DEPARTMENT OF TRANSPORTATION
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Making Conservation a California Way of Life.

April 6, 2018

Ms. Diane Boyer-Vine
Legislative Counsel
State Capitol, Room 3021
Sacramento, CA 95814

Mr. Daniel Alvarez
Secretary of the Senate
State Capitol, Room 3044
Sacramento, CA 95814

Mr. E. Dotson Wilson
Chief Clerk of the Assembly
State Capitol, Room 3196
Sacramento, CA 95814

Dear Ms. Boyer-Vine, and Messrs. Alvarez, and Wilson:

I am pleased to submit the California Department of Transportation's (Caltrans) fifth of five reports on the Project Initiation Document (PID) Program. Caltrans is legislatively mandated through supplemental reporting language in the Supplemental Report of the 2013–14 Budget package (Item 2660-001-0042) to provide a report on Caltrans' PID Program workload to the Senate Budget and Fiscal Review Committee, the Assembly Committee on Budget, the Legislative Analyst's Office, and the Department of Finance no later than January 31 of each year for five years beginning in 2014.

Distribution to the California State Legislature has been made by Caltrans pursuant to California Government Code section 9795. This report can also be found at www.dot.ca.gov/reports-legislature.htm.

Sincerely,

LAURIE BERMAN
Director

Enclosures
(1) Project Initiation Document Program Report Fiscal Year 2016–17
(2) Complete Project Lists

c: The Honorable Mark Leno, Chair of the Joint Legislative Budget Committee
Mr. Michael Cohen, Director of the Department of Finance

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Making Conservation a California Way of Life.

April 6, 2018

The Honorable Holly J. Mitchell, Chair
Joint Legislative Budget Committee
Attention: Ms. Peggy Collins
1020 N Street, Room 553
Sacramento, CA 95814

Dear Ms. Mitchell:

I am pleased to submit the California Department of Transportation's (Caltrans) fifth of five reports on the Project Initiation Document (PID) Program. Caltrans is legislatively mandated through supplemental reporting language in the Supplement Report of the 2013–14 Budget Package (Item 2660-001-0042) to provide a report on Caltrans' PID Program workload to the Senate Budget and Fiscal Review Committee, the Assembly Committee on Budget, the Legislative Analyst's Office, and the Department of Finance no later than January 31 of each year for five years beginning in 2014. This report provides a summary of the PID Program for Fiscal Year 2016–17 from July 1, 2016, through June 30, 2017.

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April 6, 2018

Mr. Michael Cohen
Director
Department of Finance
State Capitol, Room 1145
Sacramento, CA 95814

Dear Mr. Cohen:

I am pleased to submit the California Department of Transportation's (Caltrans) fifth of five reports on the Project Initiation Document (PID) Program. Caltrans is legislatively mandated through supplemental reporting language in the Supplement Report of the 2013–14 Budget Package (Item 2660-001-0042) to provide a report on Caltrans' PID Program workload to the Senate Budget and Fiscal Review Committee, the Assembly Committee on Budget, the Legislative Analyst's Office, and the Department of Finance no later than January 31 of each year for five years beginning in 2014. This report provides a summary of the PID Program for Fiscal Year 2016–17 from July 1, 2016, through June 30, 2017.

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Director

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(1) Project Initiation Document Program Report Fiscal Year 2016–17
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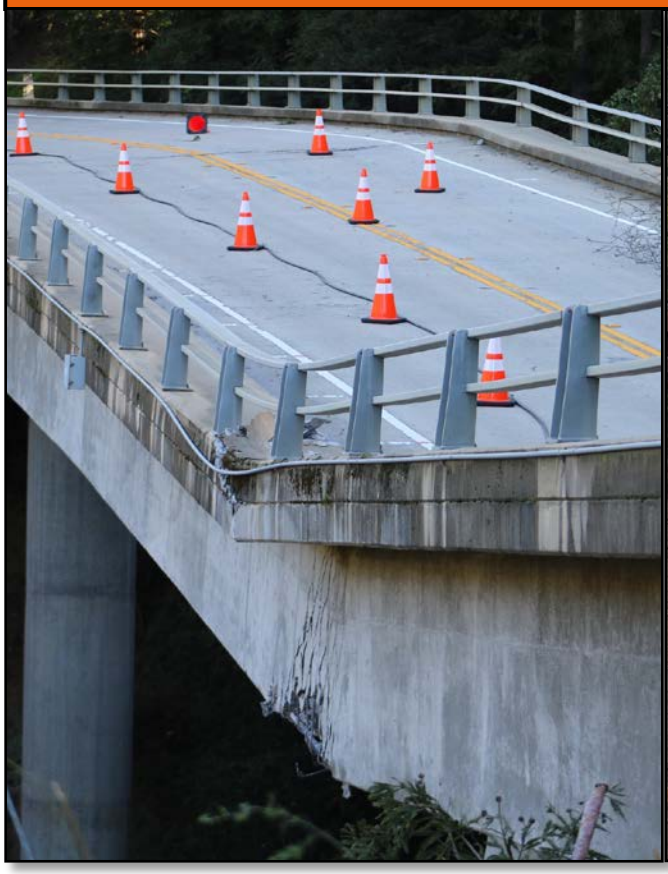
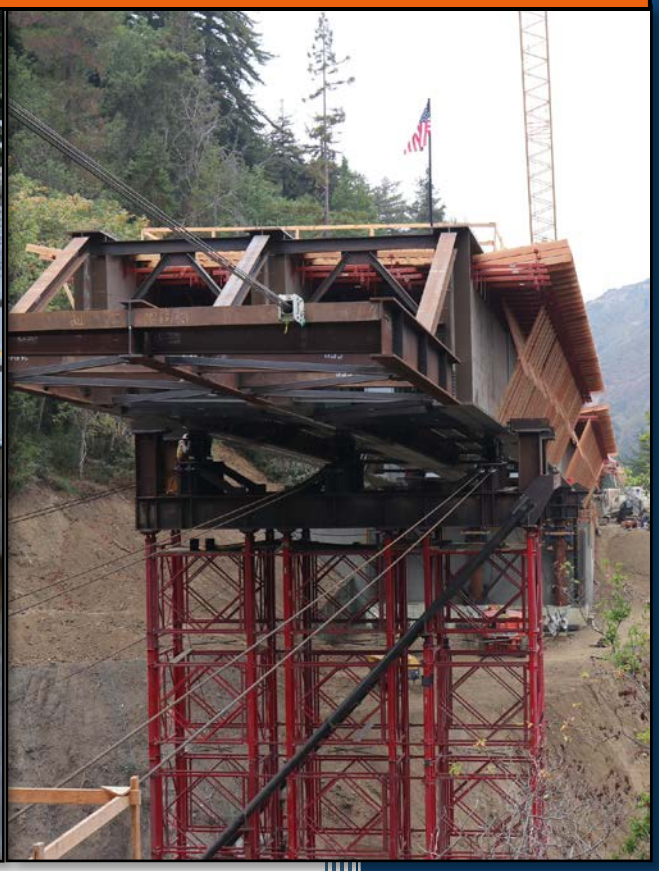
PROJECT INITIATION DOCUMENT PROGRAM REPORT FISCAL YEAR 2016–17





