLAN) is comprised of Planning and Modal Program Deputy Director and Division Chiefs, District Planning Deputies, and several Supervising Transportation Planners. The PLAN members meet three times a year to discuss planning and project delivery matters.

A Hot Topics Team, comprised of the Deputy Director for Planning, District Planning Directors and HQ Technical staff (as necessary), convene in off months to discuss

issues affecting project delivery. Sub-teams provide issue resolution and communicate resolution techniques to HQ and District staff. The Deputy for Planning and Modal Programs also meets one-on-one with each District Planning Deputy to further engage each district and to enhance communication. This collaborative/communicative management style provides for accelerated project delivery by maintaining an open and direct line of communication and actively pursuing issue resolution.

### **6.06 *Electronic MS Word Forms***

Currently, there are a large number of forms that local agencies must complete when submitting a request to receive funding. Editable versions of these forms have been provided via the Local Assistance Forms Website to over 800 local agencies. Users can also download the electronic forms from the DLA website, and complete them electronically. The intended results are to reduce the time and effort needed by users to complete necessary forms, and to eliminate redundant data entries.

Forms may be downloaded at:

<http://www.dot.ca.gov/hq/LocalPrograms/forms.htm>

### **6.07 *Expedite Reimbursements***

The Department offers an Electronic Fund Transfer (EFT) option to local agencies. EFT expedites reimbursements to local agencies through direct deposit to their designated banking account.

### **6.08 *Standard Environmental Reference and LAPM Chapter 6***

The DLA and the Division of Environmental Analysis (DEA) jointly develop and utilize the Standard Environmental Reference (SER) to provide guidance on compliance with NEPA and related federal laws, regulations, and policies. The SER, which contains links to applicable legislation and other relevant supporting data, is available on-line for statewide use by local agencies, the Department, and FHWA (See Section 5 – Environmental). In addition, Chapter 6 of the Local Assistance Procedures Manual (LAPM), entitled “Environmental Procedures”, provides Department and local agency staff with step-by-step guidance in how to process environmental studies within the Local Assistance Program’s oversight process for local agency federal-aid transportation projects off the State Highway System. This step-by-step guidance is especially useful to local agencies unfamiliar with federal-aid projects or federal environmental compliance requirements.

### **6.09 *Improved Training***

The DLA continues to provide and improve the training program to local agencies by more strategically leveraging training resources, providing just-in-time and distance

learning training mechanisms where applicable. By working with cities, counties, regional transportation agencies, and others, DLA is able to increase the number of local agencies attending the Department's Capital Program Skills Development training.

DLA annually hosts the four day Local Assistance Academy for new local programs staff. DLA also provides three to five (four-day) Resident Engineers Academies, and several four-day Federal Aid Series courses per year.

## **7 MAINTENANCE**

### **7.01 Emergency Contractor Registry**

During the year 2000, the Department invited contractors to voluntarily register at the Emergency Contractor Registry (Registry) web page:

Contractors visit here: <http://www.dot.ca.gov/contractor>

Internal website, users can download the Registry here:

<http://onramp.dot.ca.gov/hq/maint/orway/ha23/misc/registry.htm>

The purpose of the Registry is to build a database of contractors who are interested in helping the Department expedite emergency work. The Registry contains thousands of contractor entries and includes addresses, phone and fax numbers, types of work they can do, types of equipment they possess, and other information as applicable.

### **7.02 Director's Order Guidelines and Matrix**

During disasters and other emergencies, the Department accelerates construction work and projects using Director's Orders. The Director's Order Guidelines topics include types of emergency contracts (such as Force Account, Emergency Limited Bid and Informal Bid). The Guidelines also provide information regarding types of allowable work and prohibited work; funding considerations; legal authority and the impact of disaster declarations. There are several different types of emergency contracts available to accelerate construction and/or design.

The Guideline and Matrix of the Director's Order are available at:

[http://onramp.dot.ca.gov/hq/maint/orway/ha23/do\\_guide/dog00.html](http://onramp.dot.ca.gov/hq/maint/orway/ha23/do_guide/dog00.html)

## **8 PROJECT MANAGEMENT**

### **8.08 Project Charter Policy**

A charter documents the agreement between the project sponsor and the project manager over the key elements of a project. It helps the project manager guide the

project team efficiently through the project development process. It is the first project management document in the suite of project management plans used to identify and control a project's scope, schedule and budget. It is also used to identify and meet customer expectations. The charter process is intended to help manage project scope and to reduce rework by eliminating unnecessary scope changes. Included with the charter policy is a tool called the Innovative Checklist, which is a resource for project managers and teams to identify innovative practices that they can apply to their project.

The charter policy is available at:

[http://onramp/hq/pm/dpmwp/content/PGD/DirectivesAndMemos/PGD\\_PMD007R1.pdf](http://onramp/hq/pm/dpmwp/content/PGD/DirectivesAndMemos/PGD_PMD007R1.pdf)

### **8.09 Capital Project Skill Development Plan**

The Capital Project Skill Development (CPSD) plan provides the Department's capital project staff with the knowledge and skills needed to produce their deliverables. The CPSD plan was developed and is managed by a team that includes representatives from the Divisions of:

- Construction
- Design
- Engineering Services
- Environmental
- Project Management
- Right of Way

These divisions are responsible to develop and provide technical training to the nearly 10,000 capital project staff statewide. In addition, CPSD provides discretionary training funds to the districts for securing courses in software, soft skills, and management. Districts throughout the state have been provided the resources and are responsible to ensure student participation in this training. The current goal for the FY 11/12 is to provide approximately 275,000 hours of student time. An on-line course catalog is available in the Learning Management System (LMS) portion of Staff Central.

Additional information and on-line course catalog for CPSD is available at:

<http://onramp.dot.ca.gov/hq/projmgmt/index.jsp?pg=2>

### **8.10 Use of Flexible Resources to Deliver Projects**

With the passage of Proposition 35 in November 2000, the Department has increased its effort to hire consultant resources in the delivery of Capital Projects. Consultant Services units are present in every district and region. The Department is using on-call contracts to alleviate delivery bottlenecks and project-specific contracts to augment project delivery efforts.

Additional information about consultant services unit is available at:

<http://onramp.dot.ca.gov/hq/projmgmt/index.jsp?pg=17>  
[http://onramp/hq/pm/dpmwp/content/PGD/DirectivesAndMemos/PGD\\_PMD008.pdf](http://onramp/hq/pm/dpmwp/content/PGD/DirectivesAndMemos/PGD_PMD008.pdf)

### **8.11 Revised Milestone Standard**

In order to better plan and monitor the progress of all State Transportation Improvement Program (STIP) and State Highway Operation and Protection Program (SHOPP) projects during the environmental phase, two new milestones were introduced to the Department's Work Breakdown Structure (WBS). These milestones are Notice of Preparation (NOP) for the Environmental Impact Report (EIR) documents under the California Environmental Quality Act (CEQA) and Notice of Intent (NOI) for Environmental Impact Statement (EIS) documents under the National Environmental Policy Act (NEPA). In addition to the reporting requirement to the CTC, the Division of Project Management will also be monitoring other internal milestones during PA&ED on a quarterly basis.

Additional guidance available at:

[http://onramp/hq/pm/dpmwp/content/PGD/DirectivesAndMemos/PGD\\_mileston.pdf](http://onramp/hq/pm/dpmwp/content/PGD/DirectivesAndMemos/PGD_mileston.pdf)

### **8.12 Project Management Professional Certification**

The Project Management Professional (PMP) certification is an industry standard credential for project managers. Certification ensures that project managers understand the foundations, terminology and processes in project management. The Division of Project Management supports project managers in pursuit of certification by providing training and streamlining the application process. Currently there are over 322 PMPs in the Department.

### **8.13 Lessons Learned Database**

The Lessons Learned Database is a tool to capture the lessons learned during the course of a project. Its purpose is to benefit Department users from previous lessons, and to continuously improve and correct Department documents (manuals, handbooks, etc) by channeling the lessons learned information to the appropriate person(s). All project team members are encouraged to record the problems they have encountered during project delivery, and to provide their suggestions and solutions for resolving those problems. The tool will allow users to search for information based on various parameters.

The Lessons Learned Database can be accessed at:

<http://pd.dot.ca.gov/pm/PMPI/LessonsLearned/index.asp>

### 8.14 *Project Close Out*

The Project Close Out tool documents the various steps needed to close out each component (phase) of the project. Project Managers need to close out each component (phase) of the project in a formal and consistent manner. Proper Project Close-Out process should provide:

- Systematic documentation and archive of project records.
- The capture of Lessons Learned during project execution, so that these lessons can be used to improve future projects. A formal process would be used to amend guidance and manuals.
- Formal acceptance and delivery of the close-out products.

A documented Close Out task provides a brief description of the task, the procedure that needs to be followed, the roles of various individuals involved, a flowchart of the process, and links to further documents.

The Close Out tool can be accessed at:

[http://pd.dot.ca.gov/pm/ProjectOffice/ProcessGuidance\\_Directives/Closeout.asp](http://pd.dot.ca.gov/pm/ProjectOffice/ProcessGuidance_Directives/Closeout.asp)

### 8.15 *Project Communication Handbook*

Published in February 2003 and updated in September 2007, the Project Communication Handbook provides an overview of the basic concepts and processes that guide project communication in the Department. The purpose of the Project Communication Handbook is to assist the project team in identifying internal and external stakeholders, and to enhance communication among all parties involved in Project Delivery. The Project Communication Handbook includes the processes for completing project communication plans and conflict management strategies.

The Project Communication Handbook can be downloaded at:

[http://onramp/hq/pm/dpmwp/content/PM/COS\\_Overview/Guides/PM\\_Communication\\_Handbook.pdf](http://onramp/hq/pm/dpmwp/content/PM/COS_Overview/Guides/PM_Communication_Handbook.pdf)

### 8.16 *Project Management Certificate Program*

The Department's Project Management Certificate program provides the fundamentals of Project Management as they are applied to the delivery of the Capital Projects and lays a foundation for Project Management Professional (PMP) industry certification. The program is part of the Department's Capital Project Skill Development effort. The certificate program consists of eight courses (six on-line and two live class room delivery), and is offered in partnership with California State University, Sacramento. Currently there are over 560 graduates of this program statewide.



### **8.17 Project Delivery Contracts**

Effective with the 2005/06 fiscal year, Project Delivery instituted delivery agreements. These agreements are signed documents between the Director of the Department and each District Director. Agreements are based on the Ready-to-List (RTL) milestone and programmed capital value for each project to be delivered in the fiscal year. The status of these projects is updated weekly for reporting and monitoring purposes. The contracts have effectively reinforced the importance of achieving major milestones according to the commitments made to the project sponsor(s).

