

PROJECT DELIVERY ACCELERATION TOOLBOX



Improvements to the
Project Delivery Process



August 2014

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INTRODUCTION

The Project Delivery Acceleration Toolbox (Toolbox) is a comprehensive report listing the California Department of Transportation's (Caltrans) efforts (past and present) to accelerate the delivery of transportation projects. This document also identifies proposed tools for Caltrans to implement over the next few years. This document will be modified often to reflect the most current and continuing improvement efforts of Caltrans. The purpose of this document is to provide Caltrans employees, as well as our external partners, valuable tools to accelerate project delivery. The Toolbox is on the Caltrans 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 Caltrans functional division (i.e., Budgets, Planning, Programming, etc.). The first section notes the improvements that have been implemented from July 2012 thru June 2014. 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 Value Engineering Change Proposals (VECPs)

In accordance with Caltrans policy to encourage innovation and more VECP (formerly known as Cost Reduction Incentive Proposals (CRIPs)) submittals and approvals, this improvement includes delegation of approval of VECPs at delegated change order limits of authority. Project Delivery Directive 13 (PD-13) designates the resident engineer as the focal point of contact for the contractor except for VECP denials. The PD includes a requirement for the deputy district director or region chief of construction to be the focal point of contact to the contractor for all VECP denials. The PD requires a separate review on all VECPs with construction cost savings to Caltrans of \$200,000 or more by a management review committee (MRC). The MRC is chaired by the deputy district director or region chief of construction. The MRC may also provide an optional separate review on VECPs with construction cost savings to Caltrans of less than \$200,000.

Per Public Contract Code 7101, VECPs compensate the contractor for either 50% or 60% of the estimated net savings due to the change. This amount is estimated using a force account method. Item prices may be used in the force account method if they closely resemble force account estimates. In addition to paying the contractor for their share of the net savings, increases and decreases in items, payment adjustments and extra work required to make the change are all accounted for on the same VECP change order that includes the estimated net savings. Examples of how to perform this calculation are in the *Caltrans Construction Manual*.

Guidelines for VECPs are in PD-13 can be accessed at:

<http://www.dot.ca.gov/hq/projdev/directive/PD-13-VECP-3-14-14.pdf>

2.02 Updated Policy and Guidelines for Use of Cost plus Time

The September 2002 “Guideline for Use of A+B Provisions” has been replaced by Project Delivery Directive 14 (PD-14) “Policy & Guidelines for use of Cost + Time Bidding Provisions”. Cost plus Time (C+T) bidding (formerly known as A+B bidding) is a method of determining the lowest bidder by having bidders bid on both the “cost” and the “number of working days” necessary to complete the contract. Use is recommended but not required for construction projects estimated to be \$1 million or more in construction cost and 100 or more working days.

In C+T bidding, the lowest bidder is that bidder with the lowest combined total of the “C” (the extended bid item amounts) and “T” (the “number of working days” bid multiplied by a previously determined “Cost per Day”).

The “Cost per Day” is typically determined by the District Traffic Operations Functional Manager as the road user costs and road impact costs. On some projects, costs other than road user costs that impact the public may be added into the cost of time, if they are real costs incurred by the public. These are called road impact costs. They could include costs resulting from delays to adjacent projects, social/economic impacts, or business revenue loss.

Use of Cost plus Time bidding provisions has been proven to be successful. This method of bidding in effect eliminates most or all of the contractor’s float by determining contract time competitively. Research shows that on average, use of Cost plus Time bidding provides an average time savings of 27% on construction projects.

Guidelines for use of C+T bidding are in PD-14, which can be found at:
<http://www.dot.ca.gov/hq/projdev/directive/PD-14-Cost-and-Time-Bidding.pdf>

2.03 Concurrent Delays

The contractor is no longer compensated for additional overhead costs incurred during a concurrent delay. They are granted nonworking days, which grants them relief from liquidated damages for the period but are not granted a time adjustment and commensurate additional overhead. Concurrent delays are now defined as an exception under the Working Day definition in the Standard Specifications, which means they are nonworking days.

3 DESIGN

3.01 Construction Manager/General Contractor

Legislation implemented in 2012 authorized Caltrans to conduct a limited pilot program to award a maximum of (6) six transportation projects using the Construction Manager/General Contractor (CM/GC) delivery method. The contractor acts as the Construction Manager (CM) during the design of the project. The CM may be selected on the basis of qualifications, experience, fees for management services, or prices for the target cost of construction as well as an estimated ceiling price. The CM acts as the Caltrans 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 Caltrans 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. Caltrans has

hired an Independent Cost Estimator (ICE) to assist in the GMP negotiation process. 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.

To date all six (6) pilot projects have been nominated, with two (2) awarded.

3.02 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:

- T-1 Checklist Tool – A tool to assist project engineers to navigate through the T-1 Checklist from the Storm Water Data Report (SWDR) was created. This tool will help project engineers when selecting and sizing treatment BMPs.
- Infiltration Tool - An infiltration tool was developed to assist project engineers in documenting compliance for the Caltrans NPDES Permit. This tool will also assist designers to size treatment BMPs for projects.
- Pervious Pavement Design Guidance. This guidance was developed in concert with the Pavement Program to have consistency when designing and evaluating pervious pavement within Caltrans right of way for the purposes of stormwater compliance. Currently pervious pavements are only approved on non-highway facilities.
- Water Quality Planning Tool (WQPT). Improvements have been made to the WQPT to assist in identifying regulatory requirements and project specific information to be used when designing for stormwater compliance.

The Stormwater Management website is located at:

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

3.03 Landscape Architecture Questionnaire to Determine Visual Impact Assessment (VIA) Level

This guide will expedite determination of the appropriate level of VIA documentation. This questionnaire assists the VIA preparer (i.e. Landscape Architect) in estimating the probable visual impacts of a proposed project on the environment and in understanding the degree and breadth of the possible visual issues. The goal is to develop a suitable document strategy that is thorough, concise and defensible.

The questionnaire may be accessed at:

http://www.dot.ca.gov/hq/LandArch/via_outlines/index.htm

4 ENGINEERING SERVICES

4.01 *Improved Bidder Inquiry*

Working together Construction, Engineering Services' Office Engineer, and districts have replaced the seven separate electronic bidder inquiry systems with one system. The one system eliminates some of the confusion bidders had in posting their inquiries. Full Authority to Advertise District Delegation (AADD) requires Engineering Services' Office Engineer as part of the Construction Contract Quality Management Program to monitor inquiries and the timeliness and completeness of the responses. Working with the districts to improve the timeliness and completeness of bidder inquiry responses will lower bidder risk and expand the pool of bidders. Lower risk and more bidders increases competition resulting in lower bids.

5 ENVIRONMENTAL

5.01 *Additional Programmatic Agreements with Resource Agencies*

Caltrans has received incidental take authorization from the National Marine Fisheries Service for three ESA-listed salmonid species in coastal drainages from Oregon to Santa Cruz County. Preparation of Biological Assessments and Biological Opinions are no longer necessary for a variety of small projects within portions of Districts 1, 2, and 4 for salmonid species. A Programmatic Letter of Concurrence (PLOC) has been prepared by the U.S. Fish and Wildlife Service for a number of north coast species (including Northern spotted owl and marbled murrelet) in District 1 and portions of District 2. The PLOC significantly streamlines endangered species consultations for a variety of small capital and maintenance projects.

Programmatic agreements are posted at:

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

5.02 *Bridge Rails and Barriers: A Reference Guide for Transportation Projects in the Coastal Zone*

This guide has been prepared as a tool to help stakeholders and participants in bridge and railing design to better understand options available for application in our projects. This information is designed to help streamline the processes of rail selection and coastal development permitting. The guidance presents fundamental design standards as well as a wide array of rail examples exhibiting site-specific features; aesthetic designs and treatments; and design features to ensure safety, ease of maintenance, and versatility. The successful combination of the characteristics supports compatibility and compliance with both Caltrans standards and Coastal Act/Local Coastal Plan policies.

The guidance may be accessed at:

http://www.dot.ca.gov/hq/LandArch/barrier_aesthetics/Caltrans_Bridge_Rails_and_Barriers.pdf

6 LOCAL ASSISTANCE

6.01 *Updated Forms On-line*

Local Assistance recently made several local project delivery forms available as fillable PDF versions. The new forms became available via the Local Assistance website to over 800 local agencies in 2013. The new PDF fillable forms are more user friendly than the original MS Word versions, meet accessibility requirements, and enable the use of Local Assistance's newly developed FormsPLUS software. The FormsPLUS software populates several fillable PDF forms simultaneously, and can also track the status of the required forms during project delivery.

The fillable PDF forms may be downloaded at:

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

FormsPLUS can be found at:

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

6.02 *Website Enhancements*

Local Assistance Internet and Intranet web pages underwent a major overhaul in 2013. The web pages, which receive tens of thousands of hits per month, were revised in response to requests to make the forms, documents, reports, and other information more accessible and easier to navigate.

6.03 *MAP-21 Categorical Exclusions*

In response to the Moving Ahead for Progress in the 21st Century Act (MAP-21), the Division of Local Assistance made two new Categorical Exclusions (CE) activities available for use for by the local agencies. The new CEs apply to federally funded projects that take place entirely within the existing "operational" right-of-way, and (1) receive less than \$5,000,000 of Federal funds; or (2) have a total estimated cost of not more than \$30,000,000 with federal funds comprising less than 15 percent of the total estimated project cost. This accelerates project delivery by streamlining the environmental process for projects that meet these criteria.

6.04 *E-76 Status Tool*

The E-76 Status Tool allows stakeholders with the ability to check the status of their E-76 (federal Authorization to Proceed) on-line. The link was created as a useful tool primarily for local and regional agencies to monitor the progress of their requests, thus reducing the risk of unforeseen project delays. To further reduce delays, Local Assistance has established goals for processing these requests: 28 days in the District, 14 days in HQ, and 10 days at FHWA.

The E-76 Status Tool is located at:

<http://www.dot.ca.gov/hq/LocalPrograms/E-76-status.php>

7 MAINTENANCE

7.01 *Automated Pavement Condition Survey (APCS)*

The Division of Maintenance developed a new tool to identify pavement conditions call Automated Pavement Condition Survey (APCS). APCS collects geo-referenced pavement images (including downward perspective images and right-of-way images) and pavement surface profile data. This information can be viewed by using the iVision tool. APCS collects profile data such as surface longitudinal and transverse profiles, smoothness using the International Roughness Index (IRI), macro-texture using the Mean Profile Depth (MPD) in the wheel paths and quantifies pavement distresses such as cracking, rutting and faulting, and measurements of other pavement condition indicators by means of downward digital images.

The tool can be accessed at:

http://onramp.dot.ca.gov/hq/maint/pavement/APCS_iVision.shtml

7.02 *Ground Penetrating Radar (GPR)*

The Division of Maintenance implemented the Ground Penetrating Radar (GPR) pavement structure inventory which includes California's pavement network layer thicknesses and material types. iGPR is a web application that allows you to view pavement layer material types and thicknesses. It also shows the same information for cores. The data shown for the structural section have been obtained from a stateside GPR project in which approximately 58% of the lanes miles in the state were surveyed.

