

ODOT's lax quality control raises questions of fraud

By Nick Budnick
Capital Bureau

Potholes and ruts cost the average Oregonian driver hundreds of dollars in vehicle repairs every year.

But as Oregon Department of Transportation Director Matt Garrett prepares to ask lawmakers for hundreds of millions of dollars in increased taxes and fees on Oregonians to fund new roads and bridge upgrades, documents show that his department has for more than a decade resisted basic quality improvements intended to stop construction fraud, combat premature potholes and make roads last longer.

Federal highway officials have warned ODOT repeatedly since 2005 that its road-paving inspection program is vulnerable to fraud. Because the department fails to undertake basic precautions, asphalt contractors can game ODOT's system to make it appear standards were met while compromising road quality, similar to what Volkswagen did with diesel emissions.

ODOT estimates it spends \$100 million a year on asphalt. In the past year, it used about 1.6 million tons of it to build new roads and rehabilitate existing ones.

For about two decades, Oregon has relied on road contractors to test their own asphalt quality and show they meet minimum standards. State technicians do their own tests to spot-check one-in-10 results.

Garrett maintains that ODOT's money is well spent, that he has faith in the integrity of Oregon's construction oversight system.

But the federal assessment that Oregon is vulnerable to trickery is echoed by some of ODOT's current and former employees.

"Quality control was not taken seriously," says Bret Alford, a longtime ODOT quality-control specialist who left the agency in 2012. Oregon's contractor-driven oversight system, he adds, "Seems like the fox guarding the hens to me."

ODOT's oversight system creates a "huge risk of fraud," former ODOT internal auditor Mary Hull Caballero, who investigated the state agency's construction practices extensively, told Secretary of State auditors in 2013, according to a summary of the auditors' interview. Hull Caballero, who is now the city of Portland's elected auditor, declined to comment for this story.

While there are plenty of good contractors out there, "it is so easy for a contractor to falsify documentation," says Carol Putnam, a former ODOT quality assurance specialist who left the department in 2013. "We don't know what goes on behind closed doors."

In 2014, the Federal Highway Administration commu-



Contributed photo/Oregon Department of Transportation
A crew member checks the temperature of the asphalt. Federal highway officials have warned ODOT repeatedly since 2005 that its road-paving inspection program is vulnerable to fraud.

nicated the results of a top-to-bottom review of Oregon's quality control for road construction conducted the previous year. Its recommendations largely echoed a report it issued in 2005.

Rudimentary quality checks

Since 2005, federal highway officials have urged Oregon to pursue electronic data collection of quality test results and to use statistical comparisons to look for anomalies and bogus reporting.

Oregon, instead, does not systematically track quality results or use the statistical tests that are common in other states, according to the federal review. Instead of tracking numerous results statistically, a technician will simply compare the state's result to the contractor's finding during the spot-check conducted on 10 percent of tests.

"This method of verification is very weak and will only detect severe problems with contractor test results," according to a 2013 Federal Highway Administration report.

Much as it did when the highway administration made the same recommendation in 2005, ODOT has promised to launch a study of the issue. In July, work began on a \$300,000 study by a Texas A&M Transportation Institute researcher who formerly worked for the pavement industry.

Not only is Oregon's rudimentary spot-check method weak and vulnerable to fraud, the state doesn't do enough spot-checking to determine if it has a problem, according to the feds.

In a November 2014 memo requesting funding to study potential quality improvements, ODOT's top quality assurance engineer, Greg Stellmach, wrote that data gathered that year suggested that contractors are not following ODOT rules on random quality testing. That, in turn, can have a "huge impact" on the department's spending on asphalt, he wrote.

Faulty asphalt test
Oregon's roads use asphalt

low rollers to get the asphalt to meet the required minimum density. Density tests after compaction are used to determine bonus payments to contractors.

A Portland-area ODOT project manager, Ron Larson, explained the issue to state auditors in 2013. "The higher the compaction, the longer (the roadway) lasts," he said, according to notes of his interview. "Problems in this area are what eventually form potholes."

Poor compaction and low density, he said, is ODOT's "biggest problem" on projects that go bad.

And yet contractors can use rollers to game the density tests, as ODOT officials have acknowledged. The contractors whose rollers are compacting the asphalt often know in advance the locations where the density of their product is going to be tested, allowing them to manipulate the system, according to ODOT's top quality expert.

"Frequently the locations that the density shots should be taken at are marked along the pavement at the tonnage where the test needs to be taken," Stellmach wrote in the 2014 ODOT document discussing weaknesses in Oregon's system. "This allows the roller operators to be aware of test locations and potentially influences the pattern that they make in rolling the asphalt. The (contractors') density technician may also ask the roller operator to do additional compaction in a location that has not met compaction requirements."

