Preliminary Report

Caltrans SHOPP PID Process Improvement Study

June 2013

Prepared by

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June 11, 2013

Mark Miller
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SHOPP
1120 N Street
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Subject: SHOPP PID Process Improvement Study
Preliminary Report

Dear Mr. Miller:

Value Management Strategies, Inc. is pleased to transmit the Preliminary Report for the above-referenced project. This report summarizes the events of the study conducted at Caltrans headquarters offices in Sacramento, California during the months of March and April 2013.

We enjoyed working with you and your staff and are looking forward to continuing our work on this project to assist Caltrans in improving the value of its project delivery functions.

Sincerely,

VALUE MANAGEMENT STRATEGIES, INC.

Eric Trimble, CVS, PMP
VA Study Team Leader

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TABLE OF CONTENTS

PRELIMINARY

STUDY SUMMARY **1**
Process Study Need and Purpose
SHOPP PID Process Analysis
SHOPP PID Process Improvement Recommendations
Other Items for Consideration
Implementation Action Plan

PROCESS IMPROVEMENT ALTERNATIVES **6**
Summary
- Recommended Process Improvement Strategies
- Summary of Recommended Alternatives

PID Process Performance Attributes
Comparison of Performance - Baseline and Recommended Strategies
Recommended Process Improvement Alternatives Documentation

OTHER ITEMS FOR CONSIDERATION **23**
Identified Items
- Summary of Other Items for Consideration

Identified Items Detail

IMPLEMENTATION ACTION PLAN **28**
Implementation Action Plan

STUDY DETAILS **29**
Week 1 Study Agenda
Week 2 Study Agenda
Week 1 Attendees
Week 2 Attendees
SHOPP PID Process Improvement Study FAST Diagram
Idea Evaluation

APPENDIX
Matrix: Existing Project Initiation Documents (PIDs) by Program
Matrix: Proposed Project Initiation Report (PIR) Documents
Matrix: Required Project Initiation Document (PID) Attachments by SHOPP Program
Mini-PEAR Draft Template

STUDY SUMMARY

STUDY SUMMARY

PRELIMINARY

A State Highway Operation and Protection Program (SHOPP) Project Initiation Document (PID) process improvement study, sponsored by Caltrans and facilitated by Value Management Strategies, Inc., was conducted by representatives from District Planning, HQ SHOPP Program Managers, the PDPM Editor, HQ Divisions of Program Management and Traffic Operations. The study was performed over six days – March 19 through 21 and April 9 through 11, 2013, in Sacramento, California. This *Study Summary* provides an overview of the study, key findings, and the recommendations developed by the SHOPP PID process improvement study team.

PROCESS STUDY NEED AND PURPOSE

As part of a Department-wide effort, Caltrans HQ Division of Planning has been tasked to reduce costs and inefficiencies related to project delivery. Currently, there are more than ten different types of SHOPP PIDs identified in the Project Development Procedures Manual (PDPM). The process is viewed as too cumbersome and can lead to unnecessary project costs and/or schedule delays, which is jeopardizing funding for PID development.

Caltrans' SHOPP Program needs to:

- Demonstrate the value quality SHOPP PIDs have on overall project delivery.
- Improve the value of the SHOPP PID for all project stakeholders.
- Improve the understanding and appreciation of the value of the SHOPP PID, especially with external agencies (specifically, LAO and DOF).
- Ensure the State is receiving good value for SHOPP PID work.

The purpose of the SHOPP PID process improvement study is to:

- Define the purpose of the SHOPP PID.
- Evaluate the effectiveness of the current SHOPP PID policies, procedures, and practices.
- Ensure the SHOPP PIDs provide good value.
- Demonstrate to others, especially external agencies, of the value of PIDs.
- Improve efficiencies.
- Identify policy and procedure issues and action items related to the SHOPP PIDs.

SHOPP PID PROCESS ANALYSIS

The team first determined that the purpose of the SHOPP PID is that of an engineering, management, and funding decision document that defines scope, schedule, and cost to maintain State Highway System assets. In short, it provides the necessary framework to support project delivery. To support the development of PID improvements, the team defined the essential performance attributes of the SHOPP PID process to include Efficiency, Consistency, and Compatibility. With these performance attributes in mind, the team assessed the performance of the current SHOPP PID process and used this measure as a starting point to identify potential process improvement solutions.

SHOPP PID PROCESS IMPROVEMENT RECOMMENDATIONS

The team produced a total of 37 ideas for the improvement of the SHOPP PID process. Of this total, 12 ideas were deemed to have sufficient merit by the team to be developed into full Process Improvement Recommendations. The team elected to propose two improvement strategies. Process Improvement Strategy 1 utilizes the first ten alternatives listed below and can be achieved within a calendar year. Process Improvement Strategy 2 utilizes the first ten alternatives of Strategy 1 plus an additional two alternatives (11 and 12), which have a significantly longer implementation lead time. *A complete discussion of each of these alternatives can be found in the next section of this report.*

- **Value Alternative 1: Create one SHOPP Process Initiation Report (PIR) document with flexible levels of documentation in lieu of various PIDs**

  The alternative concept would eliminate all of the current SHOPP PID documents and consolidate them into one document with three flexible levels of documentation within the single standard template to support all SHOPP programs. The PIR levels would be configured to meet the complexity and inherent risks of the project's individual needs. The lowest level (Level I) would address the documentation needs for projects similar to the existing Small Capital Value Project (SCVP) PID document. The highest level PIR (Level III) would address the documentation needs of SHOPP projects of the highest complexity, risk, and resource needs.

- **Value Alternative 2: Incorporate a mini-PEAR document in lieu of developing a full PEAR for each project**

  While the use of a mini-PEAR document would not likely be needed for a SHOPP PIR Level I, the alternative concept would utilize a mini-PEAR document for a SHOPP PIR Level II document (see Appendix). The SHOPP PIR Level III would utilize either the mini-PEAR or would continue to utilize a full PEAR document dependent on environmental complexity.

- **Value Alternative 3: Allow project numbers to be opened for charging**

  This alternative would authorize District Budget Control to open project numbers as long as the project is listed on the approved 3-year PID plan without additional approvals required.

- **Value Alternative 4: Produce a Pre-PIR template and ensure that the Pre-PIR is completed in a timely manner**

  The alternative concept would require all PIRs to have a pre-PIR document completed by the district program advisor to allow the PID program to identify the resource requirements for the next 3 fiscal years. The pre-PIRs should be finalized for the Budget Change Proposal (BCP) process for the fiscal year 18 months later. A standardized Pre-PIR document (and instructions) should be developed for consistency.

- **Value Alternative 5: Require Stormwater Design to prepare the Stormwater Data Report**

  The Project Engineer should coordinate directly with the District Design Stormwater Coordinator to document the stormwater data requirements and determine if any additional documentation

is needed to effectively plan and estimate for the stormwater requirements of the project. This activity would be funded by SHOPP PID resources allocated to each district.

- **Value Alternative 6: Implement tracking to determine SHOPP PIR success**

  The alternative concept would implement an information management system to store SHOPP PIRs and evaluate effectiveness/success of programmed PIRs throughout the life cycle of the project. For instance, this suggests developing Post-PIR performance measures, such as tracking PCRs and measuring estimated vs. actual costs, and/or initial vs. actual scope.

- **Value Alternative 7: Manage SHOPP tool to deliver balance of program allocation targets to Planning**

  The alternative concept would assure that the SHOPP tool is functional by giving priority to the maintenance of the tool. This alternative also suggests inviting Planning to District SHOPP planning meetings to improve communication as Planning is already a member of the SHOPP Managers, Division Chiefs, and Executive Committees and can offer valuable insight.

- **Value Alternative 8: Involve PMs in PIR development for all districts**

  The alternative concept would enforce the policy for PM involvement in PIR development and provide resources accordingly.

- **Value Alternative 9: Utilize a scalable contingency range for PIRs**

  The alternative concept would use a contingency range for each of the SHOPP PIR level documents in lieu of using the same contingency percentage for all projects. Contingency can be further adjusted by the PE to correspond to the risk level as documented within the initial project risk register or risk plan.

- **Value Alternative 10: Mandate that DAFs cannot be used for 131 Project initiations**

  The alternative concept would mandate that DAFs cannot be used for standalone 131 PIDs (Permanent Restoration). The DAF would be used as the PIR for the 130 Program (Emergency Damage Repair) and as the Pre-PIR for 131 Program. A SHOPP PIR would be required to Program 131 projects.

- **Value Alternative 11: Streamline review process by using online form**

  This alternative would make use of an online document tracking option to centralize and track comments during circulation of the PIR.

- **Value Alternative 12: Develop a web-based PIR document**

  This alternative concept would develop a secure, collaborative web-based documentation tool to create, capture, review, and manage both the work-in-progress PIR documents as well as the completed documents.

OTHER ITEMS FOR CONSIDERATION

Of the original 37 creative ideas that the team identified which were not developed, discarded, or combined, a number were thought to have potential and deserved to be highlighted as other items for consideration. *A complete discussion of each of these concepts can be found in the section entitled "Other Items for Consideration."*

1. Utilize limited circulation for review
2. Limit hours for review
3. Require better tracking of PID resource use; use a monthly tracking tool
4. Streamline review process by using concurrent reviews during PID development
5. Remove engineer's stamp from the less intensive SHOPP PIR Level I document
6. Institute clear delegation and accountability for each specific required project development procedure
7. Obtain clarification and guidance from Environmental for preparing and implementing categorical exceptions/categorical exclusions (CE/CE) during the K phase
8. Utilize brokered work by other districts and/or on-call contracting of AE for PID development for bottleneck functions and to maximize district staffing
9. Utilize charrette process for SHOPP PIR development

Note: As discussed by the team, many of these ideas may currently be practiced in some form in certain Caltrans Districts or regions and could be applied elsewhere.

IMPLEMENTATION ACTION PLAN

Although the actual method of implementing the recommended improvements has yet to be fully determined, discussion with the team and project sponsors implied that the implementation of the Strategy 1 recommendations may be completed within one calendar year. The group did, however, discuss potential implementation challenges, and although not able to set a specific timeline, were able to develop a logical implementation plan outline as presented below.

1. SHOPP Program Managers give concurrence
2. SHOPP managers present plan to SHOPP Division Chiefs for concurrence
3. Obtain approval to pursue implementation from the SHOPP Executive Board
4. Form implementation team with Division of Transportation Planning lead
5. Implementation Team
    A. Define document format
    B. Obtain SHOPP program input - help refine criteria for individual PIR levels

C. Draft document guidance - draft instruction for PIRs, includes updates to all manuals

D. Draft training material and implementation schedule

E. Concurrently investigate web-based options

6. Obtain approval for Implementation Plan from Executive Management

7. Implement changes

8. Track changes and assess process

A more formal Implementation Plan will follow the decision of which (if any) of the alternatives are approved for implementation.

