Drilling Down on Costs

Project Initiation Documents Provide Reality Check Before Construction

Annette Clark, division chief for the Office of Program and Project Planning, reviews a Project Initiation Document with transportation engineer Pritpall Bhullar, center, and PID Workload Management Branch Chief Jonathan Camp.

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.

According to the PID Program's 2015-16 annual report, the initial planning stage project cost estimates for 217 State Highway Operation Protection Program (SHOPP) projects totaled $2.1 billion, while project cost estimates in the completed PID was $3.9 billion, seen in the table on the next page. The difference in initial and completed PID estimates of $1.8 billion demonstrates the importance of PIDs in minimizing cost overruns and project delays during the delivery process.

Most PIDs are performed for SHOPP projects, which make up the majority of overall Caltrans projects in this era of "fix-it-first" funding. For 2015-16, Caltrans delivered 242 PIDs that forecast $7.16 billion in future project costs, which include 25 State- and local-sponsored projects for the State Transportation Improvement Program (STIP) and other non-SHOPP funding sources.

The PID Program explores new approaches and process improvements to enhance cost efficiencies, balancing intelligent risk with sound engineering judgment. The program has used two main techniques to streamline its cost estimates: the Small Capital Value Projects (SCVP) template and the Project Initiation Report (PIR) template. Use of the simplified SCVP template was originally intended to reduce PID development costs for all low-risk, non-complex candidate projects. The PIR template creates more consistency by consolidating multiple PID formats into a single template and improves analysis of complex projects.

Although the PID Program has achieved savings by using the SCVP, Caltrans is seeing negative im-

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pacts to scope, cost and schedule in later phases of project development. Beginning this year, Caltrans will begin moving away from the less-detailed and less-robust SCVP technique and toward the more-preferred PIR method as the department shifts to a comprehensive "asset management" investment program to help prioritize its multi-objective projects and better address risks.

Caltrans is required to implement its Transportation Asset Management Plan by 2020, directed by the Moving Ahead for Progress in the 21st Century Act (MAP-21) guidelines that require most projects incorporate sustainable, multimodal features beyond the traditional focus on motorized vehicles. 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.

Likewise, the PIDs developed for the 2018 and 2020 SHOPP cycles must consider complete streets elements such as sidewalks or bike lanes. This effort requires additional analyses and extensive collaboration with local and regional agencies to develop projects that consider all modes of transportation.

Also in the new reporting year, Caltrans PIDs will be required to consider climate change and include greenhouse gas estimates. The PID Program is using the Federal Highway Administration Infrastructure Carbon Estimator Tool during PID development to quantify life-cycle greenhouse gas emissions for SHOPP projects. This tool allows users to create preliminary estimates of emissions using planning-level data. MM

Source: Nieves Castro, Assistant Division Chief, Delivery; and Annette Clark, Chief, Office of Program and Project Planning

Summary of Completed SHOPP PIDs, by Program (FY 2015-16)

SHOPP Program	Number of PIDs Completed in Fiscal Year 2015 16	Estimated Total Project Cost, at Pre PID ($M)	Total Cost for Programming, in Completed PID ($M)
Bridge	26	$164	$264
Collision Reduction	98	$364	$580
Mandates	12	$54	$98
Mobility	15	$61	$75
Roadway/Roadside	48	$512	$868
Emergency*	13	$982	$2,012
Facilities	3	$40	$43
Relinquishment	1	$0	$0
Asset Management Pilot	1	$5	$5
Total	217	$2,182	$3,945

**Includes one project estimated at $910 million and a completed PID estimate of $1.81 billion. This project will be programmed over multiple SHOPP cycles, with $125 million going into the 2018 SHOPP cycle.*