By selecting the route, direction, district, county, and lane, iGPR will show an aerial view of the DPR reporting points in a Google Map (using GPR coordinates associated with the GPR reporting points) located on one tab of the web application and an XY plot (distance vs. depth) of the structural section on a second tab. Any available cores are shown in both views as Google markers in the aerial view and as vertical bars in the structural section view. Clicking on a Google marker representing a core shows the details about the core and also includes a link that will retrieve and display a core log file if available.

The tool can be accessed at:

<http://onramp.dot.ca.gov/hq/maint/pavement/GPR.shtml>

8 PROJECT MANAGEMENT

8.01 Project Risk Management for Capital Projects

Project risk management is the systematic process of identifying, analyzing, and responding to project risks (threats as well as opportunities) throughout the life cycle of a project – from project inception to completion of construction. Project delivery success can be increased by establishing and maintaining a Risk Register over the project lifecycle.

On July 1, 2012 a Project Delivery Directive (PD-09) entitled Project Risk Management was issued. On June 2012, Caltrans also published a new handbook entitled Project Risk Management Handbook: A Scalable Approach. The handbook can be accessed at:

http://www.dot.ca.gov/hq/projmgmt/documents/prmhb/PRM_Handbook.pdf

The handbook introduced two new concepts. The first is a scalable approach to project risk management which provides the level of effort that is appropriate to a particular project depending on its size and complexity. Second, accountability checkpoints will ensure that risks are documented and communicated throughout all the phases of project delivery, from project inception through the completion of construction. A formal sign-off at each accountability checkpoint accepts the risks moving forward through the project.

The RTL Guide dated 7-31-2013 (Table 10-1) also requires that all district-originated PS&E packages submitted to District or HQ OE should be accompanied by a Risk Register Certification Form.

A web-based utility called Risk Management Information System, or RMIS has been developed to assist the district PDT members in documenting and managing project specific risks. This utility is capable of performing both qualitative and quantitative risk analysis. Each district has identified a Risk Management Coordinator (RMC) that is the local subject matter expert on the subject or project risk management. The district RMC is the first-tier help to the district end-user. HQ DPM's RMC is the second-tier help to the district RMC. With the ultimate goal of having PRSM house all project related data, within a period of one year the new version of PRSM (CA Clarity PPM 13.x) will be capable of housing all identified project risks as well.

Project Risk Management training (LMS Course ID 101519: Project Risk Management - A Scalable Approach) is currently being delivered across Caltrans within each district. District employees are encouraged to contact their local RMCs to sign-up for training or to obtain answers to questions related to project risk. Efforts are under way to develop a new course for managers who will be reviewing and signing the Risk Certification Form.

For a listing of all current District RMCs and various Project Risk Management related references visit the following HQ DPM's website:

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

8.02 Project Resource and Schedule Management

Project Resourcing and Schedule Management System (PRSM) is an enterprise project management system that provides integrated scheduling and timekeeping capabilities for Caltrans Capital Outlay Support (COS) statewide. This \$1.8 billion-per-year program funds environmental studies, design services, construction engineering and right-of-way acquisition services for State Highway projects. Caltrans employs more than 11,000 people in COS. State employee time charges make up most of the costs in this program. PRSM is a Commercial-off-the-Shelf web-based Project/Program Management system. 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 project budgets.
- Forecasts the final cost of each project phase.

PRSM provides the following solutions:

- Caltrans 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.
- Caltrans 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

9.01 *Perfection of Title on U.S. Forest Service Lands*

Right of Way continues 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, Caltrans, FHWA and USFS entered into an MOU that required Caltrans upgrade all of its Special Use permits across USFS lands to a DOT easement by late 2011. A five year extension to the MOU was granted which allows for the continuation of the title perfection within USFS lands. The extension expires in 2016. Each year the Districts have submitted a list to the USFS via Caltrans Division of Planning with selected route segments requesting DOT easements. Caltrans and USFS continue to work together finalize the DOT easements for segments of the State Highway right of way located within USFS boundaries.

9.02 *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%20&%20Software/New%20Technology/Automated%20Machine%20Guidance/)

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

Geographic Information Systems (GIS) and database management systems have been incorporated into the Right of Way process. Previously right of way data systems were 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. Adding a GIS interface to the Right of Way Management Information System improves communication with stakeholders and project staff, and decision making by providing a visual interface to the database. The ability to access and

retrieve data electronically provides convenience and improves decision-making, coordination, data consistency and accessibility to all users.

9.04 Mobile Terrestrial Laser Scanning (MTLS)

Mobile Terrestrial Laser Scanning (MTLS) will replace Vangarde and some conventional field surveys to more safely and efficiently collect pavement elevations, assets and facilities data at highway speeds, without the need for lane closures. Several projects have been surveyed using MTLS throughout the state. MTLS uses laser scanner technology in combination with Global Navigation Satellite Systems (GNSS) and other sensors to produce accurate and precise geospatial data from a moving vehicle. Currently four operators are trained in the North Region and District 4. Statewide training and deployment is planned for Fiscal Year 2014/15. Further refinements to software and field procedures are being researched to yield better vertical results.

Chapter 15 “Terrestrial Laser Scanning Specifications” has been added to the *Caltrans Survey Manual* for the use of mobile laser scanning and may be accessed at:

http://www.dot.ca.gov/hq/row/landsurveys/SurveysManual/15_Surveys.pdf

9.05 Contaminated Property Acquisition Process

A new Hazardous Materials Disclosure Document (HMDD) better defines the process of acquiring properties with some level of hazardous materials. The HMDD is attached to the Certificate of Sufficiency and allows right of way acquisition to begin.

10 TRANSPORTATION PLANNING

10.01 Establishment of the Small Capital Value Projects (SCVP) – Project Initiation Document

Prior to 2012, projects with a total cost up to \$1 million used a PID format called Small Capital Valued Projects (SCVP). This project planning, scoping, and programming document offers numerous advantages in time and money savings. The SCVP is intended to minimize the effort for programming and are typically used on lower risk, single alternative projects. In 2012, the SCVP PID was approved for use on projects with a cost up to \$3 million. This parameter change greatly increased the number of eligible projects and allowed for considerable monetary and time savings during the K-Phase.

Guidance is contained in Appendix R of the PDPM:

http://www.dot.ca.gov/hq/oppd/pdpm/apdx_pdf/apdx_r.pdf

11 TRANSPORTATION PROGRAMMING

Currently there are no Newly Implemented Improvements

PAST IMPLEMENTED IMPROVEMENTS

1 BUDGETS

1.01 *Upgrade the Federal-aid Data System (FADS)*

The Federal Aid Data System (FADS) is a critical system because Caltrans 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 on State and Local transportation projects, and for Caltrans to receive an estimated \$3.0 Billion a year in reimbursements.

FADS was originally written in RAMIS and resided on a TS1 mainframe account which was very limited in scope, was not user friendly, and had minimal reporting capabilities. In 2010, FADS was upgraded to a web-based system which allows access to the system from anywhere. It provides the user the ability to view prior sequences, attach documents to FADS record for transmittal, and create reports in pdf and Excel format. The improved FADS system is more efficient and user friendly with better reporting capabilities. This has resulted in time savings for staff and accelerated project delivery.

1.02 *Flexible Match and Tapered Funding*

Caltrans 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, Caltrans 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

2.04 Requests for Information and Notices of Potential 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 potential claim record 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 (initial notice of potential claim record, supplemental potential claim record, and full and final potential claim record) is triggered and will provide better notice of potential claims positions for district construction. The contractor and Caltrans 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.

2.05 Resident Engineer (RE) Office Space

Construction has developed an optional nonstandard, but authorized, special provision for the contractor to furnish the resident engineer's office as a part of the construction project. In most cases, this reduces costs since this work would be competitively bid. In some instances where setting up an RE office can be very complicated and time consuming for Caltrans, this allows 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.

2.06 Flexible Start

Flexible Start is a beginning of work special provision that specifies the number of working days and the last day that the contractor is allowed to start so that all the work is completed by the last day of the district's construction season. This large window of time to start the work allows the contractor much more flexibility to coordinate limited crews and equipment deliveries to multiple projects more efficiently. These efficiencies generally result in lower bids and speedier construction.

2.07 Critical Path Method Scheduling

The requirement that contractors submit a critical path method (CPM) schedule has been extended to all contracts and is included in the *2010 Standard Specifications (SS)*.

The SS includes three levels of CPM scheduling specifications. Projects that have a total bid amount less than \$1 million and less than 100 working days are considered Level 1. This level has the least stringent specification and do not require schedules to be prepared, submitted and updated using specified scheduling software. Projects with a total bid amount greater than \$5 million and more than 100 working days are considered Level 3. This level is has the most stringent specification and requires schedules to be prepared, submitted and updated using specified software. All other projects are considered Level 2. This level is more stringent than Level 1, but less stringent then Level 3 and requires the use of scheduling software.

This is considered one of Construction's time saving construction specifications (standard specification) because better planning of the work allows for work to be completed more precisely and expeditiously.

2.08 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.

2.09 C + T with I/Ds

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

2.10 Internal Milestones

When internal milestones along with incentives and disincentives are needed, they should be incorporated into the specifications of a contract during the design phase. These needs are usually identified during constructability reviews. Internal milestones with incentives and disincentives 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 Workshop Immediately After Contract Approval*

A conditional standard specification called “Value Analysis Workshop,” is included in all non-building contracts estimated to cost \$5 million or more. This specification provides an opportunity for Caltrans and contractor’s staffs to meet to generate and develop ideas for reducing the contract’s construction cost, time, or traffic congestion. With no reduction in traffic congestion, Caltrans and contractor split the construction cost savings evenly if any are determined. If a reduction in traffic congestion is determined, the contractor’s share in construction cost savings increases to 60% in accord with Public Contract Code 7101.

2.12 *Construction Contract Time*

A policy was implemented in February 2001 to determine the original construction contract time for construction projects in the design phase. This policy requires project engineers to use standard industry production rates and critical path method (CPM) schedules on all major projects. Previously, project engineers would review projects of similar cost and scope, or use in-house production rates to determine construction contract time.

In addition, Caltrans 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 reduced contract time, such as 6 or 7-day workweek calendars, internal milestones with incentives and disincentives, C+T bidding, and acceleration paid 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 Caltrans 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 Caltrans 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 claims 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 Caltrans to maintain statewide consistency in dealing with DSC disputes.

2.14 Time-Related Overhead

Caltrans has developed and implemented use of a Time Related Overhead (TRO) specification to provide timely compensation to its construction contractors for owner-related delays. Caltrans 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 TRO at a competitively bid price 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

Caltrans plans to continue the use of the TRO contract item and specifications in State Highway construction contracts with an estimated construction cost of \$5 million or more and 100 or more working days. When TRO is included on a contract with C+T bidding, the TRO item is bid at a fixed lump sum price, while the remaining contracts bid the TRO item at a cost per working day. Change orders that impact the controlling activity (i.e. work on the critical path) typically increase or decrease the overall amount of final compensation of TRO.

The TRO bid price (per day or as converted) is paid for all contract working days as adjusted by any time adjustments. The TRO bid price is not paid for nonworking days. Per Public Contract Code (PCC) 7102, all additional overhead incurred by the contractor is compensated via the TRO item when a state-caused delay affects the critical path or controlling activity. For non-TRO projects, compliance with PCC 7102 is made through the audit process for additional overhead incurred by the contractor.

Additional TRO is no longer compensated for concurrent delays, as defined in the standard specifications. If a concurrent delay occurs, nonworking days are granted to the contractor for the period the delays overlap.

