

HR 1692: The Safety, Efficiency and Accountability in Transportation Projects through Public Inspection Act of 2015

Disaster Examples

Historically on transportation projects, the construction inspector is the eyes, ears and voice of the public. Inspectors ensure that construction and seismic standards are met, that projects meet safety requirements and that the materials used will stand the test of time. In short, they are there to ensure that the motoring public gets what they pay for and public safety and the public interest are protected.

Unfortunately, across the nation, departments of transportation are outsourcing public inspection with disastrous results. Outsourcing inspection threatens public safety, increases project cost and delays project completion. Here are a few examples:

BOSTON'S BIG DIG – DEADLY FAILURES

The Central Artery/Tunnel Project in Boston, commonly referred to as the “Big Dig,” was designed, built and inspected by private companies. Completed in 2005, the project took 20 years to plan, design, and construct – seven years longer than its original schedule. Meanwhile, the project’s costs escalated from an original estimate of \$2.6 billion to a total of \$14.7 billion by the end of 2005. Shortly after it opened, the Central Artery/Tunnel developed hundreds of leaks in its walls and roof areas, with hundreds of thousands of gallons of water gushing out into the tunnels on at least one occasion.

On July 10, 2006, five three-ton ceiling tiles collapsed in a recently completed tunnel, crashing down on a car and crushing a woman to death. This accident killed passenger Milena Del Valle, a restaurant worker from Boston, who was in the car with her husband driving to Logan International Airport.

According to an investigation by the Boston Globe as described in a December 24, 2006 article, two unlicensed employees of the Bechtel/Parsons Brinckerhoff consortium that managed the Big Dig were assigned to oversee the completion of the tunnel. In September 1999 when newly installed epoxy bolts designed to hold up the ceiling panels began coming loose, the lead employee ordered the installation of the bolts to continue so as not to lose time on the project. Later, the lead employee ordered the contractor to either replace all 1,000 suspect bolts or double the testing weight used to make sure the bolts were secure. When the contractor threatened to fight any attempt to have it foot the bill for additional testing, the lead employee “swiftly retreated from his earlier demand.” Instead, just 187 out of the 1,000 suspect bolts were tested at a heavier weight, including the first 75 bolts installed in the tunnel. Although 10 percent of those flunked – including a staggering 21 percent failure rate in the first 75 bolts – the lead employee stopped any further testing, including on the section of the ceiling that would eventually collapse.

Immediately after the collapse, state investigators zeroed in on ceiling bolts that were lying about the wreckage. State investigators found that many of the bolts had almost no epoxy coating at all and the adhesive on other bolts was brittle, cracked and was discolored as though it had been mixed improperly.

The tragedy was the worst of many mishaps in the history of the Big Dig, an eight-lane underground highway that runs under downtown Boston and replaces an old elevated highway. The Big Dig has become the most expensive public works project in American history. It has also become notorious for endless delays, cost overruns, and construction flaws like the one that caused this fatal accident and subsequent closings of much of the mega-project. With all these problems, the common denominator is that two huge companies have been jointly designing, managing and inspecting the project with only minimal accountability to the state government of Massachusetts – or anyone else.

LOS ANGELES REDLINE SUBWAY – HOLLYWOOD BOULEVARD COLLAPSE

Built during the 1990's, the Los Angeles Red Line Subway project was riddled with problems right from the start. The work on the Red Line project was completely outsourced – design, construction, and inspection were performed by the private sector. The first signs of trouble appeared in February 1994 when independent specialists were hired to examine the work on the Red Line subway. They found concrete thinner than designed, air pockets and missing reinforcing steel in the subway system. According to a Los Angeles Times article on February 24, 1994, the Chief Executive of the Metropolitan Transportation Authority blamed Parsons-Dillingham (the inspection firm) for “shortcomings in the supervision of construction.”

In May 1994, it was reported that gas leaks triggered warnings or alarms 350 times in a fifteen-month period. The contractor, Tudor-Saliba Corp., and the inspector, Parsons-Dillingham, were warned that the plastic, protective membrane designed to keep the gases out of the subway system would be useless if it was pierced during construction. Nevertheless, public records found that the protective membrane was penetrated routinely during construction and the punctures were not patched as required.

A September 2, 1994 article in the Los Angeles Times reported that Hollywood Boulevard, directly above where tunneling was occurring, had sunk nine inches. Tunneling was shut down on August 18, 1994 when the slippage was first noticed. An investigation found that the ground had sunk because the tunneling contractor, Shea-Kiewit-Kenny, used wood wedges instead of steel bracing to secure the tunnel walls. Parsons-Dillingham was responsible for approving the substitution of wood wedges. Further investigations found that the contractor used plywood sheeting, odd-sized blocks of wood, paper sack material, and other materials instead of concrete to fill joints. It was later found that the private engineers who signed off on the use of wood wedges in place of steel were not licensed to practice in the State of California.

In late June 1995, a half block of Hollywood Boulevard collapsed into a water-filled, 70 square-foot sinkhole. The problem started when Shea-Kiewit-Kenny found that it had misaligned the tunnel segment by eight inches. When the contractor attempted to correct the error, adequate supports were not used to stabilize the ground surrounding the tunnel, resulting in the collapse.

