

A Taxpayer's Look at a Sacred Cow: Public Sector Design in Massachusetts Two Decades After the Ward Commission

Architectural and engineering selection and management procedures for public projects are burdened with red tape and bureaucracy, and, most important, result in a large waste of taxpayer dollars.

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The procedures by which Massachusetts selects and manages architectural and engineering services for public projects have become encumbered with red tape and unnecessary bureaucratic controls. As a result, inestimable taxpayer dollars are wasted annu-

ally. By delaying project completion, creating additional agency and designer paperwork, increasing the cost of competing for public sector work, and discouraging innovation by design professionals, current procedures work to raise rather than lower overall costs.

Background & Methodology

The Commonwealth of Massachusetts (and its cities and towns) account for a substantial portion of the market for architectural, engineering and other design work (the A/E industry) in the state. Unfortunately, A/E firms have become increasingly frustrated with public sector work. State and local government selection processes make it far more expensive to obtain public as compared to private work. Once a design firm is selected, government auditing and contract management procedures make it far less likely that the firm will actually make a

profit from its work. Worse, excessive delays in making decisions, a tendency to define the scope of design work too tightly and an environment that finds it difficult to respond to change or to new ideas combine to discourage innovation. Designers who go the extra mile to find ways to save on construction or long-term maintenance costs or to provide more usable space for a given construction budget are often not compensated for this extra effort.

All too often, designers working on public sector projects in Massachusetts find that they cannot provide the best work of which they are capable and also make a profit on their work. Since most designers would rather not be forced to make such a choice, design firms that have access to private sector work normally avoid government projects.

Convinced that this situation benefits neither the A/E industry nor the state and municipal agencies for which it works, the American Consulting Engineers Council of New England (ACEC/NE), the Boston Society of Architects, the Boston Society of Civil Engineers (BSCE) and the Massachusetts Association of Land Surveyors and Civil Engineers (MALSCE) contracted with the Massachusetts Taxpayers Foundation (MTF) to conduct an independent appraisal of the way public agencies in Massachusetts select design firms and oversee design and construction work. MTF has also been asked to prepare recommendations for improving public design and construction practices.

The findings of the MTF's appraisal are incorporated into this article. The analysis of public sector design procedures is based on over three dozen interviews with people involved in all aspects of design and construction. Those interviewed included engineers and architects who have done state and local design work, state construction managers from Massport, the Massachusetts Water Resources Agency, the Massachusetts Bay Transportation Authority, the Massachusetts Highway Department, the University of Massachusetts, the Department of Mental Retardation, public works directors in Weymouth and Bedford, construction executives at Digital Equipment Corporation and the Massachusetts Institute of Technology, top officials at three major construction contractors, a member of the Ward

Commission, as well as senior staff members at the Division of Capital Planning and Operations, the Inspector General's office, the Designer Selection Board and the U.S. Army Corps of Engineers.

A survey of architectural and engineering firms in Massachusetts was also conducted to review the role of such firms in the state's economy. The survey asked for information about the markets that the firms serve (Massachusetts versus out of state, private versus public); their employment, sales, and profits; and their experience in working with state and municipal government clients.

Although commissioned by the A/E industry, the intent of this study is to conduct a *consumer-oriented* critique of the current system by looking at public sector design and construction from the point of view of the user agencies and, ultimately, of the broader public that pays the bills and uses the transportation, water, education and human services that public construction supports.

Central to the appraisal is a comparison between public and private sector procedures for selecting designers and supervising their work. Private sector procedures have evolved to meet the needs of project owners who have a choice as to how to proceed and who are under market pressure to run their businesses in a cost-effective way.

The study does not necessarily assume that private sector procedures are superior, but does assume that an understanding of these procedures will point to the goals any owner, public or private, should be trying to achieve. These goals include:

- Timely completion of construction;
- Minimizing life-cycle cost;
- Reducing supervision costs;
- Minimizing construction costs;
- Assuring durable construction; and,
- Taking advantage of design professionals' expertise to get the most useful structure for the money available.

Massachusetts public design procedures are then evaluated with respect to these goals.

The problems with public service contracting in Massachusetts, which have led to wasted

taxpayer dollars and diminished quality, are in sharp contrast to the private sector and even the federal government. The survey of architectural and engineering firms conducted for this study indicates the extent to which these administrative and other impediments are unique to Massachusetts state government. The survey found that the Commonwealth is most troublesome among federal and private procurers with respect to reimbursement for legitimate business overhead expenses, unreasonable reporting requirements, payment delays and unreasonable contract terms. In its efforts to eliminate corruption in the public contracting process, Massachusetts has created a system that is unreasonably constrained relative to other public entities, leading to wasted money and unrealized value.