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

Caltrans initiated a legislative proposal to encourage contractors to submit more value engineering change 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 Incentives/Disincentives to Incentivize Speedy Internal Milestone and/or Construction Contract Completion

To ensure timely completion of transportation projects, the contract specifications specify time after contract approval for the contractor to start work and the 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 Caltrans support costs (overhead and engineering 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, otherwise known as internal milestones. Incentives and disincentives are used to apply to either the internal milestones or contract completion or both, depending upon needs and circumstances of the project. Incentives or disincentives are usually based on road user costs and may include road impact costs. Incentives and disincentives can be included in the contract if approved by the District Director. Road impact costs are associated with delaying adjacent, overlapping, or following contracts, socio-economic impacts, or business revenue loss. Road user costs are typically included as an incentive/disincentive after the district traffic functional manager determines a daily road user delay cost for the motorist.

The Division of Construction website provides an Office of Contract Administration authorized nonstandard SSP (nSSP) for district use of incentives and disincentives. 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://onramp.dot.ca.gov/hq/construction/ca_prosecution.shtml

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 that cause undue traffic queues, congestion, and delays. The contractor must submit a plan that ensures lanes are opened at specific scheduled times 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 Caltrans 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 stormwater 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 \$281,000 (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 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 costs 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. Also, State law prohibiting retention on state-only funded contracts went into effect January 1, 2009. The complete 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. Caltrans 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, Caltrans implemented a withholding for cause standard specification named "Performance Failure Withholds" in its contracts when the contractor does not maintain satisfactory progress. Caltrans is further indemnified by payment and performance bonding that are included on federally funded and state-only funded contracts, except for emergency force account and emergency limited bid contracts. For the contracts, only a payment bond is required and the emergency contractor is directly reimbursed for the cost of the bond.

2.25 Owner Controlled Insurance Program

Caltrans 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 Caltrans through the construction contract, Caltrans 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 Caltrans and the contractor are to use Caltrans partnering programs best practices as identified in the Field Guide to Partnering on Caltrans 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 Caltrans Partnering Program website at:

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

2.27 Emergency Contracting Innovations

The standard confirmation of verbal agreements (CVAs) for emergency force account (EFA) and emergency limited bid (ELB) contracts, the director's order (with funds request), the EFA boilerplates, and the ELB boilerplate were simplified and streamlined in 2008. The time to negotiate and sign EFA and ELB contracts with construction contractors was cut 68% on average. This positions Caltrans 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 and the Division of Procurement and Contracts to the Division of Construction for the contract administration phase of the project. Communication between the three 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. Division of Procurement and Contracts (DPAC) is the owner of the CVAs and the EFA and ELB standard agreement contract boilerplates.

Except for Minor B level contracts, EFA and ELB contracts are paid through CAS (Contract Administration System) to ensure that progress is tracked accurately and payment made timely, as well as to ensure the dispute resolution process of the standard specifications is performed entirely. Minor B level contracts may continue

to be paid using contractor's invoices and Receiving Records through Division of Accounting.

For informal bid contracts, construction of the project is planned and designed. Project plans are developed expeditiously and an informal and shortened period of advertising is made. The contract includes pay items and is competitively bid similar to conventional PS&E contracts. These emergency contracts are not owned by DPAC. DES-OE handles advertisement and award.

3 DESIGN

3.04 Cost Estimate Reviews

Federal law mandates Major Project Cost Estimate Reviews (CER) for all federal-aid projects with total overall cost of \$500 million or higher. In June 2010, FHWA delegated the responsibility of conducting Major Project CERs to Caltrans on state projects. Caltrans is the only state DOT that has been delegated this authority. FHWA requires that a CER be held prior to approval of NEPA, and another review be held prior to advertising. Apart from verifying the cost and schedule estimates for the entire project, CERs also conduct a risk assessment study to evaluate and quantify the cost of risks associated with a project. CER is a great tool to accelerate project delivery because it not only helps to identify potential project risks but also quantifies them. CERs develop quantifiable risk registers for cost and schedule risks associated with all aspects of the projects including environmental, right-of-way, design, construction, support, inflation, and contingency. This risk register could then be used to perform a probabilistic analysis to develop a range of possible outcomes for the total project cost and schedule. Districts can accelerate the delivery of any large projects by holding in-house CERs at an early planning phase.

Major Project Cost Estimating Guidance can be found at the link below:

http://www.fhwa.dot.gov/ipd/project_delivery/tools_programs/cost_estimating/guidance.htm

3.05 Design-Build

Legislation authorized a Design-Build demonstration Program that allowed Caltrans 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.

All ten (10) of the State projects have been awarded, three (3) are completed; the remaining projects are in various stages of the delivery process. No evaluation can be compiled at this time.

While the collection of data on the Design-Build demonstration Program is underway, Caltrans has been authorized an additional 10 projects over the next 10 years as design-build. No projects have been nominated yet.

3.06 Roadway Design Software

In 2011 Caltrans 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 Caltrans engineering and surveying process changes.
- Enables ability to identify conflicts early.
- Enables multiple users to access the project data simultaneously.
- Increases compatibility with the consultant community, local agencies, and other Caltrans 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 began in 2012. Full implementation of the software is scheduled to be completed in 2016 with the training of 4000 users.

When submitting a project for Plans, Specifications and Estimate (PS&E), the final project plans deliverable must be in a MicroStation format file (DGN), regardless of what roadway design software was used. MicroStation has been the standard drafting software for Caltrans for more than 20 years and

- is used by 46 other Departments of Transportation and many consultant engineering firms,
- allows for capabilities to integrate GIS into the project delivery workflow process,
- allows for 3D modeling, as well as 4D and 5D capabilities, and
- is compatible with 3rd party software that Caltrans uses, like AutoTurn, Torus, and GuidSIGN.

3.07 Stormwater Management Design Tools

The Office of Stormwater Management has the following tools available to assist Project Engineers to evaluate, design and document compliance with stormwater requirements

- 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) software model can be downloaded for use for predicting long-term, average annual erosion.
- 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.
- Construction Site BMP Specifications – SSPs for many of the individual stormwater BMPs were 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>
- 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.
 - 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.
 - Project Planning and Design Guidance (PPDG) Online Training – This course will go through the entire PPDG. The training will provide an overview of the Caltrans Stormwater Program, BMP Selection, Design Program Responsibilities, Permanent Treatment Exemption, and how stormwater issues are expected to be addressed during the PID, PAED, and PS&E processes, including stormwater considerations during construction.

The Stormwater Management website is located at:

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

3.08 Document Retrieval System (DRS)

The Document Retrieval System is a set of web forms that allows any employee to search, view, and print archived documents over Caltrans intranet using a browser. It allows the individual to search for documents using criteria that is stored in a database such as county, route, post mile, or Project Number. Once search criteria are entered, a list of documents that fit those criteria appears. One of its main purposes is to be a repository for all As-built roadway plans and make them readily available statewide to all employees.

3.09 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 Caltrans 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 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).

3.10 Landscape Architecture Roadside Management and Erosion Control Toolboxes

These are web based decision making tools provided to improve the safety, sustainability, and maintainability of transportation projects. These toolboxes provide design techniques and treatments that improve traveler and worker safety, provide environmental protection, protect the highway infrastructure and improve transportation system reliability by reducing the need for recurrent maintenance activities. These toolboxes accelerate project delivery by helping streamline the process for determining erosion control, vegetation control, water conservation and stormwater quality requirements by providing best management practices and site specific information when developing district roadside projects.

Toolboxes are located at:

<http://www.dot.ca.gov/hq/LandArch/roadside/index.htm>

<http://www.dot.ca.gov/hq/LandArch/ec/index.htm>

3.11 Landscape Architecture PS&E Guide

The Landscape Architecture PS&E Guide (Guide) assists Caltrans 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

3.12 Design-Sequencing

Legislation authorized a Design-Sequencing Pilot Program that allows Caltrans 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 seventeen projects constructed to date, the time savings has ranged from 14 months delay to 18 months saved with an average time savings of approximately 1.5 months 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.

3.13 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 Caltrans 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/>

3.14 Project Change Control

Caltrans 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.)

3.15 Value Analysis

The Caltrans 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. Caltrans 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.

Federal law requires that all Federal aid projects on the NHS with a total cost (Construction, Right of Way, and Support) of \$50 million or more must have a VA study conducted prior to construction. In addition, a VA study is required on all Bridge Projects over \$40 million. There are no exceptions to this mandate.

Caltrans has performed VA studies for over 40 years. It is recommended that VA studies be performed for projects over \$15 million due to the significant opportunities for cost savings and project performance improvements.

3.16 Disposal Site Quality Team

The Disposal Site Quality Team was formed in July 2000 to address Caltrans 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. Supplemental to the findings of the Disposal Site Quality Team in 2001, the Division of Design developed Design Information Bulletin (DIB) 85 – Guidance for the Consideration of Material Disposal, Staging, and Borrow Sites in 2007. This DIB clarifies the responsibilities and associated compliance requirements for early consideration of material disposal, staging, and borrow site needs in the project delivery process. This guidance also clarifies the policies and procedures for designation of optional material disposal, staging, and borrow 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

4.02 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.

4.03 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.

4.04 Training by DES-OE

DES-OE provides classes to enable the Districts to deliver construction contracts in compliance with the law and Caltrans 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/>

4.05 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 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. ABC has been included in the Every Day Counts (EDC) Initiatives since 2010 with the goal of identifying and deploying innovation aimed at reducing the time it takes to deliver highway projects, enhance safety, and protect the environment. The Division of Engineering Services (DES) Structure Policy & Innovation (SP&I) branch has developed a work team and advisory council comprised of Project Management, Headquarters Construction, Structure Design, Structure Construction, Earthquake Engineering, District Project Development, Structure Policy and Innovation, Structure Office Engineers, Structures Maintenance, Environmental Engineering and key district personnel throughout the state. The efforts of the ABC Team and Council have resulted in the 2013 Caltrans ABC Strategic Plan and ABC Decision Making Guidance. The Strategic Plan has the mission of improving mobility across California through ABC and the vision of mainstreaming ABC. The ABC Decision Making Guidance will consider ABC as an alternative in the planning phase of many Caltrans projects. The guidance includes a Design Impact Questionnaire and ABC Decision Flowchart that provide a qualitative assessment of the impact ABC methods may have on a project (both Structure and District portions). The questionnaire allows for the consideration of direct and indirect costs of a project not usually included in an engineering estimate such as the impact of onsite construction on the travelling public, environmental impact, safety, and quality. This approach will ensure that ABC concepts are considered earlier in the project development phase such that adequate resources are programmed.

Internal website users can obtain Accelerate Bridge Construction information at:
http://onramp.dot.ca.gov/hq/des/spi/structure_quality_management/abc/index.html

5 ENVIRONMENTAL

5.03 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

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

5.04 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_gis

5.05 Environmental Commitment Tracking

Pursuant to the FHWA Stewardship Agreement and Caltrans Strategic Plan, Environmental is emphasizing the need to track Caltrans 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/DDD_const_design_env_proj_mgmt.pdf

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

5.06 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 in June of 2009 that was updated in October of 2013.

The training class may be accessed at:

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

5.07 NEPA/404 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 in June of 2009 that was updated in October of 2013.

The training class may be accessed at:

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

5.08 “Mare Island Accord”

Because of Caltrans/Federal Highway Administration (FHWA) partnering initiatives, Caltrans, 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. 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

- 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).

