

THIS STORY HAS BEEN FORMATTED FOR EASY PRINTING

---

## Big Dig overrun is just plain big

Perspective on project given by world study

By Raphael Lewis, Globe Staff, 7/14/2002

Bostonians have known for years that gargantuan cost overruns on the \$14.6 billion Central Artery project put the "big" in the Big Dig, but until now, they had no idea if taxpayers here were any worse off than those funding other mega-transportation projects around the nation and the world.

Now they know: The Big Dig, whose cost has escalated 300 percent since work began in 1991, is in a class by itself.

The largest study ever undertaken of public transportation construction projects, published in this month's Journal of the American Planning Association, has found that, on average, comparable works come in over budget 9 times out of 10, but only by about 28 percent above initial estimates.

Of the 258 projects studied in "Underestimating Costs in Public Works Projects: Error or Lie?" all completed over the past 70 years, the researchers found that rail projects typically see the greatest overruns, usually costing about 45 percent more than the public was told at the outset.

Tunnel and bridge projects usually cost about 34 percent more than initial estimates, and road projects about 20 percent more.

In the developing world, the 16 projects studied saw average cost escalation of 65 percent. None of the project had overruns of 300 percent, and only 2 percent of the projects studied came in over 200 percent.

"The Big Dig, to put it simply, is a Third World project, in the sense that you only find comparable cost overruns in the Third World," lead researcher Bent Flyvbjerg, of Denmark's Aalborg University, said in an interview.

While Flyvbjerg's team did not include the Big Dig in its study, because it's not finished, the Danish researcher said the project has already gone where none of the projects reviewed had. The only close competition was the Panama Canal, which, when completed in 1914, had cost escalations of as much as 200 percent, and a couple of rail projects in Southeast Asia.

The Big Dig, by comparison, suffered overruns before work even began. In 1986, the Big Dig was said to cost \$3.2 billion, then \$4.4 billion a year later, and by July 1990, it had gone up to \$4.97 billion. Work began the following year, and at that time, the public was told that the new estimate took inflation into account.

But hints of cost explosions were there in 1988: Project officials were whispering, occasionally to the press, that the project might cost more than \$10 billion when finished - in 1998.

Today, four years after the Big Dig was supposed to be completed, the Central Artery/Tunnel project is expected to cost \$14.637 billion, and will not be finished until at least 2005.

Flyvbjerg's team has concluded that, most likely, lies are at the heart of the worldwide problem of cost underestimation on transportation projects. The Danish research team, which found that routine underestimation of costs spans all continents, project types, and decades, concluded that the old, reliable excuses - unforeseen technical problems, accidents, optimism - don't hold water.

Instead, they say, strong political incentives and few motivations to provide the worst case scenario at the outset "may have taught project promoters what there is to learn, namely, that cost underestimation pays off."

"We may agree ... that it is, for example, impossible to predict for the individual project exactly which geological, environmental, or safety problems will appear and make costs soar," the researchers write. "But we maintain that it is possible to predict ... that some such problems will haunt a project.

"We also maintain that such risk can and should be accounted for in forecasts of costs, but typically is not."

Current and former Big Dig officials, and politicians who sold the project to the public, say they never intentionally deceived anyone, including bond investors, whose interests are at the heart of a current Securities and Exchange Commission investigation into \$1.4 billion in cost overruns revealed two years ago.

Frederick P. Salvucci, the former state transportation secretary whose tireless promotion helped bring the Big Dig to reality, says the evidence suggests that lying was not at the heart of the gross underestimates on his pet project.

The initial cost estimate "was prepared according to the rules at the time, agreed to by the outgoing Dukakis administration,

including me, accepted by the Weld administration, and was signed by President Bush," Salvucci said. "Everyone's accountable, and none of us are great pals with each other."

If anything, Salvucci said, there was an incentive to inflate the Big Dig's cost estimate in 1991. That's when the federal government changed the rules for funding highway projects, saying its funding would be tied to cost estimates, and not actual costs. In other words, if the actual costs went up, the government would not increase its contribution.

"The pressure was on to add in the possibility that you won't get anything more," Salvucci said.

One former state transportation official, who did not want to be identified, said it would have been irresponsible for project officials to budget for an unknown "X factor" that would increase the Big Dig's bottom line by more than 100 percent, without knowing where, exactly, those costs would come from.

"You have to be scrupulous in accounting for the costs that you know are there," the former official said. "If you walk in with the notion accepted that the cost will be \$20 billion, but you don't know why, it will be."

Alan Altshuler, of Harvard University's Kennedy School of Government, said he doubts that Big Dig officials and politicians intentionally deceived the public.

"I think it was simply a matter, within a tremendous range of uncertainty and unknowns, of putting the best face forward," Altshuler said. "I'm not saying no one has ever lied in the history of the project. But I don't think what we're seeing is a phenomenon of intentional prevarication."

Some other research has found that, quite frequently, officials on a variety of transportation projects have lied to ensure that the projects get built. Martin Wachs, of the Institute of Transportation Studies at the University of California at Berkeley, published a paper in the Business and Professional Ethics Journal in 1990 in which dozens of officials on several projects admitted to lying.

"They owned up to the fact that these practices were common," Wachs said in an interview. "But they all said they were common among other companies."

Wachs said a doctoral student at Berkeley is conducting a similar study, and unearthing identical results: "They mention repeatedly pressures to make projects look acceptable for political reasons."

Flyvbjerg concludes that, given the lengthy history of cost overruns on public transportation projects, that lawmakers and the public should simply ignore initial estimates as irrelevant and untrue at the outset, and instead, decide to undertake projects on the basis of their merit.

"The key policy implication for this consequential and highly expensive field of public policy is that those legislators, administrators, bankers, media representatives, and members of the public who value honest numbers should not trust the cost estimates," Flyvbjerg writes, adding in an interview, "We should expect the status quo if things don't change. But they should."

*Raphael Lewis can be reached by e-mail at [rlewis@globe.com](mailto:rlewis@globe.com).*