

LESSONS FOR POST-KATRINA RECONSTRUCTION

A high-road vs. low-road recovery

by Peter Philips

The rebuilding of highways in Los Angeles, Calif. after the 1994 Northridge earthquake provides valuable lessons for the post-Katrina/Rita reconstruction effort. Foremost among those lessons is that competitive bidding and enforcement of labor standards such as the Davis-Bacon prevailing wage law can help ensure that work is done expeditiously, safely, cost effectively, and with maximum benefit to the local population. The Northridge experience disproves claims that Davis-Bacon generates excessive paperwork, costs, or delays.

President Bill Clinton refused to suspend the Davis-Bacon Act in 1994, yet the Los Angeles highways were rebuilt at lightning speed. In particular, the Santa Monica Freeway was rebuilt in only 66 days, less than half the time stipulated by the state of California. The need to rebuild quickly is no excuse for suspending the Davis-Bacon Act or affirmative action requirements, as President Bush has done. On the contrary, the Davis-Bacon Act raises the skills of workers in the construction industry, which shortens the time required to complete large and urgent projects such as the re-building after the Northridge earthquake and the most recent Gulf Coast hurricanes. In addition, encouraging the employment of local labor helped ensure that the federal funds flowing into Southern California for disaster relief also helped restart the local economy.

The damage and deaths from Hurricanes Katrina and Rita dwarf the \$44 billion in economic damage and the 51 lives lost in Southern California's Northridge earthquake. Nonetheless, the January 17, 1994 earthquake centered in the heart of Los Angeles injured over 9,000 people, left about 22,000 people in shelters and tents, severely damaged or destroyed 54,000 buildings, left 5,000 homes without water, and left 35,000 homes without gas. The quake also destroyed freeway bridges on four main arteries of the Southern California freeway system, including collapsed bridges on the Santa Monica Freeway, the most heavily used highway in the world.¹

"The collapse of the Santa Monica, so close to downtown, was like a wallop straight to Los Angeles' heart."² Because it carries as many as 341,000 vehicles per day,³ the shutdown of the Santa Monica Freeway (also called I-10) cost California an estimated \$1 million per day in lost wages, added fuel cost, and depressed business activity.⁴ In order to get L.A.'s transportation system up and running again as quickly as possible, Governor Pete Wilson immediately declared a state of emergency and suspended a variety of regulations to expedite the rebuilding process.⁵ Governor Wilson explained his actions to a U.S. Senate committee soon after Hurricane Katrina:

We were rebuilding the roads and bridges within 24 hours of the earthquake. I issued an executive order suspending all statutes and regulations related to state contracting....My goal was to reopen I-10 within 6 months, and every other road within a year. Each contract included an incentive if the work was late, we charged a fine and if it was completed early, we paid a bonus and the motorists in Los Angeles were happy each time we did. We waived the requirements for lengthy environmental and permitting reviews for strict replacement work cutting 18 to 24 months off the construction schedule.

I cut the rules impeding recovery in other areas as well: Suspended several trucking rules...suspended overtime rules to give employers more flexibility in setting work schedules and reducing congestion during normal commute hours...expedited permitting of reconstruction projects by waiving many of the procedural requirements, and putting staff from all state and local permitting agencies into one building.⁶

Congress also did its part. The quake occurred on January 17, and by February 11, Congress had authorized \$9 billion in federal aid, about half of which went to disaster relief through the Federal Emergency Management Agency. Almost \$1.4 billion was allocated to federal highway reconstruction.⁷

Opened up to competitive bidding, the contract to rebuild the collapsed I-10 bridges was signed on February 5, less than 20 days after the quake. The freeway opened for traffic April 11, thus completing the work a mere 66 days after it began, and getting traffic moving again in only 85 days after the earthquake.⁸

This rapid reconstruction in California was done within the normal operation and regulations of the Davis-Bacon Act. Governor Wilson did relax other government procurement regulations, thereby allowing a construction contract to be finalized in the space of about two weeks rather than the more normal three months.⁹ He also relaxed regulations governing the permitting of “strict replacement” construction projects in order to expedite the reconstruction.¹⁰ Finally, Governor Wilson implemented a bidding procedure and incentive system that tied potential profits on the I-10 rebuild to very rapid completion of the project. The evidence shows that the Davis-Bacon wage regulations actually assisted Governor Wilson in creating the profit and wage incentives needed to get the Santa Monica Freeway up and running in the shortest time possible.