PROCESS IMPROVEMENT ALTERNATIVES

PROCESS IMPROVEMENT ALTERNATIVES

SUMMARY

As noted in the Study Summary, the team produced a total of 37 ideas for the improvement of the SHOPP PID process. Of this total, 12 ideas were deemed to have sufficient merit by the team to be developed into full process improvement recommendations. The team elected to propose two improvement strategies (combinations of recommendations):

Process Improvement Strategy 1 - utilizes the first ten alternatives listed below and can potentially be achieved within a calendar year.

Process Improvement Strategy 2 - utilizes the first ten alternatives of Strategy 1 plus an additional two alternatives (11 and 12), which have a significantly longer implementation lead time.

Summary of Recommended Alternatives

Alt. No.	Alternative Description
1	Create one SHOPP Process Initiation Report (PIR) document with flexible levels of documentation in lieu of various PIDs
2	Incorporate a mini-PEAR document in lieu of developing a full PEAR for each project
3	Allow Project Numbers to be opened for charging
4	Produce a Pre-PIR template and ensure that the Pre-PIR is completed in a timely manner
5	Require Stormwater Design to prepare the Stormwater Data Report
6	Implement tracking to determine SHOPP PIR success
7	Manage SHOPP tool to deliver balance of program allocation targets to Planning
8	Involve PMs in PIR development for all districts
9	Utilize a scalable contingency range for PIRs
10	Mandate that DAFs cannot be used for 131 Project initiation
11	Streamline review process by using online form
12	Develop a web-based PID document

A complete discussion of each of these alternatives can be found later in this section along with team-compiled advantages, disadvantages, team notes, and implementation considerations.

PID PROCESS PERFORMANCE ATTRIBUTES

Prior to the first study session, in the pre-study information meeting with SHOPP PID process improvement study sponsors, three performance attributes were agreed upon that were determined

to best reflect the performance characteristics of the basic SHOPP PID process purpose and need. The following key performance attributes identified for this project were used to assist the team in evaluating process improvement ideas generated during the study:

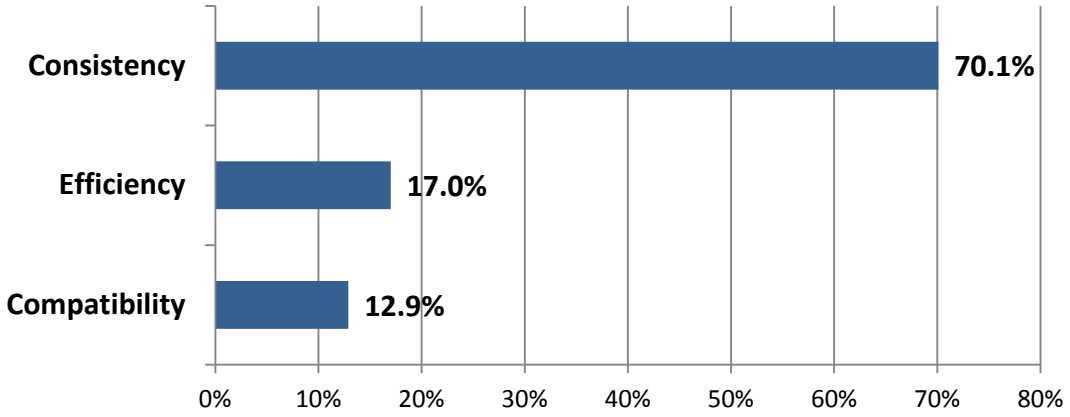
Consistency – A measure of how consistent the document process is in meeting Caltrans and user needs and expectations. *How well does it provide a quality end product?*

Efficiency - A measure of how efficient and transparent the process is to those that work with it (i.e., easily understood, communicated, minimal duplication of effort and/or issues pertaining to its ease of use). Includes Caltrans input resources such as schedule and cost. *How well does it minimize effort and waste?*

Compatibility - A measure of how compatible the process is with current Caltrans standards and the ability to transfer or utilize information from the PID documents to other Caltrans' divisions and/or project needs. *How well does it fit within the existing framework?*

During the SHOPP PID process study kick-off meeting, the study stakeholders were asked to develop a consensus prioritization of the three performance attributes which reflect the relative priority/ importance to the overall SHOPP PID process. The final result of this activity is the determination of a percentage, or weight, that each attribute has in the overall SHOPP PID process as shown in Figure 1 below, which clearly indicates the importance placed by stakeholders on the consistency performance measure.

Figure 1. Performance Attribute Prioritization



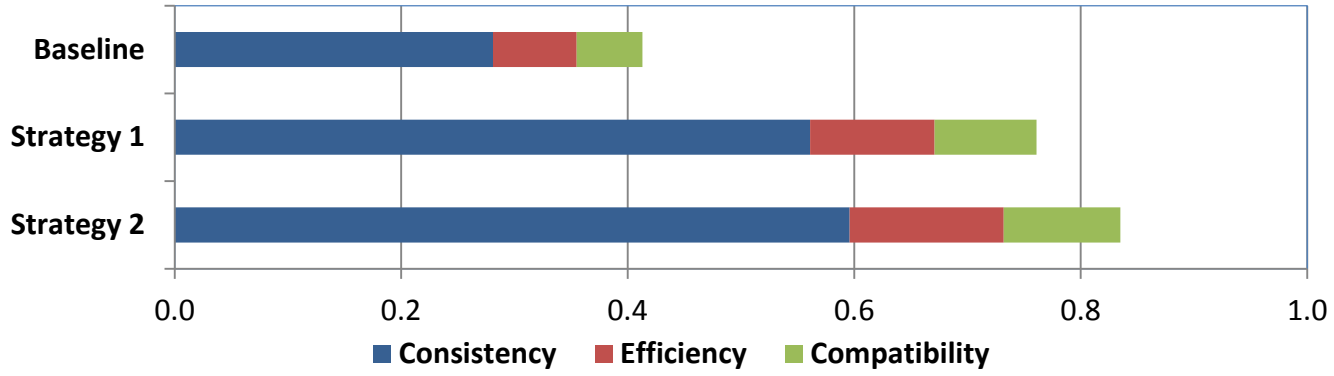
The above figure does not mean that the efficiency and compatibility performance measures are not important to the purpose and need of the SHOPP PID process, just that consistency is more highly appreciated at this time within the Caltrans organization by those individuals having a stake in the SHOPP PID process.

COMPARISON OF PERFORMANCE - BASELINE AND RECOMMENDED STRATEGIES

Utilizing the performance weights derived from the kick-off session, the team was able to assess the performance of the current SHOPP PID process, or baseline, as well as the performance of each of the two strategies (combinations) of recommended alternatives. The figure below shows that the team

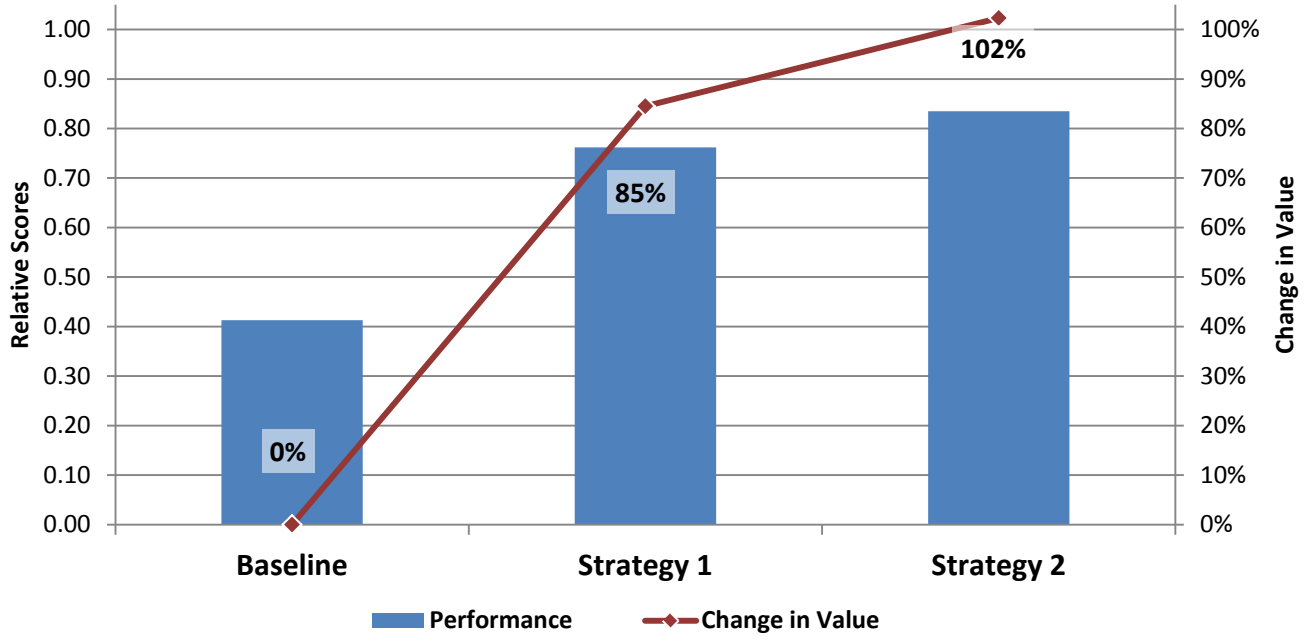
was able to successfully focus primarily on recommendations that improved upon process consistency – the performance measure most highly weighted in the stakeholder assessment.

Figure 2. Comparison of Performance



Given the above improvements to the individual performance attributes, it can be seen that the two strategies provide substantial value improvement over the baseline SHOPP PID process, as shown in Figure 3 below (an 85% or 102% process value improvement over the baseline, respectively).

Figure 3. Comparison of Value



The individual alternatives that comprise the two process improvement strategies and provide such dramatic improvement over the existing SHOPP PID process are highlighted in detail in the following pages.

VALUE ALTERNATIVE 1

Create one SHOPP Process Initiation Report (PIR) document with flexible levels of documentation in lieu of various PIDs

Description of Baseline Process:

The current baseline process utilizes a variety of SHOPP PID documents. Some of the Caltrans SHOPP programs use the standard Project Study Report (PSR) and some of the SHOPP programs use customized formats such as the Project Scope Summary Report (PSSR). Note that the PSSR format can provide project approval as well as project initiation. *A listing of Existing Project Initiation Documents (PIDs) by Program and Required Project Initiation Document (PID) Attachments by SHOPP Program can be found in the Appendix.*

Description of Alternative Concept:

The alternative concept would eliminate all of the current SHOPP PID documents and consolidate them into one document with three flexible levels of documentation within the single standard template to support all SHOPP programs. The PIR levels would be configured to meet the complexity of the project's individual needs. The lowest level (Level I) would address the documentation needs for projects similar to the existing Small Capital Value Project (SCVP) PID document. The highest level PIR (Level III) would address the documentation needs of SHOPP program projects of the highest complexity, risk, and resources. (See Appendix for the Proposed PIR Documents matrix and the Required PID Attachments by SHOPP Program matrix.)

