CASE STUDY

A CLOSER LOOK:

VIRGINIA DEPARTMENT OF TRANSPORTATION

ALEXANDRIA, VIRGINIA, USA

DODGING TRAFFIC, building roads overnight and keeping track of 300 contractors—it's all in a day's work for the team managing the US$1.4 billion high-occupancy toll lanes infrastructure project in Alexandria, Virginia, USA. Almost two years in, team leaders are under constant pressure to deliver results on a project that's not yet completely developed. And they're expected to do all of it on an increasingly tight budget—and under the close scrutiny of an exceptionally large pack of stakeholders.

"These are all classic project management issues that require strong planning, measurement and risk management," says Larry Cloyed, PMP, Alexandriabased senior project manager at the Virginia Department of Transportation (VDOT).

A public-private partnership between VDOT, Fluor-Lane LLC and Transurban, the project calls for:

- Constructing four new lanes totaling 96 miles (155 kilometers)
- Replacing US$260 million worth of aging infrastructure, including 50 bridges and overpasses
- Installing an automatic, high-occupancy tolling lane for commuters willing to pay for "life in the fast lane"
- Relocating eight houses to accommodate the wider lanes
- Improving sound protection for local neighborhoods
- Adding three new access points to a shopping and business district

Adding another wrinkle is the fact that the team is doing all that work in the middle of one of the busiest travel corridors in the nation and one of the most heavily traveled arteries around Washington, D.C., USA, says Mitch Lester, project director at Fluor-Lane.

COST CONTROL

The biggest issue looming over everyone's heads is the economy—and this project is no exception. Fortunately, financing was nailed down before the economy soured, so Mr. Lester isn't terribly concerned about the budget shrinking. "That's a bit of a luxury in this economy, although any add-ons or modifications would be a bit dicey," he says.

from left, Tim Steinhilber, Capital Beltway Express; Mitch Lester, Fluor-Lane; Larry O. Cloyed, PMP, Virginia Department of Transportation; John D. Pasquale, ATCS CH2M

PHOTO BY RANDALL SCOTT

A U.S. state launches a massive US$1.4 billion project to expand and upgrade its busiest corridor — even as designs are being finalized and traffic roars by.

That means cost projections must be spoton. But it's tough to predict everything from material costs to labor rates five years out.

"The economy has made costing somethingof a rollercoaster ride," Mr. Cloyed admits. "The project has a firm, fixed price but you have to maintain strong cost controls and that requires good riskassessment strategies."

To minimize the risks of fluctuating fuel prices, for example, Fluor hedged a fixed rate. "That gives us some surety on the budget impact," Mr. Lester says.

Managing labor costs was more of a gamble. "Workers may see a five or eight or 10 percent increase in pay over the duration of the project," Mr. Lester says.

To be sure that costs don't creep out of control, VDOT conducts monthly trend reports to identify unexpected costs and to offset them in other areas of the project.

"You need to be prepared to make up for adjustments by trimming costs off the back end," advises Mr. Cloyed. "The key is to be flexible while keeping your eye on the bottom line."

PROJECT PLAYERS

Virginia Department of Transportation (VDOT), the U.S. state agency responsible for building, maintaining and operating Virginia's roads, bridges and tunnels.

Fluor-Lane LLC, a project-specific, limited liability corporation between global construction giants, Fluor Corp., Dallas, Texas, USA, and Lane Construction in Cheshire, Connecticut, USA. Responsible for designing and building the toll lanes infrastructure project.

ATCS CH2M Hill, a joint venture developed between ATCS, an engineering and surveying firm based in Dulles, Virginia, USA, and CH2M Hill, a Denver, Colorado, USA-based engineering firm. Responsible for managing VDOT megaprojects.

Transurban, a toll-road developer, investor and manager based in Melbourne, Australia.

Along with keeping an eye on the bottom line, the partners had to find enough skilled workers to take on such a massive project. The sheer number needed on site—500 at the project's peak—was a daunting proposition.

But Mr. Lester admits that in this case, the global slump has worked in his favor.

"With the economic downturn and home building falling off, the risks are currently not as great as we anticipated without knowing the impacts of any pending stimulus plan," he says. Once workers are in place, Mr. Lester has to keep them safe.

"Up to a quarter of a million vehicles pass through the corridor daily, so we are doing all of our work under traffic conditions," he explains. "We have the ability to exercise lane closures, but there are penalties if we don't pick it up in time."

That means a considerable chunk of the construction operation is conducted during off-hours, weekends and at night, which adds costs and complexity to scheduling, particularly when overpasses are taken down.

Fluor-Lane factored the added costs of late shift and premium-time pay into the budget, but it's more art than science.

CONTRACT NEGOTIATIONS

Costs and safety, while sometimes difficult to manage, are predictable risk factors on a project of this scale. But other unanticipated issues have popped up. Because this is a public-private, design-build project, the relationship and communication between the contractors and VDOT is crucial. While VDOT is focused on evaluating every contract package, the Fluor-Lane team is anxious to get the bids out, creating some tension early on between the partners.

Mr. Cloyed notes that the design-build format is new for the state, as is the public private partnership model. "That led to some surprises," he admits, including how much time it would take to review and approve the contract packages.

To manage these issues, VDOT brought in ATCS CH2M Hill to act as the technical manager and administration arm for the project.

But the company didn't join the project until March 2008, five months after active construction began. "We had to drop people in and try to catch up as quickly as possible," says John A. DePasquale, program manager at ATCS CH2M Hill.

Along with getting up to speed, Mr. DePasquale's team was faced with an urgent need to get designs approved so that the more than 200 contract packages could be put out for construction in the 2009 calendar year. When the project launched in December 2007, it was only 30 percent designed, with prices and scheduling based on those designs.

As the project progresses, all new designs and the related resources, expenses and requirements have to be reviewed and approved by Mr. DePasquale's team. So ATCS CH2M Hill has to figure out ways to expedite the approval process while ensuring adequate review. Finding that balance has been difficult as the project partners struggle with the competing needs for appropriate oversight and urgent action.

"In this phase, everything hinges on getting designs out the door so we can keep the contractors busy," Mr. Lester explains. "There is a sequence and logic to this work."

And when the sequence is lost because contract packages haven't been bid or designs haven't been approved, he has to scramble to make sure contractors stay busy without creating holes that will impede progress later on.

Mr. DePasquale estimates it took the first four to five months to set up the organization and another six months to fully establish processes and procedures for design review. And although he admits there have been kinks in the system, his team set a 15 March 2009 goal to release 100 packages in 100 days to get the construction process on track this year.

>>Construction of the toll lanes often happens during off- hours.

The ATCS CH2M Hill team has worked to develop a sound relationship with the contractors, which is helping to ease the management process. "When we came in March, we had to feel one another out," he says. "But we eventually established a respectful relationship that's built around a common goal—to support VDOT and deliver the project on time."

Mr. Lester is optimistic that by mid-year all the designs will be out for bid so that construction can be under way in every area of the project simultaneously.

Mr. DePasquale is equally confident, although he's prepared for unforeseen problems to arise.

"Not a week has gone by that we haven't gotten a request for something we didn't anticipate," he says. Whether it's reassessing a noise analysis or conducting additional environmental reviews, Mr. DePasquale and the rest of the team have to be ready to respond. —Sarah Fister Gale