

In Oregon

**"We're not playing catch-up,"**

said Jason Neil, deputy program manager with Oregon Bridge Delivery Partners



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Wallace Marine Park and a boat on the Willamette River are framed by the support structure for Marion Street Bridge. The Marion Street and Center Street bridges are due for inspection in September.

## HEIGHTENED awareness

Minnesota tragedy shines spotlight on Oregon bridge safety

BY MICHAEL ROSE

Statesman Journal  
**D** rivers used to stream across Oregon's bridges without thinking about the concrete and steel beneath them, but infrastructure is no longer taken for granted after the disaster in Minnesota.

The condition of Oregon's bridges is a mixed-bag:

- About 8 percent of the 2,683 bridges maintained by the state are classified as "structurally deficient" and 21 percent are considered "functionally obsolete," according to the Oregon Department of Transportation. Nationally, about 12 percent

of the nation's bridges were classified as "structurally deficient" in 2006, and another 13 percent were classified as "functionally obsolete."

If a bridge is unsafe, ODOT will shut it down.

- County bridges also have problems, said officials with the Association of Oregon Counties. About 7 percent of 3,392 county bridges meet the federal government's threshold to qualify for replacement funding.

In Oregon, officials have taken action to reduce the backlog of bridge repairs and replacements.

See Bridges, 10A

### Salem bridges

The Center Street and Marion Street bridges were built in 1953 and widened in 1984. Each was inspected in September 2005 and are due for another inspection in September 2007.

### Inside

A chart of the conditions of bridges in Marion and Polk counties, Page 11A. Bush tours site in Minnesota, Page 12A.

### Online

To check the status of Oregon bridges and to view national coverage of the Minnesota bridge collapse, see this story at Statesman Journal.com

## Bridges

Continued from 1A

"It's getting better, but we have a long ways to go," said Jon Oshel, country road program manager for the Association of Oregon Counties. A decade ago, the association said about 640 country bridges statewide were considered deficient. Today, the number has been reduced to 244 bridges. Still, only 23 of the remaining problem bridges currently are scheduled for replacement.

Thanks to the Oregon Transportation Investment Act, the pace of bridge repair has been stepped-up in recent years. State officials approved a 10-year, \$3 billion funding package for transportation improvements. More than one-third of the funding — \$1.3 billion — is dedicated to bridges. By 2013, the state program will repair or replace 365 bridges in Oregon.

"If Oregon continues to invest aggressively in its infrastructure, it's going to be well ahead of other states," said Jason Neil, the deputy program manager with Oregon Bridge Delivery Partners. The group, which is overseeing the program to



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Traffic comes into downtown Salem off the Center Street Bridge as traffic heads to Polk County on the Marion Street Bridge (rear).

upgrade the state's bridges, is a joint venture of HDR Engineering of Omaha, Neb., and Fluor Enterprises of Aliso Viejo, Calif.

In Neil's view, Oregon acted fast enough to prevent the most serious problems.

"We're not playing catch-up," he said.

Bridges in the worst condition often have weight limits. Such limits can bring long detours for trucks and slow commerce.

So far, Oregon Bridge De-

livery Partners hasn't worked on a bridge that appeared to be in imminent danger of collapse, Neil said.

The repairs are part of Oregon's most ambitious highway program since the original interstate highways were built in the 1950s and '60s. Lawmakers acted after a January 2003 report to the Oregon Transportation Commission found that 487 of 555 state highway bridges built with reinforced concrete deck girders had developed cracks.

Months later, ODOT limited loads on I-5 bridges across the Willamette and McKenzie rivers near Eugene.

Although some interstate bridges had been flagged earlier, the limits imposed on these bridges — and the detours they forced for some heavy trucks — drew added attention.

A 2004 study by Oregon State University's Christopher Higgins and others helped quantify one issue: how bridges withstood loads

## Oregon's bridges

BRIDGES IN OREGON: 7,238  
 BRIDGES IN MARION COUNTY: 347  
 BRIDGES IN POLK COUNTY: 147  
 "STRUCTURALLY DEFICIENT" IN OREGON: 11.7 percent  
 "STRUCTURALLY DEFICIENT" IN MARION COUNTY: 3.7 percent  
 "STRUCTURALLY DEFICIENT" IN POLK COUNTY: 15.0 percent  
 OREGON BRIDGE IMPROVEMENT PROGRAM: \$1.3 billion  
 BRIDGES BEING REPAIRED/REPLACED: 365  
 COST OF REPLACING/REPAIRING ALL DEFICIENT BRIDGES: \$4.7 billion  
 SOURCES: Federal Highway Administration, State of Oregon

despite cracks in concrete. Researchers examined four bridges, including one across the Willamette River at Newberg, and did laboratory tests of full-scale girders.

The study by OSU's Higgins, an associate professor of structural engineering, was highly technical, but it concluded "the specimens were able to achieve substantial numbers of cycles before failure."

Higgins said the reinforced concrete deck girder bridges he studied are quite a bit different from the steel truss

bridge that fell in Minnesota.

Higgins said that many things could have gone wrong in Minneapolis, and that it is difficult to speculate at this early stage.

Many older bridges, which wouldn't meet modern design requirements, still are strong, serviceable and safe, he said. The average age of Oregon's bridges probably is about 50 years old, Higgins said.

Oregon has nine deck truss bridges on the interstate system, eight in Southern Oregon and the I-5 Marquam Bridge over the Willamette River in Portland. Another 18 deck truss bridges are on other Oregon state highways.

ODOT officials said the bridge in Minnesota had two vulnerabilities known to cause problems: "scour" and steel fatigue.

Scour occurs when bridge foundations are undermined when riverbed material is washed away. Bridges built before the 1970s sometimes have connections between steel members that are susceptible to cracks as the bridge vibrates or moves.

Statesman Journal reporter Peter Wong contributed to this story.

mrose@StatesmanJournal.com or (503) 399-6557

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