The L.A. highway rebuilding contracts were competitively bid

Within six hours of the of the Northridge earthquake, the first demolition and removal work was approved. Three major demolition firms won *no-bid* contracts jointly amounting to \$3.4 million. The quake struck in the early hours of Monday morning. By Monday afternoon, crews were already removing debris from a collapsed I-5 interchange. By Tuesday morning, workers were clearing rubble from the Santa Monica (I-10).¹¹ By February 5, less than three weeks after the quake, *competitively bid* contracts for bridge repair work on the Santa Monica and Golden State freeways had been approved and the work started.¹²

Caltrans, the California agency responsible for overseeing the freeway reconstruction, set up a bidding procedure whereby pre-qualified, experienced highway contractors were invited to bid on each of four bridge rebuilding projects.¹³ For each project, Caltrans established a date for completion. In the case of the Santa Monica Freeway, it was June 24, 1994. Potential bidders were informed that if their work was completed after the established due date, they would be penalized, and if the work was completed prior to the due date, they would receive bonuses.¹⁴ The penalty/bonus incentive for the Santa Monica was set at \$200,000 per day.

The contractors were also asked to submit bids that included not only a price for the work, but also a projected due date of completion. In the Santa Monica Freeway’s case, the completion date had to be no more than 140 days according to Caltrans specifications, but contractors could bid less time. If the contractor projected a quicker completion date, then the borderline between bonuses and penalties would be moved up to that date. Caltrans would select the bid that provided the most cost-effective combination of bid price and completion date. All of the bids were to be calculated within the provisions of the Davis-Bacon Act¹⁵ and California provisions regarding minority contractor participation.¹⁶

In the Santa Monica rebuild, five major highway contractors bid on the project, and Brutoco Engineering was the “low bid” offering to do the work for \$20 million in 100 days. However, this bid was subsequently withdrawn when an error was found in the bid application. The next best bid was CC Myers who offered to do the work for less money, \$14.9 million dollars, but in a longer time period, 140 days, which was the outside limit Caltrans would permit.¹⁷ Privately Myers expected to do the work in 100 days,¹⁸ which put Myers and Brutoco at about the

same bottom-line price. As we shall see, Myers broke all expectations by completing the work in 66 days, 74 days ahead of schedule and reaping a bonus of \$14.5 million rather than the expected \$8 million. The Santa Monica rebuild cost almost \$30 million rather than \$20, but it was completed in 66 days rather than 100 days. The governor's office had calculated that closure of the Santa Monica was costing the Los Angeles economy \$1 million per day in lost wages, business revenues, and increased transportation costs.¹⁹ Thus, while the speediness of completion cost \$10 million more, it may have saved the Los Angeles economy as much as \$34 million (100 days minus 66 days at \$1 million per day).

The contractor made a significant profit

In the two years prior to the 1994 Northridge earthquake, CC Myers had done more work for Caltrans than any other highway contractor (eight projects totaling \$132 million in 1992, and four projects totaling \$108 million in 1993).²⁰

CC Myers' plan for the Santa Monica freeway was to work around the clock and to make time the key focus of the company's construction strategy. For instance, when the railroads informed CC Myers that the delivery of steel beams needed to rebuild the I-10 bridges would take three weeks to arrive, Myers chartered his own trains to carry supplies from Arkansas and Texas to Los Angeles at the cost of \$119,000.²¹ To speed construction, Myers rebuilt the two fallen Santa Monica bridges simultaneously with the work and flow of materials moving continuously rather than staggered. Workers were put on 12-hour shifts and crews worked around the clock, seven days a week. Work continued regardless of weather, and Caltrans' inspectors were available around the clock to approve on-going work and to monitor safety. Work crews were heavily staffed, with two superintendents per bridge project ensuring that there were supervisors available around the clock. Myers hired 228 carpenters instead of the usual 65 for this size project. He hired 134 iron workers instead of a more typical 15. A more-expensive, fast-drying concrete was used to speed project completion.²²