Report to the Legislature

2018

Caltrans

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Executive Summary

The California Department of Transportation (Caltrans) is pleased to provide the fifth annual report, with the fourth full year of reporting, about the Project Initiation Document (PID) Program workload to the California State Legislature.

Caltrans develops Project Initiation Documents (PIDs) to identify project scope, cost and schedule as accurately as possible before programming transportation funds. PIDs are essential to successful project delivery because they optimize transportation funds by ensuring that only feasible projects move into capital project development. PIDs provide engineering details of a project, and are performed after the initial planning stage, when maintenance and preservation needs are determined, and prior to the programming stage that determines funding amounts and timing

Caltrans expended $59,820,006 of its $65,459,000 Fiscal Year (FY) 2016-17 PID Program allocation to deliver 520 PIDs and begin work on 143 PIDs that will carry over into FY 2017-18. Of the completed PIDs, 466 PIDs are for projects that will be funded through the State Highway Operation and Protection Program (SHOPP) and 54 PIDs for State-sponsored and local-sponsored projects that will be funded through the State Transportation Improvement Program (STIP) and other non-SHOPP funding sources.

Most PIDs are developed for SHOPP projects, which make up the majority of overall Caltrans projects in this era of “fix-it-first” funding. Over the four-year period of FY 2013-14 through FY 2016-17, PIDs were developed primarily for the 2012, 2014, 2016, and 2018 programming cycles. During this time, Caltrans completed a total of 1600 PIDs: 1,441 PIDs for SHOPP projects and 159 PIDs for State-sponsored and local-sponsored projects for STIP and other non-SHOPP funding sources. The average work effort to complete all PIDs is 0.67 position per PID.

The PID Program is always exploring new approaches and process improvements to enhance cost efficiencies, balancing intelligent risk with sound engineering judgment. The PID Program made several adjustments to the PID workload over the past year to deliver PIDs for new priority mandates such as storm damage permanent restoration projects, freight corridor bridge projects, complete streets, and greenhouse gas emission analysis in PID development. The 2017 winter storm damage exceeded the reserves for permanent restoration projects which resulted in the PID Program requesting additional resources to develop PIDs to repair the system. The PID Program also implemented the Project Initiation Report (PIR) SHOPP PID format for multi-objective SHOPP projects that are required to implement performance-based asset management. Due to these issues, the PID Program experienced an increase in the average work effort to complete all PIDs from 0.59 position per PID in FY 2015-16 report (a three year average) to 0.67 position in FY 2016-17 report (a four year average).

With Senate Bill 1 (SB 1), SHOPP funding will increase from approximately $4.2 billion with additional increases each year per year, significantly increasing the number of SHOPP PIDs that need to be completed each year. On July 1 2017, the California Transportation Commission (CTC) began to continuously program projects, which will reduce the large fluctuation in the number of PIDs completed each year. With the influx of SB 1 funding, the CTC will begin allocating SHOPP projects by phase beginning with the Project Approval and Environmental Document (PA&ED) phase of project delivery. In response, the PID Program has identified several PID processes that can be streamlined to reduce the time and resources needed during PID development. By focusing on scope, cost, and schedule estimates for the

PA&ED phase, it is possible to reduce the level of analysis needed in the PID to develop Advanced Planning Studies, and address environmental, storm water, and right of way impacts.

As of July 1, 2017, the PID Program received an additional 75 positions and 25 full-time equivalents (FTEs) to develop SB 1 SHOPP PIDs. The PID Program will additionally use savings from streamlined PID processes to complete additional PIDs for projects funded by SB 1. In 2017-18, the PID Program for the first time is utilizing Architectural and Engineering consultant services for SB 1 SHOPP PID development. The PID Program will continue to carefully monitor SB 1 PID workload needs, and is committed to exploring new process improvements to enhance cost efficiencies and balance intelligent risks with sound engineering judgement.

