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Briefing Report to the Chairman,
Subcommittee on Surface
Transportation, Committee on Public
Works and Transportation
House of Representatives

June 1986

ARCHITECT-ENGINEER SERVICES

Selection Methods for Federal-Aid Highway and Transit Projects



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June 17, 1986

The Honorable Glenn M. Anderson
Chairman, Subcommittee on
Surface Transportation
Committee on Public Works
and Transportation
House of Representatives

Dear Mr. Chairman:

Your February 24, 1986, letter asked us to evaluate the merits of requiring states to use the qualifications-based method of selecting architect-engineer services for federal-aid highway and transit projects. On the basis of that letter and later agreements with your office, we (1) identified the principal concerns raised by architect-engineers about using price as a factor in awarding architect-engineer contracts and (2) reviewed the support for these concerns provided by four relevant studies. We briefed your office on April 28 on the results of our review and, as requested, have summarized the information presented at that time in this briefing report.

Federal law generally requires federal agencies, but not states, to use the qualifications-based method in selecting architect-engineers for construction projects. Briefly, under this method, the procuring agency goes through established procedures to select firms in rank order of qualifications to work on a specific project--without consideration of price. The agency then negotiates in descending order, starting with the most qualified firm, until a mutually satisfactory price is achieved. Selection methods that consider price as a factor may be, and in some cases are, used by states.

To perform this review, we contacted officials of (1) the Department of Transportation, (2) the state Departments of Transportation of Maryland and Pennsylvania, and (3) the American Consulting Engineers Council. We selected these two states because Maryland recently changed to a qualifications-based system from a system that considers price, and Pennsylvania changed to a system that considers price from a qualifications-based system. Through these discussions and a literature search we identified four relevant studies--all prepared by or for architects or engineers.

The principal claims made in support of the qualifications-based method are, generally, that price competition costs more because it takes longer and adversely affects design quality. In

our review of the studies, we found one or more weakness in each study, which precludes using them in support of any generalized conclusion about the preferred selection method for architect-engineer services. These weaknesses included (1) conclusions that were not supported by related evidence, (2) apparent data comparability problems that were not addressed, (3) responses to a questionnaire that were too few to be reliably projected to the universe, and (4) key terms that were not defined. Sections 2 through 5 present our analyses of these studies.

We did not request agency comments on a draft of this briefing report because our work was not carried out at any federal agencies and we do not make adverse comments about any agencies. However, we did discuss appropriate sections with the authors of the four studies and the two state officials cited. They clarified and elaborated on certain points, which we incorporated where appropriate.

As arranged with your office, we plan no further distribution of this briefing report until 7 days from the date of this letter, unless you publicly announce its contents earlier. At that time, we will send copies to the American Consulting Engineers Council, the Secretary of Transportation, the Maryland and Pennsylvania state transportation officials, and the authors of the four studies we reviewed. We will also make copies available to others upon request. If you have any questions on the information provided, please call me at 275-7783.

Sincerely yours,



Herbert R. McLure
Associate Director

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ABBREVIATIONS

ACEC	American Consulting Engineers Council
AIA	American Institute of Architects
A/E	architect-engineer
DGS	Department of General Services
GAO	General Accounting Office



SECTION 1

SCOPE AND LIMITATIONS OF OUR REVIEW

On February 24, 1986, the Chairman, Subcommittee on Surface Transportation, House Committee on Public Works and Transportation, requested us to review the merits of requiring states to use a qualifications-based process to select architect-engineer (A/E) firms for projects involving federal-aid highway or transit funds. In a subsequent meeting with his office, we agreed to identify and review available studies on differing methods of selecting A/E firms.

To discuss the views of the A/E firms and obtain assistance in identifying relevant studies, we met with the American Consulting Engineers Council's (ACEC's) Executive Vice-President and Managing Director, Government and International Affairs Office. They provided us with the following three studies:

- American Institute of Architects (AIA), Selecting Architects and Engineers for Public Building Projects: An Analysis and Comparison of the Maryland and Florida Systems, 1985;
- Emil Kordish, P.E., "Cheap Engineering is Costly," 1984, representing the Maryland Consulting Engineers Council; and
- Consulting Engineers Council of Metropolitan Washington, Report of a Survey Conducted by the Consulting Engineers Council of Metropolitan Washington to Assess the Experiences and Attitudes of Member Firms Relative to the Design Professional Procurement System Currently Employed by the State of Maryland, 1981.