Reform of current selection and oversight practices could save public money by accelerating design and construction timetables, eliminating or redirecting resources spent on unnecessary oversight and rewarding designers who find cost-effective solutions for state construction needs.

The Ward Commission

Current public sector design procedures in Massachusetts descend from the Ward Commission, which was formed some fifteen years ago after a set of scandals in design and construction of buildings for the University of Massachusetts. The commission's report rings with anger over what it found:

"Corruption is a way of life in Massachusetts. . . For a decade at least across Republican and Democratic administrations alike, the way to get architectural contracts was to buy them. . . The way money is raised to run political campaigns is a mixture. . . of genteel extortion or discreet bribery."¹

The commission concluded its extensive review of designer selection processes by observing that:

"The test becomes whether one pays, not whether one can do the best job. The insidious effect, finally, is to lose sight of standards altogether and to accept shoddy perform-

ance because that is the way business is done in Massachusetts. . . when architects and contractors believe that to do business with the state means they must buy a contract through bribes or payoffs, or even generous campaign contributions on demand, the better of them will refuse to enter the system and will not do business with the state."¹

This problem was not academic; it cost the state millions of dollars:

"One major consequence of corruption and political favoritism was in insidious erosion of standards and the acceptance of work in the public sector which would not be tolerated in the private sector. . . The commission did a study under the direction of a professor of architecture from the Harvard School of Design. . . The results stagger belief."¹

Seventy-six percent of the projects the Harvard professor examined had "a structural flaw that threatens the safety of building and results from incompetent design or inferior construction." Seventy-two percent of the buildings had areas that were unusable because of errors in design:

"Since 1968, over a billion dollars have been wasted because of unnecessary delays in design and construction. . . the estimated cost. . . to repair present defects in all public buildings is more than two billion dollars."¹

The Ward Commission was concerned not simply with corruption, but with the entire system of designing and constructing state buildings. Inevitably, this report revisits many of the same issues raised by the commission. Indeed, there has been no change from the commission's goals of a process in which the best design and construction firms compete for and acquire state work, in which students in libraries and dormitories, residents of homes for the elderly, and office workers in state buildings live and work in healthy, well-designed facilities and in which timely construction and cost-effective design give the taxpayers the best facilities at a reasonable price.

As a result of the commission's report, major reforms in the statutes governing public sector design and construction were enacted and corruption was brought under control. Unfortunately, the procedures for selecting architectural and engineering firms (design firms) that have developed since the Ward report emphasize procedural regularity over cost-effective construction and design industry practice.

Major Findings

The study found numerous problems, chief among them:

- *Selection procedures* fail to weed out at an early stage firms that have little chance of ultimately winning the work, thereby increasing the administrative burden on the state and the cost to design firms of acquiring state work. In contrast to the private sector, outstanding work on a project today does not give a design firm an easier route to future state work. As a result, high quality firms in A/E specialties with a significant private market put their energy into acquiring private rather than public work.
- *Contract management provisions* concentrate on micro-management of design firms. Design firms are paid on a complex cost plus basis that requires inch-thick invoices for payment. In the private sector, once a design firm completes its work and is paid an agreed hourly rate or fixed fee, the owner pays no attention to how the dollars are actually spent. Design firms working for Massachusetts, on the other hand, are subject to caps on how much can be paid to participating employees, limits on how much is spent on overhead, and multiple, after-the-fact audits of everything from photocopying costs to the annual Christmas party. These procedures add to state oversight costs and impose a major administrative and financial burden on design firms working for the state. They re-enforce the preference of firms that have such a choice to pursue private rather than public sector work.
- *Excessive Delay.* Designer selection and supervision procedures in Massachusetts are slow. If it takes a private owner a year or less to design a building (from design to proceed with designer selection to complete construction plans), a comparable state building may take three years. If construction costs rise at something like 5 percent a year, this two-year delay alone increases project costs by 10 percent — far more than total design costs, which average some 6 to 8 percent of the total construction. State building (as opposed to transportation or water-related) construction is delayed by the requirement that the design firm that does the preliminary study may not participate in final design (a requirement that necessitates two selection processes) and by the split responsibility between the agency that eventually "owns" the building and the Division of Capital Planning and Operations (DCPO) that supervises design and construction. Other sources of delay include lengthy selection procedures and the difficulty in getting a quick response from state managers.
- *Discouraging Innovation.* All too often, state practices fail to take into account the fact that good design saves money in the long run. When state agencies require design firms to submit design cost estimates along with statements of qualification, these firms inevitably assume that the agency will find it difficult to select any firm other than the low bidder and therefore submit a scope of work stripped to the bare essentials. When state agencies set the design fee in advance, the fees run a percent or so under comparable private sector rates, despite the higher costs of doing state work. When design firms see opportunities to save time or money or provide more usable space by changing the scope of the design, they find that it takes months for the agency to decide whether to accept a contract modification and that firms that proceed without prior authorization are usually not paid for their work. In all these ways, state practices discourage firms from doing innovative work.

