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Looking Ahead: Five Solutions for Repairing the Nation's Infrastructure

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As our new president gets settled into the White House, his plate is already overflowing with issues that must be immediately addressed. Reviving the economy is, naturally, at the top of the list. Creating jobs for the growing number of unemployed is not far behind. But there is another issue on the president's to do list that will strongly impact the first two -- repairing the nation's crumbling infrastructure -- as well as go a long way toward keeping America strong and its citizens safe—.

The National Transportation Safety Board recently released its report following its fifteen-month investigation into Minneapolis's I-35W bridge collapse. Its findings were scary indeed (though not for the reason you might think). The report concluded that the original design for the bridge, which opened in 1967, included critically placed gusset plates (steel plates that reinforce the joints of steel-truss bridges) only half as thick as they should have been. It also suggests that probable causes for the collapse included modifications to the original design that added substantial weight, as well as the 287 tons worth of construction materials sitting on the bridge for a re-paving project just prior to the collapse on August 1, 2007.

What's so alarming about the NTSB report? Frankly, it's less what the report says than what it sweeps under the rug. These findings and others like them might well lead our new president to think that infrastructure failures are isolated accidents that occur because of that the occasional random design problem. If only our problems were that simple! The reality is that corruption, political inefficiency and ill-advised allocation of public funding also played a big role in the I-35W bridge collapse—and those are the real problems that are leading to a serious infrastructure deterioration across the U.S.

Make no mistake: the nation's infrastructure problems cannot be fixed overnight. Nor will the solutions be attractive to politicians accustomed to diverting funds from desperately needed infrastructure repairs in favor of, say, a glamorous (and vote-winning) new park. However; by aggressively moving toward a solution now we can begin to make real improvements that will benefit our country for generations to come. Tackling our critical transportation and infrastructure problems will require a national commitment and a strategic plan that should include the following solutions:

Create a national clearinghouse and database, accessible to every state

transportation agency and the general public. The database will identify all design and construction issues affecting our nation's infrastructure. Through the Federal Aviation Agency, the airline industry has alerts that immediately advise all airlines of problems with an aircraft. A similar database should be created to alert all state transportation departments of any bridge failure in the nation and include methodologies for remedial design as well as alerts for maintenance problems for all of America's 600,000 bridges.

This information can no longer be buried in state files, particularly given the fact that many politicians have evinced a history of ignoring significant problems and leaving them for future administrations. By making this information the subject of alerts and available to the public, we will enable state transportation engineers to take preventative action more quickly, help members of the public avoid the unsafe bridges, and put politicians and officials on notice that they will be held accountable for neglecting to take appropriate action.

There is already evidence that making infrastructure problems public can lead to protective measures. In May 2008, nearly a year after the collapse of Minneapolis' I-35W bridge, Minnesota's Department of Transportation closed the Winona Interstate bridge because inspectors had documented rusted and corroded gusset plates in 2006 and 2007. The bridge had not been closed until federal officials identified defective gusset plates as the potential cause of the I-35W disaster. Equally important, MnDOT officials had no prior knowledge that a failure of gusset plates similar to those they experienced on the I-35W bridge had occurred over the Snake River in Ohio in 1996.

State governments should step up their efforts to protect their citizens. State governments must do everything in their power to ensure they have informed their citizens—either through hearings, press conferences, or news releases—about bridges that have received structurally deficient ratings. In addition, they should be obligated to develop a game plan for correcting problems within six months of a bridge's designation as “structurally deficient.” One in four bridges in our nation have been rated as either “structurally deficient” or “functionally obsolete.” The public should receive annual updates on the remediation progress and be given notice if funding for the repairs is not provided within 18 months.

Enact a plan to deal with our nationwide shortage of civil and structural engineers. These professionals are trained in advanced inspection methodologies and are experts in

remediation of deficient bridges. But the lack of these types of engineers on the staffs of state transportation departments—positions that have been systematically downsized due to decreased transportation funding—prevents them from adequately performing the inspections critical to assessing the safety level of each state’s bridges.

Not only should we create initiatives to help encourage the nation’s young people to pursue these careers, but state transportation departments must increase compensation to hire and retain engineers to keep them from departing to private industry. Engineers are often the first to be laid off from state transportation departments because of their high salaries. This can no longer be the case. State governments can and must find other areas to cut.

Invest in advanced technologies that help save money and provide more accurate inspections. By the time cracks appear in a bridge’s structure, the costs for remediation have skyrocketed. The problem is, many of today’s inspection techniques fail to detect cracks until they are visible to the human eye. In addition, the Federal Highway Administration has acknowledged that visual inspections of bridges are highly subjective and not totally reliable in detecting cracks in critical structural elements before they become visible.

Technology exists to anticipate bridge remediation years before rust, corrosion, and cracks in the structure appear. We just need to fund it and use it. Enabling bridge inspectors to ensure precision and objectivity in their evaluation process, which in turn allows us to catch problems earlier when they’re easier to fix, can save us millions of dollars in unnecessary remediation costs.

Enact reforms to help us avoid another Big Dig. For those who don’t know, the Big Dig is the most expensive highway project ever. Its original budget, set back in 1985, was just over \$2 billion. It was revealed last week that the real cost of the project is going to reach \$22 billion with a pay-off set for 2038. According to a recent *Boston Globe* article, the Big Dig has dealt a considerable financial blow to the state of Massachusetts. The article states, “Big Dig payments have already sucked maintenance and repair money away from deteriorating roads and bridges across the state, forcing the state to float more highway bonds and to go even deeper into the hole [...] Massachusetts spends a higher percentage of its highway budget on debt than any other state.”

The Big Dig epitomizes everything that is wrong with the construction industry, which is rife with cost overruns and missed schedules. The industry itself will have to be reformed before we can start making progress in repairing the nation’s infrastructure. An essential part of that reform will come in the form of better contracts that would 1) be based on 100 percent complete architectural and engineering drawings and specifications, 2) include a fixed price for everything designed and approved by the owner, and 3) apportion all the risks that are expected during construction between the parties.

Establishing fixed-priced contracts on large infrastructure remediation projects will lead to savings of billions of public dollars. When you consider the huge numbers of projects

that must be completed in order to restore America's infrastructure, it's clear that American taxpayers can't afford a 'business as usual' mindset anymore.

The willingness for change that characterizes the Obama Administration lays the groundwork for our political leaders to begin addressing the problem of America's aging infrastructure (of which our 72,000 deteriorating bridges represent just a slice). By doing so, we can provide a much-needed stimulus to the economy through the creation of jobs through infrastructure construction and repair projects and a more efficient and safe transport system for the nation's businesses. There is no greater ROI than the one we will receive if we start repairing our infrastructure now—a stronger, safer nation.

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Mr. LePatner is widely recognized as a thought leader in the construction industry. A November 2007 *Governing Magazine* article stated, "If there's a guru of construction industry reform, it's LePatner." And a November 2008 issue of *New York Magazine* calls LePatner the "Cassandra of infrastructure." His new book, *Broken Buildings, Busted Budgets: How to Fix America's Trillion-Dollar Construction Industry* (The University of Chicago Press), which was favorably reviewed in the *Wall Street Journal*, has created a national debate among owners, designers, and other key stakeholders. Mr. LePatner has been featured in *BusinessWeek*, the *Boston Globe*, the *New York Times*, *Crain's New York Business*, the *Chicago Tribune*, and other prestigious publications. His articles and speeches on the perilous state of our nation's infrastructure have garnered him widespread attention. He has appeared on many television and radio broadcasts, including a CNBC appearance and several National Public Radio segments. For more information, please visit www.BarryLePatner.com.