During the last 5 fiscal years (05/06 – 09/10), 1391 projects have been delivered out of 1394 planned. Including the FY 10/11, 1733 projects have been delivered out of 1740 planned. The Construction Capital value at RTL was \$16.6 billion. The planned construction capital was \$18.59 billion.

The Delivery Contracts can be accessed at:

<http://onramp.dot.ca.gov/hq/projmgmt/index.jsp?pg=18>

### **8.18 Development and Use of Risk Management Plans for Capital Projects**

Project risk management is the systematic process of identifying, analyzing, and responding to project risk. Risk management training is currently being delivered to project and functional managers across the state. The Department's Risk Management Handbook (2<sup>nd</sup> edition) was updated and published in May, 2007. On May 2, 2007, a memo titled "Project Risk Management in Project Delivery" was sent to all District Directors and Deputy Directors for Program/Project Management from Rick Land, Chief Engineer. Project Management Coordinators work in cooperation with the Single Focal Points and project managers to increase the use of risk management planning in all of the Districts. The risk management performance measures are: Percent of major projects with risk management plans at Project Initiation Document (PID) and percent of Project Change Requests (PCRs) due to unidentified risks.

The Risk Management Handbook (2<sup>nd</sup> edition) is available at:

[http://www.dot.ca.gov/hq/projmgmt/documents/prmhb/caltrans\\_project\\_risk\\_management\\_handbook\\_20070502.pdf](http://www.dot.ca.gov/hq/projmgmt/documents/prmhb/caltrans_project_risk_management_handbook_20070502.pdf)

## 9 RIGHT OF WAY AND LAND SURVEYS

### 9.02 *One-Call Acquisition*

The Division of Right of Way and Land Surveys (Right of Way) was recently successful in getting the Department of Finance to increase the dollar limit for the One-Call Acquisition Process from \$2,500 to \$10,000. Increasing the dollar limit to \$10,000 was very important because increased property values in the State had limited the \$2,500 use, since fewer parcels were being valued under \$2,500. The One-Call Acquisition process has proven to be more customer friendly because it reduces the number of calls to property owners to just one, which translates into a direct dollar savings to the Department. This process allows the Right of Way Agent to issue a Draft Purchase Order (DPO) (check) on the first call for low value parcels (\$10,000 or less) and conclude the acquisition transaction on the spot with immediate payment. This process was developed in conjunction with Accounting, Audits, Right of Way, Department of Finance, and Board of Control. This has allowed immediate payment to the property owner where the normal payment process could take at least one month. This not only improved customer service, but also reduced the number of field trips by the Right of Way Agent.

### 9.03 *Resolution of Necessities by Locals*

The Department is the responsible agency for obtaining Resolutions of Necessity for all projects on the state highway system, irrespective of whom is the lead agency or who does the right of way work. The California Transportation Commission (CTC) is the State's governing body for adopting Resolutions of Necessity. However, statute provides for specific authorization on a project-by-project basis to allow a County Board of Supervisors or City Councils, in lieu of the CTC, to hear Resolutions of Necessities, upon written approval by the Department. The guidelines for this exception and approval process were initially outlined in a Department Memorandum dated December 10, 2001 with a subsequent clarifying memorandums released on November 26, 2002 and December 5, 2003.

### 9.04 *Right of Way Acquisition prior to Environmental Approval*

Right of Way appraisals may be completed during the Preliminary Right of Way Phase of the project (see Planning & Management Functional File Memo #94-1 and Right of Way Appraisal Manual Section 7.01.06.00) on projects where Department has not been delegated NEPA responsibilities. Another overriding criteria is that the preferred alternative must have been made public and federal funds must be pre-authorized (see Right of Way Manual 3.05.00.00).

Acquisitions can be completed using State only funding under specific guidelines (see Acquisition Reference File 00-1). Federal regulations permit early acquisitions without federal participation; however; they do allow the value of a parcel acquired or

donated lands to be used as a soft match for the non-federal portion of a federal aid project.

When the Department is not the NEPA decision maker Right of Way may acquire the property prior to environmental approval if the project is non-controversial and the project has been programmed. All laws, regulations, and policies including Uniform Relocation Assistance and Real Properties Acquisition Policies Act, must be followed throughout the acquisition process. The Right of Way Division Chief shall approve a Letter of Qualification (LOQ) documenting how the project meets the criteria set forth in the guidelines. Documentation is maintained in the project file. The LOQ shall contain signatures of the Region/District Division Chiefs for Project Development, Environmental Planning, and Right of Way, indicating their concurrence.

### **9.05 Streamlined Positive Location (Potholing) Process**

The streamlined utility positive location process allows the Department to take full control in identifying the exact location of underground utilities. The Department has developed a process to contract out the positive location work to keep projects on schedule. Timely project delivery is further enhanced by positively locating subsurface utility facilities early in the project development phase which results in early plan development and possibly minimize or avoiding utility relocations. The positive location process is also used to meet the requirements of the High/Low Risk Policy.

### **9.06 Right of Way Project Delivery Team**

Use of a Right of Way Project Delivery Team (Team) to deliver Right of Way products/services on non-complex small projects has proven to be one effective option to accelerate and enhance project delivery. The Project Delivery Team concept utilizes full-service Right of Way project delivery teams rather than a functional service. The Team is responsible for delivering all Right of Way products and services necessary to advertise and award projects. The Team is comprised of Right of Way Agents who have experience in estimating, appraisals, acquisitions, relocation assistance, and in some instances utilities. Currently the concept has greater applications in the smaller districts. The Team concept saves time because there are fewer "handoffs" from one functional organization to another. The Team owns a project from the earliest estimate to final closeout. Team members gain a broader perspective of project delivery and tend to "own" projects rather than having a single functional perspective. Team members become exposed to many Right of Way skill areas without having to formally rotate. However, one important factor when considering use of this option is that the Team approach precludes development of specialized expertise required for projects that are more complex.

**9.07 Quality Enhancement Joint Review Process**

Quality Enhancement Joint Review (QEJR) process identifies functional readiness gaps and Best Business Practices. The QEJR improves the processes established to provide quality products or services. Every fiscal year a plan is established outlining what functions to review for the following fiscal year. Critical monitoring areas are developed prior to the review and shared with the Region/District Managers. Ideally this review is conducted using a team approach comprised of a headquarters functional senior as the team leader, a visiting Region/District agent, and the hosting Region/District functional senior. In addition, a FHWA representative and a Quality Enhancement Joint Review Project Manager may participate. The teams are charged with looking at the functional strengths, areas for development, projected workloads and staffing needs, training needs to deliver the work products, and Best Business Practices. This process has worked extremely well, has opened up communication channels and has been a good forum to share knowledge/expertise statewide.

**9.08 Biennial Surveys and Right of Way Engineering Coordination Meetings**

The purpose of the Surveys and Right of Way Engineering Coordination Meetings is to perform Independent Quality Assurance and Program Review activities in each District/Region every two years. This team effort helps to assure that quality management practices are in place, functioning and effective. Activities performed are intended to: 1) cause continuous improvement in policies and procedures related to the Department's Strategic Goals and Objectives, 2) foster state-wide standardization and exchange of best practices, methods and procedures, and 3) identify and discuss Surveys and Right of Way Engineering issues and concerns.

**9.09 Right of Way and Land Surveys Intranet Site**

The Right of Way and Land Surveys intranet site provides Right of Way and Land Surveys Management and Staff a statewide forum for the dissemination of Right of Way policies, procedures and resources including: new information, data-base links, the on-line Right of Way manual, forms and exhibits, memorandums, CTC information, the Division's quarterly newsletter, Right of Way Management Board meeting minutes and action items, Headquarters Right of Way Management organizational structure, and Headquarters Staff contact information. The site also provides a tab link which sub-lists all Headquarters Right of Way activities and includes function specific policy, procedure and resource information. The intranet site can be accessed at:

<http://pd.dot.ca.gov/row/>

The Office of Land Surveys (OLS) intranet site provides links to manuals, guidelines, resource files, and contacts for Surveying and R/W Engineering functions. The intranet site can be accessed at:

<http://pd.dot.ca.gov/row/offices/landsurveys/>

**9.10 Utility Design Activities Prior to Environmental Approval**

With headquarters approval, a utility company may start utility design activities prior to the approval of the Environmental document. A district/region's request for approval to order utility design activities, prior to approval of the environmental document, may be submitted only upon completion of the environmental studies and the selection of the preferred alternative for the project. The guidelines for this exception and approval process are outlined in Utility Reference File No. 02-01.

**9.11 Underground Service Alerts (USA) – Design Inquiry Service Contract Utility Design**

Since March 2007, every district RW Utilities Branch has the Design Inquiry Service contract with USA North and/or USA South. Under this contract the RW Utility Coordinator has unlimited access to USA's database. The coordinator can obtain, via the Internet, a list of utility owners who may have facilities located within the project limits. This list will be used in the RW Utility estimate and Utility Verification process to ensure all potential utility conflicts are collected and forwarded to the Design Engineer.

**9.12 Increased Awareness of Right of Way Activities**

Right of Way developed and successfully delivered "Right of Way and You" training statewide to non-right of way personnel. Several joint Management Board meetings have been held with other Divisions including Design and Environmental. A "Partial Acquisition Appraisals for Attorneys" course has been developed and successfully delivered. Right of Way also participates in academies sponsored by other Divisions, including the Local Assistance Academy.

**9.13 Continuous Advertising for Appraisal Consultants**

In coordination with Division of Procurement and Contracts (DPAC) and implemented by memorandum dated April 19, 2002, the continuous advertising for appraisal consultants has been established. This accelerated the process for entering into personal service contracts for "in lieu of staff" appraisals for specialized services, including but not limited to, machinery/equipment, and loss of goodwill and/or railroad valuations. The services may be contracted under the specific and limited conditions of Government Code Section 19130.

**9.14 Improved Certificate of Sufficiency Process**

In coordination with Divisions of Environmental Analysis and Design, Right of Way has implemented an improved process for coordination and approval of the

Certificate of Sufficiency, including use of the “Hazardous Substance Disclosure Document” by Environmental.