Workers were pushed hard, and that showed in their faces and in their pocket books. Iron workers complained of fatigue from the daily overtime work, so CC Myers hired more.²³ But workers were both excited and well-remunerated for their hard work. Take, for instance, the *Washington Post* report on a highly skilled union crane operator:

High above La Cienega Boulevard, motors whine, dust clouds billow and Jim Lichnovsky and other once-unemployed Californians are working day and night to rebuild one of the world's busiest highways, shattered by last January's deadly earthquake....The urgent priority given the project, said Lichnovsky, a 37-year-old unionized construction worker from Burbank who had been jobless for two months before the earth shook, has pushed his work week to 80 hours and raised his pay scale to as much as \$600 a day. Altogether he has earned \$21,000 in seven break-neck weeks of hoisting plywood boards and steel beams.²⁴

Similarly, Herman Aleem, of Inglewood, was unemployed prior to the quake. Working on Myers' project, he earned \$23.90 per hour straight time for the first 40 hours, \$35.85 in time-and-a-half pay for the next 20 hours, and double-time (\$47.80) for the last 20 hours of his 80-hour week. These Davis-Bacon prevailing wage rates brought Aleem more than \$2,600 per week.²⁵

Hiring extra crews, paying overtime, renting extra equipment, chartering trains, all cut into CC Myers' \$14.9 million direct costs and \$14.5 million bonus. A CC Myers' executive estimated that the project cost 25% to 30% more than a comparable project done at a normal pace and taking months longer to complete.²⁶ Despite the added costs, the firm's president estimated that he would make an \$8 million profit from the two-month, \$29.4 million job, representing 27% of the total cost of the project.

Stimulating the local economy

The speedy completion of the downed freeway bridges in Los Angeles had a double-positive effect on a stagnating Southern California economy in the spring of 1994. First, it cleared the biggest and economically most important transportation bottlenecks created by the Northridge quake.

Second, the injection of federal money for highway repair and insurance money for building repair stimulated the area's economy. The *New York Times* reported:

Adrian Sanchez, at First Interstate Bank here, said he had wrongly predicted a few "down months" after the quake. Instead, in contrast to the situation after the 1992 hurricane in Florida, the money flowed immediately from Washington, stimulating construction and retail sales.

Another difference is that there were plenty of unemployed workers ready to step in when the earthquake struck. Virtually all the demolition, repair, and reconstruction work has been handled by local concerns, Mr. Sanchez said, and the relief money is recirculating in the region rather than flowing out of the state, as it did from Florida.

The most palpable benefit from the earthquake is the boom in construction employment. Of the 29,000 net gain in jobs since January, 6,000 are in construction, including the relatively low-paying, nonunion jobs at small concerns like Ed Sylvis Construction and the higher-paid, union positions at the huge highway rebuilding projects, like the Santa Monica Freeway, which is scheduled to reopen next Tuesday, months ahead of schedule.

At Ed Sylvis, the payroll has grown substantially, but others in addition to the new workers have gained. Existing employees who had seen their hours cut back in the slow months of 1993 are again working full time.

The early completion of the Santa Monica Freeway is largely a result of round-the-clock repairs that have yielded an overtime bonanza for workers. Larry

J. Kimball, the director of the UCLA Business Forecasting Project, noted that this extra income will stimulate retail spending here, which has yet to show a significant rise.²⁷

Unlike the reconstruction after Hurricane Andrew of 1992, the Davis-Bacon Act was not suspended after the Northridge earthquake of 1994. And in contrast to Governor Wilson's suspension of overtime rules for the private sector, due to the Davis-Bacon Act, overtime pay was not suspended on highway reconstruction. The overtime premiums were spent locally, helping stimulate sluggish retail sales. Job growth, which had been sluggish with California in recession, grew with the influx of federal funds and insurance payouts. Fully 20% of that job growth was in construction, including both new employment in small, nonunion firms and larger unionized construction companies.

The government did foot the bill, and the government also continued to require that the women and minority contractor provisions and prevailing wage provisions be met. The "red tape" that was minimized by the governor involved expediting the bidding process. This was primarily due to the fact that these particular bridge rebuilds were "strict" reconstruction projects that replaced existing bridges. This dramatically reduced site and design issues and made environmental questions relatively moot (although when contaminated water was found under one Santa Monica bridge, existing environmental regulations were followed in disposing of this hazardous waste). No overtime or safety rules were relaxed. Caltrans inspected the work as it would any other project. Government accommodation of on-going work was primarily the provision of 24-hour inspection teams.