In addition, we later identified a fourth study:

- Consulting Engineers Council of Metropolitan Washington, Untitled press release, 1984.

We contacted Department of Transportation officials to determine whether they knew of other studies. At the Federal Highway Administration, we spoke with the Associate Administrator for Engineering and Program Development and the Director of the Office of Engineering. At the Urban Mass Transportation Administration, we spoke with the Director of the Office of Procurement. These officials told us that they were not aware of other studies.

We contacted state highway officials in Maryland and Pennsylvania to discuss their systems for selecting A/E firms. We selected Maryland because it used both qualifications and price as selection factors from 1975 until April 1986, when it changed to a qualifications-based method. In addition, Maryland was the entire

basis or part of the basis for each of the four studies cited earlier. We selected Pennsylvania because the ACEC representatives identified it as one of the states currently using price as a selection factor. In Maryland we interviewed the Chief of the Bureau of Consultant Services for the State Highway Administration. In Pennsylvania we interviewed the Chief of the Consultant Agreement Division for the Pennsylvania Department of Transportation's Bureau of Design. Both officials are directly involved in selecting A/Es for transportation projects.

On the basis of the material supplied by ACEC and our discussions with ACEC representatives, we identified four principal concerns of the A/E community about using price as a selection factor:

1. Price competition extends the selection process time, and inflation increases capital costs during this period.
2. Price competition increases administrative costs.
3. Price competition adversely affects design quality because the process disproportionately emphasizes low price at the expense of qualifications, resulting in an increased risk of faulty design.
4. Price competition adversely affects design quality because it results in the selection of less qualified firms that compensate for their lower qualifications with lower fees.

We reviewed the four studies to evaluate how well their conclusions regarding each of these concerns were supported by relevant data and analysis. Although we reviewed the studies in their entirety, we focused our work on the portions that related to the four concerns. The studies were not prepared to support the four concerns, however, and three of the studies did not address all four concerns. We also discussed these issues with the Maryland and Pennsylvania state officials.

Because of the limited time available, we evaluated the studies on the basis of the published reports only. We did not attempt to independently verify the information contained in the studies and provided to us in meetings. In addition, we reviewed only the four studies provided to us by those cited and identified in our literature search.

While we have favored consideration of price as a factor in the federal procurement of professional services, including those of architects and engineers, it was not within the scope of this review to evaluate the qualifications-based method at the federal level.¹

¹Greater Emphasis on Competition Is Needed in Selecting Architects and Engineers for Federal Projects (LCD-75-313, July 21, 1976).

SECTION 2

ANALYSIS OF A 1985 STUDY BY THE AMERICAN INSTITUTE OF ARCHITECTS

Study: American Institute of Architects, Selecting Architects and Engineers for Public Building Projects: An Analysis and Comparison of the Maryland and Florida Systems, January 1985.

Background: For the period 1975-83, the study compared the experience of the Maryland Department of General Services, which selected A/E firms using price as a selection factor, with that of the Florida Department of General Services and State University System, which selected A/E firms on the basis of technical qualifications and then negotiated contract prices. Each of these agencies is responsible for public building construction projects. The study compared the A/E selection in the two states, among other things, for (1) the length of time the process required and (2) the associated administrative costs.

Issue 1: Price competition costs more because it extends the selection process time, and inflation increases capital costs during this period.

Study findings: The study states that "Maryland's A/E selection process takes considerably longer to complete than Florida's," and that the Maryland system results in a 10-month delay. Because of this delay and other factors, the A/E portion of Maryland's capital construction process averaged 13 percent of the estimated construction costs. Florida's A/E costs were only 6.7 percent of the estimated construction costs.