### **9.15 *Vangarde Remote Surveying System***

Accurate and timely pavement elevation surveys are critical data for transportation engineers to design pavement solutions, compute quantities, correct roadway deformations, widen roadways and ensure proper drainage. The Vangarde System (VG) was deployed to improve the safety and reliability of pavement elevation surveying operations. VG is a static system that must occupy a fairly level surface adjacent to the highway to operate. Areas of insufficient shoulder width require lane closures. VG will continue to be used in the near future but will be phased out as mobile laser scanning technology improves.

### **9.16 *Specifications for Surveying on Superstructures***

A multi-disciplinary team developed recommendations and revisions to the Department’s Surveys Manual to provide construction stakes on the superstructure. Management approved the changes in September 2004. The manual change addresses the placement of construction stakes on the superstructure of a bridge to control the building of the bridge. The changes describe the responsibilities and communications between Surveys, the Structure Representative, and the Resident Engineer, including safety. The changes also include a reference to traffic control requirements.

### **9.17 *Right of Way Engineering Mapping Standards***

Right of Way has updated Right of Way Appraisal Map standards. The new guidelines and procedures were developed from customer input and have been incorporated into the Plans Preparation Manual. Resource files and tools are available to assist with the development of standardized mapping products. The standards promote statewide uniformity and consistency of mapping products produced by in-house staff, consultants and local agencies on all state transportation improvement projects. Previously, Right of Way mapping products varied from district to district.

### **9.18 *Utility Relocation Master Contracts***

Jointly with the major utility companies, Right of Way developed a single Master Contract that shares the cost of utility relocations for freeway projects. The new Contract provides an equitable and uniform single standard of cost apportionment, eliminates interpretation problems, and reduces staff time in the preparation of the Report of Investigation, resulting in accelerated project delivery.

**9.19 Letter/Notice to Property Owners for Environmental Study Entry**

In selected situations where entry onto private property for environmental study purposes does not interfere with the property owner's use, and is clearly non-invasive in nature, such as walk-on visual inspections, taking photographs, etc., in lieu of obtaining written consent, Right of Way Managers may elect to send an informational letter to the property owner. The letter informs the owner of the purpose and impact of such entry and allows to property owner to provide specific instructions they wish to have observed during such entry by the Department (personal contact before entering, closing livestock gates, instructions concerning dogs, etc.). Where appropriate this tool can streamline the process and save project delivery cost and time.

**9.20 Joint Training for R/W Utility Coordinators and District Local Assistance Engineers**

In coordination with the Division of Local Assistance, a training/work session for all R/W Utility Coordinators and District Local Assistance Engineers (DLAEs) was presented to evaluate, discuss and clarify issues/questions regarding utility relocation procedures on locally funded federal-aid projects. Coordination and communication will continue to be a priority between the two Divisions, including joint training/work sessions.

**9.21 Assuming Greater Role in Delivery of Training to Local Public Agencies and Consultants**

In coordination with the Division of Local Assistance and University of California at Berkeley, the Division of Right of Way has assumed responsibility for updating and delivering the course, "Right of Way and Utility Requirements for Federal-Aid Projects." This course fosters communication between Right of Way and the target audience, including Local Agency partners and their consultants. It also facilitates compliance with federal/state requirements by ensuring the accuracy of the material presented.

**9.22 Improve Accuracy in Right of Way Estimates**

Ensure the accuracy of R/W estimates by implementing the recommendations of the R/W Process Improvement Team for R/W Work Plans, resourcing, and Data Sheets.

Cost Estimate Map Toolbox posted on Division website at:

<http://pd.dot.ca.gov/row/offices/landsurveys/Standards & Procedures/Right of Way Engineering/RW Mapping Standards/>

### **9.23 RTK GNSS Equipment and Specifications**

Global Navigation Satellite Systems (GNSS) and advanced surveying technology have boosted the efficiency of the Department's surveying operations. The deployment of real time kinematic (RTK) GNSS equipment and methodology allows survey crews to deliver surveying products more quickly and safely while utilizing fewer personnel. The Department's surveyors commonly employ RTK methods for high production topographic and construction staking operations.

### **9.24 Terrestrial Laser Scanning**

The Department is currently using six terrestrial laser scanners throughout the State on a variety of projects. Seven districts have been trained in the systems and the remaining districts will attend classes in FY 11/12. Data from laser scanners provide large amounts of detail about bridges, buildings, roads, or slides. The technology is now an everyday tool available for use on projects. Data from terrestrial scanners can be combined with traditional survey, mobile laser scanning, airborne scanning, sonar, and underground imaging data. Chapter 15 has been added to the Caltrans Survey Manual for the use of terrestrial laser scanning.

### **9.25 Early Involvement for Railroad Appraisals**

Right of Way agents delivering Railroad (RR) property appraisals are contacting the Railroad companies earlier in the process to gain an understanding of what the future holds for the particular subject property. The plans for the RR corridor are discussed and included as part of the appraisal investigation. The investigation also includes discussions with other Rail representatives both internal and external to the Department who may be able to provide more perspective.

## **10 TRANSPORTATION PLANNING**

### **10.01 Establishment of the Project Study Report – Project Development Support Document**

The Department and the California Transportation Commission (CTC) have established and adopted new guidelines for an expedited Project Study Report (PSR) entitled the Project Study Report – Project Development Support (PSR-PDS). The PSR-PDS meets the needs of SB 45 by allowing projects to be programmed by component and by expediting the PSR process. The traditional PSR required that the scope, cost and schedule of the entire project be determined and set within the document. This lent itself to cost and schedule delays and scope changes. Project Development Procedures Manual guidance has recently been updated to further streamline the PSR-PDS. On September 30, 2011, guidance was issued requiring that the PSR-PDS be used for all STIP and locally funded projects unless the project sponsor requests a PSR and receives District Director approval. The PSR-PDS only



requires estimates for the support costs needed for Project Approval and Environmental Document (PA&ED), and order of magnitude cost estimates for right of way and construction. The PSR-PDS focuses more on using existing data and defers extensive studies and work to the PA&ED phase of project development. The PSR-PDS in conjunction with Project Change Control (see Section 3 - Design) encourages that all information and studies that are required to make a good project selection are known up front, prior to programming the project through construction.

### **10.02 Early Environmental Efforts/Geographic Information Systems**

Early environmental scan efforts also assist in speeding project delivery by early identification at the system planning and Regional Transportation Plan (RTP) level of "fatal flaw" alternatives or locations for environmental purposes or community resistance. (See also Section 5 - Environmental.)

The Department has several new Geographic Information System (GIS) environmental scan efforts for early identification of protected species and other environmental factors. In both system and regional planning, alternatives with major environmental implications are identified early on and evaluated for proceeding/not proceeding with an alternative or alignment.

The Department has also developed a GIS tool to display planned and programmed projects. The California Transportation Investment System GIS tool provides a comprehensive inventory of projects (highway, local, rail, airport, bicycle, pedestrian, and transit) planned by State and regional agencies over the next 20 years. This sketch level GIS tool is intended to inform and to improve decision making by assisting the Department and regional planning agencies in identifying planned improvements on the transportation system and providing opportunities for improved timing and coordination of projects.

It is also recognized that these efforts will need to be done in concert with the much-needed GIS efforts of the resource agencies and transit operators.

### **10.03 Route Optimization Analysis Tools**

The Division of Transportation Planning (Planning) has completed a pilot project with the primary objective of finding a cost effective solution to provide a full range of potential route alignments, with alignment costs, through an alternative route optimization tool. This will accelerate project delivery by reducing the potential for delays in the approval of a project due to additional requests for investigating additional alignments. This tool may also reduce project delays caused by late discoveries of unforeseen environmental or socioeconomic or political issues.

#### **10.04 *State Highway Operations and Protection Program (SHOPP) Investment Analysis Tool***

The prototype SHOPP Investment Analysis Tool was developed to assist Transportation Planning, Transportation Programming, SHOPP Program Managers, and Districts to assess the impact to the various SHOPP Programs as needs change. The tool also allows the Department to test adjustments as funding conditions and policies change.

#### **10.05 *Purpose and Need Sub-Team***

The mission of the Purpose and Need Sub-Team (Team) was to develop the process outlined in Section 5.13 of preparing and utilizing a well-defined and quality purpose and need (P&N) statement to make sustainable transportation investment decisions. The objective was to institutionalize a process for implementing consistent, well-defined P&N statements from planning through maintenance and operations. The Team developed a work plan to identify further improvement to the P&N process and institutionalize a consistent approach for P&N statement preparation and utilization.

### **11 TRANSPORTATION PROGRAMMING**

#### **11.04 *Delegated Authority***

The Division of Transportation Programming (Programming) has delegated authority by the California Transportation Commission (CTC) to take actions that will accelerate project delivery. The Department has delegated authority for project allocations over the Safety and Minor categories of the State Highway Operation and Protection Program (SHOPP). The delegation only applies to safety projects in the approved SHOPP and not to safety projects that are amended into the SHOPP.

The Department has a delegated authority from Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) to approve Administrative Modifications to the FSTIP. This will save approximately one month in the amendment review and approval process. Currently, most MPOs have delegated authority to approve administrative modification on behalf of the Department in accordance with the above newly implemented action.

#### **11.05 *Improved Scoping and Scheduling***

Programming in coordination with the FHWA and FTA has developed guidelines and criteria for the use of Administrative Modifications. Certain types of changes to a project (such as increasing the total cost within the allowable limits and swap of funds) can be accommodated relatively quickly as an Administrative Modification in the FTIP/FSTIP which does not require federal approval, and for MPOs with

delegated authority no State approval is required. In addition, the Expedited Project Selection Procedure allows moving projects within the FSTIP quadrennial period without the need for an amendment.

Programming participates in the California Federal Programming Group (CFPG) forum (that includes State Metropolitan Planning Organizations (MPOs), FHWA, FTA, and Districts) every six weeks to discuss various issues related to federal programming.

#### **11.06 *New Developments in Information Technology***

Programming has improved their existing programming database to serve as a multi-agency joint use project database system. This revised system is the California Transportation Improvement Program System (CTIPS), and contains project listings for the State Transportation Improvement Program (STIP), Corridor Mobility Improvement Account (CMIA), Route 99 Corridor Account (Rte 99), STIP Augmentation, SHOPP, FSTIP, and the Transportation Congestion Relief Program (TCRP). The use of this tool and the advancements in Information Technology greatly improves the ability for the Department, FHWA, FTA, and local agencies to plan, program and monitor their projects. This system and its proposed future improvements will increase efficiency and assist in streamlining the entire programming process resulting in enhanced program/project delivery.