Background

Statutory Reference and Purpose

This PID report provides a summary of:

- Type of PIDs produced. (Table 5, Table 8 and Table 9)
- Level of work effort estimated to develop the PIDs by FY and the associated costs. (Table 2, Table 5, Table 8, and Table 9)
- Actual level of work effort expended by FY to develop the PIDs and the associated costs. (Table 2, Table 5, Table 8, and Table 9)
- Estimated total capital and support costs of the project prior to development of the PID. (Tables 4 and Table 7)
- Estimated total capital and support costs of the project estimated in the completed PID documents. (Table 4 and Table 7)

This report was prepared in accordance with the Supplemental Reporting Language of the 2013 Budget Act and provides a summary of PID development in FY 2016-17. Detailed tables with the above information are included as part of this report.

Program Background

A PID is required to be developed and approved by Caltrans before a capital project can be programmed and constructed on the State Highway System. The PID is designed to ensure a more predictable path through the planning process into project programming and delivery. A PID provides engineering details that document the scope, cost, and schedule of a project for programming transportation funds. PIDs are essential to successful project delivery because they help Caltrans identify risks and limit cost overruns and project delays. PIDs are also used to optimize transportation funds by ensuring only feasible projects move forward into capital project development. The Caltrans PID workload is divided into two areas: (1) SHOPP PIDs and (2) State-sponsored and local-sponsored (non-SHOPP) PIDs.

Caltrans is responsible for maintaining and operating the approximately 50,000 lane-mile California State Highway System, which serves as the backbone of California's transportation infrastructure. SHOPP PIDs are developed to deliver priority capital projects with the purpose of addressing collision reduction, major damage restoration, bridge preservation, roadway preservation, roadside preservation, mandates, mobility improvement, and facility improvement needs on the SHS. All SHOPP PIDs must address projects in the approved financially constrained State Highway System Management Plan (SHSMP). Once the PIDs are

completed, the projects are programmed into the four-year SHOPP Program and delivered through the Capital Outlay Support Program.

Caltrans also develops, reviews, and approves PIDs for State-sponsored and local-sponsored projects on the State Highway System. This workload includes a variety of projects that address transportation management systems, highway facility additions and enhancements, and highway operational improvements. All State-sponsored and local-sponsored projects must be documented in an approved Regional Transportation Plan and have an identified funding source prior to PID development.

Previous Report

The PID Program Report for FY 2015-16 was submitted to the Legislative Analyst's Office in January of 2016 representing the third full year of data being reported.

The FY 2015-16 report concluded that over the three-year period of FY 2013-14 to 2015-16, Caltrans continued streamlining efforts and realized cost savings in the PID Program. Caltrans remains committed to exploring new approaches and process improvements to enhance cost efficiencies within the PID Program and balance intelligent risk with sound engineering judgment.

The third full year of data shows that the PID Program has successfully delivered PIDs for State-sponsored and locally sponsored projects over the course of three years. During this period, the number of State-sponsored and locally sponsored PIDs delivered each year has declined. To align resources with PID Program workload levels, the approved FY 2017-18 budget included a reduction of 30 positions and $4.16 million for State-sponsored and locally sponsored PIDs.

FY 2016-17 Program Status/Program Accomplishments

Caltrans is committed to effectively and efficiently managing PID Program resources, to continuously identify strategies to improve PID development, and to seek innovative ways to improve the value and effectiveness of the PIDs. The PID Program successfully addressed workload related to disaster events and implemented new policies in FY 2016-17.

2017 Winter Storm Damage Permanent Restoration Projects

On January 3, 2017, Governor Edmund G. Brown Jr. declared a State of Emergency which secured funding to help communities respond to and recover from severe winter storms that have caused flooding, mudslides, erosion, debris flow and damage to roads, bridges, culverts, and highways. In FY 2016-17, the PID Program began work on PIDs to permanently repair the damage caused by the 2017 winter storms. The 2017 winter storms resulted in greater permanent restoration resource needs than requested in the 2015–17 Budget Change Proposal.

Climate Change and Greenhouse Gas Carbon Estimates

The PID Program has successfully integrated Climate Change and Greenhouse Gas (GHG) Carbon Estimates into PID documents. The PID Program revised previously completed PID documents to add Climate Change and GHG Carbon Estimates. Moving forward, Climate Change and GHG Carbon Estimate activities will be accommodated within existing resources due to program efficiencies and will not require additional resources. The PID Program has established guidance and training for how to include Climate Change and GHG Carbon Estimates in PID documents.

Asset Management

The PID Program is implementing Asset Management in accordance with the 2017 SHSMP. Projects selected for PID development are aligned with the statewide performance targets for each asset to ensure that Caltrans meets the performance targets established in the SHSMP. Additional performance targets are set by SB 1. The PID Program is working with the Asset Management Program to align PID development to achieve the additional SB 1 performance targets.

Complete Streets

The PID Program has successfully integrated the analysis, documentation, and inclusion of complete streets in PID documents. Due to efficiencies within the program, complete street inclusion activities have been addressed within existing resources and the PID Program will not request additional resources for these activities. The PID Program has provided guidance and training for the inclusion of complete streets elements in PID documents when feasible.

Freight Corridor Bridge Projects

In FY 2016-17, the PID Program developed several PIDs for high priority Freight Corridor Bridge projects. These PIDs were needed to program unanticipated funding for the potential use of grant anticipation revenue vehicle bonds.