Do prevailing wage rates mandated by the Davis-Bacon Act increase total construction costs?

There is no credible evidence showing that prevailing wage rates raise total construction costs by 20%, 15%, or even 10%, as some critics try to argue. These arguments are not based on statistical analysis of actual prevailing wage work.²⁸ Rather, these estimates typically come from a back-of-the-envelope calculation that runs something like this:

Typically, union workers earn approximately 30% more than nonunion workers. Typically, labor costs are around 50% of total construction costs. If Davis-Bacon prevailing wage rates were eliminated from federal construction projects, then wages would fall by 30% or so. If wages fall by 30% and labor costs are 50% of total costs, then the elimination of prevailing wage requirements will reduce total costs by 15%.

There are two basic problems with this rough calculation. The first is that it assumes that the productivity of all construction workers is the same; in other words, that wages could drop by

30% with no effect on labor productivity. The economic literature on union/nonunion labor productivity suggests that union labor is substantially more productive than nonunion labor,²⁹ and the market suggests this as well. The majority of union and nonunion work is on private projects on which higher-paying union contractors compete with nonunion contractors paying less. Paying more, union contractors do what economic theory suggests they would: focus on employing highly skilled workers; equip them with better tools and machinery; use human capital and physical-capital-intensive technologies; support extensive and expensive apprenticeship training; and manage their labor force with an eye to conserving and efficiently deploying their more expensive labor input. All of these practices result in higher labor productivity and fewer workers on the job. Their nonunion counterparts respond to these strategies by using more workers who are cheaper to hire but are, on the whole, less skilled and experienced, and consequently, less productive.³⁰

The second problem with the above calculation is the false belief that Davis-Bacon prevailing wage rates are always universally *union* wage rates. The reality is that the Davis-Bacon Act applies a switching rule in determining the prevailing wage rate. Where, in a particular county, the most commonly found wage rate (the mode) accounts for more than half of all the wages for a particular craft, then this modal wage is declared the prevailing wage rate. On the other hand, when the most commonly found wage rate (the mode) accounts for less than 50% of all wage rates found, then the weighted mean (or average) wage rate is declared prevailing. In most counties of Southern California after the Northridge earthquake, the modal rate for most construction occupations was the declared prevailing rate. Thus, the union wage rate was typically the prevailing wage rate. In Louisiana and Mississippi after Hurricane Katrina, the prevailing wage rate for most construction occupations is the mean or weighted average.

Within any construction occupation, there is a group of workers who really know how to do the job, and then there are other workers whose skill levels range from less-than-expert to remedial. Wages reflect this range of skills. In construction, the mode wage typically reflects the wages of the more competent, “up-to-speed” workers, and statistically, the mode is unaffected by the wages down at the bottom end of the distribution of skills. However, the mean wage is an averaging of everyone’s wages, including the lower pay rates received by the far less competent workers. As a result, the average wage is almost always below the modal wage, meaning that the Davis-Bacon prevailing wage in Southern California is almost always the union rate, but in Louisiana and Mississippi the Davis-Bacon prevailing wage is almost always substantially below the union wage rate. In the end, it is simply incorrect to make the generalization that the Davis-Bacon rate is always by default the union rate.

It is also incorrect to say that only union workers work on Davis-Bacon jobs. The fact is that many nonunion workers work on public construction projects regulated by the Davis-Bacon Act. Because nonunion workers as a group are less skilled, this is more likely to happen in states such as Mississippi and Louisiana where the mean (or average) wage prevails, compared to California where the modal wage prevails. But even in California, many nonunion workers are found on Davis-Bacon jobs. These tend to be the more skilled nonunion workers who can be cost-effective at union wage rates.

Ultimately, Davis-Bacon wages—whether pegged to the mean or the mode—do not necessarily raise public construction costs simply because, at these higher wages, contractors hire more-productive workers who, through their higher skills, help to offset the higher wages and benefits that come with prevailing wage regulations.

Why should Davis-Bacon prevailing wage rates regulate public construction?