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.

5.09 Coast Highway Management Plan, Big Sur Coast

Under an interagency agreement, initiated in April 1999, Caltrans 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.

Caltrans 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 Caltrans relationships with these public entities.

5.10 Renegotiation of NEPA/404 Integration Process MOU

In 1994, Caltrans, 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/Caltrans 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 2006 agreement is significantly different from the 1994 MOU. The 2006 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. This 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. This 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>

5.11 Resource Agency Partnering Agreements

Through a FY 2000 Finance Letter, Caltrans 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. Caltrans 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, Caltrans is providing each agency with information on current and future projects. Regular coordination meetings with the agencies and Caltrans provide improved consultation and review procedures. Caltrans regularly monitors agency performance and assesses the need for additions or reductions in positions based on projected future workload and the ability of the agencies to fill additional positions. Currently, the program funds 32.5 positions in seven state and federal resource agencies. In addition, the Districts directly fund a number of positions with several federal and state resource agency partners.

5.12 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; 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 Caltrans, 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.

Caltrans 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. Caltrans has recently (October 2013) received a Programmatic Biological Opinion for maintenance activities and small projects from National Marine Fisheries Service for Coho salmon, Chinook salmon, steelhead, and green sturgeon for portions of Districts 1, 2, and 4. Caltrans has worked with FHWA and has received delegation to conduct formal and informal Section 7 consultation on endangered species.

For historic and archaeological resources, Caltrans 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 expired December 31, 2013. The Section 106 PA was renewed for another 10 years and went into effect January 1, 2014 and will expire December 31, 2023. 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.

Caltrans 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.

Programmatic agreements are posted at:

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

5.13 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 Caltrans of on-going monitoring and management in perpetuity. A Mitigation Process Improvement Team has identified changes in Caltrans policies and procedures that would simplify Caltrans 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 provisions of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and the Moving Ahead for the 21st Century Act (MAP-21) 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, Caltrans 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.

Caltrans 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 Caltrans mitigation needs in advance of project delivery, and to provide an option for Caltrans to leverage funds for timely mitigation acquisitions.

5.14 *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 Caltrans and FHWA developed a process of concurrent review of EISs. Under the concurrent review process FHWA and Caltrans reviewed EISs simultaneously. The process also served as a means for Caltrans 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 in July 2007 and again in October 2012 to reflect the requirements of NEPA Delegation (now NEPA Assignment). The net effect of the NEPA Delegation and NEPA Assignment processes, and the prior concurrent EIS review process, has been an increase in quality and shorter review times.

5.15 *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, Caltrans 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 that may be accessed at: <http://www.dot.ca.gov/hq/env/training/index.htm>

5.16 Preliminary Environmental Assessment Report

In December 2001, Caltrans 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. Caltrans 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. 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.

The PEAR Handbook and template are 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 Caltrans, 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

In December of 2013, DEA developed the Mini-PEAR as a tool to provide the minimum level of environmental scoping that should be undertaken at the PID phase of a project. The addition of the Mini-PEAR as a tool does not change any existing policy regarding when a PEAR must be prepared, and the use of the Mini-PEAR is not required. The Mini-PEAR is posted at:

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

5.17 *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.

In 2004, as part of the Merced Partnership in Planning, Caltrans 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 Caltrans, EPA, U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and the local land use and transportation agencies. In June 2005, Caltrans, FHWA, and EPA developed guidance for cumulative and indirect impact analysis. Guidance on indirect impacts was posted online in July 2006. Caltrans 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.

5.18 *Annotated Outlines for Environmental Documents and Standard Formats for Biological Assessments*

Caltrans 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 Caltrans in both preparing the documents and in direction given to consultants preparing environmental documents.

Caltrans 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.

Caltrans 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) are also posted.

SER Forms and Templates are available at the following link:

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

5.19 Standard Environmental Reference (SER)

Caltrans developed the SER to meet federal and state environmental requirements. The SER is designed for use by Caltrans 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.

5.20 NEPA Delegation Pilot Program/NEPA Assignment

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 Caltrans 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, Caltrans 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. Caltrans 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, Caltrans is required to comply with all applicable federal environmental laws and with FHWA environmental regulations, policies, and guidance.

Caltrans 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.

California participated in the "Surface Transportation Project Delivery Pilot Program" (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007 and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6th, 2012, amended 23 USC 327 to establish a revised and permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered into a memorandum of understanding pursuant to 23 USC 327 ([NEPA Assignment MOU](#)) with FHWA. The NEPA Assignment MOU became effective October 1, 2012 and terminates eighteen months from the effective date of FHWA regulations developed to clarify amendments to 23 USC 327 or on January 1, 2017. The NEPA Assignment MOU incorporates by reference the terms and conditions of the Pilot Program MOU. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes.

5.21 Categorical Exclusions

In 2007, the responsibility for making Categorical Exclusion (CE) determinations was assigned to Caltrans 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 Caltrans, executed on June 7, 2007. FHWA and Caltrans executed the second CE MOU on June 7, 2010 and again on June 7, 2013. The MOU needs to be renewed every three years for the program to continue.

The Pilot Program MOU (now the NEPA Assignment MOU), in addition to assigning Caltrans the authority to approve environmental documents, also assigns Caltrans the authority to approve those categorically excluded activities not covered under Section 6004 CE MOU (now the 23 USC 326 CE Assignment MOUS), pursuant to Section 6005 of SAFETEA-LU. Because Caltrans 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 23 USC 326 CE Assignment MOU and the NEPA Assignment 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

6.05 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.

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 Caltrans staff both time and money.

The PES(NI) scoping/screening form is available as Exhibit 6-J & 6-K in Chapter 6 of the Local Assistance Procedural Manual at:

<http://www.dot.ca.gov/hq/LocalPrograms/lam/forms/lapmforms.htm#goHere6>

6.06 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 “Alternate Transportation Program” and “CMAQ Equipment retrofit” projects. These include a right of way short form, a “Non-infrastructure Request for Authorization” short form as well as the non-infrastructure PES form mentioned above.

6.07 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. Caltrans 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>

6.08 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>

6.09 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 four 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.

6.10 Expedite Reimbursements

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

6.11 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 Caltrans, and FHWA (See Section 5 – Environmental). In addition, Chapter 6 of the Local Assistance Procedures Manual (LAPM), entitled “Environmental Procedures”, provides Caltrans 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.

6.12 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 Caltrans 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

7.03 Emergency Contractor Registry

During the year 2000, Caltrans 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 Caltrans 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.

7.04 Director's Order Guidelines and Matrix

During disasters and other emergencies, Caltrans 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

8 PROJECT MANAGEMENT

8.03 *PM Directive (PMD 018): 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 Caltrans 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

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 Caltrans 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

8.04 *PM Directive (PMD019): Managing Capital Improvement*

Caltrans 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

8.05 *Capital Project Workplan Handout*

The *Workplan Handbook* provides an overview of the procedures, methods, and tools relating to Caltrans's use of project workplans in managing capital improvement projects and provides references to more detailed policies, guidance, training, and other documentation. The Caltrans publication, the *Caltrans Project Management Handbook* (PMHB), describes Caltrans 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

8.06 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

8.07 Workplan Standards Guide - 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/wsgq/wsgims.cfm>

8.08 Support Budget Overrun Documentation (SBOD)

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 is available only for projects that are in construction where the construction support expenditures will exceed the programmed budget.

8.09 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 Caltrans 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.

8.10 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 Caltrans policy is protected and review redundancy is eliminated.

8.11 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

8.12 Capital Project Skill Development Plan

The Capital Project Skill Development (CPSD) plan provides Caltrans 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 13/14 is to provide approximately 314,000 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>

8.13 Use of Flexible Resources to Deliver Projects

With the passage of Proposition 35 in November 2000, Caltrans has increased its effort to hire consultant resources in the delivery of Capital Projects. Consultant Services units are present in every district and region. Caltrans 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/hq/pm/dpmwp/content/PGD/DirectivesAndMemos/PGD_PMD008.pdf

8.14 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 Caltrans 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.dot.ca.gov/hq/projmgmt/index.jsp?pg=29>

8.15 Project Management Certificate Program

Caltrans 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 Caltrans 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.

8.16 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 350 PMPs in Caltrans.

8.17 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 Caltrans users from previous lessons, and to continuously improve and correct Caltrans 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>

8.18 *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

8.19 *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 Caltrans. 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

8.20 *Project Delivery Contracts*

Effective with the 2005/06 fiscal year, Project Delivery instituted delivery agreements. These agreements are signed documents between the Director of Caltrans 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 contracts have effectively reinforced the importance of achieving major milestones according to the commitments made to the project sponsor(s).

During the last 8 fiscal years (05/06 – 12/13), 2175 projects have been delivered out of 2189 planned; that equates to 99.4% success in the number of deliveries. For the time period noted above the Construction Capital value at RTL was \$20.48 billion compared to the planned construction capital value of \$23.26 billion.

The Delivery Contracts can be accessed at:
<http://onramp.dot.ca.gov/hq/projmgmt/index.jsp?pg=18>

9 RIGHT OF WAY AND LAND SURVEYS

9.06 *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/

9.07 *One-Call Acquisition*

The Division of Right of Way and Land Surveys (Right of Way) was successful in working with 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 because 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 Caltrans. 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.

9.08 *Resolution of Necessities by Locals*

Caltrans 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 Caltrans. The guidelines for this exception and approval process were initially outlined in a Caltrans Memorandum dated December 10, 2001 with a subsequent clarifying memorandums released on November 26, 2002 and December 5, 2003.

9.09 *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 Caltrans 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 Caltrans 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.

9.10 *Streamlined Positive Location (Potholing) Process*

The streamlined utility positive location process allows Caltrans to take full control in identifying the exact location of underground utilities. Caltrans 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.

9.11 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.

9.12 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.

9.13 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 Caltrans 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.

9.14 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 and may be accessed at:

http://www.dot.ca.gov/ser/downloads/memos/RW_Utility.pdf

9.15 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.

9.16 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 and continues to offer this course. 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; however this course is not currently being offered. Right of Way would like to start offering the Attorneys course again soon. Right of Way also participates in academies sponsored by other Divisions, including the Local Assistance Academy.

9.17 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.

9.18 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.

9.19 Specifications for Surveying on Superstructures

A multi-disciplinary team developed recommendations and revisions to the Caltrans 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.

9.20 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.

9.21 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.

9.22 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 Caltrans (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.

9.23 *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. Currently training/work sessions are not taking place, however there is an interest to start them again.

9.24 *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. Currently this training is not taking place, however Right of Way would like to start up the training again.

9.25 *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/](http://pd.dot.ca.gov/row/offices/landsurveys/Standards%20&%20Procedures/Right%20of%20Way%20Engineering/RW%20Mapping%20Standards/)

9.26 *RTK GNSS Equipment and Specifications*

Global Navigation Satellite Systems (GNSS) and advanced surveying technology have boosted the efficiency of the Caltrans 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 Caltrans surveyors commonly employ RTK methods for high production topographic and construction staking operations.

9.27 Terrestrial Laser Scanning

Caltrans is currently using five terrestrial laser scanners throughout the State. All districts have been trained in the data collection systems. 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 “Terrestrial Laser Scanning Specifications” has been added to the *Caltrans Survey Manual*, and may be accessed at:

http://www.dot.ca.gov/hq/row/landsurveys/SurveysManual/15_Surveys.pdf

9.28 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 Caltrans who may be able to provide more perspective.