## **PROPOSED IMPROVEMENTS**

### **1 BUDGETS**

#### **1.02 *Upgrade the Federal-aid Data System (FADS)***

The current Federal Aid Data System (FADS) is written in RAMIS and resides on a TS1 mainframe account. The system is very limited in scope, is not user friendly, and has minimal reporting capability. This is a critical system due to the fact that the Department transmits data to the Federal Highway Administration (FHWA) in Washington D.C. every morning requesting obligation of federal funds and for executing State-Federal agreements for federal fund reimbursement for State and Local transportation projects. This process is critical for the Department to receive an estimated \$3.0 Billion a year in reimbursements.

The proposed FADS system will include an application server and a database server that will use UNIX as its operating system. The front end will be a WEB browser utilizing Oracle Forms (version 5.0) for creating screens, Oracle Reports (version 3.0) for creating standard reports, and Discoverer 2000 for creating ad-hoc reports. The proposed FADS system will improve reporting capabilities, will be more efficient, and user friendly. This will result in time savings for staff and accelerate project delivery.

### **2 CONSTRUCTION**

#### **2.28 *Information Technology Systems***

Construction is working towards improving and adding functionality to existing information systems and developing new systems, such as CMS (Contract Management System). CMS will replace CAS (Contract Administration System) as the automatic progress payment system used to pay contractors for construction contract work. It is expected to reduce manual and increase automatic processes, thereby reducing support costs and allowing improved contract time and reduction in construction delays. A potentially larger portion of district construction staff's time may be utilized to administer the contract more efficiently, to ensure timely prosecution of the work, and to facilitate earlier resolution and settlement of delay disputes.

#### **2.29 *Cost Reduction Incentive Proposals (CRIP)***

Construction is working with industry and internal stakeholders to improve the quantity and quality of Contractor prepared CRIPs, also known as value engineering change proposals (VECPs) and to improve consistency and timeliness of CRIP reviews/evaluations by Department staff.

**2.30 Civil Work Claims Acceleration**

On projects with plant establishment, Construction is piloting an option for the contractor to pursue claims for the civil (non-plant establishment work) construction work prior to contract acceptance and at the completion of all construction contract work except plant establishment.

**2.31 Standing Dispute Resolution Boards (DRBs)**

The use of alternative dispute resolution will be expanded through the use of standing DRBs on all projects valued less than \$3 million. Upon implementation, the Department will have nonbinding alternative dispute resolution mechanisms on all of its construction contracts.

**2.32 Utility Agreement Incentives**

Construction and Right of Way are evaluating the possible use of financial incentives for Utility Companies to relocate their facilities prior to the beginning of work.

**2.33 Improved Bidder Inquiry**

Construction and the Engineering Services Office Engineer are working to improve the bidder inquiry process. The vision is to have all contractor bidder inquiries submitted and posted electronically. Support and response time standards will be set to ensure timely and complete responses to bidder inquiries on a more consistent basis. More reliable bidder inquiry responses should expand the pool of bidders and reduce bidder risk. This should translate into accelerated project delivery at lower cost.

**2.34 Expanded Use of Agreed Price Contract Change Orders**

A contract administration process evaluation of the CCO process concluded that too many extra work at force account (EWFA) contract change orders are executed. The EWFA method instills inefficiency and places too much risk on the Department.

Construction has audited several contractor methods of CCO estimating and concluded they were remarkably similar. This resulted in policy that allows district flexibility in the estimating of the cost of extra work outside the required EWFA analysis method. This should result in the completion of more agreed price CCOs. More agreed price CCOs instills efficient use of contractor resources, responsible risk taking, and innovation to accelerate project delivery.

### 2.35 Caltrans Construction Partnering Steering Committee (CCPSC)

The Design through Construction subcommittee under the CCPSC identified four issues to work on and convened two task forces to develop and implement solutions to these issues:

1. Task Force A
  - a. Performance Measures
  - b. Lessons Learned
2. Task Force B
  - a. Risk Management
  - b. PDTs effectiveness

The Design through Construction subcommittee Task Force A on Performance Measures has developed twenty performance measures of design and construction activities that are a reflection of the scope/quality, schedule, cost, safety, and customer service. The Implementation Plan was completed in June 2012. Performance Measure reports are published quarterly.

The Taskforce A on Lessons Learned will be working with the district to identify a select number of lessons to be learned at the policy level that will benefit an element of the project deliver process. Target Implementation is December 2012.

The Design through Construction subcommittee Taskforce B on Risk Management has developed a new risk management program and manual. This new program uses risk management tools and strategies to identify, document, and managing project risk through the project lifecycle. PD-09 was signed in June 2012 and outlines the new Risk Management program and responsibilities. Risk Management coordinators in both HQ and the districts have been identified to help the PDT's implement their risk management plan. For coordinators names and for further guidance visit the Risk Management website at:

<http://onramp/hq/projmgmt/index.jsp?pg=65>.

The Taskforce B on PDT effectiveness will be looking at identifying how to bring structure to the PDT teams and make them more effective.

## 3 DESIGN

### 3.19 Stormwater Management Design Tools

The following stormwater management design tools are being developed:

- Construction Site BMP Specifications – SSPs for many of the individual stormwater BMPs will be placed in Section 13 of the 2010 Standard Specifications. Construction BMP Specifications are located at:  
<http://www.dot.ca.gov/hq/oppd/stormwtr/constssp.htm>
- T-1 Checklist Tool – A tool to assist project engineers to navigate through the T-1 Checklist from the Storm Water Data Report (SWDR) is being created.

- This tool will help project engineers when selecting and sizing treatment BMPs.
- Infiltration Tool - An infiltration tool is being developed to assist project engineers in documenting permit compliance for a new hydromodification requirement that is anticipated for the upcoming Caltrans NPDES Permit. This tool will also assist when sizing treatment BMPs into projects.
  - Hydromodification Guidance – After the new NPDES Permit is approved, guidance will be developed to assist project engineer to understand the necessary documentation to be in compliance with the hydromodification requirements. This will be developed in concert with the Infiltration Tool.
  - Project Planning and Design Guidance (PPDG) Online Training – This course will introduce the Stormwater Quality Handbook, the latest version of the PPDG to Design Engineers, and provide an overview of the Caltrans Storm Water Program, BMP Selection, Design Program Responsibilities, Permanent Treatment Exemption, and how storm water issues are addressed during the PID, PAED, and PS&E processes, including storm water considerations during construction.

### **3.20 Framework for Independent Quality Assurance for Design Product**

The purpose of framework for Independent Quality Assurance (IQA) for Design Products is to provide a systematic approach to assure IQA is applied by Districts/Regions to fulfill the obligation stated in Deputy Directive 90. The framework is to be applied to all projects that are on the State Highway System regardless of the implementing agency. It also sets the foundation for the Department, locals, and private partners to develop a better understanding of the roles and responsibilities in delivering quality transportation projects. The goal is to convert the framework into guidance on how to implement Independent Quality Assurance for Design products.

The Division of Design launched an expedited pilot program to implement the findings of the IQA research and development. The pilot began in August 2011 and is expected to be completed in December 2012. Policy, guidance, and training on Project Performance will be forthcoming by August 2012.

More information may be accessed at:

<http://onramp.dot.ca.gov/hq/design/projdev/quality.php>

### **3.21 Additional Courses for the Design Training Curriculum**

Additional courses in hydraulics will be added to the Design Training course as the training curriculum develops. The "Roadway Drainage" course and a course on "Culvert Rehabilitation and Replacement" should be completed by the end of the 2011/2012 FY. Additional courses to supplement the Highway Drainage program will be considered for development as resources allow.

**3.22 Construction Manager/General Contractor**

The Department is pursuing authority to use the Construction Manager/General Contractor (CMGC) method of project delivery. CMGC allows the Department to select a contractor to act as a construction manager (CM) during the design of the project. The CM may be selected on the basis of qualifications, experience, fees for management services and prices for the target cost of construction as well as an estimated ceiling price. The CM acts as the Department's consultant during the pre-construction phase and as the general contractor (GC) during construction. During the design phase, the CM acts in an advisory role, providing constructability reviews, value engineering suggestions, construction estimates, and other construction-related recommendations. At a mutually agreed upon point during the design process (typically at 60-90% design completion), the CM and the Department will negotiate a Guaranteed Maximum Price (GMP). The GMP is typically based on a partially completed design and includes the CM's estimated cost for the remaining design features, general conditions, a CM fee, and construction contingency. After the GMP is established, the CM can begin construction, allowing for the overlap of the design and construction phases to accelerate the schedule. Once construction starts, the CM assumes the role of a GC for the duration of the construction phase. The CM holds the construction contracts and the risk for construction costs exceeding the GMP.

**4 ENGINEERING SERVICES****4.07 Accelerated Bridge Construction**

Division of Engineering Services is now actively working with Department management to conjoin efforts related to accelerating project delivery, including Accelerated Bridge Construction, into a single streamlined effort. This approach ensures that necessary concepts are considered earlier in the project development phase such that adequate resources are programmed.

**4.08 Best Bid Standards**

Based on law, Department Policy, and lessons learned from addenda and contract change orders DES-OE has developed a list of Best Bid Standards that will help districts prepare plans, specifications, and estimate (PS&E) that comply with the law and policy and avoid past mistakes. This will enable district staff to prepare their PS&E correctly as they do the work, accelerating delivery by avoiding rework.



## 5 ENVIRONMENTAL

### 5.20 *Environmental Engineering—Hazardous Waste*

Development is underway on the Hazardous Waste Handbook, a guide for district staff to use on hazardous waste projects. Goals for the handbook are that it is: 1) simple to use, 2) interactive and web-based, and 3) contains information on the specific types of hazardous waste projects most frequently encountered by the districts including aerially deposited lead (ADL), underground storage tanks (USTs), asbestos, and superfund sites.

Development is also underway on databases for ADL to simplify the reporting process to the Department of Toxic Substances Control.

### 5.21 *Traffic Studies*

Traffic studies provide the foundation for the project's purpose and need and also help support key environmental and engineering studies needed for project delivery. To help accelerate projects, a Statewide Traffic Guidance Team (Team) has been formed to develop guidance on how to review and prepare traffic studies. The Team Sponsors/Steering Committee includes representatives from Design, Local Assistance, Transportation Planning, Traffic Operations, and Environmental Analysis. The target date for completion of this effort is late 2012.

### 5.22 *Additional Programmatic Agreements with Resource Agencies*

Early efforts are underway to seek a Programmatic Agreement (PA) for Coho Salmon. Additional programmatics are under consideration for the Sierra red-legged frog, various species on the north coast (e.g. marbled murrelet), and southern California species in the coastal sage scrub community.