The Davis-Bacon Act prevents the federal government from undercutting local labor standards. The act requires that contractors putting up government buildings and paving federal roads compete with each other based on their ability to manage jobs, their technical abilities, and construction experience, but not on their ability to undercut each other's wage rates or health insurance and pension contributions.³¹ Wages in construction vary considerably across the country: they are relatively high in California and relatively low in Louisiana and Mississippi. The Davis-Bacon Act reflects this by setting wages based on local prevailing wages for specific construction occupations in each county. For instance, based on current prevailing wage rates under the Davis-Bacon Act, a carpenter doing highway work in Montgomery County, Mississippi must be paid no less than \$8.18 per hour but need not be paid any health insurance or pension benefits. In Jefferson Parish Louisiana, a highway carpenter must be paid at least \$13.42 per hour with \$3.04 in fringe benefits. By comparison, a highway carpenter in Los Angeles must be paid \$31.71 per hour with \$8.47 in health insurance and pension contributions.³²

Because local labor standards vary, prevailing wage rates vary. But the Davis-Bacon Act prevents contractors doing federal work in Mississippi from driving wages down to the minimum wage. It prevents contractors in New Orleans from driving wages down to Mississippi levels or to eliminating fringe benefits altogether. Davis-Bacon prevents contractors on public works in Los Angeles from driving wages down to New Orleans' levels. The guiding philosophy is that the federal government should be a *good* employer. If decent wages and fringe benefits are typically paid to construction workers in the local area, a contractor should not win a public-works job by jettisoning fringe benefits and cutting wages.

While the original reason for the passage of the Davis-Bacon Act was to get the federal government out of the job of undercutting local wages, benefits, and working conditions, an additional reason for the continuing support of the Davis-Bacon Act is that it promotes the practice of collective bargaining in construction. While critics tend to think of this as promoting unions and defying unfettered markets, in reality, collective bargaining is a form of market interaction between unions and contractors. As we shall discuss, collective bargaining shifts some market decisions from the short-run, cut-throat atmosphere of the opening project bid to a bargaining table where the longer-run needs of both the industry and the consumer can be taken into consideration. Collective bargaining short-circuits some of the market failures found in the free-rider strategies that are endemic to the construction industry.

Enforcement of the Davis-Bacon Act leads to a more capable workforce, which in turn contributes to more-rapid completion of new projects. When the Davis-Bacon Act is not enforced, union contractors and the benefits of the collective bargaining process are severely undermined. Why the union-promoting aspects of the Davis-Bacon Act matter:

- **Three-out-of-four apprentices trained in construction are trained by money negotiated at the collective bargaining table.**
- **Almost all union construction workers have health insurance and pension benefits, while the majority of nonunion construction workers have neither.**
- **The Davis-Bacon Act can help promote family-friendly health and retirement benefits that in the long-run, help retain experienced and skilled workers within the industry, leading to a more-capable workforce.**
- **Government has a long-term interest in the health of the construction industry.** Government contracts account for roughly 20% of all construction, and the well-being of the economy relies on a quality construction workforce to build the infrastructure a world-competitive business sector needs.
- **The government should not undercut local labor standards.** By ensuring government contract workers receive a prevailing wage and benefits, the government nurtures the long-term sustainability of a qualified construction workforce. By not undermining unions and collective bargaining, the Davis-Bacon Act helps keep experienced workers in the labor force; promotes training funds that will pass on the skills of the existing labor force to a new generation; and often allow for health benefits and pension contributions that make it possible for construction workers to raise a family.
- **The Davis-Bacon Act promotes a level playing field.** By promoting collective bargaining, the government shifts much of the costs onto those who are contracting for the construction services. When contractors know that collectively bargained agreements also compel their competitors to include apprenticeship training and health contributions in the calculation of their bids, then it becomes an industry standard and other contractors are not fearful of following suit.