GAO observations: The study's estimate of the A/E portion of the construction cost is based on three factors. For example, according to AIA, the 13-percent figure for Maryland includes (1) delay costs of about \$41 million (7.9 percent), (2) A/E fees of about \$22.4 million (4.3 percent), and (3) other expenses of about \$4 million (0.8 percent).

The delay costs of \$41 million are based on the estimated increase in construction costs during the 10-month period, which, AIA asserts, results from considering price as a selection factor. However, we question whether the 10-month delay is adequately justified. AIA derives the 10-month period by comparing the times in Maryland to "normal" periods, which are based on the experiences of the federal government, private industry, and other states. This comparison results in the three following components:

- a 2-month delay in the program development to approval phase, which AIA considers is a delay because it is an "extra step" in Maryland;

--a 2.9-month delay in the selection of the A/Es; and

--a 5-month delay in the design and approval phase, which occurs after the A/E has been selected.

Whether delay can be determined by comparing Maryland's experience to other organizations' experience depends upon whether Maryland's construction projects were comparable to the other organizations' construction projects. If Maryland selected A/E firms to work only on larger, more complicated projects, and performed the smaller projects in-house, the Maryland process might take longer than the average. Although AIA does not directly address this point, it does provide some information. The study states that, during the 1975-83 period, there were 174 projects in Maryland, with an estimated total construction cost of \$518 million--an average cost of \$2.977 million. During the same period, there were 1,166 projects in Florida, with an estimated total construction cost of \$875 million--an average cost of \$750,000.

Although AIA's representatives told us that they took steps to ensure the comparability of the Maryland and Florida data, a \$2.227 million difference remained between Maryland and Florida in average construction costs. This difference suggests that the Maryland projects may have been significantly larger and more complex, requiring more program development time and more design and approval time. However, the study does not address this possibility.

Because of uncertainty about the extent and cost of delay, it may be useful to compare A/E fees directly. When only the A/E fees in each state are compared, the Maryland A/E fees average 4.3 percent of estimated construction costs, compared with 6.3 percent for Florida.

Moreover, this study addresses only the Maryland and Florida Departments of General Services (DGS) (which construct buildings), not the state Departments of Transportation. Findings with respect to building construction may not necessarily apply equally to transportation facility construction, but the study did not address this issue.

Issue 2: Price competition increases administrative costs.

Study findings: The study states that "Maryland's A/E selection process requires a significantly larger administrative staff and budget than Florida's." According to the study, the Maryland Department of General Services Office of Engineering and Construction had a budget of \$2.5 million and 96 personnel in 1983 to administer a capital construction program averaging \$65 million in estimated construction costs annually. The Florida DGS had an annual budget of \$1.6 million and 51 personnel in the same year to handle a capital construction program that averages over \$100 million annually.

The study further states that "since Maryland's law requiring selection based on price and technical proposals went into effect, there has been an 11.6 percent increase in personnel and a 17.9 percent increase in the budget (in constant dollars) of the DGS Office of Engineering and Construction. . . ."

GAO observations: The AIA study states that "the increased administrative costs in Maryland result from the necessity of preparing detailed programs on which A/Es can submit price proposals." In Florida, "the proposals are developed jointly by the state and the selected A/Es." AIA representatives acknowledged that, to the extent that A/Es in Florida bear proposal preparation costs, these costs are reflected in the A/E fees. They said they did not know how much these proposal preparation costs were for the Florida A/Es. However, the difference in proposal preparation costs could account for some of the difference in average A/E fees between Florida (6.3 percent of estimated construction costs) and Maryland (4.3 percent).

Moreover, the study presents no evidence that all of the increase in staff and budget of the entire Office of Engineering and Construction went to the section responsible for A/E services procurement.

Issue 3: Price competition adversely affects design quality because the process disproportionately emphasizes low price at the expense of qualifications, resulting in an increased risk of faulty design.

Study findings: The study states that "Florida selects A/Es on the basis of technical competence; contrary to Maryland law, price appears to be the dominant selection factor in Maryland." As evidence, it states that "of the last 40 projects awarded by the Maryland Department of General Services prior to June 1983, 33 (83 percent) went to the firm with the lowest price proposal."

