Controlling Costs in a Tight Construction Market

by Mark Greenspan, Nancy Mitchell, and David Johnson

When it comes to construction costs, times are tough all over. The price of building and renovation has soared in the past several years, driven by growing demand for everything from concrete to garbage bags.

The hot market has made the job difficult for the managers of local government buildings, parks, and parking structures. Tied to budgets drawn up several years ago and unable to pass costs on to consumers as our private sector counterparts do, we have had to scour our planned projects, looking for ways to cut costs.

Here in the city of Durham, North Carolina, where we are now entering the design-and-build phase of a $161 million capital improvements plan almost three years in the making, the general services department has turned to two major unique approaches for the city to deliver its projects on time and on budget:

- Construction manager at-risk delivery method.
- Bundling of similar project types.

PROJECT HISTORY

Durham's Capital Projects Implementation Plan began almost three years ago with an exhaustive inventory of the condition of the city's buildings, parks, parking structures, and trails as we sought to identify the most pressing capital improvement needs. As a result of years and, in many cases, decades of deferred maintenance, many assets were found to be approaching or already at the end of their useful lives.

Such assets as roofing, HVAC, plumbing, and electrical systems required extensive repair or replacement. Lack of routine maintenance had left painting, caulking, and carpeting in poor condition at many locations, including some of the city's flagship downtown buildings including city hall, police headquarters, and a landmark theatre. Overall, 44 percent of the city's buildings and structures were found to be in poor condition. An additional 20 percent were rated in just fair condition.

From that report, the general services department developed a prioritized list of 88 projects. Funding for these projects was secured from several sources, including a 2005 general obligation bond. By early 2006, the plan was moving into the design-and-build phase.

NEW COST OF CONSTRUCTION

Unfortunately, the economic landscape of construction had shifted under our feet in the meantime. In only two years, the cost of concrete jumped from \$58 per cubic yard to \$100, an 80 percent increase driven in large part by Gulf Coast hurricanes and China's booming demand for raw materials. The cost of rebar and building steel has risen by more than 125 percent, while PVC pipe is up more than 26 percent over the past year. Gypsum, asphalt, and fuel costs also rose sharply.

Although our budgeting had allowed for the rising cost of materials, we were not prepared for such dramatic leaps upward. The historical price indexes that we based our budgets on showed predictable and stable annual cost increases of 3 to 4 percent. The years 2004 and 2005, in contrast, brought overall increases of 10 to 30 percent. In response, the general services department began to look for new ways to control costs.

The most fundamental change we have undertaken is to adopt the construction manager at-risk (CMAR) strategy. Under the traditional design-bid-build delivery method, the city selects a project designer and the contract is automatically awarded to the lowest bidder. The CMAR process adds a layer of accountability and expertise—and another chance to lower costs—to this process.

Right away it became clear that we could tighten up our project delivery process. Each change we have made is intended to take advantage of state-of-the-industry technologies and tools for completing construction projects within strict time and cost constraints.

APPROACH TO CONSTRUCTION UNDER DIFFICULT MARKET CONDITIONS

In these difficult market conditions, local governments should consider several things in order to ensure the successful implementation of capital improvement projects; these include choosing the right project delivery system, selecting quality architects and designers, involving stakeholders in all phases of project implementation, using market sector cost data when building project budgets, including adequate contingencies and escalation to account for volatility in construction costs, and proactively managing construction projects to mitigate and avoid risk.

CONSTRUCTION MANAGER AT-RISK STRATEGY

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With CMAR, the city selects both a designer and construction manager at-risk on the basis of the firm's qualifications—already a fundamental change from the design-bid-build model. The construction manager at-risk, who will also act as the general contractor, is integrally involved in the design process, assisting with design, constructability reviews, cost estimating, and scheduling.

This early intervention maximizes the manager's opportunities to seek out and realize cost savings on the project. It also allows the manager to employ value engineering: weighing the benefits and costs of using recycled materials and factory-fabricated components such as steel framing, high-performance concrete mixes, and other new technologies.

At the same time, the CMAR establishes a guaranteed maximum price for the project. If that price is exceeded, the CMAR is contractually liable for the overrun. If cost savings are realized, they belong to the city.

Although this delivery method does not transfer all risk, we believe that it offers a number of advantages, including a single point of responsibility for construction performance, contractor input on constructability, more detailed budget information, and reduced construction risk to the city.

PROJECT BUNDLING

The general services department also hopes to realize greater efficiencies and cost savings by using project bundling in conjunction with CMAR. We have identified several groups, or bundles, of projects that share similar construction needs. The downtown bundle, for example, consists of maintenance and renovation of the Durham Arts Council, Carolina Theatre, police headquarters, the armory, and city hall; it totals approximately $18 million. Another bundle includes $36.7 million for renovations and repairs in Durham's parks.

We will hire a single CMAR to work on a given project bundle, thereby achieving greater economies of scale and greater speed of delivery. A construction manager working on the downtown bundle, for example, may reduce costs by subcontracting all the electrical work for the six buildings at once. The manager may also be able to start work on discrete pieces of the various projects instead of adhering to the traditional, one-project-at-a-time approach to delivery. Increased speed of delivery can also help reduce price escalation impacts.

A PROACTIVE APPROACH TO MANAGING CONSTRUCTION RISKS

In addition to using CMAR, we have also added several other tools to ensure the successful implementation of our portfolio of construction projects. These include the use of external independent constructability reviews for particularly complex projects, extensive project management training for city staff, deployment of project management software, and the selection of on-call claims consultants available to consult with the city on project risks.

LOOKING AHEAD

As we look forward, the construction market shows few signs of cooling off. The tight labor market is expected to continue through 2008, and China's construction boom may not peak until 2010. Already this year, prices have risen, according to some estimates, by roughly 1 percent per month. The market will continue to place a premium on the ability of cities to deliver projects using methods that are more cost effective than ever. We expect that CMAR, bundling, and our approach to minimizing project risks will accomplish that goal for Durham. **PM**

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