- *No Quality Control in Selecting Construction Contractors.* For all practical purposes, state and local governments cannot bar a construction contractor from future work on the basis of poor performance on a current project. The total dependence on price in selecting construction contractors puts an extra premium on high-quality design work, on detailed, well prepared construction documents, and on supervision of the construction contractor by designers and state managers. Shortcuts taken in the design stage will add substantially to the eventual construction cost.

Recommendations

Reform of current selection and oversight practices could save the state money by reducing required staffing, by speeding design and construction timetables, and by rewarding designers who make the extra effort to find cost-effective solutions for state construction needs. The proposals put forth here offer the level of control necessary to further the goals of the Ward Commission but provide enough flexibility in the public contracting system to allow higher quality and, in the end, less costly projects. These proposals provide the kind of mid-course review of public sector design practices that the Ward Commission would welcome.

The recommendations summarized below (and detailed in the full version of the study) should be viewed not as final proposals suitable for introduction to the state legislature but as suggestions that can serve as a starting point for a broader discussion of how the state can improve current design and construction practices:

- *Designer Selection.* Selection processes should give weight to high-quality past work and limit the number of finalists. For smaller projects, agencies should be allowed simply to select design firms from a prequalified list that groups firms by type of expertise. Senior career managers from the agency that will "own" the project should play a major role on selection panels. The panels should include outside designers and private sector construction managers.
- *Simplification of Auditing.* A simplified payment and audit process should be built around a single annual audit of each design firm. Payment should be made using fixed fees or hourly rates built up from past-year audited costs. After-the-fact audits and retroactive adjustment of rates should be eliminated. All payments made should be final. Incentives should be established to reward firms with lower overhead rates and to limit payments to firms with overhead in excess of industry norms for the relevant type of design work.
- *Elimination of Micro-Management.* While reasonable incentives to limit costs are appropriate, the state should not micro-manage design firms with caps on overhead rates and workers' pay. These only serve to discourage designers from investing in state-of-the-art equipment and eliminate the best qualified and most experienced designers.
- *Design-Study Separation.* Agencies should sign separate contracts for study and for design, but the prohibition against having the same firm do both study and design should be eliminated. Inevitably, the design phase designer repeats much of the work done in the study phase. The elimination of one selection will speed the construction cycle.
- *Fewer Delays, Better Supervision.* State agencies should place greater emphasis on hiring senior, well qualified and well paid construction managers and less on "green eye-shade" review of costs. Project budgets should contain contingency amounts. Agency heads and construction managers should be given reasonable authority to decide on proposed design modifications within these amounts in timely fashion. Supervision of state building construction should be delegated from the DCPO to larger agencies that have the know-how and staff to handle such projects.
- *Don't Bid Design Contracts on a Cost Basis.* Design contracts should not be put out for

competitive bidding based on proposed cost. While it is appropriate to avoid design firms with excessive overhead rates, a competition based on cost inevitably leads design firms to base their bids on the minimum possible number of hours, with a substantial risk that inadequate design will boost overall construction costs. Instead, state and local agencies should follow the lead of the Massachusetts Highway Department and other departments that use Qualifications Based Selection, in which the agency first chooses the top-ranked firm and then negotiates over costs.

- *Let Agencies Manage Small Projects.* The dollar ceiling on projects agencies may manage directly (without DCPO supervision) should be raised substantially from the current \$100,000 limit. Agencies are unlikely to need DCPO expertise on renovation and remodeling projects. Direct management means faster completion and less state overhead expense.

With a reasonable mix of good construction practice and prudent safeguards, the Commonwealth of Massachusetts can enjoy public design and construction that is both cost-effective and corruption-free.

Concluding Comments

Massachusetts' design processes consistently give priority to procedural regularity over cost-effective common sense. Millions of dollars are wasted each year in the pursuit of complex procedures that, at best, save thousands of dollars. The implicit assumption that state employees are incompetent and that design firms are corrupt is not only insulting and inaccurate, but also counterproductive — in that the state is unable to take advantage of the cost savings possible from close cooperation between the designer and the project manager. The state can continue to take reasonable precautions to prevent corruption without over-regulating the design and construction processes. State and local governments can save millions of dollars each year by:

- Investing in better supervision;
- Fostering more flexible oversight practices;
- By simplifying unnecessary paperwork; and,
- Taking advantage of the wisdom and professional expertise of the design community and their own senior project management staffs.

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REFERENCE

1. *Final Report to the General Court of the Special Commission Concerning State and County Buildings*, Vol. 1, December 31, 1980.