GAO observations: Although the study highlights the fact that, for 40 projects during a portion of the entire period, the firm with the lowest price proposal won the contract in 83 percent of the cases, it also contains information from which we calculated that 38 percent of the contracts went to the firm with the highest ranked technical proposal.

The study provides no information about the awards to firms with less than the highest technical scores. Were the number two- or three-ranked firms' scores significantly different from those of the top-ranked firm, or were they so close to the top-ranked firm's that the fee was the only significant difference between the proposals? The study does not contain information on the effect on the quality of design of selecting these number two- or three-ranked firms.

Issue 4: Price competition adversely affects design quality because it results in the selection of less qualified firms that compensate for their lower qualifications with lower fees.

Study findings: Not addressed.

SECTION 3

ANALYSIS OF A 1984 STUDY BY EMIL KORDISH, P.E.

Study: Emil Kordish, P.E., "Cheap Engineering is Costly," representing the Consulting Engineers Council of Maryland, presented to the American Association of State Highway and Transportation Officials Region II Meeting, June 3-6, 1984.

Background: This study is an analysis of procurement data from two Maryland agencies--the Department of Transportation and the Department of General Services. The analysis covered the period of August 1975 through December 1983, and was intended to ". . . detect trends and confirm or deny rampant allegations concerning the pros and cons of bidding for professional A/E services."

Issue 1: Price competition costs more because it extends the selection process time, and inflation increases capital costs during this period.

Study findings: The study states that "there are undue delays in the A/E procurement process resulting in accelerated inflationary capital cost increases."

GAO observations: The study does not provide support for this statement. It does not say how long the delay is or compare the length of time in Maryland's selection process with similar processes, such as the length of time in another state's or Maryland's process prior to 1975.

To calculate the cost of delay, the author equates the elapsed time required to select A/Es with delay. The only circumstance that would justify considering the elapsed time period as a delay would be if an alternative system awarded contracts immediately (without any time lapse).

Issue 2: Price competition increases administrative costs.

Study findings: The study states that "there are undue increases in direct procurement costs to the State and the A/E participants."

GAO observations: The study does not specify, define, or calculate these increases.

Issue 3: Price competition adversely affects design quality because the process disproportionately emphasizes low price at the expense of qualifications, resulting in an increased risk of faulty design.

Study findings: The study states that if price is considered in the selection process, it will become the controlling factor.

GAO observations: The study does not attempt to demonstrate that price became the controlling factor in Maryland. It provides data indicating that, between 1975 and 1983, the Maryland Department of General Services awarded 50 percent of its A/E contracts to the highest technical proposal and 68 percent to the lowest price proposal. In 57 percent of the cases in which the firm that ranked first technically won the contract, the firm that ranked first technically also submitted the lowest price proposal.

Issue 4: Price competition adversely affects design quality because it results in the selection of less qualified firms that compensate for their lower qualifications with lower fees.

Study findings: The study states that "there is a lack of wide participation by A/E firms that are highly qualified."

GAO observations: The study provides no support for this statement.

SECTION 4

ANALYSIS OF A 1981 STUDY BY THE CONSULTING ENGINEERS COUNCIL OF METROPOLITAN WASHINGTON

Study: Consulting Engineers Council of Metropolitan Washington, Report of a Survey Conducted by the Consulting Engineers Council of Metropolitan Washington to Assess the Experiences and Attitudes of Member Firms Relative to the Design Professional Procurement System Currently Employed by the State of Maryland, 1981.

Background: The Consulting Engineers Council of Metropolitan Washington consists of 125 consulting engineering firms engaged almost exclusively in providing engineering design for construction of all types. In February 1981 the council sent a questionnaire to its members concerning the A/E selection procedures then used in Maryland. The procedures considered price as one factor in the selection process. The questionnaire requested information from the members on their willingness to solicit work in Maryland, the profitability of working in Maryland, and the impacts of the selection procedures on design quality. The council received responses from 24 firms.

Issue 1: Price competition costs more because it extends the selection process time, and inflation increases capital costs during this period.