### 5.23 *Mitigation Banking and Process Improvements – RAMP and SAMI*

DEA is developing two advance planning and implementation programs, Regional Advance Mitigation Planning (RAMP) and Statewide Advance Mitigation Initiative (SAMI). The RAMP Work Group is currently developing a Statewide Framework document intended to convey to lawmakers and agency leaders the goals, benefits, and operational framework of a statewide RAMP initiative. The Statewide Framework will have a companion document, the RAMP Manual. The RAMP Manual will serve as a comprehensive guidance document for planning and implementing regional advance mitigation throughout California. Development of the RAMP Manual will draw from lessons learned during development and completion of the Regional Assessment for a pilot region in the Sacramento Valley (Pilot Project). The

assessment, which will be completed in Fiscal Year 2011/12, will provide the 20-year strategy for implementing advance mitigation in the pilot region.

RAMP is really the comprehensive planning behind implementing advance mitigation projects for the Department and DWR; at this time, there is no funding provided directly to RAMP or to implement the Pilot Project or other advance mitigation projects. Therefore, the Department is also developing an advance mitigation implementation program. SAMI is the Department's proposal to develop an advance mitigation program with federal transportation funds to provide the capital needed to provide compensatory mitigation needs in advance of project delivery. Off-site biological and potentially water quality mitigation for future projects could be estimated and a conservative portion of the estimate could be purchased in advance as part of a programmatic approach. SAMI could reduce project delays, reduce mitigation costs and improve mitigation quality and could move mitigation off the critical path for many of the Department's proposed projects.

## **6 LOCAL ASSISTANCE**

### **6.10 *Electronic Fillable PDF Forms***

Currently, Local assistance is working with Caltrans Forms unit to convert a large number of MS Word forms that local agencies must complete when submitting a request to receive funding to fillable PDF versions. The new forms should be available via the Local Assistance website to over 800 local agencies within a year or so. The intended results are to reduce the time and effort needed by users to complete necessary forms, eliminate redundant data entries, standardize, meet ADA requirements, improve compatibility, and comply with Deputy Directive DD-97 and Government Code section 14750(a) – Forms Management.

### **6.11 *Local Assistance Website Enhancements***

Currently, Local assistance is undergoing a major overhaul to its Internet and Intranet WebPages. The WebPages, which receive tens of thousands of hits per month, are being revised in response to requests to make the forms, documents, reports, and other information more accessible and easier to navigate. Draft changes have received very favorable responses. Completion is expected by the end of 2012.

## **7 MAINTENANCE**

***Currently no Proposed Items***

## 8 PROJECT MANAGEMENT

### 8.19 Project Resource and Schedule Management

Project Resourcing and Schedule Management System (PRSM) will be an enterprise project management system that will provide integrated scheduling and timekeeping capabilities for the Department's Capital Outlay Support (COS) statewide. PRSM will be a Commercial-off-the-Shelf ("COTS") system. This \$1.8 billion-per-year program funds environmental studies, design services, construction engineering and right-of-way acquisition services for State Highway projects. The Department employs more than 11,000 people in COS. State employee time charges make up most of the costs in this program. PRSM is intended to be an easy-to-use project scheduling system that:

- Allows portions of the Work Breakdown Structure (WBS) on each project to be assigned to individual employees ("Task Managers").
- Allows Task Managers to update current schedules, labor hour estimates and assignments on their work using a web browser, while preventing them from making any other changes.
- Allows all employees to see current cost and schedule information using a web browser.
- Integrates with Staff Central to ensure that employees know what labor charges they are authorized to make on projects.
- Assists supervisors and managers to prioritize the work of their units.
- Assists supervisors and managers to estimate their future workload and plan for that workload.
- Compares project costs with the project budgets.
- Forecasts the final cost of each project phase.

PRSM is needed because COS costs are spread across approximately 4,000 projects and currently the Department is unable to do the following:

- Obtain timely project cost information.
- Reconcile project expenditures to the plan through other than manual methods.
- Prevent unauthorized charging of labor to individual projects and therefore unable to control project labor costs.

PRSM will provide the following solutions:

- The Department will be able to meet the reporting requirements as mandated by the Legislature and the California Transportation Commission.
- Reduced time and effort will be required to develop resource-driven schedules.
- Project and functional managers will be able to status projects on a timely basis, in a statewide database.
- The ability to perform critical path scheduling and assign individuals accordingly.

- The Department will have the ability to identify skilled individuals and resource them to specific tasks.

Additional information is available at the PRSM intranet webpage:

<http://onramp.dot.ca.gov/hq/projmgmt/index.jsp?pg=16>

## **9 RIGHT OF WAY AND LAND SURVEYS**

### **9.26 *Perfection of Title on U.S. Forest Service Lands***

Right of Way will continue to perfect title to the State Highway right of way located within the boundaries of the United States Forest Service (USFS). In December of 2001, the Department, FHWA and USFS entered into an MOU that required the Department upgrade all of its Special Use permits across USFS lands to a DOT easement by late 2011. An amended MOU is being prepared requesting the original MOU be extended an additional 5 years to allow for the continuation of the title perfection within USFS lands. Each year the Districts have submitted a list to the USFS via the Department's Division of Planning with selected route segments requesting DOT easements. There has been some hold up at the Regional USFS level; however, recently the Department and USFS have been working closely to again finalize the DOT easements for segments of the State Highway right of way located within USFS boundaries.

### **9.27 *Automated Machine Guidance Technology in Construction***

Automated Machine Guidance (AMG) technology uses positioning devices, alone or in combination, such as Global Positioning Systems (GPS), Total Stations, or rotating laser levels to determine the real time X, Y, and Z position of construction equipment and compare the position against a Digital Design Model stored in an onboard computer. A computer display shows the operator several perspectives and delta values of his/her position compared to the design surface. This technology has the potential to increase the contractor's productivity, reduce the number of survey stakes, reduce support costs, and reduce construction working days.

The Brawley Bypass Stage 2 project was used as an AMG pilot study. Lessons learned and contractor feedback was used to update the AMG guidelines. The new road design software will facilitate development of more 3D electronic data for projects. AMG is now an everyday tool used by contractors to remain competitive.

Guidelines for AMG are posted at:

[http://pd.dot.ca.gov/row/offices/landsurveys/Equipment\\_& Software/New\\_Technology/Automated\\_Machine\\_Guidance/](http://pd.dot.ca.gov/row/offices/landsurveys/Equipment_& Software/New_Technology/Automated_Machine_Guidance/)

**9.28 *Integrating Geo-spatial Technologies into the Right of Way Data Management Process***

An effort is underway to integrate Geographic Information Systems (GIS) and database management systems into the Right of Way process. Current right of way data systems are not linked spatially to parcels or centerlines. With a geospatial link, physical location can be used to integrate multiple data sets and management systems across activities and to improve visual, as well as textual search capabilities. The ability to access and retrieve data electronically will provide convenience and improved decision-making, coordination, data consistency and accessibility to all users.

**9.29 *Real Time GNSS Network RTN***

Real-time Global Navigation Satellite System (GNSS) infrastructure systems, such as Caltrans Central Valley Spatial Reference Network (CVSRN) pilot project, enable users' instantaneous centimeter accuracy positioning in the field. Implementation of RTNs has the potential to dramatically decrease the need for in-ground monumentation for survey control and traditional line-of-sight surveying measurements. Personnel resources currently required to setup and guard GNSS base stations can be freed up to perform other tasks. Applications of this technology could provide advanced safety features for transportation, increased use of machine guidance technology, and support intelligent transportation systems. Efforts are ongoing to develop data sharing and partnerships between public and private RTNs for statewide applications.

**9.30 *Mobile Laser Scanning***

Mobile laser scanning is replacing Vanguard and conventional field surveys to more safely and efficiently collect pavement and facilities data at highway speeds, without the need for lane closures. Projects been surveyed by mobile scanning in the North Region, and Districts 4, 7, and 11. Further refinements to software and field procedures are being researched to yield better vertical results. Chapter 15 of the Surveys Manual has been added for the use of mobile laser scanning.

**9.31 *Contaminated Property Acquisition Process***

As of summer 2008, a proposed Project Delivery Directive and new Hazardous Materials Disclosure Document is circulating for approval that will better define the process of acquiring properties with some level of hazardous materials.

**9.32 Virtual Design and Construction (VDC)**

VDC utilizes three dimensional topographic data as the basis for creating multi-dimensional (time, cost, resources, etc.) computer generated engineering models as a method to enhance communication, collaboration, team decision making, constructability review, and public outreach to significantly reduce the time and cost to deliver transportation projects.

**9.33 Surveys and Right of Way GIS Initiatives**

Surveys has prepared a Geographic Information Systems (GIS) Business Plan and implementation plan. Survey data will begin populating the Department's GIS library which will facilitate better planning and estimating and improve the quality of project deliverables. Adding a GIS interface to the Right of Way Management Information System will improve communication with stakeholders and project staff, and decision making by providing a visual interface to the database

**9.34 Subsurface Utility Engineering**

Subsurface Utility Engineering (SUE) is an engineering process that has evolved considerably over the past few decades. It is increasingly being used by State transportation departments (DOTs), local highway agencies, utility companies, and highway design consultants. The SUE process combines civil engineering, surveying, and geophysics. It utilizes several technologies, including vacuum excavation and surface geophysics. SUE is promoted by FHWA as a proven technology with return on investment savings of \$4.62:1 or more.

**10 TRANSPORTATION PLANNING**

*Currently there are no Proposed Improvements.*

**11 TRANSPORTATION PROGRAMMING****11.07 Enhanced Information Technology**

Programming continuously improves their web site to ensure the availability of real-time programming information. The site includes the adopted STIP, status of Funds Requests, TCRP Fact Sheets; approved SHOPP; CTC Agendas, Meeting Book Items, and Action Taken Reports; the FSTIP and status of FSTIP amendments and links to websites containing project delivery resources; web access to the programming database CTIPS. The web is the main tool that is utilized to post the FSTIP and its amendments for the required public review in accordance with the FSTIP Public Participation Plan. Improving the website will enhance its operation,

and ensure that it is user friendly and an efficient programming information tool, which accelerates program/project delivery.

**11.08 Combine CTIPS with FADS and LP2000**

It is also proposed to combine the California Transportation Improvement Program System (CTIPS) business needs with the business needs of Federal Budgets (FADS) and the Division of Local Programs (LP2000). The combined system is called the California Transportation Infrastructure Funding System (CTIFS) and will maximize the benefits of each Division's data systems so that project programming, fund obligation, and federal agreement processes are streamlined for State and Local Agency transportation projects and programs.

