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Caltrans Statewide Toll Bridge Retrofit Program Shored Up With Paragon Program Management

Managing and maintaining the structural integrity of California's state-owned and operated toll bridges is one of the most important challenges facing the California Department of Transportation (Caltrans), a task that was underscored in the wake of the Loma Prieta earthquake in 1989 that seriously damaged the San Francisco-Oakland Bay Bridge. Now, Caltrans has allocated an estimated $2.6 billion to seismically retrofit five Northern California toll bridges, including the Bay Bridge, plus the Vincent-Thomas Bridge that spans the Port of Los Angeles, and the Coronado Bay Bridge in San Diego. Nowhere in the world have bridges as structurally complex as these been seismically reengineered to withstand the structural harm posed by potential earthquakes that are a constant threat to this state.

To help in this monumental task, Bechtel Infrastructure Corporation, a global engineering-construction organization, responded to a request for proposal from Caltrans to assist in the retrofitting program. Issues surrounding the program included a finite program fund and the need to consolidate legacy system integration and business processes. Bechtel's solution was to take commercially available software and develop it into a Program Management Information System (PM IS) designed specifically for the Caltrans retrofit program.

John Mahon, lead project control engineer with Bechtel, surveyed the available software programs and appropriate tools that could handle scheduling and cost analysis tasks. "We were looking for tools to develop a program-oriented management control system; manage and control the scope, cost and budget; and manage the schedule against resource availability."

One solution caught Mahon's attention— the Paragon Program Management System designed for construction owners and their representatives. Paragon could integrate all facets of program management into a unified system for immediate access to cost, schedule and resource information.

"We went through a rigorous evaluation and testing process with Paragon to ensure that it would do what we wanted it to do. It passed the litmus test," Mahon said. "Paragon was initially installed as an interim solution to buy time to prepare and employ a broader-based system solution," Mahon said. "But because Paragon has exceeded its original objectives, it is now being implemented as the preferred program management software for this program. By integrating Paragon, interdependent projects became organized, planned and program-driven. Information that previously took about a week to prepare could now be accessed in an hour."

Paragon provided a smooth interface with the software programs Caltrans had implemented to handle scheduling and cost analysis. Its ability to integrate with the other software system components and manipulate data made it invaluable to the project controls engineers. Paragon allows universal updates to the entire program. "It is so easy to make changes on the fly," Mahon says. "Paragon allows us to input data on a real-time basis so that all members of the team can have access to that information instantaneously."

The 10 project control engineers who work with Paragon as part of their daily tasks were easily able to compile reports that have been customized with Paragon to suit Caltrans requirements. "This is a huge benefit," Mahon says. "Caltrans legacy systems provided no consistent way of rolling up

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John Mahon, Bechtel, inc.

project costs. Using Paragon is the first time we had been able to monitor all the cost and budget information in one place. Information would be gathered here and there using one methodology or another. It was like comparing apples to oranges."

An intensive effort went into integrating the Caltrans legacy system, that was to be the primary source of all data, with Paragon. "That was the biggest learning curve," Mahon says. "We were provided with high-level user training," he said. "That gave us the confidence that it would work. Paragon provides us the ability to bring together budget, costs, schedules and centralized reporting."

Since its implementation, Paragon has produced sizable fiscal and productivity benefits for the Caltrans retrofit program. The program management system has saved time for the program team by becoming the single source of complete and credible information; it has helped the agency save money by posting early alerts of costs vs. budget; it has enabled the agency to avoid unnecessary costs by putting timely and credible information in context; and it has improved the process by reinforcing standard Caltrans business practices across disciplines.

"You might say that Paragon is the heart of the system," Mahon said.

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John Mahon, Bechtel, inc.

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