FY 2017-18 and Ongoing Issues Impacting PID Program

The Caltrans PID Program will continue to address natural disasters and implement new policies that will impact the SHOPP PID workload. Caltrans is required to: 1) Continue implementation of asset management;
2) Develop PIDs to program new SB 1 funding; and 3) Continue development of PIDs to repair damage from the 2017 winter storms.

The PID Program is actively working to incorporate these issues into the PID development process. The PID Program anticipates that the efficiencies in the program will allow these new issues to be integrated into the PID development process within approved resource levels for FY 2017-18 and FY 2018-19. The PID program will have a more complete understanding of the impacts of these new mandates at the conclusion of FY 2017-18, and will propose any needed changes with the 2019-20 budget. Detailed descriptions of the new and ongoing mandates impacting the PID Program are detailed below.

2017 Winter Storm Damage Permanent Restoration Projects

In FY 2017-18, the PID Program will continue development of PIDs to repair the damage caused by the 2017 winter storms. The total need for winter storm damage PIDs is not finalized. Districts are performing damage assessments and determining which projects will require permanent restoration PIDs and which projects will be addressed by PIDs in other SHOPP program categories.

Asset Management

In FY 2017-18, the PID Program will continue asset management implementation. The PIR is the tool for implementing asset management in the PID Program. The PIR PID type will provide the flexibility needed for Caltrans to transition to multi-objective Asset Management SHOPP

projects by allowing the project engineer, in consultation with a project development team, to select the appropriate level of analysis based on components in each project and on the level of acceptable risk associated with that individual project. The PIR improves the development of SHOPP PIDs by promoting consistency and flexibility in PID development that will support the multi-objective Asset Management based projects. Beginning in FY 2017-18, the PID program will exclusively develop PIR PIDs in order to implement multi-object Asset Management SHOPP Projects.

Senate Bill 1 Implementation

SB 1 (Beall, Chapter 5, Statutes of 2017) provides $15.0 billion for state highway maintenance and rehabilitation, $4.0 billion for bridge and culvert maintenance and rehabilitation, $3.0 billion for high priority freight corridors, $2.5 billion for congested corridor relief, and $1.5 billion for local streets and roads over the next ten years. The increased funding from SB 1 requires the development of more PIDs with larger scopes. The PID program is developing strategies to streamline and accelerate PID delivery to program the new funding.

Project Initiation Report Approval, Implementation, and Future Efficiencies

Effective July 1, 2017, Caltrans began using the Project Initiation Report (PIR) format to develop PIDs for all SHOPP projects requiring a PID for programming purposes. The development of the PIR format and guidance was a multi-divisional effort lead by SHOPP program managers, Caltrans district offices, and the Division of Transportation Planning. The PIR was tested through a three-year pilot program, which determined that the PIR format was effective and appropriate for full implementation.

The PIR was developed in response to a recommendation from a 2012 value analysis study that reviewed the SHOPP PID development process to identify areas for improvement to increase efficiency. Efficiencies from implementation of the PIR include:

- Reducing of the number of PID formats.
- Providing flexibility based on project complexity.
- Reinforcing the project manager's role in leading the project development team.

In FY 2017-18, the PID Program is updating the PIR format to gain additional program efficiencies. The three PIR sections which have the greatest opportunities for process improvement are right-of-way, structure estimates, and storm water analysis. Streamlined documents are being developed for these three sections of the PIR which are anticipated to improve the cost and schedule for PIR development.

FY 2016-17 PID Program Summary

During FY 2016-17, Caltrans expended $59,820,006 of its $65,459,000 to complete 520 PIDs and begin work on 143 PIDs that will carry over into FY 2017–18. The 520 completed PIDs include 466 PIDs for SHOPP projects and 54 PIDs for State- and local-sponsored non-SHOPP projects with a total project value of $16.01 billion. SHOPP PIDs developed for bridge, culvert, pavement and transportation management system projects will be considered for SB 1 funding on a continuous programming basis. The PIDs produced during FY 2016-17 will ultimately lead

to projects that will preserve and enhance the State Highway System, improve safety and mobility for both travelers and highway workers, and sustain and support California's economy.

Table 1 provides a breakout of the FY 2016-17 PID Program allocation and expenditures by primary PID type, carryover work, and associated technical and management support. The difference between the allocated amount of $65,459,000 and the expended amount of $59,820,006 is primarily due to less reimbursement work than was anticipated. As shown in Table 1, the PID Program received an allocation of $9,492,000 in reimbursement authority, but expended a total of $3,678,279 to develop local-sponsored PIDs on a reimbursed basis. This is due to the fact that reimbursed PID work requested by the local agencies at the time of submittal of the PID Program's Budget Change Proposal typically does not materialize due to changing priorities at the regional/local level. With additional regional/local funding due to SB 1, the reimbursed PID workload is anticipated to increase in future fiscal years.

Management and technical support expenditures shown in Table 1 total $7,508,464 are within the $10,189,000 allocation that the PID Program received for FY 2016-17. The PID Program spent $48,633,264 on SHA PID development which exceed the $45,778,000 allocation the PID Program received for FY 2016-17. Factors that contributed to the expenditures include:

- The development of PIDs to address damaged caused by the 2017 winter storms as identified in the Governor's 2017 State of Emergency.
- The delivery of unanticipated PIDs and mandates which were not resourced in the 2015-2017 Budget Change Proposal.
- Implementation of the PIR SHOPP PID format for multi-objective SHOPP projects.

