

III. State Departments of Transportation: Outsourcing, Downsizing, and Brain Drain

- *Over the past decade, state departments of transportation have boosted their budgets by 56%, mostly with federal funds. But they have cut their staffs by 5.3%.*
- *Then they say, “We don’t have the staff” to do engineering, design, and inspection work.*
- *“Top officials” in Texas “fear the Transportation Department is locked into a cycle that serves the consulting industry much better than the taxpayers.”*
- *As the baby-boom generation prepares to retire, will depleted departments of transportation be able to recruit the next generation of engineers?*

While increasingly relying on private engineering and design consultants, state departments of transportation are freezing or even downsizing their own professional staffs.

In a survey of organizations representing engineering and technical employees of state transportation departments, more than half the states reported no new hirings, and 25% had implemented layoffs. These findings were confirmed by the magazine *Public Roads*, which reported in 2001 that “Over the past decade, full-time employment in the state departments of transportation, on average, has decreased by 5.3%, while department budgets have increased by 56%” – a statistic that suggests that much of the increased funds have gone to private contractors and consultants. With “more work for the private sector,” this article continues, “state agencies [are] in direct competition with commercial companies for a limited supply of workers.”^{xxxiv}

Similarly, in a study in 1998 entitled *The Changing State DOT*, the American Association of State Highway and Transportation Officials (AASHTO) noted that “almost every member department reported managed downsizing among significant organizational changes...State DOT’s substantially increased their reliance on private sector design and maintenance services, and are outsourcing a wider range of support, including project management, and full facility operations and maintenance.”

A Vicious Cycle: Privatization Feeds on Itself

As outsourcing and downsizing both increase, the result is a vicious cycle, where privatization feeds on itself: Because so much of the most prestigious and best-paying work is going to outside consultants, career employees are leaving state transportation departments, often to go to work for the outside consultants. Meanwhile, because “we

don't have the staff to do the work," states are farming out more and more work, often to the very companies that hired engineering and technical employees away from the public sector. Thus, as a result of outsourcing, "opportunities for better wages and benefits for similar jobs in the private sector," and "early retirement incentive programs," *Public Roads* found that there has been "a reduction in senior technical capacity and corporate memory ("brain drain")."

The industry journal "Public Roads" found there has been a "brain drain" from state transportation departments because of "opportunities for better wages and benefits for similar jobs in the private sector."

This cycle can be seen in state after state. For instance in Texas, as the *Houston Chronicle* reported: "Many of the private engineers are former state employees, designing the state's roadway expansions just like they did before. As newly minted 'consultants,' they are making higher salaries and earning 10% to 15% profits for their firms." Observing how outsourcing and the brain drain reinforce each other, the *Chronicle* revealed:

"Some top officials fear the Transportation Department is locked into a cycle that serves the consulting industry much better than taxpayers. Private firms seeking work are stealing the best engineers, which in turn causes the state to use even more private firms because fewer state employees are left."

New York State: Fewer Staff, More Consultants

In New York State, in response to a 1990 report by the State Comptroller, the Department of Transportation said it planned to hire 672 engineering positions, so that it could complete more design and construction projects with in-house staff.

However, as of 1998, even though the department's capital program represented an increased investment of more than \$1 billion over previous years, the total number of engineering positions had continued to decline by 10% from 1995. Instead, the department was increasing its reliance on consultant engineers. In a report released that year, the State Comptroller's office concluded: "We found that the Department has not justified its decision to contract-out more of its capital projects to consultant engineers, rather than hire additional Department staff, as it had agreed to do in 1990."

Three years later, in his 2001-02 budget, the Governor proposed hiring 144 new engineers. But that would only have brought the department back to its staffing level as of 1994 – before TEA-21 and the state's new transportation investments.

New York City: Losing a World-Class Corps of Engineers

This vicious cycle may have begun differently in New York City but has had similar results, seriously diminishing the capacity of a corps of engineers who had designed and supervised such world-renowned transportation projects as the Independent Subway System and the Brooklyn Battery Tunnel. Beginning in the years after World War II, the city government kept salaries for engineering and technical employees relatively low. As a result, many engineering and technical employees left city government for better opportunities in the private sector. This trend was documented by the Mayor's Private Sector Survey in 1990, which reported a 15% turnover rate among construction managers, superintendents of construction, project coordinators and managers.^{xxxv}

This brain drain contributed to the outsourcing of engineering and design work. As the Mayor's Office of Construction reported, very few of the city's large projects are now designed in-house because, "There is insufficient staff to perform the work." This trend, in turn, accelerates the brain drain because there are fewer opportunities for professional advancement when the major projects are done outside. For that reason, in an Architectural/Engineering Study sponsored by the Mayor's Office of Management and Budget and the Office of Construction, the Arthur Young Company recommended that city engineers should be given large and complex project assignments to enhance their professional status and pride.^{xxxvi}

Use Them or Lose Them: Management consultants recommended that New York City give its in-house engineers important assignments or risk losing them to private companies.