Conclusion

Within days of Hurricane Katrina hitting the Gulf Coast, pundits and politicians looked to the post-earthquake Southern California freeway reconstruction in 1994 for re-construction lessons. Unfortunately, the Administration failed to learn one of the key lessons of that experience. The earth-

quake shut down major portions of the area's transportation system, jammed traffic onto side streets, drove up commute times, increased transportation costs, and slowed business activity. Yet a mere 85 days after the quake, the busiest road in America was up and running again. Most commentators have heralded this achievement as a remarkable example of how the market worked and how government helped the market work. One important contribution of the government was the enforcement of the Davis-Bacon Act, which produced a more skilled construction workforce ready to rebuild the freeway more quickly than the less skilled workforce that would have developed without the Davis-Bacon Act. The *Wall Street Journal* argued right after Hurricane Katrina that the government should suspend the Davis-Bacon Act and offer incentives and bonuses to contractors who finish ahead of schedule just like Governor Wilson did in California. But in the case of the Santa Monica and other freeway rebuilds the Davis-Bacon Act was in full force and a substantial portion of the incentives given to the contractor found its way into workers' pockets because of the wage and overtime requirements of the Davis-Bacon Act.

Earthquake reconstruction was an economic success. The Southern California economy had been in recession for four years prior to the 1994 Northridge quake. Local economists and business forecasters were surprised not only at the speed of the freeway reconstruction, but also at the boost that reconstruction work brought to the local economy. Governor Wilson suspended California's overtime regulations, but the Davis-Bacon Act required overtime pay on the federal reconstruction projects. The "overtime bonanza" on these projects, according to Larry J. Kimball, the Director of the UCLA Business Forecasting Project, stimulated spending in the locally depressed retail sector. In the early months after the quake, overall employment in California grew by 29,000 jobs, 6,000 of which were in construction. Not only did union workers on the freeway rebuilds benefit, but also nonunion workers in small firms saw their employment, wages, and hours rise. The *New York Times* reported that "[v]irtually all the demolition, repair, and reconstruction work [after the quake] has been handled by local concerns...and the relief money is recirculating in the region rather than flowing out of the state, as it did from Florida [after 1992's Hurricane Andrew, where the Davis-Bacon Act had been suspended]." So the Davis-Bacon Act—by supporting local wage standards, by requiring overtime payments, and by encouraging the employment of local labor—helped ensure that the federal funds flowing into Southern California for disaster relief also helped restart the local economy.

Conservative critics said taxpayers could have saved 10% to 20% of the cost of the Santa Monica reconstruction if Davis-Bacon had not regulated wage payments on that job. Relying on previously published peer-reviewed academic journal articles by this author and others, we have argued that there is no sound statistical basis for the argument that Davis-Bacon wage rates raise construction costs.

Higher pay scales attract workers with more skills that justify their higher pay. In the case of the Northridge earthquake, there were two benefits from hiring more skilled workers within the Davis-Bacon rules. First, their higher productivity per hour largely offsets any difference in labor cost per hour. Second, they can finish the rebuilding more quickly. Those same two benefits would apply in the current situation of rebuilding after the recent Gulf Coast hurricanes.

Government policies sped up the bidding process for freeway rebuilds, and provided around-the-clock government safety and quality inspection of the ongoing work. Government incentives focused contractors' attention upon rapid completion of work, and government wage policies supported local labor standards, encouraged local hiring, and stimulated the local economy. Most agree that, after the Northridge earthquake, government and market forces made each other work better. That is really the fundamental purpose of the Davis-Bacon Act.

Clearly there is a role for both the government and the market in helping the Gulf Coast and the nation recover and reconstruct after the devastation of Katrina and Rita. The Davis-Bacon Act helps ensure this cooperation works. The act helps ensure that public reconstruction work is done quickly and well. The act also helps make certain that public monies spent on reconstruction help rebuild the construction industry itself by supporting apprenticeship training and the retention of trained and experienced workers through the payment of family-friendly health and pension benefits. And the act makes sure that the government does not inadvertently rub salt into the wounds of devastation by undercutting local labor standards. With wages in southern construction already the lowest in the nation, it is penny-wise and pound-foolish to suspend the act for Gulf Coast reconstruction.