Table 1–Summary of PID Program (FY 2016-17)

PID Workload Type	2016-17 Budget Allocation	2016-17 Actual Expenditures
Completed SHA PIDs	$45,778,000	$43,709,822
Carry Over SHA PIDs		$4,923,442
Completed Reimbursement PIDs	$9,492,000	$1,610,619
Carry Over Reimbursement PIDs		$2,067,660
Management Support	$10,189,000	$6,313,976
Technical Support		$1,194,488
Total	$65,459,000	$59,820,007

Caltrans has consistently delivered projects over the four-year legislative reporting period from FY 2013-14 through FY 2016-17. The PID Program delivered 1600 PIDs at the cost of 0.67 per PID. It is anticipated that project scope will increase for many PIDS due to the infusion of SB 1 funding. SB 1 will fund many larger bridge and pavement rehabilitation projects causing increased work effort per PID to accurately detail the larger project scope. The PID Program is working with several Caltrans divisions to reduce PID development costs by optimizing the

analysis of environmental, storm water, advanced planning study, project cost estimate, project schedule, and risk management information.

Table 2 – Four Year Completed PIDs Summary (FY 2013-14 through 2016-17)

Completion FY	Number of Total PIDs Completed	Average Planned Cost to Complete the PID ($)	Average Actual Cost to Complete the PID ($)	Average Planned Cost to Complete the PID (Positions)	Average Actual Cost to Complete the PID (Positions)
13–14	332	$89,226	$82,724	0.66	0.40
14–15	508	$97,803	$94,398	0.66	0.65
15–16	240	$97,154	$110,434	0.64	0.73
16–17	520	$111,484	$133,147	0.72	0.84
Total[1]	1600	$100,372	$106,974	0.67	0.67

1) Average of all completed SHOPP and Non-SHOPP PIDs in the attached workload.

The number of completed PIDs in FY 2016–17 is in alignment with the delivery expected in the second year of the PID cycle.

- FY 2016-17 represents the second year of the two-year period of PID development for the 2018 SHOPP cycle. The number of PIDs delivered in the second year is typically higher with more complex PIDs being completed in the second year.
- The PID Program delivered sufficient PIDs to utilize programming capacity for SHOPP, STIP, and other funding programs.

In FY 2016-17, the average planned cost to complete a PID was 0.72 positions and the actual average cost to complete a PID was 0.84 positions. With the availability of SB 1 funds, the nature of Caltrans projects is shifting to more comprehensive repair projects that require more involved planning than in the past. Additionally, there is an investment shift towards more bridge and drainage projects which require additional planning, data gathering, and analysis. There were multiple factors contributing to the difference between the planned and actual cost to complete a PID including:

- The development of SHOPP permanent restoration PIDs to address damage caused by the 2017 winter storms.
- Incorporation of Complete Street and greenhouse gas emission analysis in PID documents.
- Implementation of the SHOPP PIR and multi-objective asset management projects.

The SHOPP PIR and multi-objective asset management projects are initiatives which change the way Caltrans develops projects. For example, a PID for a project that would have earlier focused on bridge work may now also address pavement, bike access and fish passage. By combining several SHOPP projects into one larger project, Caltrans may achieve economies of scale by reducing the number of PIDs needed. These efforts require additional analyses and extensive collaboration with local and regional agencies to develop projects that consider all modes of transportation. These processes result in projects which comprehensively address multiple needs on the State Highway System instead of a single need under the previous paradigm. The PID Program has seen an increase in the cost per PID as a result of the implementation of these new processes. As Caltrans develops experience and expertise with

these new processes, development of SHOPP PIRs and multi-objective asset management projects will become more efficient.

FY 2016-17 SHOPP PID Summary

Through the two-year zero-based budget process, Caltrans received 251 SHA funded positions in FY 2016-17 to work on 451 planned PIDs identified in the 2015 Ten-Year SHOPP Plan targeted for programming in the 2016 and 2018 SHOPP cycles.

This allocation includes additional resources in 2016-17 to develop a strategic SHOPP contingency PID workload comprised of pavement, bridge, mobility, and roadside projects valued at $250 million per year for a total of $500 million over the two-year BCP cycle. In June 2017, the PID Program completed the strategic SHOPP contingency PID workload. Due to the passage of SB 1, it is anticipated that all contingency PIDs will be programmed into the 2016 or 2018 SHOPP. In FY 2017-18, the PID Program will work to rebuild the strategic contingency PID workload to utilize all available transportation funding. The PID Program is evaluating the need for an ongoing strategic contingency in the future as completed PIDs often are completed at a higher project cost than originally proposed.

Table 3 details the delivery of the reprioritized SHOPP PID workload in FY 2016-17. Based on the reprioritized workload, Caltrans worked on a total of 545 SHOPP PIDs in FY 2016-17, completing 466 SHOPP PIDs and beginning development of 79 SHOPP PIDs that will carry over into FY 2017-18.

The delivery of 466 SHOPP PIDs aligns with the expected delivery in the second year of the two year PID cycle. In FY 2014-15, which was also the second year of the two year PID cycle, the PID Program completed 482 SHOPP PIDs. The difference of 16 completed PIDs between FY 2014-15 and FY 2016-17 represents a 3 percent difference in the number of PIDs delivered.