Recruiting and retaining dedicated professionals is becoming even more important for state transportation departments as their current engineering and technical employees approach retirement age. While statistics are not available for the age composition of the workforce in state transportation departments, in a similar workforce – the staff of the Federal Highway Administration – it is reliably estimated that 45% will be eligible for retirement by 2010.^{xxxvii}

Now that state departments of transportation must attract a new generation of engineering and technical employees or lose their in-house expertise, it is time to decide whether the states will rebuild their capacity to design major projects themselves or rely even more heavily on private consultants.

IV. Who's the Boss? How the Brain Drain in State Transportation Departments and Expanded Roles for Consultants Eliminate Accountability

- *State transportation departments are not the capacity not only to do engineering and design but also to oversee the consulting engineers whom they hire.*
- *In Virginia, a study found that safety inspections were 40% more expensive when consultants were used.*
- *When inspectors are part of the same team of private consultants who engineer and design projects, they have a hard time being watchdogs for public safety.*
- *There are even greater risks with "design/build" contracts, where a partnership of private companies designs, engineers, builds, inspects, supervises, and manages an entire project. With these arrangements, who protects the public interest?*

While state departments of transportation are losing the capacity to do engineering and design or even to oversee consulting engineers, private firms are taking on new roles – inspecting, supervising, and even managing the projects themselves. The “brain drain” from state transportation departments and the new responsibilities assumed by private companies are eroding any semblance of accountability in these projects.

These growing – and mutually re-enforcing – trends explain why, in a recent report prepared for the prestigious Transportation Research Board of the National Research Council, concerns were expressed about two “potential concerns” about the contracting-out of an increasing array of professional functions. These concerns are:

- 1) **“DOT’s [departments of transportation] may have less control on the quality, time, and cost of their primary functions,”** and
- 2) **“DOT’s may lose the skills and expertise to effectively check, evaluate or approve the work of external sources.”^{xxxviii}**

Inspection

Of the new functions that private firms are approving, inspection carries the risks of increased costs, reduced quality, and compromised safety.

As with other professional functions, inspection has been shown to be more costly – and of no higher quality – when contracted-out to private consultants. For instance, a

study by the Virginia Assembly Commission found that bridge safety inspections were 40% more expensive when consultants were used. Similarly, in New Jersey, the state Department of Transportation's Division of Budgeting reported that, with construction inspection and bridge inspection: "...it is most likely cheaper to perform the activities in-house, rather than by consultant. The managers are significant... There are other non-economic factors which also make it desirable to perform these functions in-house such as more responsiveness and lower levels of risk."

More significant than the cost of the inspections themselves are "non-economic factors" -- the inherent risks in making inspectors the team-mates of the private companies that design, engineer, and often manage the projects. Instead of representing the public interest in safety and quality, the inspectors share the private companies' interests in having their work approved as quickly and as easily as possible. In Section V of this report, the case studies of the Central Artery Tunnel Project in Boston and the Red Line Subway Project in Los Angeles demonstrate the dangers of contracting-out inspection to partners or employees of the private companies responsible for other facets of a project.

Design/Build

Meanwhile, in an even more recent development, states are starting to contract-out entire projects, from start to finish, to huge engineering and construction companies, or to partnerships among such companies. "Design/build," as this practice is called, can represent the ultimate in privatization -- public agencies entirely entrusting the responsibility for designing, engineering, managing, and inspecting projects to companies or consortiums of companies so large that it is difficult, if not impossible, to hold them accountable for the cost, the quality, and even the safety of their work.

While design/build is still relatively new, it is not difficult to foresee some of the problems it will produce. The bidding process would do even less to control costs, since competition would be restricted to the large companies capable of performing every function in a project. As state and local governments contract-out entire projects, they would lose the professional capacity and the institutional memory to do the work in-house. And, far from working for public agencies, the large companies conducting these projects would end up managing everything themselves, including the state employees still involved -- a situation that emerged with the Central Artery Tunnel project in Boston.