In 1997, a worker on the project was seriously injured when a several-hundred-pound concrete slab broke off from a wall of the tunnel, crushing his hip and pelvis. This incident prompted the Los Angeles Times to examine occupational injury reports. The injury rate on the Red Line's Santa Monica Mountains Tunnel was at least 60 percent higher than the national average for such projects.

In 2000, federal authorities sued a welding inspection firm, Twining Laboratories, for conducting shoddy and fraudulent inspections of defective welds at two Red Line subway stations. As a result, MTA was forced to correct the potentially dangerous welds at its own expense, estimated at about \$500,000. In a Los Angeles Times article on August 30, 2000, Assistant U.S. Attorney Jeffrey Rawitz said, "had it not been discovered, there was a serious risk that people who use the subway could have been injured." Also according to the article, the suit alleged that Twining Laboratories made false statements and performed inspections using unqualified personnel. The firm used forged certificates to prove the welding inspectors were certified. A former employee of the inspection firm, William H. Benson, acknowledged that he had fabricated the certificates because he was "simply trying to help them gain future employment" and that he "had no knowledge that these people were going to be licensed to work on the Metro Rail project."

When the Red Line project was finally completed in 2000 – five years later than originally scheduled – it was billed as the most expensive 17 miles of subway in American history. Initially projected to cost \$2.8 billion, it ended up costing \$5.8 billion and it continues to be plagued by problems caused by poor construction that were not corrected during the inspection process.

CONNECTICUT'S I-84 PROJECT – DRAINS TO NOWHERE

In Connecticut, faulty inspection work by The Maguire Group Inc. contributed to problems and delays on a \$52 million project to widen a 3.5-mile stretch of I-84 between I-691 in Cheshire and Exit 25-A in Waterbury in Connecticut. In October 2006, the Hartford Courant reported that the portion of the highway being widened was lined with hundreds of defective drains, many of which can only be repaired by excavating and reconstructing sections of the road that was just rebuilt. These drains are supposed to remove water from the rebuilt roadway, but some of the drains lead nowhere and others are filled with debris.

Of some 300 drains in the project, as many as 270 need additional work and preliminary indications are that about 100 of the drains need extensive reconstruction, including a number of drains which are buried beneath the completed roadway. Approximately \$1.8 million was paid to the contractor, L.G. DeFelice after the inspector, The Maguire Group Inc., submitted faulty approvals for the drain work.

In interviews with the Courant, state transportation engineers said there was a “complete breakdown” of the construction and inspection process. In an internal memo, the Chief Engineer at the state Department of Transportation’s Bureau of Engineering and Highway Operations, concluded: “The numerous types of deficiencies, the particular as well as the general defects and omissions in the work, were and are stunning.”

Responding to the problems with the I-84 project, the state government acknowledged that there are problems with the Department of Transportation’s internal oversight and inspection procedures and that there is a need for more state transportation engineers. On October 2, 2006, Governor M. Jodi Rell announced that an independent auditor would investigate the failures in the project. The Governor also authorized the hiring of 75 new state transportation engineers to keep more oversight “in house” and limit the hiring of temporary consultants to oversee state projects.

CARPOOL BRIDGE CONNECTING THE SAN DIEGO (405) AND THE COSTA MESA (55) FREEWAYS – FALLING CONCRETE

Work was halted on the \$12 million carpool bridge in August 2002 when chunks of concrete were falling from the structure and many cracks were noticed. The project was completely outsourced – designed by CH2M Hill, constructed by C.C. Myers and inspected by Jacobs Engineering. The Los Angeles Times reported in December 2002 that "builders put too much tension on supporting cables, causing concrete girders to crack and spall, a condition in which concrete breaks off in layers." The article also reported that the concrete was found to be too thin and there was uneven spacing of steel reinforcement bars. The concrete that covered the rebar was only two-thirds of what the design required.

Damage was expected to delay the April 2003 opening for 10 to 12 months. The carpool ramp did not open until January 2005, almost two years from the expected completion date.

BAY AREA EARTHQUAKE RETROFITTING PROJECTS – FAKE WELD INSPECTIONS

In 1998, two private sector welding inspectors were charged and convicted of faking weld x-rays on Bay Area freeway earthquake strengthening projects. The two technicians, who worked for different companies and were not working in concert, x-rayed the same welds from different angles and submitted the results as proof that all the welds were good.

Caltrans had to re-inspect all of the projects that the men worked on to make sure they were safe.

I-8/I-805 INTERCHANGE SEISMIC RETROFIT IN SAN DIEGO – DEFECTIVE WELDS

In December 1994, a \$44 million seismic retrofit project began on the I-8/I-805 Interchange. The project was completely outsourced, with private companies performing the design, construction and inspection. Work was halted in January 1996 because a state employee noticed that some of the welding work looked substandard. A Caltrans investigation concluded that Mejia Steel Welding, the welding subcontractor, had performed “extremely shoddy work” and the inspection firm, SGS Industrial Services, had improperly certified welds that were defective. Of the 15,000 welds on the retrofit project, 73 percent of them were found to be defective. The prime contractor, Stephen P. Rados Inc. was forced to redo the work, which cost an additional \$5 million and delayed the opening of the interchange for six months.