

April 16, 1999

**To:** Board of Directors (Engineering and Operations Committee—Information)

**From:** General Manager \_\_\_\_\_

**Submitted by:** Gary M. Snyder  
Chief Engineer \_\_\_\_\_

**Subject:** Information Requested on Engineer's Estimates for Construction Projects

### RECOMMENDATION(S)

For information only.

### EXECUTIVE SUMMARY

The Engineering and Operations Committee requested additional information on Engineer's Estimates for construction projects. Engineer's Estimates are prepared by Metropolitan and consultant staff to gauge the reasonableness of contractor bids. Although some of Engineer's Estimates prepared over the last year were outside the range of contractor bids, most of the Engineer's Estimates fell between the high and low contractor bids and have averaged 14.8 percent above the average bid.

### DETAILED REPORT

Engineer's Estimates are prepared when plans and specifications are complete, but before bids are received on a project. Their primary purpose is to gauge the reasonableness of the bids received, which is particularly important on those projects where only one or two bids are received. Engineer's estimates are not used to establish project budgets or appropriations.

Engineer's Estimates are prepared by Metropolitan and consultant staff using published rates and unit prices from estimating data providers (e.g., R. S. Means, Dodge, Richardson, etc.), data from other public agencies (e.g., CalTrans, Bureau of Reclamation, Army Corps of Engineers, etc.) and data from Metropolitan's past projects. Given the size and scope of some Metropolitan projects, it is sometimes necessary to extrapolate data. The estimates also assume that contractors will bid projects with reasonable overhead rates and profit margins.

It is important to note that bids prepared by construction contractors are based on more detailed cost breakdowns than Engineer's Estimates. Contractor bids use specific direct costs, overhead, equipment rates, and actual price quotations from subcontractors, vendors, and suppliers. Contractors are usually specialists in a particular type of construction, and use their historical

production rates to more accurately estimate similar work. Contractors often adjust bid amounts based on their current backlog of work, their unique approach to constructing the project, their past experience with similar work, their perceived competition, and the current market conditions.

During the past year, 14 construction contracts and construction-related procurement contracts were bid and awarded. Contractors' high bids averaged 41 percent above the average low bids during this period. Although Engineer's Estimates are generally within the range of contractor bids, Metropolitan's Engineer's Estimates were outside of the range between the high and low bids on 6 projects. When estimates fall outside the bid range, staff reviews estimates, reconciles differences, and adjusts data for future estimates. The weighted average of Metropolitan's Engineer's estimates has averaged 14.8 percent above the average bid during this period.

Actual construction costs will ultimately vary from the original bid amount because of changes that occur during construction. While change orders are not planned, they are an inherent part of low-bid public works construction. For the 14 Metropolitan construction contracts completed in 1998, change orders averaged 2.6 percent over the original bid amounts. It should also be noted that the limits of the General Manager's authority to approve change orders is based on the contractor's original bid amount, not the Engineer's Estimate.

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(Engineer Estimate)