Potential process and quality improvements to be incorporated into the PIR would include:

- Emphasizing LCCA, risk analysis, and asset management in the PIR document
- Utilizing district/region experts for providing stormwater considerations (see Alternative 5), LCCA, worker safety or asset management, and/or corridor planning implications
- Standardization of all necessary attachments to support all SHOPP programs
- Standardization of the Pre-PID (or Pre-PIR) document and Pre-PID scoping process (see Alternative 4)
- Program code-driven boilerplate language for the project purpose and need
- The initiation of a standardized Environmental Fact Sheet (or Mini-PEAR; see Alternative 2)
- Limit PIR document approval signatures to a maximum number *(3 is recommended - PM, District Director, and PE seal)*
- Would eventually integrate the proposed QMS dashboard after QMS pilot completed

Advantages:

- Standardizes all PID documents
- Streamlines the PID process
- Improves quality and consistency of the end project initiation product
- Provides more detail and complete project information commensurate to the project's level of complexity
- Shifts documentation requirement responsibility from HQ Design to SHOPP program managers

VALUE ALTERNATIVE 1

Create one SHOPP Process Initiation Report (PIR) document with flexible levels of documentation in lieu of various PIDs

Disadvantages:

- Less specialization by document
- May require more resources to complete SHOPP PIR Level I document with attachments than the existing SCVP document

Discussion:

The main benefit of this alternative is that it will reduce confusion from having too many options in the PID documentation process. This alternative not only standardizes the documents, but also makes many process-oriented improvements that will make the process more effective and efficient. The Division of Planning will determine how best to allocate resources for the future completion of SHOPP PIRs to maintain thorough support of the project delivery mission.

Implementation Considerations:

If implemented, this concept will require a detailed transition plan that recommends either a wholesale changeover or a trial period. With proper training, the former may be the preferred option. Additionally, the Project Development Procedures Manual (PDPM) will need to be revised to provide appropriate language and/or instructions to clarify the appropriate SHOPP PIR Level to use.

Proper implementation of the new SHOPP PIR format will require an update of the PDPM and Highway Design Manual (as well as other policy documents) to clarify which document level to use. This effort is expected to provide a fresh start and clear direction for SHOPP PIR users and will increase the number of people knowledgeable about current policy updates within SHOPP.

Additionally, implementation will require a complete set of instructions for the use of the proposed SHOPP PIR template (including all pertinent SHOPP program-specific attachments) and the criteria for choosing the correct SHOPP PIR level. Phasing out existing specialized reporting formats, such as the PSR-PR, SCVP, DAF (see Alternative 10), etc., will need additional consideration.

Coordination will be needed with all stakeholders of the SHOPP PID process to ensure that all potential issues are adequately mitigated and that all end user concerns are addressed. An implementation task force will likely be needed to take on all of the expected tasks and challenges of successfully bringing about implementation of this recommendation. (An outline of foreseeable implementation milestones has been provided in the *Implementation Action Plan* section of this report).

VALUE ALTERNATIVE 2

Incorporate a mini-PEAR document in lieu of developing a full PEAR for each project

Description of Baseline Concept:

Currently, the SHOPP PID process relies on coordination with the Environmental Division to document project environmental information. This process often requires a great deal of limited resources and can result in over-documentation of project information in the PID stage.

Description of Alternative Concept:

The alternative concept would utilize a small environmental fact sheet – no more than three pages. It would be designed to outline essential environmental information for the project (see Appendix for Draft mini-PEAR Template). It would require no field surveys and would use existing documents and/or knowledge of the project location. The mini-PEAR would identify the anticipated document determination and schedule requirements, as well as any potential restrictions, fatal flaws, special areas of jurisdiction, known environmental concerns, special assumptions, and/or permits and approvals necessary. The main use of the mini-PEAR document would be for the proposed SHOPP PIR Level II project documentation. The SHOPP PIR Level III would utilize either the mini-PEAR or would continue to utilize a full PEAR document dependent on environmental complexity and inherent environmental risk concerns. The SHOPP PIR Level I will not likely require the use of the mini-PEAR.

Advantages:

- Identifies pertinent issues, cost, risk, range of time frames, coordination required for the project's environmental effort without a full PEAR preparation for PIR Levels I & II
- Reduces the amount of SHOPP and Environmental resources required to initiate projects

Disadvantages:

- Less scoping done in PID phase may increase negative risk for project in later phases
- Improperly prepared/reviewed mini-PEAR may increase project delays and/or costs
- May lead to more conservative environmental project assessment

Discussion:

The team determined that this concept would greatly enhance the SHOPP PID process in terms of providing the essential environmental documentation required for project initiation development.

Implementation:

To implement this concept, SHOPP would need to coordinate with the Environmental Division. The mini-PEAR draft template will need to be reviewed and finalized by both the SHOPP Division Chiefs and the Environmental Management Board.

VALUE ALTERNATIVE 3

Allow project numbers to be opened for charging

Description of Baseline Concept:

Currently, the majority of project Expense Authorization numbers are opened at the beginning of each fiscal year. This annual push for opening EAs and the required multiple approvals produce a backlog and delay in project workflow.

Description of Alternative Concept:

This alternative would authorize District Budget Control to open project numbers as long as the project is listed on the approved 3-year PID plan without additional approvals required.

Advantages:

- Maximizes amount of time to work on project by reducing time required to obtain project number
- Improves PID workflow; this process can be done in a few hours or up to a day or two
- Improves resource utilization; project is managed within the allocated resources given to the districts
- Reduces duplication of effort
- Improves accuracy in charging practices

Disadvantages:

- project numbers could be charged against prematurely, before PRSM is fully implemented

Discussion:

Currently, there are multiple approvals for a project number to be open for charging and delays the beginning of work in the PID. Below are the steps required for approval for charging on a project number:

1. Initial approval is made by the District PID Coordinator
2. PID Coordinator submits approval to District Budget Control to assign a project number
3. Budget Control submits project number to HQ's PID Liaison for approval
4. HQ's PID Liaison send a request to SHOPP Program Manager to concur for opening of the project number
5. Once concurrence is obtained, HQ's PID Liaison sends project to HQ's Budgets for approval of project number
6. HQ's Budgets approves project number, and submits to his/her supervisor for final approval

This process can be as quick as a few days or as long as a few months. A minor detail – such as the project's post miles not matching exactly as shown on the 10-Year Plan or in the 3-year PID List, can cause a lengthy delay.

VALUE ALTERNATIVE 3

Allow project numbers to be opened for charging

It is the responsibility of the district's PID Coordinator to verify that the project is in the 3-year PID List. Additionally, it is the responsibility of the PID Coordinator to make sure the project is a candidate for the next SHOPP cycle.

The alternative concept would reduce the impacts of this bottleneck in the process by generating project numbers in advance of the upcoming fiscal year. Additional approvals are not required if the projects are on the 3-year PID plan. The 3-year PID plan provides the multiple levels of approval that are duplicated in the project number opening process.

Implementation Considerations:

The implementation of this alternative will require HQ Planning and HQ Budget to cede authority of individual project approvals.

VALUE ALTERNATIVE 4

Produce a Pre-PIR template and ensure that the Pre-PIR is completed in a timely manner

Description of Baseline Concept:

Currently, PIDs are not being adequately resourced due to the lack of sufficient information provided in the Pre-PIDs regarding capital and support costs. This has had a negative impact on PID delivery and quality. Currently, Pre-PID documents are not being consistently prepared in time to justify PID program needs.

Description of Alternative Concept:

The alternative concept would require all PIDs to have a Pre-PID document completed by the district program advisor to allow the PID program to identify the resource requirements for the next three fiscal years. The pre-PIDs should be finalized for the BCP process for the fiscal year 18 months later.

Advantages:

- More accurately identifies PID program resource needs
- More accurately identifies project-specific resource needs
- Maximizes time to complete PID
- Provides more efficient use of resources by providing more complete information
- Allows projects to be started at the start of the FY

Disadvantages:

- May require more effort and resources on program advisor's part to complete Pre-PID
- If a generic Pre-PID format is used it may not add value

Discussion:

The Pre-PID document should have enough information to determine the need and purpose, general scope, identified risks, etc., so that when the project is handed off, the Project Engineer can be effective in his or her time developing the SHOPP PIR. Some districts have already moved toward to this concept.

Implementation Consideration:

To implement this concept, SHOPP will need to standardize the Pre-PID document (see Alternative 1) and modify the current PID program practice.

VALUE ALTERNATIVE 5

Require Stormwater Design to prepare the Stormwater Data Report

Description of Baseline Concept:

The current process requires a Stormwater Data Report (SWDR) for all PIDs. In many cases, the information required for these reports is beyond the expertise of the Project Engineer, which is not an efficient use of resources. Much of the needed information required for the Stormwater Data Report needs to come from the stormwater expert, who is the person most knowledgeable of changes to the law and new requirements for SWDRs.

Description of Alternative Concept:

The Project Engineer should coordinate directly with the district's Design Stormwater Coordinator to document the stormwater data requirements and determine if any additional documentation is needed to be able to effectively plan and estimate for the stormwater requirements of the project. Districts should resource the Design Stormwater Coordinator to prepare the SHOPP PIR SWDR.

Advantages:

- Eliminates the inefficiency of the SWDR being developed by a non-expert
- Reduces errors and omissions from SWDR being developed by a non-expert
- Provides better project coordination regarding the stormwater element
- Provides resources to Stormwater Design Coordinator for documenting information related to assessing stormwater for the alternatives being considered
- Reduces project delivery schedule by reducing PID development time
- Provides more accurate estimates for programming based on district/region experience and historical cost data

Disadvantages:

- Requires redistribution of staff resources

Discussion:

The team determined that the Stormwater Data Report should be re-evaluated for SHOPP PIRs to streamline the level of detail necessary. Project Development Procedures Manual (PDPM) Chapter 9 and the Project Planning and Design Guide (PPDG) currently require that the Project Engineer prepare an SWDR and its corresponding checklists for all PID documents. The SWDR is then refined and updated during the Project Report (PR) and Plans, Specifications, and Estimate (PS&E) phases of Project Delivery. Inefficiencies can occur if Project Engineers do not fully understand the expectations of the level of detail required in the PID-level SWDR.

