Manage Your Pavements, Don’t Just Maintain Them

What is a Pavement Management System?
A pavement management system is a methodical approach to maintaining your roadway system while managing associated large capital expenses. The goal is to maximize funds for roadway maintenance, while minimizing the number of bad roads at the lowest possible cost. With increasing emphasis on asset management of municipal infrastructure, a pavement management system can be integral to a successful preventive maintenance program.

The system should incorporate efficient, effective and economical techniques to implement a roadway maintenance and repair strategy. Components include: collecting and analyzing roadway conditions; identifying and prioritizing preservation treatments; analyzing appropriate maintenance activities; and developing strategies and budgets.

Pavement Management System Benefits Include:
• Provides for proper expenditure of funds to manage assets effectively
• Confirms maintenance responsibility for assets and analyzes current pavement conditions
• Develops and analyzes the cost efficiency of your maintenance plan, while optimizing it
• Identifies pavement distresses in the road network and evaluates them based on severity and extent

Consolidates and links information with GIS-compatible format reporting
Uses prediction modeling to analyze options and determine the funding required to maintain PCI rating
Reduces cost of regular maintenance vs. major reconstruction
Prioritizes projects systematically
Provides data for budget determination and justification for repair projects
Provides inventory for capitalization per GASB 34
Work in Dallas/Fort Worth
Based on Freese and Nichols’ conversations and observations with local Dallas/Fort Worth area contractors, there appears to be no drop in the volume of municipal construction work available. Recent projects, from small (less than $1 million) to large ($10 million or more), are typically seeing at least 10 percent of the money “left on the table,” an indication that competition for available work has significantly increased. Many contractors that previously focused on subdivision and/or highway work are now refocusing on municipalities, since they are providing many of the projects in the current market.

Bidders Per Project
Most projects have at least 15 and sometimes more than 20 bidders. The number of overall bidders as well as the number of out-of-state bidders appears to be increasing for all types of projects. The upsurge in out-of-state bidders indicates their local work is slowing down. The tremendous increase in interest for projects in the Dallas/Fort Worth area has been accompanied by a marked increase in project inquiries from contractors during the bid phase.

Who’s Bidding?
Contractors with expertise in any and all types of construction. Local Dallas/Fort Worth area contractors as well as a high number of new out-of-area contractors are chasing any available project. With a larger amount of bidders, lower bids have been coming in for projects, benefitting clients through lower initial construction costs. However, this raises new concerns for owners as successful bidders with tighter margins are providing service on projects they are unfamiliar with, potentially causing an above-normal level of problems with quality, schedule and claims on projects.

Current Construction Costs of Note
- **Cement** – Prices are up slightly (more so in Dallas than the national average).
- **Rebar** – Costs are down but savings for the most part have been offset by the increase in cement prices.
- **Asphalt** – Coming down in price, but this material was the last to start coming down, and is not down as much as might be expected since the price of oil tumbled.
- **Diesel** – Down 47 percent from a year ago, lowering trucking rates and surcharges.

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Tips for Getting Lower Construction Bids

When budgets are tight, it is more important than ever to stretch your construction dollars. Maximizing contractors’ confidence in the bid documents can go a long way toward encouraging them to submit lower bids. Freese and Nichols has learned that with any construction project, it is important to provide contractors documents with which they can feel confident and comfortable; and as a rule, contractors can never have too much information.

General Tips

There are several practices to allow for a smooth bidding process and lower bids in general. Based on Freese and Nichols’ decades of experience in working with contractors, we have found the following practices to be crucial in lowering construction bids:

- **Producing Thorough and Complete Plans for Construction** – This includes checking for contradictions between plans, details and specifications. In a competitive environment, contractors have to win the job first. So when contradictions between plans, details and specifications remain unresolved at bid time, contractors are likely to bid the less-expensive alternative to win the job. The project team must then wrestle with each one of these situations during construction, with the potential for significant impacts on the final project cost.

- **Listing Fewer Lump Sum and Subsidiary Items (Depending on the Nature of Your Project)** – These items are usually applied to traffic control and storm water pollution prevention plans. Use of lump sum pricing for project work should be restricted to work items that can be clearly detailed in the contract documents with regard to their scope and quantities. When lump sum bid items are used for project work that cannot be adequately detailed to allow dependable quantity take-offs, bidders will add contingency money into their bids to cover the added risk, resulting in inflated bid prices. Providing adequate information brings confidence to the bidder and also reduces the number of addendums and/or change orders.

- **Paying Attention to Bid Dates** – Holidays and letting dates can conflict with the contractor’s schedule. Give the contractor plenty of time to ask questions, review addendums, and submit bids. Allow for computer-generated bid tabs and provide updated bid tabs after addendums.

Implementing these critical practices can save you time and money by providing contractors with the information necessary to give them confidence to bid low.

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Construction Costs Corner

- The Highway and Street Construction Cost Index (left) is based on an established package of goods related to road construction. In June 1986, this package, which includes cost of materials and labor, was valued at $100.
- Since May 2003, highway and street construction costs have increased 45 percent.
Kevin R. Johnson, P.E., started as an intern with Freese and Nichols in 1998. After graduating from Texas Tech University the following year, he joined the Dallas office as an infrastructure engineer specializing in transportation, utility and drainage design projects. Kevin is now an Associate and the Assistant Group Manager for the firm’s Dallas Infrastructure Group. As Assistant Group Manager, Kevin assists in managing 19 engineers, EITs and CAD technicians, including workload management, technical oversight and labor/expense budgets.

Kevin also manages multiple transportation and infrastructure projects. Currently, he is the Consulting City Engineer for the City of Princeton, project manager for the Airport Road Reconstruction Project in Rockwall, 34th Street and University Intersection Improvements in Lubbock, and Development of a 10-year Capital Improvement Program for the City of Tyler.

In 2002, Kevin was part of a team responsible for extending a North Texas Municipal Water District water transmission pipeline 18 miles to increase water delivery capacity to the cities of Allen, Plano, Frisco and McKinney. Kevin discussed the challenges of developing a water line route through an already busy and growing suburban area in his paper “A 72-inch Pipeline Through a Developed Neighborhood: A Design and Construction Challenge,” which he presented at the 2006 ASCE National Pipeline Conference in Chicago.

Kevin is a member of the American Society of Civil Engineers and is currently the Treasurer for the Preston Trail Chapter of the Texas Society of Professional Engineers. This chapter recognized Kevin’s engineering accomplishments by naming him the Young Engineer of the Year for 2009. Feel free to contact Kevin at (214) 217-2291 or krj@freese.com.