With the proposed project programming of project budgets will be held in one database and the Department will be able to draw from that database for any project budget. District, HQ and local agency partners will of access to input and query data from the database.

## Status of Improvements



ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
1.01	Flexible Match and Tapered Funding	Budgets	Implemented	2002		This has allowed the Department to pursue early acquisition of right of way prior to environmental document approval.	12
1.02	Upgrade the Federal-aid Data System (FADS)	Budgets	In Progress				54
2.01	Critical Path Method (CPM) Specification Improvements	Construction	Implemented	2010		Requirement for use of CPM schedule on all projects.	2
2.02	Notice of Claim	Construction	Implemented	2010		Better define the triggers for a construction dispute that would trigger the three part notice of potential claim process. Require an RFI (request for information) to be submitted by the contractor prior to an NOPC submittal.	2
2.03	Resident Engineer (RE) Office Space	Construction	Implemented	2010		Contractor provides RE office space as a part of the construction contract bid. Implemented as an OCA-authorized nSSP for district use.	2
2.04	Smart (Flexible) Start	Construction	Implemented	2010		Specify the last working day and total working days, the Contractor picks the first working day.	3
2.05	Critical Path Method Scheduling	Construction	Implemented	1995		Provides construction planning and schedule tool for contractors and the Department.	12
2.06	Constructability Reviews	Construction	Implemented	1997		Expanded to all major projects in 1998.	13
2.07	Cost-plus-Time (A + B) Bidding	Construction	Implemented	2000		A+B Bidding was piloted in 1993. FHWA declared A+B Bidding as non-experimental in 1995. Guidance was updated in 2002.	13
2.08	Incentives/Disincentives (I/D)	Construction	Implemented	2000		Guidelines for employing I/Ds were issued in June 2000.	13
2.09	A + B with I/Ds	Construction	Implemented	2000		These items can be used together when there is a critical internal milestone.	14
2.10	Internal Milestones	Construction	Implemented	2001			14
2.11	Joint Contractor/State Value Analysis Study Immediately After Contract Approval	Construction	Implemented	2001		Opportunity for State and contractor to develop ideas to reduce construction contract time and cost.	14
2.12	Construction Contract Time	Construction	Implemented	2001		Policy requires project engineers to use standard industry production rates and critical path method schedules on all major projects.	14
2.13	Differing Site Conditions (DSC) Management Review Committee	Construction	Implemented	2002		Process results in statewide consistency in dealing with DSC disputes.	15
2.14	Time-Related Overhead	Construction	Implemented	2000		Inclusion of TRO bid item was implemented on a pilot basis in 2000. TRO Specifications are used in projects \$5M or more.	15
2.15	Increased Construction Cost Savings to the Contractor for Reducing Traffic Congestion	Construction	Implemented	2002		AB 1530 became effective on January 1, 2002. The bill increased the contractor's compensation to 60% if the cost reduction changes significantly reduced or avoided traffic congestion during construction.	16
2.16	Contract Incentives/Disincentives to Promote Timely Construction Completion	Construction	Implemented				16
2.17	Traffic Contingency Plans	Construction	Implemented	2001		Developed SSP 12-220	17
2.18	Alternative Dispute Resolution	Construction	Implemented	2002		A dispute review board is mandatory on contracts \$10M or more.	17
2.19	Policy to Pay for Acceleration Costs During Construction When Cost Effective	Construction	Implemented	2001			17
2.20	Lane Closure Software	Construction	Implemented	2005			17
2.21	On-line Debarment List of Debarred Contractors	Construction	Implemented	2004			18
2.22	55-Day Beginning of Work	Construction	Implemented	2008		Postpone the beginning of work by 55 days to allow the contractor to prepare submittals such as working drawings, falsework plans, SWPPP, etc.	18

ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #	
2.23	Expansion of Subcontracting	Construction	Implemented	2008		Increase the level of subcontracting opportunities from 50% to 70%.	18	
2.24	Elimination of Contract Retention	Construction	Implemented	2008		Eliminate retention on federally funded and state-only funded contracts.	19	
2.25	Owner Controlled Insurance Program (OCIP)	Construction	Implemented	2008		OCIP can help to increase small business contractor participation.	19	
2.26	Partnering	Construction	Implemented	2008			20	
2.27	Emergency Contracting Innovations	Construction	Implemented	2008		Improve the directors order, confirmation of verbal agreements, and emergency contract boilerplates.	20	
2.28	Information Technology Systems	Construction	In Progress		2012	Construction Management System (CMS) project started July 2006.	54	
2.29	Cost Reduction Incentives Proposals (CRIP)	Construction	In Progress		2012	Improve the number and quality of CRIPs considered and approved.	54	
2.30	Civil Work Claims Acceleration	Construction	In Progress		2013	Allow claims for civil work to be resolved during the plant establishment period.	55	
2.31	Standing Dispute Resolution Boards	Construction	In Progress		2012	Two person alternative dispute resolution for projects valued up to \$3 million.	55	
2.32	Utility Agreement Incentives	Construction	In Progress		2012	Use economic incentives to encourage timely relocation of utilities.	55	
2.33	Improved Bidder Inquiry	Construction	In Progress		2012	Improve the timeliness and quality of responses to bidder inquiries. Will be implemented a Project Delivery Directive.	55	
2.34	Expanded Use of Agreed Price Contract Change Orders	Construction	In Progress		2012	Align construction cost estimating procedures with industry practices to develop realistic cost estimates for contract change order work.	55	
2.35	Caltrans Construction Partnering Steering Committee (CCPSC)	Construction	In Progress		Performance Measures and Risk Management: 2012	Lessons Learned and PDT Effectiveness: 2012	The Design through Construction subcommittee under the CCPSC has identified issues effecting project delivery and has convened task forces to implement solutions to these issues. June 2012 Implementation dates are noted for Performance Measures and Risk Management task forces. Target implementation date for Lessons Learned is December 2012 and PDT Effectiveness is to be determined.	56
3.01	Design-Build	Design	Implemented	2009		The Design Build Demonstration Program consists of 15 projects: up to ten (10) are authorized for the State and up to five (5) for local agencies. To date eight (8) state projects and one (1) local have been nominated. Two (2) of the State projects have been awarded, the remaining being in various stages in the procurement process. No evaluation can be compiled at this time. All projects to be awarded by 2014.	3	
3.02	Roadway Design Software	Design	Implemented	2011		The recently procured Roadway Design Software (RDS) Civil 3D to replace CAICE. Training and software roll-out to start in 2012.	3	
3.03	2010-2011 PID Streamlining Effort	Design	In Progress		2012	The 2010-2011 PID Streamlining Effort is working to make major improvements in the way the PID program is managed resourced and executed.	4	
3.04	Stormwater Management Design Tools	Design	Implemented	Various		A variety of tools have been developed to assist Project Engineers to evaluate, design and document compliance with a variety of stormwater permit requirements.	4	
3.05	Re-engineering the Project Development Process	Design	Implemented	1999		Re-engineering team completed report in 1999. While the entire concept was not approved nor implemented, ideas generated during this study have been.	20	

ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
3.06	Increased Response to Statewide Cooperative Agreements	Design	Implemented	2004		Office of Cooperative Agreements created. Updated Chapters 9, 12, and 16 of the PDPM in 2005.	21
3.07	Pre-Approved Cooperative Agreements with District Director Authority	Design	Implemented	2008		PACT (Project Agreement Construction Tool) now develops approvable cooperative agreements ready for execution by a District Director.	22
3.08	On-line Training for Cooperative Agreements	Design	Implemented	2005		A on-line course is available via the internet to Department, Local Agency, and consultant staff.	22
3.09	Landscape Architecture PS&E Guide	Design	Implemented	2008		An updated version will be available in 2012.	22
3.10	Design-Sequencing	Design	Implemented	2000		Twelve projects have been completed to date with an average time savings of approximately 1 month.	23
3.11	Look Ahead Report for Contracts to be Advertised	Design	Implemented	2008		A website has been developed to provide a single reliable source of information to the contracting industry regarding the Department's planned construction contracts to assist industry to better plan for its resource, equipment and material needs.	23
3.12	Project Change Control	Design	Implemented	2000			23
3.13	Value Analysis	Design	Ongoing			The Department has been performing VA since 1969. Federal legislation mandated studies on all projects on the Federal-aided system that have total a cost over \$25 million, regardless of funding source.	24
3.14	Project Development Process – On-Line Course	Design	Implemented	2005		On-line sessions are held twice a month for 20 to 100 students each.	24
3.15	Design Training Curriculum	Design	Implemented	2007		Specialized studies program designed to focus training and training development towards core classes intended to improve quality of design products. Curriculum development is on-going.	25
3.16	P.E. Academies	Design	Implemented	1988			25
3.17	Records Management	Design	Implemented	2007		To centralize document storage, the Division of Design has scanned 20 years worth of studies and design exceptions for the Document Retrieval System (DRS). The DRS will be based on a cloud model for cataloging executed or approved PIDs, PR and design exceptions. The DRS will be the future filing system for executed or approved PIDs, PRs and design exceptions.	25
3.18	Disposal Site Quality Team	Design	Implemented	2001			26
3.19	Stormwater Management Design Tools	Design	In Progress		Various	Various stormwater design tools are being developed to assist staff.	56
3.20	Framework for Independent Quality Assurance for Design Product	Design	In Progress		Continuous	Independent Quality Assurance (IQA) is a systematic approach to measure quality for Design products. Part of a quality management system, IQA assesses quality control and quality assurance (QC/QA) throughout the development for preventive planning, meeting expectations, and post evaluation. A pilot program to implement IQA began in August 2011 and is expected to be completed by December 2012.	57
3.21	Additional Courses for Design Training Curriculum	Design	In Progress		2012	The "Roadway Drainage" course and a course on "Culvert Rehabilitation and Replacement" should be completed the end of the 2011/2012 FY. Additional courses to supplement the Highway Drainage program will be considered for development as resources allow.	57

ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
3.22	Construction Manager/General Contractor	Design	In Progress		2013	The Department is pursuing authority to use the Construction Manager/General Contractor (CMGC) method of project delivery.	58
4.01	Construction Contract Standards	Engineering Services	Implemented	2009		2010 Construction Contract Standards are published and available.	5
402	Draft Contract Resolution Database	Engineering Services	Implemented	2011		In 2011 the Draft Contract Resolution Database was rolled out.	5
4.03	Training by DES-OE	Engineering Services	Implemented	2000		Classes updated each year to meet District training needs.	26
4.04	Risk Advertising Votes	Engineering Services	Implemented	2001		Risk Advertisement process was updated in 2006 to include risk votes and clarify responsibilities and process.	26
4.05	Soundwall Specification	Engineering Services	Implemented	2003		The SSP and descriptive information on its utilization is on the DES-OE website.	27
4.06	Accelerated Bridge Construction (ABC)	Engineering Services	Implemented	2008		The SSP and descriptive information on its utilization is located on the DES-OE website	27
4.07	Accelerated Bridge Construction	Engineering Services	In Progress		2012	Division of Engineering Services is now actively working with Department management to conjoin efforts related to accelerating project delivery, including Accelerated Bridge Construction, into a single streamlined effort.	58
4.08	Best Bid Standards	Engineering Services	In Progress		2012	All district are now trained. Database component to justify comments with Best Bid Standards and identify trends for continuous quality improvement now under development and due in 2012.	58
5.01	Environmental Management System -- PEAR and STEVE tools	Environmental	Implemented	2011		The STEVE Tool has helped to achieve multiple business objectives.	5
5.02	Environmental Engineering -- Noise	Environmental	Implemented	2008		A GIS based Statewide Soundwall Inventory is available on line.	6
5.03	Environmental Commitment Tracking	Environmental	Implemented	2009		Each District is required to establish and maintain an Environmental Commitment Record for each project. When all environmental commitments have been met, a Certificate of Environmental Compliance is completed.	6
5.04	Purpose and Need	Environmental	Implemented	2009		As a follow-up to the prior efforts on purpose and need such as DD-83, Design and DEA completed an on-line purpose and need training class.	7
5.05	NEPA/404 MOU Training	Environmental	Implemented	2009		The Environmental Management Office developed an on-line NEPA/404 MOU Training course to address changes in the new MOU.	7
5.06	"Mare Island Accord"	Environmental	Implemented	2000		Has resulted in improved interagency relationships and a better understanding each other's mandates and challenges.	28
5.07	Coast Highway Management Plan, Big Sur Coast	Environmental	Implemented	2004		Effort on Management Plan was completed in 2004, and environmental approval for the plan is not required.	29
5.08	Renegotiation of NEPA/404 Integration Process MOU	Environmental	Implemented	2006		New MOU is more flexible and reflects lessons learned from the previous agreement.	29
5.09	Resource Agency Partnering Agreements	Environmental	Implemented	2000		Program recently expanded to include the California/Nevada Operations Office of the U.S. Fish and Wildlife Service.	30
5.10	Programmatic Agreements with Resource Agencies	Environmental	Implemented	1994		Opportunities for more programmatic biological opinions are being explored and may be implemented.	30
5.11	Mitigation Banking and Process Improvements	Environmental	Implemented	1991		Working to develop new methods to collaborate with resource agencies consistent with new SAFETEA-LU provisions.	31

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5.12	Environmental Impact Statement (EIS) Review Process Improvement	Environmental	Implemented	1998		Now, under NEPA Delegation, the Department has assumed FHWA's Federal Lead Agency role, and has the authority to review and approve NEPA documents.	32
5.13	Consistent Approach to Well-Defined Project Need and Purpose	Environmental	Implemented	2004		Deputy Directive Number DD-83 has been implemented. Resources on developing Purpose and Need statements have been posted online.	32
5.14	Preliminary Environmental Assessment Report (PEAR)	Environmental	Implemented	2001		The PEAR process has been implemented. The PEAR handbook is being revised to address changes and improvements in the environmental scoping process. Revisions are under final review by Environmental, and will be posted on the SER.	33
5.15	Multi-Agency Working Group to Address Assessment of Cumulative Impacts	Environmental	Implemented	2006		Guidance for cumulative impacts was developed 2005. Indirect impact analysis was developed in 2006.	33
5.16	Annotated Outlines for Environmental Documents and Standard Formats for Biological Assessments	Environmental	Implemented	2004		Has improved the quality of environmental documents and facilitated reviews by state and federal agencies by providing a consistent format. Guidance was updated in 2007.	34
5.17	Standard Environmental Reference (SER)	Environmental	Implemented	2002		Refinements and additional information are continuously added.	35
5.18	NEPA Delegation Pilot Program	Environmental	Implemented	2007		On July 1, 2007, FHWA assigned its responsibilities for NEPA, as well as for consultation and coordination under other Federal laws, to the Department.	35
5.19	Categorical Exclusions	Environmental	Implemented	2007		In 2007 the responsibility for making Categorical Exclusion (CE) determinations was assigned to the Department by FHWA through the Section 6004 CE MOU, and the Pilot Program MOU, Section 6005 (NEPA Delegation).	36
5.20	Environmental Engineering -- Hazardous Waste	Environmental	In Progress		2012	A Hazardous Waste Handbook is in development to guide district staff on hazardous waste projects.	59
5.21	Traffic Studies	Environmental	In Progress		2012	To help accelerate projects, a Caltrans Statewide Traffic Guidance Team has been formed to develop guidance on how to review and prepare traffic studies. The Team Sponsors/Steering Committee includes representatives from Design, Local Assistance, Transportation Planning, Traffic Operations, and Environmental Analysis.	59
5.22	Additional Programmatic Agreements with Resource Agencies	Environmental	In Progress		2012	DEA is seeking Programmatic Agreement (PA) for Coho salmon and is considering PAs for the Sierra red-legged frog, various species on the north coast (e.g. marbled murrelet), and southern California species in the coastal sage scrub community.	59
5.23	Mitigation Banking and Process Improvements - RAMP and SAMI	Environmental	In Progress		2012	Two advanced planning and implementation programs, Regional Advance Mitigation Planning (RAMP) and Statewide Advance Mitigation Initiative (SAMI) are being developed.	59
6.01	Environmental Study Scoping and Screening Tools	Local Assistance	Implemented	2008, 2011		Preliminary Environmental Study (PES) form for scoping was updated in 2008 to reflect new requirements and add user-friendly features; a new tool approved in July 2011, the Preliminary Environmental Screening Form for Non-Infrastructure (NI) Projects, streamlines the environmental process for NI projects.	7
6.02	New Policy Guidance and Forms for Non-Infrastructure Projects	Local Assistance	Implemented	2011		Policy guidance and forms for non-infrastructure projects such as "Safe Routes to School" and CMAQ Equipment retrofit", includes R/W short form, a "Non-infrastructure Request for Authorization" short form.	8
6.03	Use It or Lose It	Local Assistance	Implemented	1999			36

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6.04	On-line Manuals, Guidelines, Guidebooks, Bulletins, and Notices	Local Assistance	Implemented	2006		Paperless Manuals and Guidance documents	37
6.05	Improved Program Management Direction and Communications	Local Assistance	Implemented	2006		Instituted Planning and Local Assistance Network (PLAN), Hot Topics and Sub-team meetings.	37
6.06	Electronic MS Word Forms	Local Assistance	Implemented	2006		Users can obtain editable forms as soon as new Office Bulletins or LPPs are issued.	38
6.07	Expedite Reimbursements	Local Assistance	Implemented	2001			38
6.08	Standard Environmental Reference and LAPM Chapter 6	Local Assistance	Implemented	2002		In conjunction with the Division of Environmental Analysis.	38
6.09	Improved Training	Local Assistance	Implemented	2006		RE Academy, Federal-aid Series, Local Assistance Academy, and other training	38
6.10	Electronic Fillable PDF Forms	Local Assistance	In Progress		2012	Convert a large number of MS Word forms to fillable PDF for access to over 800 local agencies to reduce the time and effort needed by users to complete necessary forms, eliminate redundant data entries, standardize, meet ADA requirements, improve compatibility, and comply with Deputy Directive DD-97 and Government Code section 14750(a) – Forms Management.	60
6.11	Website Enhancements	Local Assistance	In Progress		2012	Major overhaul to Internet and Intranet WebPages which receive tens of thousands of hits per month. Revisions are in response to requests to make the forms, documents, reports, and other information more accessible and easier to navigate. Draft changes have received very favorable responses. Expected completion by the end of 2012.	60
7.01	Emergency Contractor Registry	Maintenance	Implemented	2000		Over 4,500 contractors have voluntarily registered.	39
7.02	Director's Order Guidelines and Matrix	Maintenance	Implemented	2002		Provides information on emergency contracts	39
8.01	PM Directive (PMD 018): Management of Capital Outlay Support	Project Management	Implemented	2011		This Directive clarifies the responsibilities of Project Managers, Deputy District Directors for Project Delivery and Headquarters Division of Project Management in the development and maintenance of project workplans, including planned hours and support costs throughout the life of a project.	8
8.02	PM Directive (PMD019): Managing Capital Improvement	Project Management	Implemented	2011		A Capital Improvement Project (CIP) Split/Combine is the process which documents and implements the business decision to either split the scope of work for a CIP into multiple construction projects or combine two or more scope(s) of work into a single construction project.	8
8.03	Capital Project Workplan Handout	Project Management	Implemented	2010		It provides an overview of the procedures, methods, and tools relating to the Department's use of project workplans in managing capital improvement projects and provides references to more detailed policies, guidance, training, and other documentation.	9
8.04	Capital Outlay Support Charging Practices Guidelines	Project Management	Implemented	2011		The purpose of these Guidelines is to furnish information and provide an overview of charging practices used in COS.	9
8.05	Project Management Online Reporting Tool	Project Management	Implemented	2011		This Online Reporting tool has been developed to generate a number of useful Project Management reports.	9
8.06	Workplan Standards Guide - Issue Management System	Project Management	Implemented	2010		This tool is developed to submit and track change requests to the current version of the Caltrans Work Breakdown Structure (WBS).	10