Study findings: Not addressed.

Issue 2: Price competition increases administrative costs.

Study findings: Not addressed.

Issue 3: Price competition adversely affects design quality because the process disproportionately emphasizes low price at the expense of qualifications, resulting in an increased risk of faulty design.

Study findings: The study states that most firms involved in fee bidding have suffered financial losses, and firms that continue to participate in fee bidding will be encouraged to lower their professional standards. It states that more than two of every three respondents to a question concerning design quality indicated that the state's procurement system was resulting in lower quality design.

GAO observations: Because only 24 of 125 firms surveyed (19 percent) responded to the questionnaire, the results are too limited to be generalized to the entire council membership. Given such a low response rate, the study's findings represent only the attitudes and opinions of the small number of firms responding to the survey.

In response to the question about the procurement system's impact on design quality, 13 firms said the system had a negative effect on quality. Of the 13 firms, 6 had never submitted a proposal for a Maryland project, 2 had never submitted a successful proposal, and only 5 had been involved in a Maryland project. Thus, the study's assertion that more than two-thirds of the respondents were concerned about design quality is based on only five firms with direct experience in Maryland projects.

Issue 4: Price competition adversely affects design quality because it results in selection of less qualified firms that compensate for their lower qualifications with lower fees.

Study findings: Not addressed.

SECTION 5

ANALYSIS OF A 1984 STUDY BY THE CONSULTING
ENGINEERS COUNCIL OF METROPOLITAN WASHINGTON

Study: Untitled press release, June 27, 1984.

Background: This press release summarizes the council's analysis of data released by the Maryland Department of General Services, which is responsible for the state's building projects. The data are for 181 A/E contracts DGS awarded from 1975 to 1984.

Issue 1: Price competition costs more because it extends the selection process time, and inflation increases capital costs during this period.

Study findings: Not addressed.

Issue 2: Price competition increases administrative costs.

Study findings: Not addressed.

Issue 3: Price competition adversely affects design quality because the process disproportionately emphasizes low price at the expense of qualifications, resulting in an increased risk of faulty design.

Study findings: The study states that "it is obvious that those who evaluate competing firms' technical proposals are heavily influenced by manhour estimates . . .," which "clearly indicate approximately how much a firm will charge." As support, the study states that of the 181 contracts analyzed, "on 126 occasions (70%), the lowest or next-to-lowest bidder was ranked technically either as best qualified or second-best qualified."

According to the study, this reliance on price as a factor results from the state's imprecision in identifying its needs. Therefore, the A/E firms submit widely different proposals, and "manhour estimates--and the fees they imply--become the only common denominator."

According to the study, this process may result in increased risk of faulty design, because "whenever you ask a design professional to submit the lowest possible fee--which is what the state of Maryland is doing--you encourage short-cuts which erode quality, value and safety. . . ."

GAO observations: According to the study, the state performs an initial selection by requesting technical and price proposals from only 25 percent of the firms responding to the state's advertisement. The state selects these firms solely on the basis of qualifications. Thus, the state requests final technical and

price proposals from only those firms initially found most qualified. There is no certainty that such a firm will produce uniformly good work in the future. However, to maintain its standing as highly qualified, the firm has a strong incentive to perform well.

In addition, the study does not disclose how great or small the difference in rankings for the high and low technical proposals are. If the final technical proposals are fairly close, it may be that the only significant difference between the firms' proposals is the price.

The study supports its conclusion that the state's evaluation of the technical proposals is heavily influenced by staff-hour estimates by citing the association (70 percent) between low price proposals and contract awards. However, the study does not go beyond the statistics provided by DGS to demonstrate a cause-and-effect relationship between the staff-hour estimates and the technical rankings. The study does not address whether other factors may explain the correlation. For example, the more qualified firms may be considering more advanced techniques and technology that allow them to underbid other firms. In addition, firms submitting the low bids may have staff more experienced with the specific nature of the state's request, thus requiring fewer staff-hours. Therefore, the study addresses only one of several possible causes of the association and does not convincingly demonstrate that staff-hour estimates determine technical rankings.