Implementation Considerations:

To implement this concept, Planning will need to coordinate with Stormwater Design to change the practice with regard to the preparation of the Stormwater Data Report for SHOPP PIRs. *Note that the proper level of detail required in the PIR-level SWDR has not yet been determined and will require coordination with all interested parties to establish it as implementation moves forward.*

VALUE ALTERNATIVE 6

Implement tracking to determine SHOPP PIR success

Description of Baseline Concept:

Currently, the SHOPP PID data is not being tracked unless specifically requested. There is no consistent effort being made to compare or address life-cycle project performance or estimates.

Description of Alternative Concept:

The alternative concept would implement an information management system to store SHOPP PIRs and evaluate effectiveness/success of Programmed PIRs throughout the life cycle of the project. For instance, this suggests developing post-PIR performance measures, such as tracking PCRs, and measuring estimated versus actual costs, and/or initial vs. actual scope.

Advantages:

- Provides means to store/retrieve key metrics from SHOPP PIRs
- Measures the quality of the PIR throughout the entire project life cycle
- Provides higher quality estimates
- Provides quantifiable information to justify request for additional resources through the budget process

Disadvantages:

- Development and maintenance of the system will require considerable resources
- Unknown funding availability
- Clear responsibility will need to be defined or there is a risk that no one will take ownership
- The benefits will not be realized until several projects have gone through the entire project delivery process

Discussion:

The team determined that this concept would have positive impacts for SHOPP, but only after a critical mass of projects had completed their project life cycle (from project initiation through project delivery). It is expected that the concept will not reach its full potential until several years of project delivery data have been incorporated.

Discussion of Implementation:

In order for this concept to be effective, to implement this concept Project Management would need to initiate an effort to enter historical data in order to establish a baseline from which to compare the new SHOPP PIRs to previous PIDs. This alternative will require the development of relevant performance measures. It should be possible to integrate the data tracking within this Value Alternative in the recent technology initiatives, such as PRSM.

VALUE ALTERNATIVE 7

Manage SHOPP tool to deliver balance of program allocation targets to Planning

Description of Baseline Concept:

The baseline is that SHOPP priorities change, direction comes late, and 10-year SHOPP projects are not all loaded into the SHOPP tool. In some cases, the tool does not save the data that has been entered.

Description of Alternative Concept:

The alternative concept would ensure that the SHOPP tool is functional by giving priority to the maintenance of the tool. This alternative also suggests inviting Planning to District SHOPP planning meetings to improve communication as Planning is already a member of the SHOPP Managers, Division Chiefs, and Executive Committees and can offer valuable insight.

Advantages:

- Streamlines the process through focusing communication between SHOPP managers and Planning
- Allows SHOPP program managers to accurately assess program targets so PIDs are worked on in the appropriate SHOPP cycle
- Inviting Planning to district SHOPP planning meetings ensures that Planning understands the changes and current priorities in the various SHOPP programs

Disadvantages:

- Resources would need to be allocated for maintenance of the tool

Discussion:

A single resource person should be identified for maintenance of the SHOPP tool.

Discussion of Implementation:

To implement this concept, the SHOPP Executive Committee needs to assign management of the SHOPP tool to an impartial party.

VALUE ALTERNATIVE 8

Involve PMs in PIR development for all districts

Description of Baseline Concept:

The Department policy is that PMs are to actively manage the project during the PID process. However, this policy is not currently followed in every District. When the policy is not being followed, district Planning takes the responsibility of PMs during the PID process.

Description of Alternative Concept:

The alternative concept would enforce the policy for PM involvement in PIR development and provide resources accordingly.

Advantages:

- More statewide consistency
- Better communication
- Better understanding of risk due to early involvement in the project delivery cycle
- Better allocation and utilization of resources

Disadvantages:

- Requires more resources that the PID program cannot currently afford
- Can impact project delivery schedules

Discussion:

PID Managers often wear two hats. First, they are responsible for the supervision of Advance Planning. Second, they manage the District PID Program which requires a larger portion of their time. If responsibility of managing projects is transferred from PID Managers to Project Managers, then PID Managers can devote more time to their offices.

Discussion of Implementation:

To implement this concept, the issue needs to be elevated to the PM Coordinators and Planning Liaisons.

VALUE ALTERNATIVE 9

Utilize a scalable contingency range for PIRs

Description of Baseline Concept:

The current PID documents typically utilize a static contingency line item when calculating the project estimate.

Description of Alternative Concept:

The alternative concept would use a contingency range for each of the SHOPP PIR level documents and can be further adjusted by the PE in relation to the risk as documented within the initial project Risk Register or Risk Plan.

Advantages:

- May increase programming capacity within SHOPP
- Matches contingency to risk
- Increases value of Risk Register
- Increases project coordination

Disadvantages:

- May increase overall number of Program Change Requests (PCRs) if the level of risk is inadequately assessed

Discussion:

The team determined that each PIR level contingency scale would likely need to be customized to each specific SHOPP program and will therefore need coordination with each SHOPP program manager to develop these risk-driven scales. Although this contingency is at the discretion of the engineer, a contingency of 30% is typically used with some simple jobs (CAPMs) utilizing 20%.

Implementation Considerations:

To implement this concept, HQ Design will need to revise Chapter 20 and Appendix AA of the PDPM. Additionally, the proper contingency ranges will need to be determined in relation to the three SHOPP PIR level documents and each SHOPP program to reflect specific SHOPP program project needs or likely risk level. This alternative is closely tied to Value Alternative 1 and the initiation of the new PIR document.

VALUE ALTERNATIVE 10

Mandate that DAFs cannot be used for 131 Project initiation

Description of Baseline Concept:

Currently, the Damage Assessment Form (DAF) is used as the PID for the 130 – Emergency Damage Repair and 131 – Permanent Restoration Programs.

Description of Alternative Concept:

The alternative concept would mandate that DAFs cannot be used for standalone 131 PIDs. The DAF would be used as the PID for the 130 Program and as the Pre-PID for 131 Program. A SHOPP PIR would be required to program 131 projects.

Advantages:

- Better estimate in scoping and scheduling of projects
- Allows for better allocation and utilization of COS and Capital resources

Disadvantages:

- Uses limited PID resources
- Slows PS&E process
- DOF would need to agree to increase resources to implement

Discussion:

The team determined that this concept would mandate that DAFs cannot be used for standalone 131 PIDs. The DAF would be used as the PID for the 130 Program and as the Pre-PID for 131 Program. A SHOPP PIR would be required to program 131 projects. While the DAF is an appropriate PID document for the 130 Program, it is not appropriate for the 131 Program. Using the DAF for both programs ties up programming resources.

Discussion of Implementation:

To implement this concept would require additional resources from DOF. The PID work plans need to have a SHOPP programming reservation for the 131 PIRs to account for future emergencies. Discussion at the sponsor outbrief determined that it would be best to ensure that the proposed PIR documents had been first initiated prior to making any change to the DAF procedures.

VALUE ALTERNATIVE 11

Streamline review process by using online form

Description of Baseline Concept:

At present the SHOPP PID process utilizes standard software for development of all PID documentation. Project initiation documents are circulated via paper copies or electronically via email for review and project delivery purposes.

Description of Alternative Concept:

This alternative would make use of an online document tracking option to centralize and track comments during circulation of the PIR.

Advantages:

- Reduces probability of losing comments
- Easily records and transfers to next phase
- More efficient; may use technology to track, remind, and communicate with reviewers over the web
- Web routing and concurrence can also be used for Executives Review

Disadvantages:

- IT, software, and hardware purchase/maintenance
- Requires additional budget that may not be available
- There are still reviewers who desire a physical copy to handwrite comments, which requires extra time to transfer to electronic media.
- Even though some districts currently use web circulation of the PIDs, some departments mandate hard copies, and the comments are written on the hardcopies
- May also be steep learning curve for software/hardware

Discussion:

The team determined that this concept represents a process improvement that is a step in the direction of initiating a fully web-based project delivery documentation tool (see Value Alternative 12). That said, it is fully capable of standing alone and would streamline PID review efforts.

Discussion of Implementation:

To implement this concept, the SHOPP Division will need to provide some initial analysis on the cost and parameters of such an approach. The funding for the development of such a product may not be available in the near term, but the opportunity to initiate such a concept as a pilot with SHOPP is a possibility if the funding became available. The implementation schedule of such a project could run anywhere from 2 years to 10 years, depending on the emphasis given to it by Caltrans management.

VALUE ALTERNATIVE 12
Develop a web-based PID document

Description of Baseline Concept:

At present, the SHOPP PID process utilizes standard software for development of all PID documentation. Project initiation documents are circulated via paper copies or electronically via email for review and project delivery purposes.

Description of Alternative Concept:

This alternative concept would develops a secure, collaborative web-based documentation tool to create, capture, review, and manage both the work-in-progress PIR documents as well as the completed documents.

Advantages:

- Allows a single document to be revised by multiple authorized parties directly and concurrently
- Ensures accurate and current information is available to all stakeholders
- Reduces review distribution time and associated costs

Disadvantages:

- Obtaining resources to fund development of the process
- Process would not be adopted in a short-term time frame
- Ensuring accountable lead worker maintains appropriate control of the final document may prove challenging

Discussion:

The team determined that this concept represents an ideal standard in operational effectiveness and should be what Caltrans is moving towards as a whole in an effort to become more organizationally effective and efficient. The use of a web-based product would also allow the inclusion of boilerplate or common-language project information which could be chosen from a database to fill PIR fields and custom fit certain standard project types, further promoting resource efficiencies.

Discussion of Implementation:

To implement this concept, the SHOPP division will need to provide some initial analysis on the cost and parameters of such an approach. The funding for the development of such a product may not be available in the near term, but the opportunity to initiate this concept as a pilot with SHOPP is a possibility if the funding became available. The implementation schedule this concept could run anywhere from 2 years to 10 years, depending on the emphasis placed on it by Caltrans management.

OTHER ITEMS FOR CONSIDERATION

OTHER ITEMS FOR CONSIDERATION

Of the original 37 creative ideas that the team identified which were not developed, discarded, or combined, a number were thought to have potential for further analysis or implementation and therefore deserved to be highlighted as other items for consideration.

IDENTIFIED ITEMS

A summary table of the items identified for consideration is provided below, and a more thorough concept description and team discussion for each item is provided on the following pages.

Note: The first four items identified are currently employed in certain regions or districts and represent what the team determined to be Best Management Practices (BMPs). These items have been labeled with a BMP designation in the chart below. The team determined that the unique organization and/or resource levels of each individual region or district may not adequately facilitate the full implementation of the various BMPs and that each region/district should have the freedom to decide for itself whether or not to adopt the BMP on a case-by-case basis.

