

Program Management: Effective Options for Today's Super-Sized Projects

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By Charles "Chick" Dolby

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Rather than addressing highway and transit improvements one at a time, state and federal agencies are combining multiple related projects into large-scale programs. The reasons are many. Because construction costs invariably increase over time, investing in programs now saves money and eliminates any uncertainty as to whether funding sources will be available in the future. Multifaceted programs can also create synergies of materials and expertise, spur other initiatives such as eco-

economic development and environmental restoration, and reduce disruptions to the overall transportation network. For the vast majority of travelers, the temporary inconveniences of an intensive improvement effort are far preferable to years of piecemeal construction work.

Yet, even as benefits increase exponentially as a transportation program grows, so too do the challenges of administering them. Project management and program management can seem so similar that some confuse the two, thinking scale is the only difference. The incorrect presumption is that program management requires the same skills and approach as project management, just on a greater level.

Program management requires that planning, engineering, and construction complexities be addressed. Major programs usually involve substantial community involvement and environmental work, particularly in urban settings.

Managing the program team is also more complicated, particularly if the agency is using design-build. Designers and contractors cannot be hired and fired at will. A large effort is required to identify and select the best people for the team, then ensure that they produce quality work from start to finish. In other words, successful program management demands both a comprehensive vision of the big picture and fine eye for detail.

Bridging the Knowledge Gap

After years of lean budgets, many transportation departments struggle to stay on top of their routine needs. Taking on the additional demands and challenges of a major program requires specialized expertise in scope development, management and controls, solicitation and selection processes, and, in some cases, design and construction technologies.

These and other trends have led many agencies to accelerate the use of program managers and construction managers to help plan, implement, and oversee major transportation programs. Though the practice is by no means new, the intricacies of program management in the 21st century are far different from those of the past.

Program managers need a cross-disciplinary understanding of design and construction to understand and take advantage of opportunities for standardization. Effective program managers consider disciplines such as site planning, architecture, civil, mechanical and





The T-REX Project in Denver is a landmark collaboration between CDOT, RTD, FHWA, and FTA, creating a new streamlined multi-modal approach to project delivery. CDOT, in partnership with the Denver RTD, is reconstructing 16 miles of two interstate highways in the Denver metropolitan area and adding 19 miles of new light rail transit, including 13 stations. The \$1.67-billion design-build program is gaining recognition for delivering highway and transit improvements. It was shaped by extensive input from the community, and it is on budget and ahead of the schedule created during the NEPA process.

electrical engineering, and construction management as interrelated elements, a single unified process that stretches

from desks to dirt.

Sound administrative skills must transcend that of technical knowledge.

capital improvement project ever—the Riverside Parkway. The 6.75-mile arterial along the city’s southern border will

Program managers must coordinate information to effectively manage design and construction activities. They must establish controls for cost, schedule, and quality that provide a timely, accurate picture of how the program’s resources are being used, and where problems might arise. With quality information, the transportation agency can make quality decisions.

The public sector is realizing that tracking a project or program solely in terms of dollars spent is not enough. They need to know what value has been earned from that investment and how it relates to the overall schedule and quality goals.

That knowledge is particularly helpful for transportation agencies that are relatively new to the world of large-scale programs. For example, Grand Junction, CO, is embarking on its largest

Taking Project Controls to a New Level

The spectacular scenery and burgeoning economy of the Pacific Northwest has lured thousands of people to metropolitan Seattle, bringing with them increasingly higher volumes of traffic that are overburdening the region’s transportation network. Addressing this formidable challenge requires comparably large upgrades to roads and bridges, so the Washington State Department of Transportation (WSDOT) formed an Urban Corridors Office charged with directing the agency’s “megaprojects.”

Among them are the downtown Alaskan Way Viaduct and Seawall Project, SR-520 Bridge Replacement and HOV Project across Lake Washington, the I-5/SR 509 Freight and Congestion Relief project, and the I-405 Congestion Relief and Bus-Rapid Transit projects.