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Further reading

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Endnotes

1. Jonathan Rabinovitz, "The earthquake—quake could be costliest U.S. disaster," *The New York Times*, January 25, 1994, Section A, p. 16. Also see "Hurricane Response Oversight," Statement of Honorable Pete Wilson Former Governor, California, Committee on Senate Homeland Security and Governmental Affairs, September 14, 2005, Federal Document Clearing House Congressional Testimony, *Congressional Quarterly*, September 14, 2005.
2. "Part of quake-damaged I-5 reopens," *Press Enterprise* (Riverside, Calif.), May 18, 1994, p. A4.
3. "Bridge rebuilders beating the clock; The way things are going, the nation's busiest freeway could be up and running by late June," *Press Enterprise* (Riverside, Calif.), March 12, 1994, p. A4.
4. Nora Zamichow and Virginia Ellis, "Santa Monica freeway to reopen on Tuesday recovery: The contractor will get a \$14.5-million bonus for finishing earthquake repairs 74 days early," *Los Angeles Times*, April 6, 1994, p.1.
5. *Press Enterprise*, "6.6 and still shaking; It may not have been the Big One, but scenes of collapsed freeways, crumbled apartment buildings and jets of burning gas bursting through streets were close enough," (Riverside, Calif.), January 18, 1994, p. A1.
6. "Hurricane Response Oversight," Statement of Honorable Pete Wilson Former Governor, California, Committee on Senate Homeland Security and Governmental Affairs, September 14, 2005, Federal Document Clearing House Congressional Testimony, *Congressional Quarterly*, September 14, 2005.
7. Christine Spolar, "Night and day, L. A. freeway rises; Contractors race deadline for rebuilding road shattered by quake," *The Washington Post*, April 2, 1994, Final Edition, p. A3.
8. Nora Zamichow, "The Santa Monica freeway: Open again: The man who put the pedal to the metal construction: Clinton Myers is a bootstrap millionaire who speeded up the job by never taking no for an answer," *Los Angeles Times*, April 13, 1994, p. 3. The contractor doing the work had until June 24 to complete the work without penalty. The state had offered considerable incentives to finish prior to June 24. So the contractor had completed the work not only in 66 days but also 74 days ahead of "schedule."
9. Haya El Nasser, "Back from the Quake: World's Busiest Freeway is Up and Running," *USA Today*, April 12, 1994, p. 1A.
10. This "strict replacement" criterion was crucial. The 1989 Loma Prieta earthquake in the Bay area leveled bridges and elevated highways that had not been fully repaired five years later when the Northridge earthquake hit Los Angeles. However, in contrast to L.A.'s intention to simply replace the existing collapsed bridges where they stood, the reconstruction in the Bay Area entailed redesigning, expanding, and moving roadways and bridges. Michael Huerta, California's associate deputy secretary of the Department of Transportation and Director of its Office of Intermodalism, explained that "Rebuilding efforts [after Loma Prieta] encountered delays because

local authorities, under pressure from residents, citizen groups, and business interests, chose to relocate and expand certain projects....In addition, calls were made by local interests to redesign the new highways to withstand future catastrophes, changing the requirements for reconstruction and triggering a whole new set of bureaucratic procedures." Bill Mongelluzzo, "Existing design speed road fixes, DOT official says," *Journal of Commerce*, January 20, 1994, p. 3B.

11. Patrick Lee, "Earthquake: The long road back: Civil construction companies likely to cash in," *Los Angeles Times* (Orange County edition 1), January 20, 1994, p. 1.

12. "Night and day, L. A. freeway rises; contractors race deadline for rebuilding road shattered by quake," *The Washington Post*, April 2, 1994 (final edition), p. A3.

13. Ibid.

14. Ernest E. Pund; Rick Burnham, "Fast work may pay off for area bridge builder," *Press Enterprise* (Riverside, Calif.), May 12, 1994, p. A1.

15. Chris Cox, "Orange & Lemons, Davis-Bacon wages boost rebuilding costs," *Orange County Register* (morning edition). Santa Ana, Calif., March 1, 1994. p. B10.

16. "Quake aid distribution concerns labor official," Associated Press, *Las Vegas Review-Journal*, Feb. 7, 1994, p. 6B. According to W. T. "Doc" Maloney, the Caltrans chief of business management, Caltrans required that demolition and repair contractors eventually subcontract 40% of the value of overall work to women- and minority-owned firms.

17. Nora Zamichow and Virginia Ellis, "Santa Monica freeway to reopen on Tuesday recovery: The contractor will get a \$14.5-million bonus for finishing earthquake repairs 74 days early," *Los Angeles Times* (home edition), April 6, 1994, p.1.