Summary of Other Items for Consideration

Item No.	Item Description
1	Utilize limited circulation for review (BMP)
2	Limit hours for review (BMP)
3	Require better tracking of PID resource use; use a monthly tracking tool (BMP)
4	Streamline review process by using concurrent reviews during PID development (BMP)
5	Remove engineer's stamp from SHOPP PIR I
6	Institute clear delegation and accountability for each specific required project development procedure
7	Obtain clarification and guidance from Environmental for preparing and implementing categorical exceptions / categorical exclusions (CE/CE) during the K phase
8	Utilize brokered work by other districts and/or on-call contracting of AE for PID development for bottleneck functions and to maximize district staffing
9	Utilize charrette process for SHOPP PIR development

Item 1: Utilize limited circulation for review (BMP)

Currently, review circulation is inconsistent statewide and, in some cases, quite laborious. Each district is responsible for its own QA/QC of its project initiation documents. This BMP item would only send the PIR to those individuals who contributed to the content of the documents, major stakeholders, and those who will sign the documents in lieu of sending all draft SHOPP PIRs to all district departments for review.

The main advantage of this BMP item is that it would help to conserve the limited SHOPP project initiation resources set aside for district circulation, which would especially benefit larger districts. Additionally, it would minimize the tracking of responses and concurrence of responses while reinforcing the sense of ownership for individual projects. In other words, those who contribute to the initiation of a project will more likely add value to the PIRs and check to see that their inputs are properly described and utilized throughout the project initiation phase.

The disadvantage to this BMP is that potentially some important perspective or insights from some functional units that are not included in circulation may be lost. In terms of implementation, there might also be resistance from Program Advisors or individual functional units. A core group of functional units may need to be determined for each type of SHOPP project type and PIR level. Specifically, for SHOPP PIR Level I – the least complex or risk-laden projects – determining the minimum number of reviewers is key to maintaining the efficiently of this level of PID.

Item 2: Limit hours for review (BMP)

Currently, it is typical in most Caltrans districts/regions for projects to be circulated for review with excessive review periods which contribute to excessive resource usage. This BMP item recommends that only a fixed period of review/comment time be allowed during district/region circulation. This BMP has been accomplished in two ways: a workshop-type meeting can be used (a "signing party"), which forces reviewers to provide comments during the meeting, or through limiting the reviewers' charging time by use of the *Project Resourcing and Schedule Management (PRSM*) tool.

The advantages to either approach in this BMP are that they reduce the resources required to initiate projects while alleviating a prevalent scheduling bottleneck. The signing party concept ensures more efficient and effective communication by requiring face-to-face discussion and involvement with the Design department, which is the recipient of the PIDs if programmed. The limited approval time concept reduces the time allowed to obtain comments and promotes a more concentrated effort from reviewers and helps keep projects moving through project initiation phase.

The disadvantage to the signing party is that as each PID has a similar start date (typically the beginning of each fiscal year) and the same deadline (by the end of each fiscal year). Many projects will have similar circulation periods and may create circulation congestion, and therefore decrease the likelihood of full participation. The absence of key decision makers or responsible parties could lead to unproductive meetings. The primary disadvantage to limiting the approval periods is that it may lead to a decline in the quality of review comments and may increase comments like "not enough time to review." Additionally, neither concept favors more meticulous reviewers, which may be irked by having to adhere to a specific meeting time or review period as opposed to a review within their own control.

Item 3: Require better tracking of PID resource use; use a monthly tracking tool (BMP)

This BMP item would attempt to manage the K-phase resources allocated to developing the PID better by utilizing a monthly tracking tool. Currently, Planning allocates a set number of resources to PID activities for highest priority projects that are target to be programmed in a future SHOPP cycle or amended into the current SHOPP cycle. Functional units, such as Design and Environmental, for

example, are granted authority to charge hours against the K-phase expenditure. This item would implement a better real time tracking of PID resources and expenditures.

Although the EFIS tool can be used for this item, the PRSM tool is more directly tied to staff time sheets and can generate the type of real-time report discussed herein. Ultimately, if the staff member is not resourced (or not adequately resourced) for a capital project in PRSM, they will get an error when completing their time sheet and charging time against the project. The task manager will need to provide additional resources before the staff member can complete and submit their time sheet. There is currently no limit on the amount of time staff can charge to a project, regardless of how they are resourced. Locking down the time sheets to the resources provided in PRSM is scheduled to be implemented within a year.

The PRSM tool is not currently available to all districts/regions at present (only North Region and Districts 4 and 8). A further roll-out of PRSM is expected (Central Region coming on soon), which will make this BMP more easily accessible to all.

The primary advantage of this BMP is that tasks conducted by functional units can be budgeted and tracked by a person with the authority to manage cost, schedule, and scope. It allows in-house accounting and reporting through EFIS or PRSM to better track monthly expenditures charged to K-phase activities. This item ties into Value Alternative 8, which requires more involvement by PMs, and will ensure that PMs compare actual expenditures to planned allocations and provide reports to functional units. Additionally, this BMP will act as a check, ensuring that only those employees authorized to charge against the K-phase expenditure have done so – any unauthorized charges can more quickly be identified and the charges reversed. The disadvantage of this BMP is that there will still likely be a lag time involved in obtaining information when EFIS is used (PRSM may provide better "real-time" information). The team also pointed out that there is no mechanism in place to address overspending, or what is done when it is discovered through this reporting that the project is over expended and no additional funds are available to complete the K-phase (which raises the question of whether to continue or suspend work). *Note, many districts currently move resources between projects during the FY, and as long as they do not overspend their PID resources, they can avoid suspending work. This practice may not be possible in PRSM.*

Item 4: Streamline review process by using concurrent reviews during PID development (BMP)

Currently, many Caltrans districts/regions utilize sequential reviews in the PID development process. This BMP item looks to consolidate the necessary PID reviews performed during the PID process into two reviews. The first review would be the draft document circulation and would combine the constructibility review, safety review, risk registry, functional review, and any other necessary review. The second review would be for quality after all the comments have been incorporated in the final draft document.

The main advantage of this item is that it would streamline the PID process and make it more efficient. The team could not find any notable disadvantages to promoting this best management practice more widely.

Item 5: Remove engineer's stamp from SHOPP PIR Level I

Currently, all engineering-type reports require an engineer's or licensed professional's stamp. This item would remove the requirement for a registered civil engineer to sign and seal certain types of project initiation documents that do not require "responsible charge of the work" because of their simplicity. The team determined that the SHOPP PIR Level I would be a good candidate as it would not likely contain any civil engineering aspects; therefore, PIRs that do not contain engineering should not require a stamp.

The advantage of this item is that it would save K-phase resources by removing the need for the project engineer to be overly conservative because they are sealing the document on "submitted by" documents only. This would avoid wasted resources or duplication of effort and would increase options for staffing PIR work and potentially reduce the expense of completing a PIR by using lower cost employees. The disadvantages are that it may cause confusion regarding when a seal is required and that this provision could potentially be abused by those who are not professional engineers to violate the law.

Item 6: Institute clear delegation and accountability for each specific required project development procedure

This item centers on the fact that currently no singular source exists to provide guidance for project delivery. There is a need to incorporate all documents, including the PDPM, Highway Design Manual, design information bulletins, design memos (no expiration dates), PPDG, etc. This would institute a clear path or roadmap to clearly identify delegation and accountability for each specific required project development procedure. The effort of cataloguing the necessary requirements has been initiated, but needs to be completed and implemented.

The advantage of providing clear delegation and accountability for each specific project delivery procedure is that it would conserve limited Caltrans resources. It would provide an avenue for allowing decisions regarding appropriate procedures to be made by those closest to the work, thereby removing the requirement for always following procedure when it may be appropriate to take some risk(s). The disadvantage is that by allowing more delegation, various procedures could be disregarded without full recognition of these risks. This item was seen by the team as a global Caltrans issue rather than one simply affecting the SHOPP PID process.

Item 7: Obtain clarification and guidance from Environmental for preparing and implementing categorical exceptions/categorical exclusions (CE/CE) during the K-phase

This item would request clarification and guidance from Environmental for the more efficient use of the Categorical Exception or Categorical Exclusion option in lieu of the PEAR on some SHOPP projects during the K-phase. Currently, a CE requires 0-phase resources and programming needs to occur prior to opening of the 0 phase. The NEPA CE cannot be prepared without opening the 0 phase. It may be possible with Environmental's support to prepare a PIR/PR with K phase resources for low-risk projects (SHOPP PIR Levels I and II). The SHOPP PIR would therefore become a PIR/PR if it includes a CE.

The main benefit of this item is the acquisition of federal environmental approval at an early stage to maximize the efficiency of the environmental review process resources with regard to low-risk or less complicated projects. The main disadvantage is that Environmental cannot implement federal CEs because of current Air Quality Management Conformity requirements and needs to be programmed in the FTIP. A solution to this dilemma must first be found before progress can be made with this item.

Item 8: Utilize brokered work by other districts and/or on-call contracting of AE for PID development for bottleneck functions and to maximize district staffing

This item would utilize brokered work by other districts or on-call consultants to assist in the development of certain deliverables which are required in the SHOPP PID process. The most likely candidate within the process is in the environmental documentation process where limited personnel resources can add to delays at critical times in the PID documentation process. Bottlenecks and delays can obviously affect timely project delivery, which can add cost or otherwise waste limited resources. An on-call contract to augment PID resources at strategic annual periods would allow Caltrans to address bottleneck issues without carrying additional full PY costs.

The main advantage to this item is that it would maximize existing district staffing resources and help to eliminate the concerns associated with delays due to lack of internal staff resources available at Caltrans. The main disadvantage is that the current rules and regulations may not allow Caltrans to contract out and may require legislative action to change. Additionally, Caltrans staff would still need to review the work completed by consultants. Finally, discussion with the team determined that this approach may distract from properly staffing Caltrans to adequately equip itself with enough staff to handle workloads, despite limited state funds.

Item 9: Utilize charrette process for SHOPP PIR development

Using a charrette process (a short Value Analysis study) to focus PDT resources in order to properly define a project in terms of scope, cost, and schedule is not a new concept. The use of a Value Analysis study in the project initiation phase was once a mainstay within Caltrans with more complicated projects. The process can be used to bring the project design team and decision makers together in a concentrated effort to focus on all aspects of a project. The use of a focused 2- to 3-day effort can greatly aid in the development of complex projects and can ensure that project requirements and functions are fully vetted prior to programming. Both internal and external stakeholders can be included in the effort as needed or required to ensure that all concerns and/or risks are addressed and/or mitigated at an early stage to avoid expensive and delays at a later, more critical project phase.