10 TRANSPORTATION PLANNING

10.02 Establishment of the Project Study Report – Project Development Support Document

Caltrans 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.

The Project Development Procedure Manual was updated to reflect guidelines to the PSR-PDS, and may be referenced at:

http://dot.ca.gov/hq/oppd/pdpm/apdx_pdf/apdx_s.pdf

10.03 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.)

Caltrans 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.

Caltrans 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 Caltrans 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.

10.04 Route Optimization Analysis Tools

The Division of Transportation 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.

10.05 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 Caltrans to test adjustments as funding conditions and policies change.

10.06 Purpose and Need Sub-Team

The mission of the Purpose and Need Sub-Team (Team) was to develop the process 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.

10.07 Transportation Planning Scoping Information Sheet

The information in the Transportation Planning Scoping Information Sheet (Information Sheet) enables the Project Development Team (PDT) to properly define and scope a project in concert with the affected community and the alternatives previously considered.

The information will:

- Assist PDTs in developing projects that are consistent with the purpose and need identified in the long-range transportation planning process for the statewide integrated multimodal transportation system.
- Ensure that the PDTs consider the following:
 - Consistency with planning concepts and statewide goals
 - Verify that transportation system is thorough and efficient for all modes.
 - Inclusion of community values, context sensitive solutions, and complete streets.
 - Consistency with State, regional and community planning decisions.
- Improve cost estimating.
- Reduce scope creep.

Transportation Planners can use the Information Sheet as a communication document to present the planning level purpose and need to the PDT early in the project initiation phase. The PDT should use the Information Sheet to verify that the project remains consistent with the planning level purpose and need and is consistent with planning concepts, statewide goals, and planning decisions.

Guidance to assist the Transportation Planner in completing the Information Sheet is located at:

http://www.dot.ca.gov/hq/tpp/offices/opsc/project_scoping.html

11 TRANSPORTATION PROGRAMMING

11.01 *Delegation of FSTIP Administrative Modifications to MPOs*

Caltrans 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 Caltrans 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*

The Division of Transportation Programming (Programming) worked with the Division of Budgets to develop an electronic request for funds to streamline the procedure for requesting project allocations for California Transportation Committee (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.

11.04 *Delegated Authority*

Programming has delegated authority by the CTC to take actions that will accelerate project delivery. Caltrans 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.

Caltrans 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 Caltrans 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 *Developments in Information Technology*

California Transportation Improvement Program System (CTIPS) is Programming's programming database. CTIPS serves as a multi-agency joint use project database system. This system 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 Caltrans, 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.

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.

PROPOSED IMPROVEMENTS

1 BUDGETS

Currently, there are no proposed improvements.

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 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 delivery process. Lessons Learned effort was completed in 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. This effort is currently on hold until staff from other divisions is available.

3 DESIGN

3.17 Stormwater Management – Hydromodification Guidance

Based on the Caltrans approved NPDES, guidance is being developed to assist the project engineer to better understand the necessary documentation to be in compliance with the hydromodification requirements. Training and project examples will be included as part of this effort and is expected to be available in late 2004.

3.18 Quality Management for Design Projects

The Quality Management for Design product originates with the 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 Caltrans, 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 findings of the 2012 IQA research and development pilot demonstrated the need to identify issues or risks earlier in the project development process rather at key milestones. District's 12 and 10 successfully piloted the application of the Design Product Evaluation Criteria Handbook by project development teams managing quality in effectively identifying and addressing issues. By continuously evaluating the design product utilizing the identified characteristics, risks to project quality will be identified and can be prioritized and resolved in an effective manner

Policy on Project Performance will be forthcoming by July 2014. Online training, along with office hours, is available for those interested learning more on the quality management system for design products. Office Hours are scheduled web meetings that are open to all those interested in discussing quality initiatives.

More information may be accessed at:

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

4 ENGINEERING SERVICES

4.07 Accelerated Bridge Construction

In California, Accelerated Bridge Construction (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 travelling public are largely centered in regions of low seismic vulnerability. Caltrans has been involved with both state and national efforts to consider issues related to ABC in seismic regions. New seismic detailing and design guidance based on recent research findings are currently under development. Additionally, non-seismic detailing and guidance is being developed based on lessons learned from previous projects, best practices adopted from other DOT's and involvement with ABC related efforts through the Federal Highway Administration. These documents and tools will assist Caltrans engineers and planners as they look to ABC to reduce impacts to the traveling public from construction activity. There will be a rolling implementation of these tools and guidance for ABC through fiscal year 2014/2015.

4.08 Best Bid Standards

Based on law, Caltrans Policy, and lessons learned from addenda and contract change orders, DES-OE has developed a list of Best Bid Standards for Construction Contracting to avoid rejecting bids or rescinding an invalid contract. This will be published and distributed to Districts in late 2014.

5 ENVIRONMENTAL

5.22 Environmental Engineering—Hazardous Waste

Development is underway on revisions to the Hazardous Waste Handbook, a guide for district staff to use on hazardous waste projects. Revisions will incorporate recent regulatory changes into the existing Initial Site Assessment (ISA) guidance.

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

Revisions to the Hazardous Waste Handbook are expected to be completed in late 2014.

5.23 Air Quality – CT-EMFAC Tool Update

CT-EMFAC is a spreadsheet tool developed and maintained by the Division of Environmental Analysis (DEA) to analyze transportation emission impacts from highway projects. This tool is currently being reviewed by US Environmental Protection Agency (EPA) for use in the project level conformity analysis process. The tool uses emission factors from California Air Resources Board's (CARB's) EMFAC model combined with project traffic projections to predict future air quality impacts. Updates to this tool are anticipated in 2015 with the release of CARB's new EMFAC emission model late in 2014.

5.24 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 Guidance Manual. The RAMP Guidance Manual will serve as a comprehensive guidance document for planning and implementing regional advance mitigation throughout California. Development of the RAMP Guidance Manual will draw from lessons learned during development and completion of the Regional Assessment for a pilot region in the Sacramento Valley (Pilot Project). Caltrans has contracted with UC Davis to finalize the Draft Statewide Framework, to complete the Regional Assessment of the Pilot Project, and to produce the RAMP Guidance Manual. The work is targeted for completion in late 2014 or early 2015.

RAMP is really the comprehensive planning behind implementing advance mitigation projects for Caltrans and Department of Water Resources. Caltrans is also developing an advance mitigation implementation program. SAMI is the Caltrans 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 Caltrans proposed projects. Caltrans has contracted with UC Davis to identify funding mechanisms and strategies to implement advance mitigation. The project is targeted for completion in mid-2014.

5.25 Caltrans Environmental Compliance Program for Local Agency Partners and Consultants

The Environmental Staff Development (ESD) branch in DEA is developing a pilot program called the "Caltrans Environmental Compliance Program for Local Agency Partners and Consultants" in partnership with the UC Davis Extension (UCDE). The goal of this program is to provide local agency partners and consultants with environmental compliance training that would aid them in navigating through the Caltrans environmental process. ESD uses existing courses that are offered to Caltrans staff and tailors the course for the local agency partners and consultants. The courses are taught by DEA staff. Course announcements are placed on UCDE's Land Use and Natural Resources website and students sign up for the course through UCDE. Courses currently offered through the program include *Categorical Exemptions and Categorical Exclusions* and *Nuts and Bolts of Environmental Document Review*. If the program progresses, classes will be added that will focus on NEPA/CEQA compliance for higher level environmental documents, the Caltrans role under NEPA Assignment, and obtaining other federal and state environmental approvals. Success of the pilot program and expansion into a permanent training series is dependent upon additional resource allocation. Estimated implementation of this program is in 2015.

5.26 Caltrans / California Coastal Commission Communication Plan

The purpose of the Communication Plan is to improve information sharing, enhance agency understanding, and streamline processes by establishing communication protocols, schedules, and methods for the Caltrans/Coastal Commission Interagency Agreement. The Communication Plan is primarily designed to be used internally by Caltrans staff throughout the state working on projects within the coastal zone. A secondary purpose of the plan would also be for use externally with Coastal Commission staff assigned to Caltrans projects. Additionally, the plan targets Caltrans and Coastal Commission staff at managerial and policy levels in order to establish communication protocols and tools for sharing information, and to provide a mechanism for demonstrating how the collaboration between Caltrans and the Coastal Commission furthers each agency's mission to provide for the transportation needs and the coastal resource protection goals of California. The Communication Plan will be available in late 2014.

6 LOCAL ASSISTANCE

6.13 LAPG Migration to Program Manager Web-Based Tool

The Local Assistance Program Guidelines (LAPG) is migrating from a 1000+ page Coordinator/Editor-based document to a Program Manager based website tool. Rather than tediously trying to keep up with, and formally format, continuously changing program requirements and cycles, the 24 LAPG Program Chapters will simply hyperlink to an appropriate Local Assistance Funding Program Website

(Alternate Transportation Program, Highway Safety Improvement Program, Local Bridge, etc) currently being developed and which is kept up to date by each Program Manager. This will allow Local agencies to have easier access to the most current information residing in one place only, reducing local agency confusion and information redundancy/disparity. The web-based tool is targeted for completion in mid-2014.

7 MAINTENANCE

7.05 Job Ordering Contract

Caltrans has proposed legislation that would authorize Caltrans to conduct a limited pilot program to develop contracts using an innovative contracting method known as Job Order Contracting (JOC). JOC provides for a more efficient procurement method for small and repetitive types of projects (such as bridge preservation projects to seal bridge deck cracks). The major advantages of job order contracting include: fast and timely delivery of projects by eliminating separate bid processes for repetitive work items, low overhead cost, and partnerships with contractors based on work performance. JOC contracts are competitively bid based on a price catalog and a set of negotiated adjustment factors. Estimated implementation date of JOC is in 2016.

8 PROJECT MANAGEMENT

Currently there are no proposed improvements

9 RIGHT OF WAY AND LAND SURVEYS

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 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. VDC is scheduled to be implemented in late 2014.

9.31 Surveys and Right of Way GIS Initiatives

Right of Way and Land Surveys is represented on multidisciplinary teams working on a strategic direction and a strategic process for Caltrans geospatial management and geospatial data collaboration. An outcome of these initiatives should be survey data populating a Caltrans GIS library which will facilitate better planning and estimating, and improve the quality of project deliverables. Developments in remote sensing technology have made it possible to produce large volumes of high precision data. Success will require the ability to store, deliver, and exploit this data. More traditional data, such as Right of Way Record Maps, are being geo-referenced to facilitate making authoritative right of way data available in GIS systems. These efforts to manage geospatial data lay the foundation for leveraging the increasing capabilities to of design software to consume GIS information.

9.32 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. Implementation of SUE is expected in 2016.

9.33 Collection, Sharing & Visualization of Survey Data

The current method for coding and collecting survey data has limitations, limiting how the data is visualized as it is collected real-time in the field and limiting how the data can be shared and visualized when loaded into the roadway design software. The survey data collection practices are changing in order to improve the methods of checking data in the field and to automate the creation of more intelligent topographic data for three dimensional displays within the roadway design software and for easier uploading into GIS systems. The target date to implement new practices is late 2014.