Table 3 – Summary of SHOPP PIDs by Program (FY 2016-17)

SHOPP Program	Number of PIDs in Reprioritized FY 2016-17 Workload[1]	Number of Carryover PIDs Completed in FY 2016-17	Number of PIDs Started and Completed in FY 2016-17	Number of PIDs carrying over into FY 2017-18	Number of Planned PIDs for FY 2017-18[2]
Bridge	88	63	19	6	90
Collision Reduction	166	77	53	36	75
Mandates	46	27	19	0	64
Mobility	61	13	42	6	48
Roadway/Roadside	111	54	48	9	108
Emergency	51	17	14	20	47
Facilities	5	2	3	0	5
Relinquishment	9	2	5	2	0
Asset Management Pilot	8	7	1	0	0
Total	545	262	204	79	437

1) Total comprises PIDs completed in FY 2016–17 and active PIDs that will carry over in FY 2017–18.
2) Based on the FY 2017–19 BCP.

Prior to PID development, total capital project costs for the 466 PIDs were preliminarily estimated at $4.462 billion. The total project costs identified in the completed PIDs were estimated at $10.197 billion, as noted on Table 4. These differences validate the importance of PIDs, as they result in more effective and efficient alignment of project estimates and available capital project resources. The consequences of moving forward with these planned projects without a PID or reliable scope, schedule, and cost estimates would be potential scope changes, schedule delays, and project overruns, ultimately leading to projects being delayed or removed from the SHOPP Program.

Table 4 – Summary of Completed SHOPP PIDs by Program (FY 2016-17)

SHOPP Program	Number of PIDs Completed in FY 2016-17	Estimated Total Project Cost at Pre-PID ($M)	Total Project Programming Cost in Completed PID ($M)
Bridge	82	$1,318	$2,364
Collision Reduction	130	$691	$1,247
Mandates	46	$209	$547
Mobility	55	$360	$755
Roadway/Roadside Preservation	102	$1,512	$4,623
Emergency	31	$201	$399
Facility Improvements	5	$51	$72
Relinquishment	7	$15	$34
Asset Management Pilot	8	$106	$156
Total	466	$4,463	$10,197

For the 466 PIDs completed in FY 2016-17, Caltrans planned to use an average equivalent of 0.72 positions to produce each of these PIDs and actually used an average equivalent of 0.86 positions per PID to complete each one. These average equivalents were calculated based on individual project detail in the attached workload. The PID program is currently investigating estimating processes to more closely align the total project cost at pre-PID with the project cost in the completed PID. Table 5 provides a summary of planned cost averages compared to actual average cost by PID type.

Differences in planned versus actual PID costs are due to variances between specific types of projects such as the increase in emergency PIDs to address the 2017 winter storm damage and the development of PIDs by unique staffing complements. The actual work effort and dollars expended are a reflection of the completed PID project portfolio, actual staff assigned to each PID, and the type of PID selected for each project. Because every project and staffing situation is unique, the PID Program cannot assign standardized or absolute workload norms to each PID. Therefore, the PID Program relies on work effort ranges and engineering judgment based on project complexity and risks to determine resource needs for each PID type. Depending on the project and PID type, the work effort to complete a PID can typically range from the equivalent of 0.1 positions to 2.0 positions.

Table 5 – Summary of Completed SHOPP PIDs by PID Type (FY 2016-17)

PID Type[1]	Number of Total PIDs Completed	Average Planned Cost to Complete the PID ($)	Average Actual Cost to Complete the PID ($)	Average Planned Work Effort to Complete the PID (Positions)	Average Actual Work Effort to Complete the PID (Positions)	Work Effort Ranges (Positions)
CAPM-PR	14	$139,747	$216,979	0.91	1.36	0.9 to 1.9
PIR	261	$119,861	$142,850	0.77	0.91	0.2 to 1.7
PSR	47	$102,744	$130,534	0.66	0.82	0.4 to 1.6
PSR-PDS	7	$154,102	$194,389	1.01	1.25	0.7 to 1.8
PSR-PR	17	$89,677	$118,627	0.58	0.77	0.3 to 1.6
PSSR	45	$166,828	$172,621	1.08	1.07	0.3 to 2.0
SCVP	75	$58,555	$77,276	0.37	0.49	0.1 to 0.9
All PID Types[2]	466	$112,814	$136,046	0.72	0.86	

1) Refer to Table 11 for additional information on PID types.
2) Average of all completed SHOPP PIDs in the attached workload.

FY 2016-17 Non-SHOPP PID Summary

Caltrans allocated 47 positions (19 SHA positions and 28 reimbursement positions) in FY 2016-17 to develop PIDs and provide oversight on PID work for 118 State-sponsored and local-sponsored non-SHOPP projects that address transportation management systems, highway facility additions and enhancements, and highway operational improvements. The number of local-sponsored PIDs in the workload fluctuates due to continued scope refinement, changing priorities, and funding constraints at the local and regional levels. Many of these projects involve long lead time for planning and require local agencies to reimburse Caltrans for PID development or oversight work.

Table 6 details the delivery of the reprioritized non-SHOPP PID workload in FY 2016-17. Based on the reprioritized workload, Caltrans worked on a total of 118 PIDs in FY 2016-17, completing 54 PIDs and developing 64 PIDs that will carry over into FY 2017-18.