As noted above, the main advantage is in fully vetting the requirements and functions, which then aids in better project development and more accurate estimates. This in turn results in fewer changes once the project is programmed. The main disadvantage is the concern that funding is not typically available for such charrettes at this stage of the project.

IMPLEMENTATION ACTION PLAN

IMPLEMENTATION ACTION PLAN

As mentioned in the *Study Summary*, discussion with the project sponsors determined that the implementation process, although challenging, may be handled in a fairly straightforward manner by SHOPP management.

The method of implementing recommended alternatives will depend on which are accepted by the SHOPP Executive Board. Discussion with team members and study sponsors, however, implied that the implementation of the Strategy 1 recommendations may be completed within one calendar year while the two additional Strategy 2 recommendations (the IT-intensive concepts) may start with a simple initial fact-finding effort.

IMPLEMENTATION ACTION PLAN

Assuming that all of the recommended alternatives are accepted, a logical implementation plan would likely be followed, which would require the forming of a task force or work group committed to seeing the recommendations through development and into practice. A timeline is difficult to specify, but the main documentation alternatives, which would include the pre-PIR, the three-level PIR, and the mini-PEAR could be implemented within a few months.

The Implementation Action Plan below outlines the major foreseeable implementation milestones that the team identified to see the recommended improvements brought to the SHOPP PID process:

1. SHOPP Program Managers gives concurrence
2. SHOPP Program Managers present plan to SHOPP Division Chiefs for concurrence
3. Obtain approval to pursue implementation from the SHOPP Executive Board
4. Form implementation team with Division of Transportation Planning lead
5. Implementation Team
    A. Define document format
    B. Obtain SHOPP program input - help refine criteria for individual PIR levels
    C. Draft document guidance - draft instruction for PIRs, includes updates to all manuals
    D. Draft training material and implementation schedule
    E. Concurrently investigate web-based options
6. Obtain approval for Implementation Plan from Executive Management
7. Implement changes
8. Track changes and assess process

STUDY DETAILS

Caltrans SHOPP PID Process Improvement Study

Study Agenda - Week 1

Day 1 – Tuesday, March 19th - Caltrans HQ Offices- Sacramento - Room 1420

8:00 Facilitator Set-up
8:15 Introductions and Agenda Review
8:30 Sponsor In-Brief
- ***Need & Purpose***
- ***Overview of Current Situation***
- ***Study Process***
- ***Study Deliverables***

9:00 Overview of SHOPP PID Process Chart, SHOPP PID Policy, SHOPP PID Practice & Procedures
10:00 Discuss and Weight PID Process Performance Measures
11:00 Quality Management System (QMS) Discussion ***(Mark Robinson)***
11:30 Lunch
12:30 Discuss Current SHOPP PID Process Performance and Survey Results
1:30 Score Current SHOPP PID Process Performance using Performance Measures
2:00 Perform SHOPP PID Functional Analysis and Build SHOPP PID FAST Diagram
4:00 Adjourn

Day 2 – Wednesday, March 20th - Caltrans HQ Offices- Sacramento - Room 1420

8:00 Facilitator Set-up and Review Agenda
8:30 Review SHOPP PID Functional Analysis and FAST Diagram
9:00 Initial Discussion and Brainstorming of SHOPP PID Improvement Ideas
11:30 Lunch
12:30 Identify, Discuss & Catalogue Individual SHOPP PID Document on PID Matrix
4:00 Adjourn

Day 3 – Thursday, March 21st - Caltrans HQ Offices- Sacramento - Room 1420

8:00 Facilitator Set-up and Review Agenda
8:30 Review of SHOPP PID Catalogue Matrix
9:30 Discussion and Brainstorming of SHOPP PID Improvement Ideas (Cont.)
11:30 Lunch
12:30 Initial Assessment of SHOPP PID Improvement Ideas
3:00 Stakeholder Review of SHOPP PID Essential Elements, Matrix and Improvement Ideas
3:45 Review Agenda & Identify Follow-up Assignments
4:00 Adjourn

Caltrans SHOPP PID Process Improvement Study

Study Agenda - Week 2

Day 1 – Tuesday, April 9th - Caltrans HQ Offices - Sacramento - Room 1420

8:00 Facilitator Set-up and Agenda Review
8:30 Review of SHOPP PID Matrix and SHOPP PID Improvement Ideas
9:00 Discussion of Additional Information or Improvement Ideas
11:00 Development of SHOPP PID Improvement Alternatives
11:30 Lunch
12:30 Development of SHOPP PID Improvement Alternatives (Cont.)
4:00 Adjourn

Day 2 – Wednesday, April 10th - Caltrans HQ Offices - Sacramento - Room 1420

8:15 Review Agenda
8:30 Development of SHOPP PID Improvement Alternatives (Cont.)
10:00 Assessment of SHOPP PID Improvement Alternatives
11:30 Lunch
12:30 Discussion of SHOPP PID Implementation
2:30 Discussion of Ongoing SHOPP PID Performance Measurement and Assessment
4:00 Adjourn

Day 3 – Thursday, April 11th - Caltrans HQ Offices - Sacramento - Room 1420

8:15 Review Agenda
8:30 Finalize Recommended SHOPP PID Improvement Plan
11:30 Lunch
12:30 Out-Brief Presentation Preparation and Review
2:00 Sponsor In-Brief

- ***Recap of Study***
- ***Overview of Recommended Alternatives***
- ***Overview of Implementation Plan***

3:00 Determine Follow-up Actions and Next Steps
4:00 Adjourn

CALTRANS SHOPP PID PROCESS IMPROVEMENT STUDY
MEETING ATTENDEES - WEEK 1

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MEETING ATTENDEES - WEEK 2

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X	X	X	Suzy Namba	DOD-LAP	Roadside Preservation Sup. Landscape Arch.	916.654.2594	suzy.namba@dot.ca.gov
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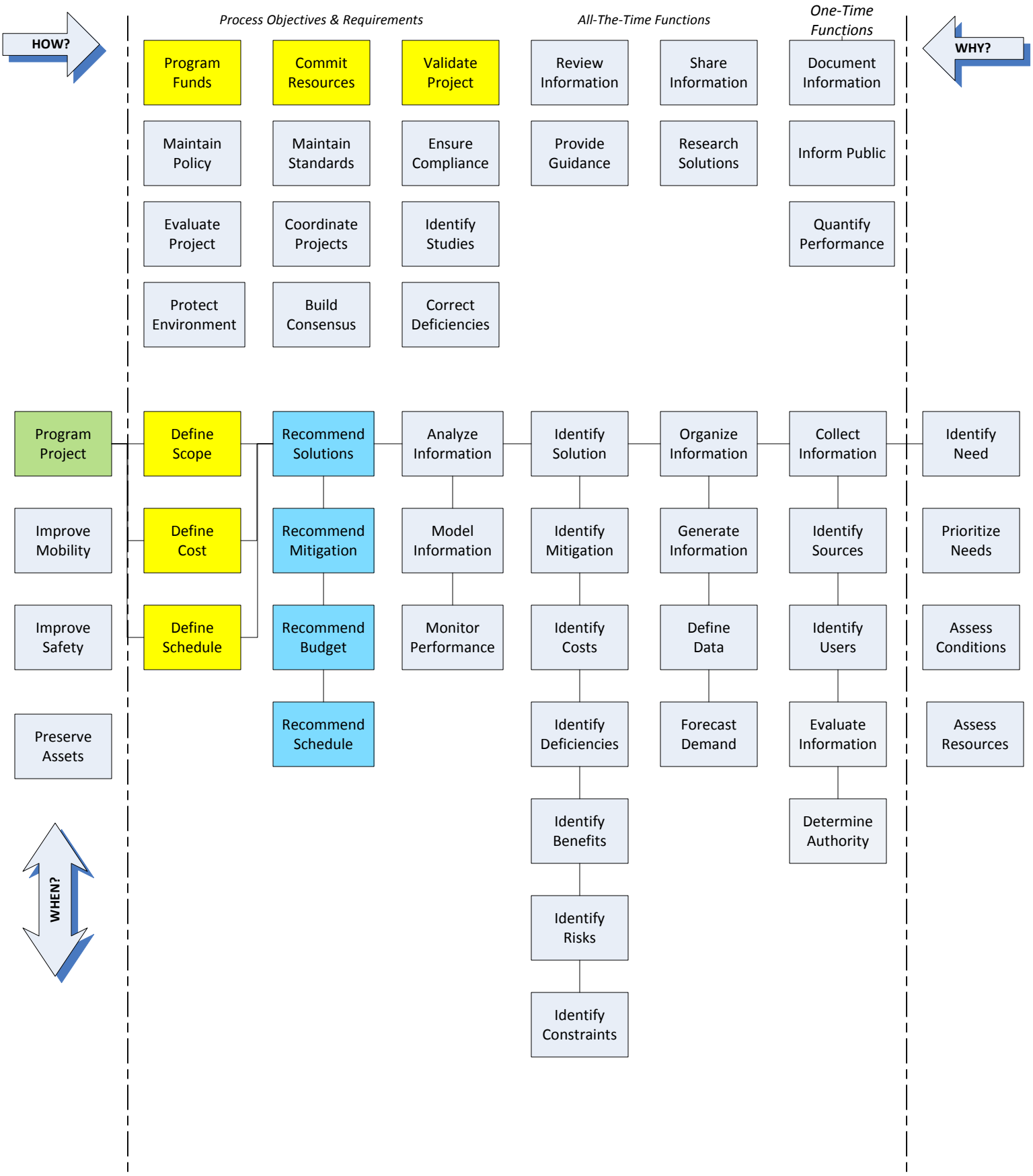
SHOPP PID Process Improvement Study

F.A.S.T. Diagram



IDEA EVALUATION

The team generated and evaluated ideas on how to perform the various PID process functions. The ideas generated by the team were carefully evaluated, and process-specific attributes were applied to each idea to assure an objective evaluation. Once each idea was fully evaluated, it was given a total rating number. This is based on a scale of 1 to 7, as indicated in the table below, which was used to determine which ideas would be developed further into Process Improvement Alternatives. All of the ideas that were generated using brainstorming techniques were recorded on the following pages.