9.34 Incentive Payments

The Division of Right of Way and Land Surveys is implementing an acquisition incentive program to encourage property owners to sign Right of Way contracts in a quick time period. Payments will be offered for both permanent and temporary acquisitions. Recent studies on the use of incentive payments on transportation projects demonstrate that they can be effective in decreasing the time needed to acquire and clear needed rights-of-way. The procedures on payments incorporate the same level of safeguard against coercive negotiation practices as do standard Caltrans right of way procedures. Per Federal regulation Caltrans is required to allow at least thirty (30) days for property owners to consider an offer prior to initiating the condemnation process (See 49 CFR 24.102(f) and Appendix A). Projects and parcels acquired using acquisition incentive offers will be subject to the same quality control and quality assurance processes that are used for all Caltrans Right of Way activities. Considering fluctuating costs and trends for real estate and construction labor and materials, as well as the negative public perception of the court expense and project delay costs associated with the application of eminent domain, it is clearly in the public interest to use any tool available to produce transportation projects quickly with as little reliance on condemnation as possible. The incentive program is scheduled to be implemented in late 2014.

9.35 Lump Sum Payments (Relocation Benefits)

Federal Highways Administration is conducting a demonstration program that Caltrans may take advantage of. The program aims to streamline the relocation process by permitting a lump-sum payment for the acquisition and relocation of a displaced occupant. Homeowners and tenants participating in this program may choose to receive a lump-sum payment in advance of physical displacement. The payment will include just compensation for the property acquired as well as an estimated amount for eligible relocation benefits calculated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act). Target implementation for this program is late 2014.

10 TRANSPORTATION PLANNING**10.08 SHOPP Project Initiation Report (PIR)**

In an effort to increase efficiencies related to project delivery, a single SHOPP PIR document is being considered. The PIR will replace and eliminate the many SHOP PIDs currently in use by the end of 2014. It will be the sole document used through the Environmental Phase. PIRs will have three flexible levels and be configured to meet the complexity and inherent risk of the project's individual needs. The lowest level would address the documentation needs for projects similar to the existing Small Capital Venture Projects PID document. The highest level would address documentation needs of SHOPP projects of the highest complexity, risk, and

resource needs. Once in place the resource and schedule savings for the initiation phase will be considerable.

10.09 Requiring Quality Management Systems for all SHOPP PIDs

The Office of Project Scoping and Coordination is currently evaluating how to implement the Quality Management System (QMS) for use in the PID Program. The QMS will be the framework for how Caltrans reviews PIDs. A pilot program will be established to test select local PIDs, and is estimated to be implemented in 2015.

10.10 Requiring Risk Registers for SHOPP PIDs

Project Risk Management is the systematic process of identifying, analyzing, and responding to project risk. The risk management performance measures are: (1) percent of major projects with Risk Registers at Project Initiation Document (PID) and (2) percent of Project Change Requests (PCRs) due to unidentified risks. The use of Risk Registers will be expanded from its current use as part of the PSR-PDS report to all PIDs by the end of 2014.

10.11 Statewide Transportation Projects Inventory (STPI)

The Statewide Transportation Projects Inventory (STPI) spatially displays in GIS software where multimodal transportation investment is currently underway (programmed) and where it will be (planned) over the next 20 to 30 years. Statewide project data from regional transportation planning agencies is being consolidated into one database and will be available in December 2014. This repository creates an opportunity to improve timing and coordination of projects across regional boundaries. Information on projects from the State's multimodal transportation plans is also included.

10.12 Vulnerability Assessments

Vulnerability assessments will be conducted on the State Highway System (SHS) throughout the State. The Division of Planning will work with the Division of Maintenance and other District staff to identify where past storms and other weather related events have impacted the SHS. Projected changes in climate will also be mapped to show where the SHS is most vulnerable. The final products for each District will include an asset inventory, maps showing the location of past weather related impacts and projected climate changes, and a report highlighting how a transportation infrastructure may be impacted in the future and potential adaptation options. These maps, inventory, and report can help speed the project delivery process by assisting in the development of projects in anticipation of significant future extreme weather events that may negatively impact the SHS. Implementation is scheduled for 2017.

10.13 Transportation Analysis Guide

Because the Caltrans is currently without any formal guidance as to its expectations related to transportation analysis, a Transportation Analysis Guide (TAG) is being developed. Due to its overlapping nature with the TAG, The Guide for the Preparation of Traffic Impacts Studies (TIS) used for Caltrans Local Development-Intergovernmental Review program (LD-IGR) will also be updated as part of this effort.

This guidance will include operational objectives across all modes of travel by contextual setting. The context will be largely defined by system performance and stewardship goals based on the existing and future degree of urbanization, modal availability, user need (commerce, home to work, recreation), reliability, safety, environmental setting, and air quality. Operational objectives will be defined in terms of both minimal utility as well as what can be construed as ideal. Minimal utility refers to a level of mobility, safety and access for all modes. The objectives will act a starting point for analysis and discussions with the public and other agencies.

This effort will accelerate project delivery by assuring that project scope and need are appropriately defined. It will also help assure that environmental issues are appropriately addressed and responsive to legal as well as political concerns. Implementation TAG is expected in 2017.

11 TRANSPORTATION PROGRAMMING

Currently there are no proposed improvements

Status of Improvements

ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
1.01	Upgrade the Federal-aid Data System (FADS)	Budgets	Implemented	2010		Improved system allows Caltrans to work with our Districts and Partners more efficiently.	13
1.02	Flexible Match and Tapered Funding	Budgets	Implemented	2002		This has allowed Caltrans to pursue early acquisition of right of way prior to environmental document approval.	13
2.01	Value Engineering Change Proposals (VECP)	Construction	Implemented	2014		VECPs were formerly known as Cost Reduction Incentive Proposals (CRIPs). Per Project Delivery Directive (PD-13), VECP MRC (Value Engineering Change Proposal Management Review Committee) convenes when the construction cost savings to Caltrans is \$200,000 or more. The MRC provides a separate review and evaluation of a VECP.	2
2.02	Updated Policy and Guidelines for Use of Cost plus Time	Construction	Implemented	2013		The September 2002 "Guideline for Use of A+B Provisions" has been replaced by the August 2013 "Policy & Guideline for use of Cost + Time Bidding Provisions". Cost plus Time (C+T) bidding (formerly known as A+B bidding) is a method of determining the lowest bidder by having bidders bid on both the "cost" and the "number of working days" necessary to complete the contract.	2
2.03	Concurrent Delays	Construction	Implemented	2013		The contractor is no longer compensated for additional overhead costs incurred during a concurrent delay.	3
2.04	Request for Information and Notices of Potential Claims	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.	14
2.05	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.	14
2.06	Flexible Start	Construction	Implemented	2010		Specify the last working day and total working days, the Contractor picks the first working day.	14
2.07	Critical Path Method Scheduling	Construction	Implemented	2010		The requirement that contractors submit a for use of the critical path method (CPM) in the contractor's schedule has been extended to all contracts and is included in the 2010 Standard Specifications.	14
2.08	Constructability Reviews	Construction	Implemented	1997		Expanded to all major projects in 2010.	15
2.09	C + T with I/Ds	Construction	Implemented	2000		These items can be used together when there is a critical internal milestone.	15
2.10	Internal Milestones	Construction	Implemented	2001			15
2.11	Joint Contractor/State Value Analysis Workshop Immediately After Contract Approval	Construction	Implemented	2001		Opportunity for State and contractor to develop ideas to reduce construction contract time and cost.	16
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.	16
2.13	Differing Site Conditions (DSC) Management Review Committee	Construction	Implemented	2002		Process results in statewide consistency in dealing with DSC disputes.	16
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.	17
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.	18

ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
2.16	Incentives/Disincentives to Incentivize Speedy Internal Milestone and/or Construction Contract Completion	Construction	Implemented	2000			18
2.17	Traffic Contingency Plans	Construction	Implemented	2001		Developed SSP 12-220	19
2.18	Alternative Dispute Resolution	Construction	Implemented	2002		A dispute review board is mandatory on contracts \$10M or more.	19
2.19	Policy to Pay for Acceleration Costs During Construction When Cost Effective	Construction	Implemented	2001			19
2.20	Lane Closure Software	Construction	Implemented	2005			19
2.21	On-line Debarment List of Debarred Contractors	Construction	Implemented	2004			20
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.	20
2.23	Expansion of Subcontracting	Construction	Implemented	2008		Increase the level of subcontracting opportunities from 50% to 70%.	20
2.24	Elimination of Contract Retention	Construction	Implemented	2008		Eliminate retention on federally funded and state-only funded contracts.	21
2.25	Owner Controlled Insurance Program (OCIP)	Construction	Implemented	2008		OCIP can help to increase small business contractor participation.	21
2.26	Partnering	Construction	Implemented	2008			22
2.27	Emergency Contracting Innovations	Construction	Implemented	2008		Improve the directors order, confirmation of verbal agreements, and emergency contract boilerplates.	22
2.28	Information Technology Systems	Construction	Proposed		TBD	Construction Management System (CMS) project started July 2006.	63
2.29	Caltrans Construction Partnering Steering Committee (CCPSC)	Construction	Partially Implemented	Performance Measures, Risk Management, Lessons Learned: 2012	PDT Effectiveness: TBD	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. Performance Measures, Risk Management, and Lessons Learned task forces were implemented in 2012. Target implementation date for PDT Effectiveness is to be determined.	63
3.01	Construction Manager/General Contractor	Design	Implemented	2013		The Construction Manager/General Contractor (CMGC) Pilot Program consists of 6 projects; To date all six (6) have been nominated. Two (2) have been awarded, the remaining being in various stages in the procurement process.	3
3.02	Storm Water Management Design Tools	Design	Implemented	Various			4
3.03	Landscape Architecture Questionnaire to Determine Visual Impact Assessment Level	Design	Implemented	2012		This guide will expedite determining the appropriate level of VIA documentation	4
3.04	Cost Estimate Reviews	Design	Implemented	2010		FHWA has mandated Major Project Cost Estimate Reviews (CER) for all federal-aid projects with total overall cost of \$500 million or higher. FHWA delegated the responsibility of conducting Major Project CERs to Caltrans on state and local projects.	23

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ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
3.05	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 ten (10) state projects and one (1) local have been awarded. Three (3) of the State projects have been completed, the remaining being in various stages in the delivery process. No evaluation can be compiled at this time. All projects to be awarded by 2014.	23
3.06	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.	24
3.07	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.	24
3.08	Document Retrieval System	Design	Implemented	2004		The Document Retrieval System is a set of web forms that allows any employee to search, view, and print archived documents over the Caltrans intranet using a browser.	26
3.09	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.	26
3.10	Landscape Architecture Roadside Management and Erosion Control Toolboxes	Design	Implemented	2009			27
3.11	Landscape Architecture PS&E Guide	Design	Implemented	2008		The Guide assists Caltrans 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.	27
3.12	Design-Sequencing	Design	Implemented	2000		Seventeen projects have been completed to date with an average time savings of approximately 1.5 months.	27
3.13	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 Caltrans planned construction contracts to assist industry to better plan for its resource, equipment and material needs.	28
3.14	Project Change Control	Design	Implemented	2000		The focus of change control is to keep projects on schedule by reducing design changes after completing PA&ED.	28
3.15	Value Analysis	Design	Ongoing			Caltrans has been performing VA since 1969. Updated Federal legislation mandates VA studies on all projects on the NHS with a total cost of \$50 million or more (Bridge projects over \$40 million). It is recommended that VA studies be completed on projects over \$15 million.	29
3.16	Disposal Site Quality Team	Design	Implemented	2001		Supplemental to the findings of the Disposal Site Quality Team in 2001, the Division of Design developed Design Information Bulletin (DIB) 85 – Guidance for the Consideration of Material Disposal, Staging, and Borrow Sites in 2007. This DIB clarifies the responsibilities and associated compliance requirements for early consideration of material disposal, staging, and borrow site needs in the project delivery process.	29

ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
3.17	Stormwater Management - Hydromodification Guidance	Design	Proposed		2014		64
3.18	Quality Management for Design Products	Design	Proposed	Handbook: 2012	Project Performance Policy: July 2014	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 was completed in December 2012. The Design Product Evaluation Criteria Handbook was developed by project development teams managing quality in effectively identifying and addressing issues. Policy on Project Performance will be forthcoming by July 2014.	64
4.01	Improved Bidder Inquiry	Engineering Services	Implemented	2012		Seven separate electronic bidder inquiry systems have been replaced with one system. The one system eliminates some of the confusion bidders had in posting their inquiries	5
4.02	Construction Contract Standards	Engineering Services	Implemented	2009		2010 Construction Contract Standards are published and available.	30
4.03	Draft Contract Resolution Database	Engineering Services	Implemented	2011		In 2011 the Draft Contract Resolution Database was rolled out.	30
4.04	Training by DES-OE	Engineering Services	Implemented	2000		Classes updated each year to meet District training needs.	30
4.05	Soundwall Specification	Engineering Services	Implemented	2003		The SSP and descriptive information on its utilization is on the DES-OE website.	30
4.06	Accelerated Bridge Construction (ABC)	Engineering Services	Implemented	2008		The guidance includes a Design Impact Questionnaire and ABC Decision Flowchart that provide a qualitative assessment of the impact ABC methods may have on a project (both Structure and District portions).	31
4.07	Accelerated Bridge Construction (ABC)	Engineering Services	Proposed		2015	Caltrans has been involved with both state and national efforts to consider issues related to ABC in seismic regions. New seismic detailing and design guidance based on recent research findings are currently under development. There will be a rolling implementation of these tools and guidance for ABC thru fiscal year 2014/15.	65
4.08	Best Bid Standards	Engineering Services	Proposed		2014	Construction Contracting Quality Management Program which includes the Best Bid Standards for Construction Contracting will be published and distributed to the districts.	65
5.01	Additional Programmatic Agreements with Resource Agencies	Environmental	Implemented	2014		DEA has obtained a Programmatic Biological Opinion from NMFS for incidental take of three species of salmonids for coastal drainages from Oregon to Santa Cruz County. A programmatic letter of concurrence streamlining some consultations for various species on the north coast (e.g. marbled murrelet and spotted owl) has also been completed.	5
5.02	Bridge Rails and Barriers: A Reference Guide for Transportation Projects in the Coastal Zone	Environmental	Implemented	2012		This guide has been prepared as a tool to help stakeholders and participants in bridge and railing design to better understand options available for potentially successful application in our projects. This information is designed to help streamline the processes of rail selection and coastal development permitting.	5

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ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
5.03	Environmental Management System -- PEAR and STEVE tools	Environmental	Implemented	2011		The STEVE Tool has helped to achieve multiple business objectives.	31
5.04	Environmental Engineering -- Noise	Environmental	Implemented	2008		A GIS based Statewide Soundwall Inventory is available on line.	32
5.05	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.	32
5.06	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.	33
5.07	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.	33
5.08	"Mare Island Accord"	Environmental	Implemented	2000		Has resulted in improved interagency relationships and a better understanding each other's mandates and challenges.	33
5.09	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.	34
5.10	Renegotiation of NEPA/404 Integration Process MOU	Environmental	Implemented	2006		The 2006 MOU is more flexible and reflects lessons learned from the previous agreement.	34
5.11	Resource Agency Partnering Agreements	Environmental	Implemented	2000		Program expanded to include the California/Nevada Operations Office of the U.S. Fish and Wildlife Service.	35
5.12	Programmatic Agreements with Resource Agencies	Environmental	Implemented	1994		Opportunities for more programmatic biological opinions are being explored and may be implemented.	35
5.13	Mitigation Banking and Process Improvements	Environmental	Implemented	1991		Working to develop new methods to collaborate with resource agencies consistent with new SAFETEA-LU provisions.	36
5.14	Environmental Impact Statement (EIS) Review Process Improvement	Environmental	Implemented	1998		Now, under NEPA Delegation, Caltrans has assumed FHWA's Federal Lead Agency role, and has the authority to review and approve NEPA documents.	37
5.15	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.	37
5.16	Preliminary Environmental Assessment Report (PEAR)	Environmental	Implemented	2001		Caltrans requires the preparation of a PEAR to support the Project Study Report – Project Development Support for all projects on the State Highway System requiring an environmental document (EIS/EIR and ND/FONSI).	38
5.17	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.	39
5.18	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.	39
5.19	Standard Environmental Reference (SER)	Environmental	Implemented	2002		Refinements & additional information are continuously added.	40
5.20	NEPA Delegation Pilot Program (now "NEPA Assignment")	Environmental	Implemented	2007		Since July 1, 2007, Caltrans has performed federal NEPA responsibilities, as authorized in a series of MOUs with the FHWA. Under the NEPA Assignment MOUs, Caltrans approves NEPA environmental documents and is assigned certain consultation and coordination responsibilities under other Federal laws.	40

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ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
5.21	Categorical Exclusions	Environmental	Implemented	2007		In 2007, the responsibility for making Categorical Exclusion (CE) determinations was assigned to the Caltrans under two separate MOUs with the FHWA, as authorized by SAFETEA-LU, which amended the United States Code (USC Sections 326 and 327). The 327 MOU (SAFETEA-LU Section 6005) authorizes Caltrans to approve a broad category of CEs for projects that do not fit more specific criteria outlined in Section 326 (SAFETEA-LU 6004).	41
5.22	Environmental Engineering -- Hazardous Waste	Environmental	Proposed		2014	Development is underway for revisions to the Hazardous Waste Handbook (a guide for district staff on hazardous waste projects).	65
5.23	Air Quality - CT-EMAC Tool Update	Environmental	Proposed		2015	CT-EMFAC is a spreadsheet tool developed and maintained by DEA to analyze transportation emission impacts from highway projects. Updates to this tool are anticipated in 2015 with the release of CARB's new EMFAC emission model late in 2014.	66
5.24	Mitigation Banking and Process Improvements - RAMP and SAMI	Environmental	Proposed		2015	Two advanced planning and implementation programs, Regional Advance Mitigation Planning (RAMP) and Statewide Advance Mitigation Initiative (SAMI) are being developed. A contract with UC Davis to finalize the Draft Regional Framework, the Pilot Area Regional Assessment, and the Guidance Manual is scheduled to be completed in late 2014/early 2015. Another contract with UC Davis, the Statewide Advance Mitigation Funding and Financial Strategies (SAMFFS), is investigating the means for funding advance mitigation in California, and is scheduled to be completed mid-2014.	66
5.25	Caltrans Environmental Compliance Program for Local Agency Partners and Consultants	Environmental	Proposed		2015	A pilot program is being developed in partnership with the UC Davis Extension (UCDE). The goal of this program is to provide local agency partners and consultants with environmental compliance training that would aid them in navigating the Caltrans environmental process. Courses are taught by DEA staff and students sign up for classes through UCDE. Desired outcome is to expand to full training series if resources become available.	67
5.26	Caltrans /California Coastal Commission Communication Plan	Environmental	Proposed		2014	The purpose of the Communication Plan is to improve information sharing, enhance agency understanding, and streamline processes by establishing communication protocols, schedules, and methods for the Caltrans/Coastal Commission Interagency Agreement. The communication plan is primarily designed for use internally with Caltrans staff throughout the state working on projects within the coastal zone.	67
6.01	Updated Forms On-line	Local Assistance	Implemented	2013, Various		Converted a large number of MS Word forms to fillable PDF for access to over 800 local agencies to improve usability, meet accessibility requirements and enable use of FormsPLUS.	6
6.02	Website Enhancements	Local Assistance	Implemented	2013		Major overhaul to Internet and Intranet WebPages was completed to make the forms, documents, reports, and other information more accessible and easier to navigate.	6

ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
6.03	MAP-21 Categorical Exclusions	Local Assistance	Implemented	2013		Environmental guidance on two new categorical exclusions allowed by MAP-21.	6
6.04	E-76 Status Tool	Local Assistance	Implemented	2014			6
6.05	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.	42
6.06	New Policy Guidance and Forms for Non-Infrastructure Projects	Local Assistance	Implemented	2011		Policy guidance and forms for non-infrastructure projects such as "ATP" and CMAQ Equipment retrofit", includes R/W short form, a "Non-infrastructure Request for Authorization" short form and PES(NI) form.	43
6.07	Use It or Lose It	Local Assistance	Implemented	1999			43
6.08	On-line Manuals, Guidelines, Guidebooks, Bulletins, and Notices	Local Assistance	Implemented	2006		Paperless Manuals and Guidance documents	43
6.09	Improved Program Management Direction and Communications	Local Assistance	Implemented	2006		Instituted Planning and Local Assistance Network (PLAN), Hot Topics and Sub-team meetings.	44
6.10	Expedite Reimbursements	Local Assistance	Implemented	2001			44
6.11	Standard Environmental Reference and LAPM Chapter 6	Local Assistance	Implemented	2002		In conjunction with the Division of Environmental Analysis.	44
6.12	Improved Training	Local Assistance	Implemented	2006		RE Academy, Federal-aid Series, Local Assistance Academy, and other training	45
6.13	LAPG Migration to Program Manager Web-based Tool	Local Assistance	Proposed		2014	The "Local Assistance Program Guidelines" is migrating from a 1000 page Coordinator/Editor-based document to a Program Manager Web-based tool.	67
7.01	Automated Pavement Condition Survey	Maintenance	Implemented	2013		A new tool to identify pavement conditions call Automated Pavement Condition Survey (APCS).	7
7.02	Ground Penetrating Radar	Maintenance	Implemented	2012		The Ground Penetrating Radar (GPR) pavement structure inventory includes California's pavement network layer thicknesses and material types.	7
7.03	Emergency Contractor Registry	Maintenance	Implemented	2000		The purpose of the Registry is to build a database of contractors who are interested in helping Caltrans expedite emergency work.	45
7.04	Director's Order Guidelines and Matrix	Maintenance	Implemented	2002		Provides information on emergency contracts	45
7.05	Job Order Contracting	Maintenance	Proposed		2016	Caltrans has proposed legislation that would authorize the Caltrans to conduct a limited pilot program to develop contracts using an innovative contracting method known as Job Order Contracting (JOC).	68
8.01	Project Risk Management for Capital Projects	Project Management	Implemented	2012		A new "Project Risk Management Handbook: A Scalable Approach" was published in June 2012. Risk Management approach is based on the size and complexity, risk accountability checkpoint and Risk Register Certification forms were introduced. A New Project Risk Management Directive (PD-09) was issued in July 2012. An online tool for documenting and managing project risks was deployed and a new risk management training developed and delivered.	8

ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
8.02	Project Resource and Schedule Management	Project Management	Implemented	2012		Project Resourcing and Schedule Management System (PRSM) is an enterprise project management system that will provide integrated scheduling and timekeeping capabilities for Caltrans Capital Outlay Support statewide.	9
8.03	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.	46
8.04	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.	46
8.05	Capital Project Workplan Handout	Project Management	Implemented	2010		The Handbook provides an overview of the procedures, methods, and tools relating to Caltrans use of project workplans in managing capital improvement projects and provides references to more detailed policies, guidance, training, and other documentation.	46
8.06	Project Management Online Reporting Tool	Project Management	Implemented	2011		This on-line reporting tool has been developed to generate a number of useful Project Management reports.	47
8.07	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).	47
8.08	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.	47
8.09	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.	48
8.10	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.	48
8.11	Project Charter Policy	Project Management	Implemented	2001		Charter process is intended to help manage project scope and reduce work.	48
8.12	Capital Project Skill Development Plan	Project Management	Implemented	2000		The Capital Project Skill Development plan provides Caltrans capital project staff with the knowledge and skills needed to produce their deliverables.	49
8.13	Use of Flexible Resources to Deliver Projects	Project Management	Implemented	2001		New consultant contracts are continuously being developed and awarded.	49
8.14	Revised Milestone Standard	Project Management	Implemented	2001		Two additional environmental milestones were added to the work breakdown structure.	49
8.15	Project Management Certificate Program	Project Management	Implemented	2002		Over 560 graduates.	50

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8.16	Project Management Professional (PMP) Certification	Project Management	Implemented	1999		There are over 350 PMPs in Caltrans.	50
8.17	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.	50
8.18	Project Close Out	Project Management	Implemented	2003			51
8.19	Project Communication Handbook	Project Management	Implemented	2003		The Handbook was updated in September 2007 and is available on-line.	51
8.20	Project Delivery Contracts	Project Management	Implemented	2005		Contracts can be accessed via the intranet	51
9.01	Perfection of Title on U.S. Forest Service Lands	Right of Way and Land Surveys	Implemented	2012		Caltrans and USFS continue to work together to perfect title on State right of way.	10
9.02	Automated Machine Guidance Technology in Construction	Right of Way and Land Surveys	Implemented	2013		Automated Machine Guidance technology uses positioning devices such as Global Positioning Systems, Total Stations, or rotating laser levels to determine the real time position of construction equipment and compare the position against a Digital Design Model stored in an onboard computer	10
9.03	Integrating Geo-spatial Technologies into the Right of Way Data Management Process	Right of Way and Land Surveys	Implemented	2013		Geographic Information Systems (GIS) and database management systems have been incorporated into the Right of Way process. Previously right of way data systems were not linked spatially to parcels or centerlines.	10
9.04	Mobile Terrestrial Laser Scanning	Right of Way and Land Surveys	Implemented	2013		Mobile Terrestrial Laser Scanning (MTLS) will replace Vangarde and some conventional field surveys to more safely and efficiently collect pavement elevations, assets and facilities data at highway speeds, without the need for lane closures.	11
9.05	Contaminated Property Acquisition Process	Right of Way and Land Surveys	Implemented	2012		New Hazardous Materials Disclosure Document better defines the process of acquiring properties with some level of hazardous materials.	11
9.06	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	52
9.07	One-Call Acquisition	Right of Way and Land Surveys	Implemented	2000		Caltrans 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.	52
9.08	Resolution of Necessities by Locals	Right of Way and Land Surveys	Implemented	2001		Implemented with Caltrans Memorandum dated December 10, 2001. Clarifying memoranda have been subsequently released.	52
9.09	Right of Way Acquisition prior to Environmental Approval	Right of Way and Land Surveys	Implemented	2000			53
9.10	Streamlined Positive Location (Potholing) Process	Right of Way and Land Surveys	Implemented	2001		The streamlined utility positive location process is successful and allows Caltrans to take full control in identifying the exact location of underground utilities.	53
9.11	Right of Way Project Delivery Team	Right of Way and Land Surveys	Implemented	1998		Continuing to be implemented in selected Districts	54
9.12	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	54

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9.13	Biennial Surveys and Right of Way Engineering Coordination Meetings	Right of Way and Land Surveys	Implemented	2007		Meetings are taking place. Some meetings are VTC while the others are in person. These meetings have helped to meet the intended goals of the effort.	54
9.14	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.	55
9.15	Underground Service Alerts (USA) - Design Inquiry Service Contract Utility Design	Right of Way and Land Surveys	Implemented	2007			55
9.16	Increased Awareness of Right of Way Activities	Right of Way and Land Surveys	Implemented	2000		On-going training statewide.	55
9.17	Continuous Advertising for Appraisal Consultants	Right of Way and Land Surveys	Implemented	2002		This accelerated the process for entering into personal service contracts.	55
9.18	Improved Certificate of Sufficiency Process	Right of Way and Land Surveys	Implemented	2004		Decision Document approved April 2004.	56
9.19	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.	56
9.20	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.	56
9.21	Utility Relocation Master Contracts	Right of Way and Land Surveys	Implemented	2004		Jointly with the major utility companies, Right of Way developed a single Master Contract that shares the cost of utility relocations for freeway projects.	56
9.22	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.	56
9.23	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. Caltrans has taken over instructing the R/W course in the Federal Aid Series. Currently training is not taking place.	57
9.24	Assuming Greater Role in Delivery of Training to Local Public Agencies and Consultants	Right of Way and Land Surveys	Implemented	2005		Currently training is not taking place.	57
9.25	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.	57
9.26	RTK GNSS Equipment and Specifications	Right of Way and Land Surveys	Implemented	2008		100% of the Caltrans survey crews have been outfitted with RTK GPS equipment in the 2007/08 fiscal year.	57
9.27	Terrestrial Laser Scanning	Right of Way and Land Surveys	Implemented	2007		Caltrans is currently using five terrestrial laser scanners throughout the State. All districts have been trained in the data collection systems. Data from terrestrial scanners can be combined with traditional survey, mobile laser scanning, airborne scanning, sonar, and underground imaging data.	58
9.28	Early Involvement for Railroad Appraisals	Right of Way and Land Surveys	Implemented	2007			58

ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
9.29	Real Time GNSS Network (RTN)	Right of Way and Land Surveys	Proposed		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.	68
9.30	Virtual Design and Construction	Right of Way and Land Surveys	Proposed		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.	69
9.31	Surveys and R/W GIS Initiatives	Right of Way and Land Surveys	Proposed		Continuous	Survey data will begin populating a Caltrans GIS library which will facilitate more precise results and greater detail from GIS queries. These efforts to manage geospatial data lay the foundation for leveraging the increasing capabilities to of design software to consume GIS information.	69
9.32	Subsurface Utility Engineering (SUE)	Right of Way and Land Surveys	Proposed		2016	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.	69
9.33	Collection, Sharing & Visualization of Survey Data	Right of Way and Land Surveys	Proposed		2014	Meetings have begun to review the different methods available for coding and collecting survey data with the instruments and software currently being used by Caltrans Surveyors. Changes in the collection practices will improve the checking procedures in the field while automating the creation of more intelligent 3D topographic data for use in Civil 3D and GIS system.	69
9.34	Incentive Payments	Right of Way and Land Surveys	Proposed		2014	The Division of Right of Way and Land Surveys is implementing an acquisition incentive program to encourage property owners to sign Right of Way (R/W) contracts in a quick time period. Payments will be offered for both permanent and temporary acquisitions.	70
9.35	Lump Sum Payments (Relocation Benefits)	Right of Way and Land Surveys	Proposed		2014	Federal Highways Administration is conducting a demonstration program aimed to streamline the relocation process by permitting a lump-sum payment for the acquisition and relocation of a displaced occupant.	70
10.1	Establishing the Small Capital Value Project PID	Transportation Planning	Implemented	2012		In 2012 the SCVP PID was approved for use on projects with a cost from up to \$3.0M (prior the limit was \$1.0M). The SCVP is intended to minimize the effort for programming and are typically used on lower risk, single alternative projects.	11
10.02	Establishment of the Project Study Report – Project Development Support Document (PSR-PDS)	Transportation Planning	Implemented	1999		CTC approved policy on December 18, 1999.	58
10.03	Early Environmental Efforts/Geographic Information Systems	Transportation Planning	Implemented	2005			59

ID	Description	Owner	Status	Year Implemented	Target Implementation	Comments	Page #
10.04	Route Optimization Analysis Tools	Transportation Planning	Implemented	2005		This tool provides a range of potential alignments with alignment costs.	59
10.05	SHOPP Investment Analysis Tool	Transportation Planning	Implemented	2008		Analyzes the SHOPP program as needs and funding conditions change.	60
10.06	Purpose and Need Sub-Team	Transportation Planning	Implemented	2008		The Team developed a work plan to identify improvement to the Purpose and Need process.	60
10.07	Transportation Planning Scoping Information Sheet	Transportation Planning	Implemented	2008		The Information Sheet must be completed for all PIDS. The inclusion of this checklist reduces project risks, hence improves the project delivery.	60
10.08	SHOPP Project Initiation Report	Transportation Planning	Proposed		2014	There are currently many types of SHOP PIDs. By the end of this fiscal year they will all be replaced with one PID type called a PIR. This will be the sole document all the way through the Environmental Phase.	70
10.09	Requiring Quality Management Systems (QMS) for all SHOPP PIDs	Transportation Planning	Proposed		2015	The QMS will be the framework for how Caltrans reviews PIDs. A pilot program will be established to test select local PIDs.	71
10.10	Requiring Risk Registers for SHOPP PIDs	Transportation Planning	Proposed		2014	The use of Risk Registers will be expanded from its current use as part of the PSR-PDS report to all PIDs.	71
10.11	Statewide Transportation Projects Inventory (STPI)	Transportation Planning	Proposed		2014	Project data (programmed and planned) from regional transportation planning agencies from across the State, including projects from the State's multimodal transportation plans, are consolidated into one database.	71
10.12	Vulnerability assessments	Transportation Planning	Proposed		2017	Vulnerability assessments will be conducted on the SHS throughout the State in coordination with Planning, Maintenance and other District staff to identify where past storms and other weather related events have impacted the SHS. Projected changes in climate will also be mapped to show where the SHS is most vulnerable.	71
10.13	Transportation Analysis Guide (TAG)	Transportation Planning	Proposed		2017		72
11.01	Delegation of FSTIP Administrative Modifications to MPOs	Transportation Programming	Implemented	2011		Caltrans worked with FHWA and FTA to develop revised FTIP/FSTIP Amendment and Administrative Modification Procedures. These revised procedures allow Caltrans to delegate authority to the MPOs to approve administrative modifications to the FSTIP thereby saving up to three weeks in the approval time.	61
11.02	Electronic Funds Request	Transportation Programming	Implemented	2009			61
11.03	Electronic Posting of CTC Book	Transportation Programming	Implemented	2011		The CTC meeting agenda is available on the web 10 days prior to the meeting.	61
11.04	Delegated Authority	Transportation Programming	Implemented	2000		Programming has delegated authority by the CTC to take actions that will accelerate project delivery.	61
11.05	Improved Scoping and Scheduling	Transportation Programming	Implemented	2004		Programming in coordination with the FHWA and FTA has developed guidelines and criteria for the use of Administrative Modifications.	62
11.06	Developments in Information Technology	Transportation Programming	Implemented	2000		California Transportation Improvement Program System (CTIPS) is Programming's programming database. CTIPS serves as a multi-agency joint use project database system.	62
11.07	Enhanced Information Technology	Transportation Programming	Ongoing		Continuous	Programming continuously improves their web site to insure the availability of real-time programming information.	62