Stellmach, in a telephone interview in which his boss, Joe Squire, and two public relations specialists were listening in, said that he has no evidence that gaming the system is a problem. Squire, for his part, said "the vast majority of pavements within the Oregon highways system is rated fair to good or better, which is very high among states."

Contractor technicians who cheat on tests face potential criminal charges and fines. Squire and Stellmach noted the state has suspended several technicians in recent years, one of whom was suspected of fraudulent misrepresentation.

Alford, for his part, says he saw a dynamic at ODOT that was focused on getting things done on time as well as excessive coziness between contractors and his coworkers, including project managers. Once, he protested that he would sign only truthful quality reports. A manager responded that Alford would sign whatever report he was told, "or I would be out of a job," Alford recalls.

generated by privately owned asphalt plants. Oregon, however, continues to test the asphalt at the plant itself, using a system that allows the plant operator to know generally when the contractor's self-test sample is supposed to be taken. That allows the operator to temporarily "optimize" the asphalt mix to meet quality standards, according to the 2014 memo by Stellmach, the ODOT quality expert. Not only that, but the plant operator has plenty of time to switch to a different mix when it sees a state quality technician drive up to double-check the contractor's self-test, according to the federal audit.

Fraud by asphalt plants is not an abstract concern. Documents show that in 2008, an ODOT pavement engineer resigned in protest and warned the Federal Highway Administration of an "unethical" failure by ODOT management to investigate what he concluded was contractor fraud by an asphalt supplier.

Similarly, Alford, the former ODOT quality specialist, says he heard from a friend who worked for an asphalt contractor that there literally was a switch the operator could flip to meet quality standards when the ODOT inspector showed up.

Oregon is the only state west of the Rockies to still test at the plant. Most western states test closer to the paving machine as it lays asphalt on the roadbed.

ODOT Construction and Materials Engineer Joe Squire says testing the asphalt behind the paver would endanger the employee doing the testing. However, a 2007 University of Illinois survey of state departments of transportation found that "sampling behind the paver is being conducted by many states without much difficulty."

A recipe for potholes

Another major issue for ODOT is compaction, meaning the use of those giant yel-



Oregon Department of Forestry/Marcus Kauffman
Consultant Kelpie Wilson, right, helps unload a farm-scale biochar kiln during a recent conference at Oregon State University in Corvallis. Welding students at Umpqua Community College have built kilns for a group of farmers experimenting with making and applying biochar.

Biochar project seeks to demonstrate its application to ag

By Eric Mortenson
EO Media Group

An ongoing biochar project in Southern Oregon might clarify the agricultural role of a product and technology that has been talked about for years and has fervent backers, but hasn't yet broken through to commercial success.

Coordinated by the Umpqua Biochar Education Team and funded with a two-year, \$75,000 grant from USDA's Natural Resources Conservation Service, 10 farmers have spent the past year learning to make biochar and combine it with compost for application on pastures.

"The idea was to work with farmers who have livestock and take two waste streams — manure and woody debris — and combine them to make a really valuable soil amendment," said Kelpie Wilson, a biochar consultant who helps coordinate the work.

The farms involved range from a century farm of almost 1,000 acres that raises grass-fed beef to a small hobby farm of perhaps five acres, and producers who raise dairy goats, pastured pork and sell eggs at farmers markets. The farms are in Douglas, Jackson and Josephine counties.

The UBET team is documenting the work and at the end of the grant period will produce technical papers that can be shared by extension offices and followed up by NRCS.

The Umpqua work will increase understanding of biochar and its benefits, said Todd Peplin, Conservation Innovation Grant program manager for NRCS in Portland. Small farms may be the first avenue for its agricultural application, he said, and the conservation grant program is well-matched to support that work.

Biochar is essentially charcoal produced by burning material such as logging slash or field straw in the presence of little oxygen. The resulting material retains moisture and nutrients, sequesters carbon and has shown great promise to improve soil, boost crop yields, cleanup old mining sites, capture pollutants from stormwater runoff, absorb odor and other uses.

However, the technology's advance has been stop and go.

To some degree, the diversity of biochar sources and potential applications works against it.

"It's too spread out, so it doesn't have a sector that's really a champion for it," said Tom Miles, who chaired an Aug. 22-25 biochar conference hosted by Oregon State University's College of Forestry.

About 300 people attended the conference, including researchers, educators and producers.

Wilson, the consultant, said biochar production could be a natural for small farms that have burn piles and manure they need to deal with.

The project has resulted in spinoff activity at Umpqua Community College, where welding students are making farm-sized steel kilns that provide the controlled burning necessary to produce biochar. Students also participate in the kiln design process, Wilson said.

"That was part of our goal in the (NRCS) grant," she said. "We wanted to see if this could stimulate a new small industry in the area."

"I think a lot of rural landowners would like to have one of these," she said. Farmers "spend a lot of time burning things, and with this they can do it with very little smoke and get something for their effort."

For more information visit ubetbiochar.blogspot.com.

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