Designation Code	*Potential for Value Improvement*
1	*None*
2	*Little*
3	*Debatable*
4	*Marginal*
5	*Good*
6	*Very Good*
7	*Excellent*

Designation Code	*Potential for Value Improvement*
BMP	*Best Management Practice*
OC	*Other Item for Consideration*
DIS	*Dismiss – Impractical or Not Implementable*
ABD	*Already Being Done*

IDEA DEVELOPMENT LIST

Alt. No.	Alternative Title	Designation
1	Create one SHOPP PID document with 3 levels (PIR) in lieu of various PSRs o Include risk analysis within PIDs o Include LCCA within PIDs o Eliminate PSSR o Make documentation scheme consistent for listing and/or inclusion of attachments o Determine how to allocate resources to SHOPP PIDs o Have District experts prepare the LCCA for corridor o Develop transition plan to roll out revised SHOPP PID process o Require min/max signatures on SHOPP PID docs to streamline process o Utilize canned template for purpose and need o Determine project approval process o Determine parameters of SHOPP PID Lite o **Include Idea 5**: Revise language / instructions in PDPM to clarify which PID to use; expand communication list, specify when capital outlay estimates shown are current or escalated o **Include Idea 6**: Refine Pre-PID process and content o **Include Idea 36**: leverage best practices to develop templates with boilerplate info	**7**
2	Eliminate redundancy of environmental work	**See 21**
3	Implement IQA level QA within PID process (QMS)	**6 - ABD**

Alt. No.	Alternative Title	Designation
4	Implement tracking to determine PID success (develop Post-PID, measure PCRs, develop performance measures)	**4**
5	Revise language / instructions in PDPM to clarify which PID to use; expand communication list, specify when capital outlay estimates shown are current or escalated	**See 1**
6	Refine Pre-PID process and content	**See 1**
7	Evaluate/streamline requirements of a PEAR	**See 21**
8	Mandate that DAFs cannot be used for standalone 131 PIDs; use DAF as Pre-PID for permanent restoration and/or use Zero Phase funding	**6**
9	Manage SHOPP tool to deliver balance of program allocation targets to Planning, invite Planning to District SHOPP meetings	**5**
10	Develop web-based PID document	**7**
11	Involve PMs in PID development for all Districts	**5**
12	Defer design exception approval to the next phase (PA&ED)	**6**
13	Streamline stormwater requirements - Have stormwater prepare the SWDR	**6**
14	Consider limited circulation for review	**6 - BMP**
15	Limit hours for review (e.g., signing party)	**7 - BMP**
16	Require better tracking of PID resource use; use a monthly tracking tool	**5 - BMP**
17	Remove engineer's stamp from PID Lite (submitted by only)	**4 - OC**
18	Reduce PID resource needs for SHOPP Reservation (less than $1m)	**3 - DIS**
19	Institute clear delegation and accountability of specific procedures, such as constructibility review, estimate certification process, etc	**6 - OC**
20	Allocate contingency range that is commensurate with the documented Risk Register	**6**
21	Implement environmental data sheet [mini-PEAR or preliminary environmental scoping template (PEST)] in lieu of developing a PEAR for each project (issues, cost, risk, range of time frames, coordination required) o **Include Idea 2**: Eliminate redundancy of environmental work o **Include Idea 7**: Evaluate/streamline requirements of a PEAR o **Include Idea 22**: Clarify guidance for use of PEAR memo o **Include Idea 24**: Update PEAR Handbook	**7**
22	Clarify guidance for use of PEAR memo for SHOPP PID projects	**See 21**
23	Document the impact of going 100% SCVP	**4 - DIS**
24	Update PEAR Handbook	**See 21**

Alt. No.	Alternative Title	Designation
25	Implement categorical exception / categorical exclusion (CE/CE) during K Phase for low-risk projects (SHOPP PID Lite becomes PR if includes CE)	**5 - OC**
26	Reevaluation of environmental prioritization; request commitment from environmental to work on/complete SHOPP projects rather than redirecting to local measure projects	**6 - DIS**
27	Allow on-call contracting of AE for PID development for bottleneck functions (environmental and PID development)	**6 - OC**
28	Use value analysis type process (charrette) for SHOPP PID development for more complex projects, include stakeholders (internal and external) as needed	**6**
29	Allow EAs to be started ~2 years in advance	**See 30**
30	Project cycles result in work crunch at the same times each year; to reduce impacts minimize approvals to open EAs (the 3-year plan eliminates the need for multiple approvals) o **Include Idea 29**: allow EAs to be started ~2 years in advance	**7**
31	Streamline review process by using online form (track changes)	**6**
32	Provide full 12 months for PID development by completing Pre-PIDs by March 30th of the previous fiscal year	**See 33**
33	More accurately identify resource needs by completing the Pre-PIDs in time for the finalization of the BCP for the fiscal year 18 months later o **Include Idea 32**: Provide full 12 months for PID development	**6**
35	Streamline review process by using concurrent reviews (CR, peer review, safety, first level review, second level review, etc)	**5 - BMP**
36	For each program at HQ level, leverage best practices to develop templates with boilerplate language and fields for specific detail and use for future similar projects	**See 1**
37	Replace PIDs with Pre-PIDs (PID becomes 1 page)	**3 - DIS**

APPENDIX

EXISTING PROJECT INITIATION DOCUMENTS (PIDs) BY PROGRAM

SHOPP PROGRAM	PSR	PSSR	SCVP	PSR/PR	CAPM/PR	Supp. PSSR	Damage Assess Report	PSR Data Sheet HPR
Emergency Damage Repair							X	
Permanent Restoration							X	
Safety Improvement	X		X	X				
Collision Severity Reduction	X		X	X				
Bridge Rehabilitation	X	X						
Bridge Scour Mitigation	X	X						
Bridge Rail Replacement & Upgrade	X	X						
Bridge Seismic Restoration	X	X						
Roadway Rehabilitation	X	X						
Pavement Rehabilitation	X	X			X	X		
Pavement Preservation		X			X			
Roadway Protection Betterment	X							
Drainage System Restoration	X	X						
Relinquishments	X	X						
Signs and Lighting Rehabilitation	X							
Highway Planting Restoration								X
Freeway Maintenance Access	X	X						
Roadway Safety Improvements	X		X					
Roadside Enhancement	X							
Safety Roadside Rest Area	X							
Noise Attenuate for Schools	X							
Operational Improvements	X	X		X				
Transportation Management Systems	X							
Weigh Stations & Weigh-in-Motion Facilities	X			X				
Transportation Permit Requirement for Bridges		X						
Hazardous Waste Mitigation	X							
Railroad/Highway At-Grade Crossing	X							
Storm Water Mitigation	X	X						
Maintenance Facilities	X	X						
ADA Curb Ramps	X		X	X				
ADA Pedestrian Infrastructure	X		X	X				

PROPOSED PROJECT INITIATION REPORT (PIR) DOCUMENTS

PIR REVIEW ELEMENTS	Pre-PIR	LEVEL I	LEVEL II	LEVEL III
Project Scoping Team Meeting (Required Activity)			X	X
Field Review (Required Activity)		X	X	X
Constructibility Review (Required Activity)		X	X	X
Safety Field Review (Required Activity)		X	X	X
PID Documentation Assessment - SHOPP Manager (Required Activity)		X	X	X
Workplan Development - Project Management (Required Activity)		X	X	X

PIR DOCUMENTATION ELEMENTS	Pre-PIR	LEVEL I	LEVEL II	LEVEL III
Cover Sheet (2 Minimum Signatures)	X	X	X	X
Registered Professional Stamp Page (Required Signature - 1 of 3 Min.)		X	X	X
Vicinity Map			X	X
Introduction - Work Description (Executive Summary)	X	X	X	X
Introduction Summary Table (Key Points)	X	X	X	X
Need and Purpose	X	X	X	X
Recommendation	X	X	X	X
Risk Summary		X	X	X
Background (History of Facility)		X	X	X
Existing Facility Conditions (Deficiencies - Main Focus & Additional)		X	X	X
Existing Geometric Information (Roadway, Structure, Non-motorized, etc.)			X	X
Traffic Volumes and Characteristics			X	X
Collision Data			X	X
Corridor and System Coordination		X	X	X
Build Alternatives (Exceptions to Design Standards)		X	X	X
LCCA & Asset Management Discussion		X	X	X
Environmental Discussion		X	X	X
Right-of-Way Discussion		X	X	X
Stormwater Discussion		X	X	X
Traffic Management Plan		X	X	X
Other Considerations (e.g., Maintenance & Worker Safety)		X	X	X
Capital Outlay Support and Project Estimate Table		X	X	X
Delivery Schedule Table		X	X	X
Federal Coordination (e.g. FHWA)		X	X	X
Project Reviews (Type, Name & Date)		X	X	X
Project Personnel		X	X	X
Attachments TOC		X	X	X

KEY

Proposed PIR Items	Minimal Level of Complexity	Low Level of Complexity	Moderate Level of Complexity	High Level of Complexity

