

State bonds drive up demand for environmental engineers

Shortage of trained engineers and glut of projects has firms feeling pressure

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November brought good news for environmental engineers and consultants when California voters approved the largest package of public works projects in California history.

Maybe too much good news.

Propositions 1A through 1E and 84 will finance a total of \$42.7 billion worth of new roads, schools, flood protection and other public works. Many firms would love the work, but some won't have the staff to chase after all they'd like.

"The marketplace will be able to respond, but there may not be as many respondents as one would hope because everyone is so darn busy and the industry has a chronic shortage of people," said Paul Meyer, executive director of the Consulting Engineers and Land Surveyors of California. "We've got 1,100 firms all over the state, and I haven't heard of one yet that isn't looking for more staff."

Since environmental work has to come at the front end of any project, those are the people likely to feel the crunch first.

Squeezed at both ends
Colleges are already feeling pressure to build up the talent pool.

"Many of the engineering companies in the region tell me they don't have more work because they don't have the employees. It truly is a frenzy," said Emir Macari, dean of engineering at California State University Sacramento. Rather than trying to underbid one another for contracts, companies are trying to outbid one another for qualified engineers and people in related fields, he said.

"The current work force that is out there is very much up for grabs. The environmental, geotechnical and hydrology side are in huge demand, more than I have every seen in my academic life," Macari said.

As a result, salaries are on a steep climb. Civil engineers who might have been getting \$42,000 a year ago might be offered \$60,000 or more today, Macari said, and some people in construction management are getting job offers in the \$90,000s.

His school and others are striving to increase engineering enrollment, but at the other end of the career spectrum, many senior engineers are nearing retirement age or already eligible. At the California Department of Transportation -- the largest employer of engineers in the state -- about one-third of them are eligible for retirement, Macari said.

"They have been keeping them on by giving them additional bonuses. They are expecting that in the next five to eight years this might go up to 50 percent. The Army Corps of Engineers is looking at the same types of numbers. They don't know how they are going to be able to hold onto these folks much longer."

Here it comes
Already firms are busy with improvements to the levee system in the Sacramento area. Into this hectic environment the state is about to drop a huge amount of new work. First up will be a flurry of road projects from Caltrans.

Caltrans already has a record \$9.4 billion in projects in progress throughout the state. Now \$19.9 billion in Proposition 1B money will be added. About \$4.5 billion of that total already has been earmarked for a Corridor Mobility Improvement Account. The California Transportation Commission has been reviewing specific projects and is expected to announce the final list late this month.

Caltrans submitted 67 projects for consideration, and all but two have also been submitted by regional transportation planning agencies, said Caltrans spokesman David Anderson. "They were all in various stages of development. Some will be ready to go to construction next year," he said. "The whole idea is to expedite construction."

Aware that the new contracts might tax the capacity of certain professions and trades, Caltrans has been working on an Industry Capacity Expansion Plan since fall 2005, said Anderson. But that



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Martin Miele, a geophysics engineer with Shaw Environmental Inc., uses ground-penetrating radar to find animal burrows in levees and other subsurface anomalies. Demand for such skills is rising.
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effort covers only construction industry groups; materials associations, producers and suppliers; and labor representatives. It doesn't cover the environmental and engineering companies that will have to jump in first to get the projects ready.

Putting out the call

While they agree demand is strong, some firms show a calmer demeanor than the frenzy Macari described.

For one thing, the new work is coming at the same time the local economy has been hit with a slump in housing construction. That is freeing up some engineering talent for other work.

"It's not a perfect match from a standpoint of skill sets, but it's not bad," said Charles Metzinger, business line manager for the Sacramento office of Shaw Environmental & Infrastructure.

And the need to hire is not evenly spread throughout the industry.

"Some firms have already picked up some work related to levee improvements and things of that nature, and I think they are already doing the scramble. We are in more of a positioning phase for future work," said Metzinger.

His firm has just hired a geophysicist to make above-ground surveys of levees, plus a civil engineer. Metzinger was scheduled to interview a half-dozen candidates for mid-level and senior engineering slots and planned to bring in a civil engineer from Shaw's Concord office, which has a staff of about 200.

"I consider them my 'west Sacramento' office," he said of his Concord colleagues. "We've got three other offices in Southern California, and 60 offices nationwide."

That ability to bring in resources from elsewhere in the country might give large national firms an advantage over competitors that operate only in California.

Back to kindergarten

Even a national reach isn't the complete answer, said Macari at Sacramento State. Some other parts of the country have their own high demand. "Houston is having a tremendous boom, and they are not able to keep up with it."

His solution is multi-pronged, starting with pep talks at high schools and even middle schools to tell students what engineering is about and what they'll need to excel at it.

But getting them interested is not enough.

"As we finally recruit students, we are seeing tremendous dropouts because they are not able to keep up with the math courses, the physics and the chemistry," Macari said. "They don't drop out of college, but they drop out of engineering. So we are developing strategies in how to retain these students we have recruited."

The methods include tutoring and pairing freshmen with juniors and seniors and also wrangling more internships with local firms. He now has two full-time employees in his department setting up internships for students.

Geotechnical engineering firm Wallace-Kuhl & Associates Inc. does a bit of its own schooling with the engineers it recruits fresh out of school.

"We call it our kindergarten. We tend to grow a lot of engineers from within," said Andy Wallace, the company's chief financial officer and chief operating officer.

While Macari painted a picture of poaching among firms, Wallace said he's not worried about training new recruits for the benefit of competitors down the line.

"You need to treat your employees well enough that they don't want to leave and go to work for your competitor," he said. "In general, right now there is a shortage of engineers. We typically are the first to feel these big upturns and downturns. I can tell you we are extremely busy right now with projects, and this is with the soft economy. But we have a low turnover rate. Take care of your clients, take care of your employees, and they will both stick around."

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