Carter & Burgess is working with WSDOT to implement a project controls management system that will help Urban Corridors administer the business side of project planning and implementation.

Control systems for conventional engineering projects are not designed to handle the financing and scheduling complexities of large-scale projects. The consultant’s system, built around Primavera (www.primavera.com) P3e/c schedule management software and PRISM cost control software, is structured to bring all that information together, enabling WSDOT’s project managers to better monitor costs and performance.

The controls system also helps WSDOT make the best use of its resources. By consolidating the consultant schedules for the large projects, the agency is assured of having the resources available to perform timely reviews of environmental impact statements and other major submittals.

The system also meets WSDOT’s goal of gauging a project’s progress by earned value—what actually has been accomplished in the field as opposed to how much money has been spent, a far more accurate way to evaluate where a project stands and where problems may occur.

Interest in the controls system has spread to other WSDOT regions. If the opportunity presents itself to utilize design-build or implement a large-scale improvement program, the agency wants to be ready. With these tools and processes in place, the state’s project teams can provide accurate, unbiased information to the agency’s leadership, enabling them to make better decisions.

include a major interchange with U.S. Route 50, two railroad grade separations, and five major bridge structures, including an 800-ft viaduct. The project was originally limited to the interchange improvement, but voters subsequently passed a major bond issue that funded the other elements without taking funds away from other capital improvement needs.

Lacking knowledge of projects this large and complex, the city selected Carter & Burgess (www.c-b.com) to oversee the parkway's design-build effort, including performing preliminary engineering, developing contract documents, and assisting with contractor selection.

"I don't think we could have accomplished this on our own solely with in-house resources," says Jim Shanks, Grand Junction's program manager for Riverside Parkway. "In addition to meeting CDOT's directives for environmental studies and screening of alternatives, we have to do all the preliminary work necessary for a design-build procurement. That requires a lot of knowledge and staff time that most cities simply do not have."

Moving Mountains

Experience can help programs overcome even the most formidable challenges. Carter & Burgess was part of the team responsible for managing the inaugural line of Houston's METRORail light rail transit system. Begun in January 2000, the 7.5-mile, 16-station Red Line connecting downtown with the Reliant Park sports and convention center complex was originally scheduled to be completed in the fall of 2004. Then, things changed.

Houston made an application to the NFL to host the 2004 Super Bowl on February 1, 2004, so the schedule was accelerated to have the system running by that date. Because the mayor who spearheaded the project was scheduled to leave on January 1, 2004, the team was asked if they could cut another month from the schedule so he could have the honor of officially opening the line for service.

The program management team did more than meet the city's revised com-

pletion target. The Red Line was delivered on budget and with minimal disruptions to surrounding areas, including getting construction of the downtown segment out of the way before the 2002 holiday shopping season.

Successful Program Management

Successful program management is also more than simply supplementing the agency's in-house staff with additional experience. The two organizations must form a single operating unit with a mutual understanding of the program's goals, constraints, and opportunities. And where possible, the consultant should strive to contribute added value to the organization it serves. As independent engineering consultant to New York's Metropolitan Transportation Authority, Carter & Burgess is monitoring the capital project delivery performance of the agencies charged with maintaining and improving the region's transportation system.

Everyone on the team has senior-level project management experience in design and construction, with emphasis on the latter given the relative maturity of the New York transit system. The company oversees how well the agencies fulfill their responsibilities and performs programmatic reviews to determine if there are any systemic problems.

Should a problem arise, the project team's first response is to help the agency find ways to correct it and improve the quality of its performance wherever possible.

Quality Counts

Of course, good program management does not shield an agency from all the problems and challenges associated with major transportation initiatives. What it does offer, however, is a better opportunity to find and implement sensible solutions that not only reduce design and construction costs, but also reduce project implementation time and long-term maintenance expenses. The result is fewer headaches and better, more cost-effective project delivery. Very few programs do not have these goals at the top of the list. **GE**

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