REQUIRED PROJECT INITIATION DOCUMENT (PID) ATTACHMENTS BY SHOPP PROGRAM

Code	SHOPP PROGRAM	Visual Aid (Layout, Strip Map, Photos, etc.)	Typical Section(s)	Advanced Planning Study	Environmental Evaluation (PEAR or CE/CE)	Right of Way Data Sheet	Stormwater Data Report	Preliminary Geotechnical Report	Traffic Management Plan (Data Sheet)	Risk Register/Risk Management Plan	Preliminary Project Estimate	STRAIN Report/ Bridge Inspection Reprots (Current BIR and BIR from date of work rec)	Structural Section Recommendation (Memo from District Materials Unit)	SHOPP Performance Output Table	Culvert Inventory System and End Treatment Numbers	Traffic Data	Scoping Team Field Review	Damage Assessment Form	Initial Site Assessment Form (Hazardous Materials)	Programming Sheet	SHOPP Manager/ Advisor providing information
201.010	Safety Improvement	X	X (depending on imprvm't)		X (unless SCVP then none)	X (unless SCVP then none)			X		X			X						X	Robert Peterson
201.015	Collision Severity Reduction	X	X (depending on imprvm't)		X (unless SCVP then none)	X (unless SCVP then none)			X		X			X						X	Robert Peterson
201.110	Bridge Rehabilitation	Optional (per Dist Needs)	Optional (per Dist Needs)	X	X	X	X	Req'd if bridge being widened or replaced	X	X	X	X	Optional (per Dist Needs)	X			X			X	Nancy Bruton
201.111	Bridge Scour Mitigation			X	X	X	X		depends on scope	X	X	X		X			X			X	Nancy Bruton
201.112	Bridge Rail Replacement and upgrade			X	X	X	X		X	X	X	X		X			X			X	Nancy Bruton
201.113	Bridge Seismic Restoration			X	X	X	X		depends on scope	X	X	X		X			X			X	Nancy Bruton
201.119	Bridge Preventive Maintenance			depends on scope	X	X	X		X	X	X	X		X			X			X	Nancy Bruton
201.120	Roadway Rehabilitation (3R)	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	Susan Massey
201.121	Roadway Preservation (CAPM)	X	X		X	X			X	X	X			X		X	X		X	X	Susan Massey
201.122	Roadway Rehabilitation (2R)	X	X		X	X			X	X				X		X	X		X	X	Susan Massey
201.125	Longlife Pavement Rehabilitation Corridor (4R)	X	X		X	X			X	X				X		X	X		X	X	Susan Massey
201.130	Emergency Damage Repair (DAF is substituted for PID)	X	X		X			X			X			X				X		X	Agustin Rosales
201.131	Pemanent Restoration (DAF is substituted for PID)	X	X		X			X			X			X				X		X	Agustin Rosales
201.150	Roadway Protection Betterment	X	X	X	X	X		X			X			X						X	Agustin Rosales
201.151	Drainage System Restoration	X	X								X			X	X					X	Wes Wilson
201.160	Relinquishments	X	X							X	X			X		X	X			X	Rick Guevel
201.170	Signs and Lighting Rehabilitation	X				X					X			X						X	Agustin Rosales
201.210	Highway Planting Rehbilitation	X									X			X						X	Suzy Namba
201.235	Roadway Safety Improvements	X									X			X						X	Suzy Namba
201.240	Roadside Protection and Restoration	X									X			X						X	Suzy Namba
201.250	Saftey Roadside Rest Area Rehabilitation	X		X				X			X			X						X	Suzy Namba
201.260	New Safety Roadside Rest	X		X		X		X			X			X						X	Suzy Namba
201.310	Operational Improvements	X	X	X	X	X	X	X	X	X	X		X	X		X				X	Matt Friedman
201.315	Transportation Management Systems	X	X	X	X	X	X	X	X		X			X		X				X	Matt Friedman
201.316	New Transportation Management Systems	X	X	X	X	X	X	X	X		X			X		X				X	Matt Friedman
201.320	New Weigh Stations & Weigh-In-Motion Facilities	X	X	X	X	X	X	X	X	X	X		X	X						X	Matt Friedman
201.321	Existing Weigh Stations & Weigh-In-Motion Facilities	X	X			X	X				X			X						X	Matt Friedman
201.322	Transportation Permit Requiremnt for Bridges	Optional (per Dist Needs)	Optional (per Dist Needs)	X	X	X	X	Req'd If widened/ replaced	X	X	X	X	Optional (per Dist Needs)	X	X					X	Nancy Bruton
201.325	Railroad/Highway At-Grade Crossing	No projects funded in 8 years																			Rick Guevel
201.330	Hazardous Waste Mitigation	X			X	X		X			X			X					X	X	Richard Bailey
201.335	Storm Water Mitigation	X			X	X	X				X			X						X	Jagjiwan Grewal
201.351	Equipment Facilities	X	X	X	X		X	X		X	X		X	X						X	Abbas Pourheidari
201.352	Maintenance Facilities	X			X						X			X						X	Suong Vu
201.353	Office Buildings	Office Buildings typically go through the BCP process and therefore do not have any requirements for the PIDs at this point in time. The project initiation of Major and Minor Laboratory projects is handled the same as all Department Building Facility Projects.																			Cecilia Gutierrez
201.354	Materials Lab																				Phil Stolarski
201.361	ADA Curb Ramps	X	X		X	X					X		Required if structures are involved	X						X	Sri Balasubramainan
201.378	ADA Pedestrian Infrastructure	X	X		X	X					X			X						X	Sri Balasubramainan

Mini-Preliminary Environmental Analysis Report (Mini-PEAR) Instructions

The purpose of a PEAR (or preliminary environmental scoping) is to identify, at the PID phase, environmental issues that could have an effect on a project's scope, schedule, or cost at later phases. In other words, a PEAR should identify the resources needed to complete the environmental document or determination and the estimated costs for environmental mitigation. No PA&ED (or "0") phase work (e.g. technical studies/memorandum, environmental document/determination, etc.) should be done during the PID (or "K") phase of a project.

As noted by the July 28, 2011 memorandum Project Initiation Documents and the Preliminary Environmental Analysis Report, a PEAR is only *required* for STIP projects programmed with a Project Study Report-Project Development Support (PSR-PDS). A PEAR is strongly recommended for projects programmed with a standard PSR; for projects qualifying for a CE with technical studies; and for large, complex SHOPP projects requiring an environmental document (non-CE), especially Long Lead SHOPP projects where project development will exceed the SHOPP programming period. The Project Development Team (PDT) has the discretion to prepare a PEAR for any type of PID, and many Districts choose to use a PEAR for all PIDs. Although PID resources have become more limited, it is still crucial that a certain minimal level of environmental scoping takes place at the PID phase to avoid impacts to the project's scope, schedule, and cost in later phases. The Mini-PEAR provides Districts with a new tool to provide the minimum level of environmental scoping that should be undertaken at the PID phase of a project. For more information on preliminary environmental scoping, please see Volume 1, Chapter 5 of the Standard Environmental Reference (SER).

The Mini-PEAR is intended to be a concise document and should be no more than 3 pages (excluding attachments). In lieu of field surveys, the use of existing environmental documentation for the project area, internal Caltrans databases, and other tools such as Google Earth, Caltrans Digital Highway Inventory Photography Program (DHIPP), and the Caltrans PhotoLog is encouraged for the preparation of a Mini-PEAR. If sufficient PID hours are available, participation by the environmental generalist in a PDT field review is encouraged.

A Mini-PEAR should focus on those environmental issues most likely to affect project scope, schedule, and cost. This may include, but is not limited to:

- The anticipated environmental document or determination and the expected time (in months) needed for completion.
- Field studies, surveys, technical studies or memorandum that will be required during the PA&ED phase to complete the environmental document or determination, any restrictions on those studies (such as seasonal survey windows), and the expected "0" phase time/resources (in hours) needed for completion.

- Any resources within the project area that will mandate the consideration of an avoidance alternative, including Section 4(f) resources, wetlands, and/or a significant encroachment into a floodplain.
- Special areas of jurisdiction, such as the Tahoe Regional Planning Agency, the Coastal Commission, local coastal programs, San Francisco Bay Conservation and Development Commission, etc.
- Known environmental resources within the project area such as cultural resources, biological resources, farmlands, scenic resources, etc.
- The results of the Initial Site Assessment (ISA), if available.
- Special assumptions made during the preparation of the Mini-PEAR. For example, if avoidance of sensitive environmental resources was included as part of the project description (such as the removal of certain work locations, removal of certain work components, and/or the inclusion of ESA fencing), include the consequences to the project's scope, schedule, and cost if these assumptions change during the PA&ED or later phases.
- Permits, licenses, agreements, and certifications (PLACs) that may be needed prior to construction of the project as well as coordination needed to obtain any PLACs. Specify why the PLAC is required and which agency is requiring it. For example, "Replacement of the culvert at PM 3.6 will require a 1602 permit from the California Department of Fish and Wildlife" or "The presence of Giant Garter Snake habitat within the project limits will require a Biological Opinion from the United States Fish and Wildlife Service." Also include any associated costs (such as permit fees) and the resources (in hours) needed to obtain any required PLACs.
- The desired request date for "Begin Environmental," if timing is critical (for example, request that "Begin Environmental" be scheduled for January if biological surveys must take place in March).
- Mitigation measures and cost. Mitigation measures should be limited to those required by NEPA, CEQA, and/or permit conditions. Standard avoidance and minimization measures (such as those found in the Standard Specification) need not be included in the Mini-PEAR unless they have been incorporated into the project description.

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SAMPLE
Mini-Preliminary Environmental Analysis Report

Project Information

District: County: Route: PM:
EA: EFIS Project ID:
Project Title:
Project Manager: Phone #
Project Engineer: Phone #
Environmental Office Chief: Phone #

Project Description

Purpose and Need

Write a concise statement of the project purpose and need. It should be consistent with the purpose and need statement in the Project Initiation Document.

Description of work

Write a brief summary of the proposed work that will be done. Include work required that is incidental to the project, such as: access roads, utility relocation, de-watering, etc

Anticipated Environmental Approval[1]

CEQA

- ☐ Categorical Exemption
- ☐ Statutory Exemption
- ☐ Initial Study/Negative Declaration
- ☐ Initial Study/Mitigation Negative Declaration
- ☐ Environmental Impact Report (EIR)

NEPA

- ☐ Categorical Exclusion
- ☐ "Routine" EA/FONSI
- ☐ "Complex" EA/FONSI
- ☐ Environmental Impact Statement (EIS)

Summary Statement (this statement will go directly into the PSR)

[Edit as applicable.] In order to identify environmental issues, constrains, costs, and resource needs, a Mini-PEAR was prepared for the project. Potential construction disposal, staging, and borrow sites will need to be identified in the PA&ED phase for complete environmental review. Field studies were not conducted and technical studies have been deferred to the PA&ED phase.

State the anticipated environmental documentation or determination. Include the anticipated time to complete the environmental process based on the existing workload and available resources. Include any special assumptions made about the project here. For example, if specific avoidance measures were included in the project description (such as the removal of certain work locations, removal of certain work components, and/or the inclusion of ESA fencing), include the consequences to the project scope,

[1] If the anticipated environmental document is an EIR and/or EIS, the preparation of a standard PEAR is recommended to avoid unanticipated costs and project delays.

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schedule, and cost if those locations or work components are added back in at the PA&ED phase (e.g., additional studies, permits, a higher level of environmental document, etc.).

Special Considerations

Include a very brief summary of key environmental issues that have been identified within the project area. Subheadings for each resource may be included (e.g. Biology, Cultural Resources, Noise, etc.). Include any studies that will be required as well as permits and any anticipated mitigation. Include, as applicable, additional needs that may impact the project's scope, schedule, as cost such as survey windows, construction windows, biological monitoring, Native American monitoring, the need for Permits to Enter during PA&ED phase, etc.

Disclaimer

Include the following statement:

This report is not an environmental document or determination. The above information and recommendations are based on the project description provided in this report. The discussion and conclusions provided by this Mini-PEAR are approximate and based on a *cursory* review of existing records, databases, and mapping tools to estimate the potential for probable environmental effects. The purpose of this report is to provide a preliminary level of environmental analysis to support the Project Initiation Document. Changes in project scope, alternatives, existing environmental conditions, and/or environmental laws or regulations will require a re-evaluation of this report.

Approval

_____ Date: _____
Environmental Branch Chief

_____ Date: _____
Project Manager

☐ Headquarters Coordinator's Class of Action Concurrence has been obtained (e-mail concurrence is attached).

REQUIRED ATTACHMENTS:

Attachment B: Estimated Resources by WBS Code
Attachment D: PEAR Environmental Commitments Cost Estimate

OPTIONAL ATTACHMENTS:

Attachment A: PEAR Environmental Studies Checklist
Attachment C: Schedule (Gantt Chart)

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