18. Nora Zamichow, "The Santa Monica freeway: Open again, the man who put the pedal to the metal construction: Clinton Myers is a bootstrap millionaire who speeded up the job by never taking no for an answer. "No one will ever touch what we have done," he says. *Los Angeles Times*, April 13, 1994, p. 3; and Nora Zamichow and Virginia Ellis, "Santa Monica freeway to reopen on Tuesday recovery: The contractor will get a \$14.5-million bonus for finishing earthquake repairs 74 days early," *Los Angeles Times* (home edition), April 6, 1994, p. 1: "Myers said he expected from the beginning of the project that he would be able to beat the Caltrans deadline [of 140 days] by a wide margin....I wouldn't say it was a piece of cake, but we knew we could do it within 100 days."

19. Nora Zamichow and Virginia Ellis, "Santa Monica freeway to reopen on Tuesday recovery: The contractor will get a \$14.5-million bonus for finishing earthquake repairs 74 days early," *Los Angeles Times*, April 6, 1994, p. 1. Also see: Julie Schmit, "Slowing the wheels of commerce takes toll," *USA Today*, February 21, 1994, Monday, (final edition), p. B6.

20. Nora Zamichow and Virginia Ellis, "Santa Monica Freeway to reopen on Tuesday recovery: The contractor will get a \$14.5-million bonus for finishing earthquake repairs 74 days early," *Los Angeles Times*, April 6, 1994, p.1.

21. Nora Zamichow, "The Santa Monica Freeway..." op. cit.

22. Haya El Nasser, "Back from the quake: World's busiest freeway is up and running," *USA Today*, April 12, 1994, p. A1.

23. Nora Zamichow, "The Santa Monica Freeway..." op. cit.

24. Christine Spolar, "Night and day, L.A. freeway rises; Contractors race deadline for rebuilding road shattered by quake," *The Washington Post*, April 2, 1994 (final edition), p. A3.

25. Haya El Nasser, "Back from the quake: World's busiest freeway is up and running," *USA Today*, April 12, 1994, p. 1A. The basic wage rate, \$23.90 and weekly income "over \$2,600" are from Nasser. The calculation of time-and-one-half and overtime are the author's as follows $(\$23.90*40) + (\$35.85*20) + (\$47.80*20) = \$2,629$. This assumes 80 hours per week.
26. "I-10 gets quick fix; The busy freeway, damaged by January's quake, may reopen Monday. Officials at first estimated repairs could take nine months," *Press Enterprise* (Riverside, Calif.), April 6, 1994, p. A1.
27. Jane Gross, "California shows signs of recovery as jobs increase," *The New York Times*, April 11, 1994 (Late Edition – Final), p.A1.
28. The one exception to this is an article by Fraundorf, Martha, John P. Farrell, and Robert Mason (1984). Fraundorf estimates an approximate 25% increase in total construction costs associated with Davis-Bacon prevailing wage requirements. However, this result is suspect for two reasons. First, labor costs as a percent of total construction costs run around 25%. If total costs are to fall by 25%, then workers on these projects must work for free. From a technical (or econometric) perspective, Fraundorf neglected to put a needed control into her statistical analysis. Adding that control leads to the disappearance of the effect Fraundorf found. See "The effect of the Davis-Bacon Act on construction costs in rural areas." *Review of Economics and Statistics* (February):142-6. This paper and the overall literature on this is reviewed in Hamid Azari-Rad, Peter Philips, and Mark J. Prus, *Industrial Relations*, Volume 42, Issue 3, p. 445 (July 2003).
29. Steve Allen, "Unionized construction workers are more productive," *The Quarterly Journal of Economics*, 1984, Vol. 99, No. 2, pp. 251-74.
30. For a further discussion of the literature and debate over the cost-impact of the Davis-Bacon Act, see Hamid Azari Rad, Peter Philips, and Mark J. Prus, *The Economics of Prevailing Wage Laws*, (2005), Ashgate, particularly chapters 1 and 5.
31. Although in areas such as many counties in Mississippi, labor standards are sufficiently low that Davis-Bacon does not require the payment of fringe benefits. It should be noted that under Davis-Bacon, contractors do compete over wage costs (as opposed to wage rates). Paying the same wage rate, the contractor who can deploy the most efficient labor force will have a cost advantage over his or her competitors.
32. U.S. GPO, *Davis-Bacon Wage Determinations by State*, <http://www.gpo.gov/davisbacon/ms.html> (accessed September 25, 2005).