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8.07	Support Budget Overrun Documentation (SBOD)	Project Management	Implemented	2011		SBOD process was for projects on which expenditures of one or more support component has exceeded the programmed budget, and on which that component will be completed on or before June 30, 2011 ; and for projects that are in construction and on which construction support expenditures will exceed the programmed budget.	10
8.08	Project Charter Policy	Project Management	Implemented	2001		Charter process is intended to help manage project scope and reduce work.	39
8.09	Capital Project Skill Development Plan	Project Management	Implemented	2000		Current annual goal is to provide approximately 200,000 hours of training.	40
8.10	Use of Flexible Resources to Deliver Projects	Project Management	Implemented	2001		New consultant contracts are continuously being developed and awarded.	40
8.11	Revised Milestone Standard	Project Management	Implemented	2001		Two additional environmental milestones were added to the work breakdown structure.	41
8.12	Project Management Professional (PMP) Certification	Project Management	Implemented	1999		There are over 322 PMPs in the Department.	41
8.13	Lessons Learned Database	Project Management	Implemented	2003		Increased utilization of the Lessons Learned database and associated improvements will be addressed as part of the Caltrans Strategic Plan, Strategy 3.1.1 which begins in FY 08/09 and ends in FY 11/12.	41
8.14	Project Close Out	Project Management	Implemented	2003			42
8.15	Project Communication Handbook	Project Management	Implemented	2003		The Handbook was updated in September 2007 and is available on-line.	42
8.16	Project Management Certificate Program	Project Management	Implemented	2002		Over 560 graduates.	42
8.17	Project Delivery Contracts	Project Management	Implemented	2005		Contracts can be accessed via the intranet	43
8.18	Development and Use of Risk Management Plans for Capital Projects	Project Management	Implemented	2004		The Handbook was updated in May 2007 and is available on-line.	43
8.19	Project Resource and Schedule Management	Project Management	In Progress		2012	Contract award is expected in October 2008. The 18-month implementation contract will run through 2012.	61
9.01	Survey File	Right of Way and Land Surveys	Implemented	2008		The Survey File was implemented with the adoption of Appendix QQ of the Project Delivery Procedures Manual	10
9.02	One-Call Acquisition	Right of Way and Land Surveys	Implemented	2000		The Department received final approval from the Department of Finance in Oct 2007 increasing the Draft Purchase Order (DPO) limit from \$2,500 to \$10,000, increase implemented in May 2008.	44
9.03	Resolution of Necessities by Locals	Right of Way and Land Surveys	Implemented	2001		Implemented with Department Memorandum dated December 10, 2001. Clarifying memoranda have been subsequently released.	44
9.04	Right of Way Acquisition prior to Environmental Approval	Right of Way and Land Surveys	Implemented	2000			44
9.05	Streamlined Positive Location (Potholing) Process	Right of Way and Land Surveys	Implemented	2001		To date, 277 contracts have been executed.	45
9.06	Right of Way Project Delivery Team	Right of Way and Land Surveys	Implemented	1998		Continuing to be implemented in selected Districts	45
9.07	Quality Enhancement Joint Review Process	Right of Way and Land Surveys	Implemented	1999		A plan is established every year outlining what functions are to be reviewed. See R/W Website calendar for current schedule	46
9.08	Biennial Surveys and Right of Way Engineering Coordination Meetings	Right of Way and Land Surveys	Implemented	2007		Meetings were repeated every other year in each district, however, travel restrictions have curtailed these meetings.	46

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9.09	Right of Way and Land Surveys Intranet Site	Right of Way and Land Surveys	Implemented	2002		Relocation Assistance Program (RAP) Best Business Practices have been posted on the intranet site. The Office of Land Surveys (OLS) has updated its intranet site to provide more links to manuals, guidelines, resource files and contacts for Surveying and R/W Engineering functions.	46
9.10	Utility Design Activities Prior to Environmental Approval	Right of Way and Land Surveys	Implemented	2002		Guidelines for this process are outlined in Utility Reference No. 02-01	47
9.11	Underground Service Alerts (USA) - Design Inquiry Service Contract Utility Design	Right of Way and Land Surveys	Implemented	2007			47
9.12	Increased Awareness of Right of Way Activities	Right of Way and Land Surveys	Implemented	2000		On-going training statewide	47
9.13	Continuous Advertising for Appraisal Consultants	Right of Way and Land Surveys	Implemented	2002		This accelerated the process for entering into personal service contracts.	47
9.14	Improved Certificate of Sufficiency Process	Right of Way and Land Surveys	Implemented	2004		Decision Document approved April 2004.	47
9.15	Vanguard Remote Surveying System	Right of Way and Land Surveys	Implemented	1994		Four systems are in use throughout the Department.	48
9.16	Specifications for Surveying on Superstructures	Right of Way and Land Surveys	Implemented	2004		Provides uniform and consistent support statewide in the form of construction stakes on superstructures.	48
9.17	Right of Way Engineering Mapping Standards	Right of Way and Land Surveys	Implemented	2003		Improved communication and coordination reported. The use of resource files and tools help users develop standard R/W mapping products efficiently.	48
9.18	Utility Relocation Master Contracts	Right of Way and Land Surveys	Implemented	2004			48
9.19	Letter/Notice to Property Owners for Environmental Study Entry	Right of Way and Land Surveys	Implemented	2003		Letter/Notice to Property Owners for Environmental Study entry developed in coordination with Legal.	49
9.20	Joint Training for R/W Utility Coordinators and District Local Assistance Engineers	Right of Way and Land Surveys	Implemented	2005		Joint training for Right of Way Utility Coordinators and District Local Assistance Engineers was delivered in June 2005. The Department has taken over instructing the R/W course in the Federal Aid Series.	49
9.21	Assuming Greater Role in Delivery of Training to Local Public Agencies and Consultants	Right of Way and Land Surveys	Implemented	2005		Developed partnership and continuously working and training Local Public Agencies and Consultants.	49
9.22	Improve Accuracy in Right of Way Estimates	Right of Way and Land Surveys	Implemented	2005		Cost Estimate Map Toolbox has been posted on the Right of Way Division website.	49
9.23	RTK GNSS Equipment and Specifications	Right of Way and Land Surveys	Implemented	2008		100% of Department survey crews have been outfitted with RTK GPS equipment in the 2007/08 fiscal year.	50
9.24	Terrestrial Laser Scanning	Right of Way and Land Surveys	Implemented	2007		The Department is currently using six terrestrial laser scanners throughout the State on various projects. Seven Districts have been trained and the remaining districts will attend classes in FY 11/12.	50
9.25	Early Involvement for Railroad Appraisals	Right of Way and Land Surveys	Implemented	2007			50
9.26	Perfection of Title on U.S. Forest Service Lands	Right of Way and Land Surveys	In Progress		2011	In December of 2001, the Department, FHWA and USFS entered into an MOU that required the Department upgrade all of it's Special Use permits across USFS lands to a DOT easement by late 2011. A five year extension to the MOU is being requested.	62



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9.27	Automated Machine Guidance Technology in Construction	Right of Way and Land Surveys	In Progress		2014	Interim Guidelines completed in 2004 and posted. A Machine Guidance activity was included in the GoCalifornia Industry Capacity Expansion effort. A pilot project was awarded in 2008 in District 11, with a nonstandard special provision that allows the Contractor to bid and construct the project using machine guidance technology. Using the lessons learned, standards will be developed for more widespread use.	62
9.28	Integrating Geo-spatial Technologies into the Right of Way Data Management Process	Right of Way and Land Surveys	In Progress		2012	The Department is participating in a NCHRP research project to support deployment of a Right of Way MIS integrating Geo-spatial technologies.	63
9.29	Real Time GNSS Network RTN	Right of Way and Land Surveys	In Progress		Continuous	Caltrans expanded the Central Valley Spatial Reference Network (CVSRN) to include additional reference stations in the southern San Joaquin Valley and San Diego County. Real-time GPS Networks (RTNs) are proving to improve the safety, productivity and efficiency of surveying crews and improve mobility. Several districts are using commercial based Leica, Trimble, and public RTNs and reporting favorable results. A statewide California Real Time Network (CRTN) is being developed through the California Spatial Reference Center.	63
9.30	Mobile Laser Scanning	Right of Way and Land Surveys	In Progress		2012	AHMCT at UCD has nearly completed a study of using mobile laser scanning for creating digital terrain models. Another research project by UCD is underway to examine the potential of mobile laser scanning for accelerated project delivery.	63
9.31	Contaminated Property Acquisition Process	Right of Way and Land Surveys	In Progress		2012	Project Delivery Directive pending approval in 2008	63
9.32	Virtual Design and Construction	Right of Way and Land Surveys	In Progress		2014	Virtual Design and Construction takes advantage of software to design, build, and manage projects using 3D data. Information rich virtual data allows users to visualize data in ways not possible before.	64
9.33	Surveys and R/W GIS Initiatives	Right of Way and Land Surveys	In Progress		Continuous	Survey data will begin populating the Department's GIS library which will facilitate more precise results and greater detail from GIS queries. Adding a GIS interface to the Right of Way Management Information System will improve communication with stakeholders and project staff, and decision making by providing a visual interface to the database.	64
9.34	Subsurface Utility Engineering (SUE)	Right of Way and Land Surveys	In Progress		2013	Presentations on the benefits of SUE are being made to Caltrans management and staff by SUE industry professionals. Caltrans currently does not have standard contract language to acquire SUE services. Application of SUE is needed to further prove the benefits of the technology on Caltrans projects.	64
10.01	Establishment of the Project Study Report – Project Development Support Document (PSR-PDS)	Transportation Planning	Implemented	1999		CTC approved policy on December 18, 1999.	50
10.02	Early Environmental Efforts/Geographic Information Systems	Transportation Planning	Implemented	2005			51

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10.03	Route Optimization Analysis Tools	Transportation Planning	Implemented	2005		This tool provides a range of potential alignments with alignment costs.	51
10.04	SHOPP Investment Analysis Tool	Transportation Planning	Implemented	2008		Analyzes the SHOPP program as needs and funding conditions change.	52
10.05	Purpose and Need Sub-Team	Transportation Planning	Implemented	2008		The Team developed a work plan to identify improvement to the Purpose and Need process.	52
11.01	Delegation of FSTIP Administrative Modifications to MPOs	Transportation Programming	Implemented	2011		The Department worked with FHWA and FTA to develop revised FTIP/FSTIP Amendment and Administrative Modification Procedures. These revised procedures allow the Department to delegate authority to the MPOs to approve administrative modifications to the FSTIP thereby saving up to three weeks in the approval time.	11
11.02	Electronic Funds Request	Transportation Programming	Implemented	2009			11
11.03	Electronic Posting of CTC Book	Transportation Programming	Implemented	2011			11
11.04	Delegated Authority	Transportation Programming	Implemented	2000			52
11.05	Improved Scoping and Scheduling	Transportation Programming	Implemented	2004			52
11.06	New Developments in Information Technology	Transportation Programming	Implemented	2000			53
11.07	Enhanced Information Technology	Transportation Programming	In Progress		Continuous	Programming continuously improves their web site to insure the availability of real-time programming information.	64
11.08	Combine FADS with CTIPS and LP2000	Transportation Programming	In Progress		2020	This is a joint effort with the Division of Budgets and the Division of Local Assistance.	65