The study alleges that the state's heavy reliance on the price proposals is due to the state's imprecision in identifying its needs. However, evidence from another study we examined may refute this point. Specifically, the American Institute of Architects study reviewed in section 2, which covered the Maryland DGS between 1975 and 1983, indicates that the Maryland DGS prepares detailed scopes of work to identify its needs, in order to provide a basis for the A/Es' technical and price proposals.

Finally, the study does not cite any facts to demonstrate (1) that the low bidders have taken short-cuts that "erode quality, value or safety," or (2) that any faulty designs have been submitted for the 9-year period of the study.

Issue 4: Price competition adversely affects design quality because it results in selection of less qualified firms that compensate for their lower qualifications with lower fees.

Study findings: The study asks, "If you had \$5 billion, how would you select those responsible for investing it for you? Would you give the job to the outfit willing to work at the lowest possible rate, or would you select a top-quality firm willing to work for a reasonable fee, according to procedures you agree to mutually?"

GAO observations: The rhetorical question asked in the study is based on a false dichotomy. That is, the study has not adequately demonstrated, through its analysis of the DGS data, that

--low bidders invariably are awarded the contracts,

--"top-quality" firms are not awarded contracts, or

--"top-quality" firms do not also submit the low bids.

In other words, the study has not addressed a possible alternative explanation of the DGS data--that the most qualified firms are capable of submitting the best technical proposals coupled with the lowest bids.

SECTION 6

INFORMATION FROM A MARYLAND STATE HIGHWAY ADMINISTRATION OFFICIAL

In April 1986 we met with the Chief of the Bureau of Consultant Services for the Maryland State Highway Administration. He told us that Maryland passed a law in 1974 requiring that price be considered in the A/E selection process and that regulations implementing the law went into effect in 1975. Under these regulations, between two and five of the most technically qualified firms submitted separate technical and price proposals, based on a detailed scope of work description prepared by the state. The technical proposals were rated by state officials, who did not see the price proposals. Although the final selection was based on both the technical and price proposals, the price proposal never received more than 50 percent of the weight, and in the majority of cases received a weight of less than 50 percent.

In 1985 Maryland passed another law, effective in April 1986, that required the state to use a qualifications-based process to select A/E firms. (We met with the bureau chief before the new system was fully implemented.)

Issue 1: Price competition costs more because it increases the selection process time, and inflation increases capital costs during this period.

State comments: The bureau chief disagreed with the statement that price competition results in delays. He said that delays will result when the state again begins using the qualifications-based method, for three reasons:

1. More protests may be filed under the qualifications-based system. Under the old system, the state negotiated with between two and five firms. As a result, these firms got a better understanding of what the state was looking for and how good their own offer was. The firms that were rejected had a better understanding of what the state was looking for and why they lost. Under the new system the state will negotiate with only one firm. If the state cannot negotiate a mutually satisfactory price with the top-ranked firm, only then will it negotiate with the second-ranked firm. Under the old system, a firm ranked second or third on the basis of technical factors still had a chance because it could lower its price to partially compensate. Thus, firms had a greater opportunity to compete. Under the new system most firms ranked second or third will not have this opportunity. As a result, more unsuccessful firms will file protests, and this will slow down the overall selection process.

2. As a result of the greater emphasis on technical factors and concern about protests, the technical review will take longer.

3. The technical and price proposal reviews will not be done concurrently, as under the previous system, but will be done sequentially, which will take longer. The state highway administration's office of finance makes these reviews to ensure that the technical and price proposals are consistent with respect to the amount and qualifications of the staff who will work on a project.

Issue 2: Price competition increases administrative costs.

State comments: Not addressed.

Issue 3: Price competition adversely affects design quality because the process disproportionately emphasizes low price at the expense of qualifications, resulting in an increased risk of faulty design.

State comments: The bureau chief said that this was not true for Maryland. Under the previous Maryland system, price was assigned a weight of no more than 50 percent, and in most cases less than 50 percent, of the total score. Technical qualifications always received 50 percent or more of the weight. He explained that the weight given to price depends on the technical complexity of the project, with price being given a higher weight on less complex projects.