Table 6 – Summary of State-Sponsored and Local Sponsored PIDs (FY 2016-17)

Type of Projects	Number of PIDs in Re-Prioritized FY 2016-17 Workload[3]	Number of PIDs Completed in FY 2016-17	Number of Active PIDs that will Carry Over into FY 2017-18	Number of Planned PIDs for FY 2017-18[4]
State-sponsored[1]	32	22	10	25
Local-sponsored[2]	86	32	54	100
Total	118	54	64	125

1) Funded by SHA.
2) Funded by Reimbursement Authority.
3) Total comprises PIDs completed in FY 2016-17 and active PIDs that will carry over into FY 2017-18.
4) Based on the FY 2017–19 Budget Change Proposal.

During FY 2016-17, 54 local-sponsored and State-sponsored PIDs were completed. Prior to PID development, the preliminarily estimated cost for the 54 projects was $1.753 billion. After PIDs were completed, the estimated project costs totaled $5.814 billion. These differences in estimated costs support the value of the PIDs, as they result in more effective and efficient alignment of project estimates and available capital project resources. The consequences of moving forward with these planned projects without a PID or reliable scope, schedule, and cost estimate would result in additional project risks, potential scope changes, schedule delays, and project cost overruns. Table 7 provides a summary of project costs for completed State-sponsored and local-sponsored PIDs.

Table 7 – Summary of State Sponsored PIDs Completed in FY 2016-17

Type of Projects	Number of Completed PIDs	Estimated Capital Project Cost Before PID ($ mil)	Estimated Capital Project Cost After PID ($mil)
State-sponsored	22	$130	$556
Local-sponsored	32	$1,624	$5,258
Total	54	$1,753	$5,814

Of the 32 local-sponsored PIDs completed in FY 2016-17, 12 PIDs were completed with Caltrans having a lead role in PID development and 20 PIDs were completed with Caltrans performing independent quality assurance (IQA) through the PID development process. Table 8 provides a summary of planned cost averages compared to actual average cost by PID type. In FY 2016-17, Caltrans planned to use the average equivalent of 0.81 positions to prepare the non-SHOPP PIDs, but actually expended an average of 0.80 positions to complete this work.

The average planned costs and positions in Table 8 are based on average statewide projections within each PID category listed. The average actual costs are based upon the average actual reimbursement position cost. The average actual work efforts are based upon actual hours charged by staff. The costs are a reflection of the completed PID project portfolio, actual staff assigned to each PID, and the type of PID selected for each project. Because every project and staffing situation is unique, the PID Program cannot assign standardized or absolute workload norms to each PID. Therefore, the PID Program relies on work effort ranges and engineering judgment based on project complexity and risks to determine resource needs for each PID type.

Table 8 – Completed Local Sponsored PIDs by Role and PID Type (FY 2016-17)

Caltrans Role	PID Type[1]	Number of Total PIDs Completed	Average Planned Cost to Complete the PID ($)	Average Actual Cost to Complete the PID ($)	Average Planned Work Effort to Complete the PID (Positions)	Average Actual Work Effort to Complete the PID (Positions)
Lead	PSR-PDS	9	$158,415	$186,936	1.05	1.19
Lead	PSR-PR	3	$138,965	$141,542	0.93	0.89
IQA	PSR-PDS	18	$90,230	$92,386	0.60	0.55
IQA	PSR-PR	2	$205,539	$180,059	1.35	1.19
All PID Types[2]		32	$121,183	$129,066	0.81	0.80

1) Reference Table 11 for additional information on PID types.
2) Average of all completed Local-Sponsor PIDs in the attached workload.

Conclusion

The PID Program Report for FY 2016-17 represents the fourth full year of data. As displayed in Table 2, Caltrans has delivered 1600 SHOPP and Non-SHOPP PIDs using an overall average of 0.67 position per PID while illustrating a trend of developing more effective documents over the four-year reporting period. The delivery of these PIDs moves projects into the next phases of the project delivery process, contributing to the achievement of California's transportation needs.

Over the four-year period of FY 2013-14 through 2016-17, Caltrans cumulatively completed a total of 1,441 SHOPP PIDs using an average work effort of 0.66 position per SHOPP PID. On average, Caltrans has delivered SHOPP PIDs across all major project types. Table 9 provides a breakout by PID type of all SHOPP PIDs completed during the four-year reporting period. Development of a $500 million SHOPP contingency PID workload began in FY 2015-16 and was completed June 2017.

Due to the passage of SB 1, it is anticipated that the entire $500 million SHOPP contingency will be programmed into the 2016 and 2018 SHOPP. The PID Program will focus on rebuilding the $500 million strategic SHOPP contingency in FY 2017-18 and 2018-19.

Table 9 – Completed SHOPP PIDs by PID Type (FY 2013-14 through 2016-17)

PID Type[1]	Number of Total PIDs Completed	Average Planned Cost to Complete the PID ($)	Average Actual Cost to Complete the PID ($)	Average Planned Work Effort to Complete the PID (Positions)	Average Actual Work Effort to Complete the PID (Positions)	Work Effort Ranges (Positions)
CAPM-PR	117	$102,348	$100,964	0.72	0.61	0.1 to 1.4
PIR	374	$117,139	$133,973	0.76	0.86	0.2 to 1.6
PSR	239	$102,142	$111,335	0.69	0.72	0.1 to 1.5
PSR-PDS	12	$140,640	$166,642	0.93	1.10	0.6 to 1.7
PSR-PR	57	$102,779	$130,046	0.70	0.81	0.2 to 1.9
PSSR	225	$135,521	$138,639	0.93	0.85	0.1 to 1.7
SCVP	417	$54,373	$52,846	0.37	0.34	0.1 to 0.7
All PID Types[2]	1441	$97,785	$104,907	0.66	0.66	

1) Reference Table 11 for additional information on PID types.
2) Average of all completed SHOPP PIDs in the attached workload.