According to the Maryland Transportation Professional Services Selection Board's Report of Activities for Fiscal Year 1985, the Maryland Department of Transportation awarded 61 A/E contracts on a competitive basis in fiscal year 1985. Of these 61 contracts, 64 percent went to firms with the highest technical scores and 60 percent went to firms with the lowest prices. In 77 percent of the cases, the firm that ranked first technically also submitted the lowest price proposal. When broken down by project cost, 80 percent of the funds went to firms whose proposals had the highest technical scores and 56 percent went to firms whose proposals had the lowest prices.

Issue 4: Price competition adversely affects design quality because it results in the selection of less qualified firms that compensate for their lower qualifications with lower fees.

State comments: The bureau chief disagreed. As noted earlier, 64 percent of the contracts and 80 percent of the funds went to firms whose proposals had the highest technical scores. In addition, under the previous system, each of the two to five firms the state negotiated with were determined previously to be technically qualified.

SECTION 7

INFORMATION FROM A PENNSYLVANIA DEPARTMENT OF
TRANSPORTATION OFFICIAL

In Pennsylvania we met with the Chief of the Consultant Agreement Division for the Pennsylvania Department of Transportation's Bureau of Design. He told us that Pennsylvania changed its procurement regulations in 1981 to require that price be considered in the A/E selection process.

The new process generally works as follows: The state highway administrator advertises the project; the district office where the work is to be performed recommends a minimum of the five most qualified firms from those responding to the advertisement for the project and sends their names to the state Consultant Selection Committee; the committee refines this list to a minimum of three firms on the basis of technical qualifications, requests detailed technical and price proposals from these firms, and ranks the technical proposals in order of preference based on their technical qualifications. The officials ranking the technical proposals do not see the price proposals until after the technical proposals are ranked. Final selection is based on a combination of technical and price rankings.

Issue 1: Price competition costs more because it extends the selection process time, and inflation increases capital costs during this period.

State comments: The Chief of the Consultant Agreement Division said that the consideration of price in the selection process may result in about 2 months' delay relative to Pennsylvania's previous qualifications-based process. However, he also said that under the previous system, price had to be negotiated and this sometimes resulted in delays. Overall, he said that the consideration of price did not have a significant effect on the time required to award a contract.

Issue 2: Price competition increases administrative costs.

State comments: The division chief said that administrative costs may be slightly greater when price is a factor. However, he said he believes that under the current system, which considers price, Pennsylvania is getting the "best buy"--a good quality job for the most economical price.

Issue 3: Price competition adversely affects design quality because the process disproportionately emphasizes low price at the expense of qualifications, resulting in an increased risk of faulty design.

State comments: The division chief disagreed. He said that the Pennsylvania highway administration's district offices review the letters of interest and recommend a minimum of the five most technically qualified firms with no knowledge of their price proposals; the state Consultant Selection Committee refines this list to a minimum of three firms on the basis of qualifications. After the selection of the three qualified firms, the district office holds a scope of work meeting with these firms and requests separate technical and price proposals. The selection committee reviews and analyzes the technical proposals, and ranks the firms in order of preference on the basis of their technical qualifications. The committee then opens the price proposals and selects the firm on the basis of a combination of technical and price factors. A firm that ranks second technically can win the contract only if its price proposal offsets the technical ranking difference.

From the time Pennsylvania implemented its current procurement system until March 1986, it awarded 599 A/E contracts. Of these, 65 percent went to the firm with the top-ranked technical proposal and 87 percent went to the firm with the lowest price proposal. In 82 percent of the cases in which the firm that ranked first technically won the contract, the firm that ranked first technically also submitted the lowest price proposal.

Issue 4: Price competition adversely affects design quality because it results in the selection of less qualified firms that compensate for their lower qualifications with lower fees.

State comments: The division chief disagreed. As noted under issue 3, he said that in the majority of the cases, the firm ranked first technically also submitted the lowest price proposal. In addition, all firms selected to submit detailed proposals are technically qualified for the job.

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