During the four-year period, Caltrans continued streamlining efforts and realized cost savings in the PID Program by expanding the use of the new PIR SHOPP PID template.

Caltrans completed 374 PIRs as part of a pilot program using an average of 0.86 position per PID. The PIR document has proved to be a more effective programming document which provides more accurate estimates of future project capital and support costs. While the average number of positions used over the duration of the PIR pilot program exceeds the average number of positions required to complete other PID types, it is anticipated that this cost will decrease over time as staff preparing the PIRs become more familiar with the new template structure.

The PID Program is updating the PIR format to optimize environmental, storm water, advanced planning studies, estimates, schedules, and risk management information. These processes are anticipated to improve the PIR development costs and schedule while reducing the time and resources needed during PID development.

In FY 2016-17, the PID Program began work on PIDs to repair the damage caused by the 2017 winter storms. The damage caused by the storms exceeded the typical resource needs for permanent restoration PIDs and required the PID Program to realign the workload. There is additional work needed on the 2017 winter storm damage PIDs which will continue into FY 2017-18.

Beginning in FY 2017-18, Asset Management will be fully implemented into the SHOPP with a focus on multi-objective projects, it is anticipated that the number of PIDs in future workloads may decrease as projects are combined to realize efficiencies in later phases of project development, offsetting any increase in resource requirements. The flexibility of the PIR template's structure and the involvement of a cross-functional Project Development Team make it the ideal tool to provide the comprehensive analysis needed for these new types of multi-objective projects. With the passage of SB 1, the PID Program will continue to implement measures to improve the efficiency and effectiveness of the PIR format to program increased SHOPP funding.

Throughout the four-year reporting period, Caltrans cumulatively completed a total of 159 State-sponsored and local-sponsored PIDs funded through the STIP and other non-SHOPP funding sources. The PIDs were completed using an average work effort of 0.76 position per PID. During this period, Caltrans has continued implementation of the streamlined Project Study Report-Project Development Support (PSR-PDS) template, which was completed using an average of 0.73 position per PID. Moving forward, the PID Program will continue to evaluate the effectiveness of the streamlined PSR-PDS template and will make adjustments as appropriate to maximize efficiencies.

The passage of SB 1 may result in the need to develop additional non-SHOPP PIDs for the congested corridor relief, freight corridor, and active transportation programs. Additional reimbursement work may be requested by local and regional agencies that received SB 1 funding increases as well. The PID Program will monitor the non-SHOPP workload closely to determine if resources are adequate for future non-SHOPP workloads.

Table 10 – State-Sponsored and Local-Sponsored PIDs by FY 2016-17

Type	Fiscal Year	Number of PIDs in Workload	Number of PIDs Completed
State-sponsored	FY 2013-14	27	13
	FY 2014-15	26	10
	FY 2015-16	30	8
	FY 2016-17	32	22
Local-sponsored	FY 2013-14	82	25
	FY 2014-15	84	32
	FY 2015-16	96	17
	FY 2016-17	86	32

The PID Program is properly resourced based on the PID workload identified for FY 2017-18. The Budget Change Proposal for FY 2017-18 and FY 2018-19, requested an overall staffing reduction of 30 positions and $4.16 million to bring resources levels into alignment with the PID workload. After the passage of SB 1, the PID Program received 75 positions and 25 full time equivalents (FTEs) to develop SB 1 SHOPP PIDs.

Moving forward, the PID Program will continue to investigate new approaches and process improvements to enhance cost efficiencies and balance intelligent risk with sound engineering judgment as Caltrans complies with new mandates that will help to shape the future of transportation in California.

Table 11 – Summary of PID Types

Type of PIDs		Applicability	Streamlining Benefits	SHS Project Type	
				State/ Local	SHOPP
Small Capital Value Project	SCVP	Used for low risk and less complex single alternative projects below $3 million.	Streamlines PID phase by reducing PID cost and schedule.		**X**
Project Study Report-Project Development Support	PSR-PDS	Default document for all STIP and local-funded projects. Used for long-lead SHOPP projects. PID includes assessments of major assumptions, risks, and "ballpark" project cost estimates. Detailed studies are done in environmental phase.	Streamlines PID phase by reducing PID cost and schedule.	**X**	**X**
Project Scope Summary Report	PSSR	Used for candidate projects that have enough information to approve a project alternative.	Combines PID and Project Approval/Environmental Document (PA&ED) phases thus streamlines project delivery.		**X**
Project Study Report	PSR	Used for higher risk and complex projects. PID includes detail analyses and identifies detailed cost estimates for all project phases.	None at the PID phase. At the PA&ED phase there is potential savings due to fatal flaws being addressed at the PID level.	**X**	**X**
Capital Preventive Maintenance Project Report	CAPM-PR	Used for pavement rehabilitation and preservation projects.	Typically combines PID and PA&ED phases, thus streamlines project delivery.		**X**
Project Study Report-Project Report	PSR-PR	Typically used for candidate projects that have key stakeholder consensus and a clear understanding of the requirements to complete the project.	Combines PID and PA&ED phases thus streamlines project delivery.	**X**	**X**
Project Initiation Report	PIR	Utilizes a three-tier structure, with each respective tier containing a progressively higher level of analysis.	Flexible format is intended to consolidate and standardize multiple SHOPP PID formats.		**X**