

# Star-Telegram

## Tarrant bridges: How long will they hold up?

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If the 2007 collapse of Interstate 35W in Minneapolis was a wake-up call to fix the nation's crumbling bridges, dozens of places in North Texas have yet to answer.

A prime example is the West Seventh Street bridge near downtown Fort Worth, where signs of decay are plain as day. On the underbelly of the 99-year-old structure, metal rods that were once protected by concrete are now poking through the eroded surface -- a problem that, if not addressed, will eventually make the bridge unsafe for motorists. It is scheduled to be demolished and replaced in 2013.

Meanwhile, more than 12,000 vehicles per day cross it despite a poor score on its most recent inspection.

"If this bridge were to remain in service, this would all be repaired," Taylor Buckner, a Texas Transportation Department engineer, said during a recent inspection. Pointing to the exposed steel rods, he said, "That's one of the bigger areas of concern, because that does directly support the superstructure."

The West Seventh Street bridge was one of several aging bridges in Tarrant County that were thrust into the spotlight in 2007 after the Minneapolis collapse killed 13 people and injured 145.

But nearly five years later, a *Star-Telegram* review of thousands of federal bridge records from the National Bridge Inventory and interviews with state officials show that the overall condition of bridges across Tarrant County is arguably worse, with 29 of 2,047 in the area scoring below 50 on a 100-point scale in their most recent inspections. That's worse than in 2007 after the Minnesota tragedy, when 26 Tarrant County bridges scored below 50.

Of the 29 poorly scoring bridges in Tarrant County, 21 are considered structurally deficient, meaning they have problems with the deck, superstructure or substructure. Eight bridges are functionally obsolete; they are outdated because of factors such as geometry or load-carrying capacity. During the past two months, the *Star-Telegram* visited several dozen bridges in Tarrant County to observe signs of improvements or wear and tear, and the newspaper also reviewed inspectors' notes and photographs on file at the Texas Transportation Department's Fort Worth district office.

Department officials say they're aggressively trying to fix old bridges. In 2001, the department set a goal of getting 80 percent of the state's bridges in good or better condition within 10 years, and it completed those improvements a year early.

Officials also caution that data in the 2010 National Bridge Inventory reflects inspections from 2008 to early 2010. Since then, some problems documented in the reports have been fixed. They also explained that a grade below 50 doesn't mean the bridges are unsafe. Rather, a sufficiency rating below 50 means the bridges are qualified for federal replacement funding.

In Fort Worth, where 16 of the substandard Tarrant County bridges are located, city officials say that they're three years into an aggressive renovation and replacement program and that residents will soon begin to see results. The city plans to spend \$25.7 million on bridges through 2015 -- \$15.5 million on capital improvements to older bridges and \$10.2 million for new bridges along the Trinity River Vision development north of downtown -- said George Behmanesh, assistant director of transportation and public works.

The city also intends to spend an additional \$1.9 million per year from its operating budget on bridge maintenance, he said.

### Trouble spots

Nonetheless, a review of the National Bridge Inventory electronic database kept by the Federal Highway Administration reveals that several bridges that fared poorly in their most recent inspections are among the better-known and heavily traveled landmarks in the western Metroplex.

For example, the West Seventh Street bridge, which carries an estimated 12,000 vehicles a day, had a 38.8 score after an inspection in March 2010. That was up from 33.2 in 2007. The state inspected the bridge in December, but that sufficiency rating hasn't been published.

Although the bridge was not repaired between the 2007 and 2010 inspections, the score could have increased slightly for a variety of reasons, state officials say. A formula for determining the score includes such factors as average daily traffic, and although inspectors use the same criteria, their conclusion about what score a bridge should receive could differ slightly from one visit to the next.

But the inspection report for West Seventh Street still reflects a bridge with a superstructure that was rated in poor condition, with advanced deterioration and spalling -- the flaking-off of concrete or other material. The deck and substructure ranked only slightly higher, in fair condition with minor cracking and loss of material.

The westbound Baker Boulevard/Hurst Boulevard bridge near the Richland Hills-Hurst city limits scored a 50.8 during its most recent inspection, in September 2008, according to the 2010 National Bridge Inventory. The bridge, which passes over Northeast Loop 820, received a similar score of 48.8 in a May 2004 inspection documented in the 2007 National Bridge Inventory.

In Arlington, the Fielder Road bridge over Interstate 30 dropped almost 18 points -- to 63.6 from 81.2 -- after its most recent inspection.

The Transportation Department's Fort Worth district provided the *Star-Telegram* with an update on 23 bridges found to be structurally deficient with a sufficiency rating below 50 in 2007. Of those bridges, 16 have been or soon will be repaired, an official said.

Although the number of bridges rated below 50 has increased during the past four years, the news isn't all bad. The number of structurally deficient bridges in Tarrant County with an inspection score below 50 has actually slightly dropped to 21 today from 23 in 2007. Meanwhile, the number of functionally obsolete bridges has increased -- to eight today, compared with two at that time.

But some bridges that previously had passing scores have since fallen onto the state's list of structurally deficient bridges, including the eastbound side of Bass Pro Drive in Grapevine and the Burleson Retta Road bridge over Village Creek east of Fort Worth Spinks Airport.

State officials say they are doing the best they can with the money available. Texas spent about \$247 million in federal aid for bridges in 2010, down from \$287 million in 2007.

"That's the life cycle of our highway system," Transportation Department spokeswoman Jodi Hodges said. "It's a constant battle."

Including state, federal and other funds, Texas spent \$736.7 million on highway bridges in 2010 -- \$385.3 million for new construction, \$320.4 million for replacement or rehab and \$31 million for maintenance -- according to the department's annual bridge report.

Those figures include nearly \$44.2 million worth of bridge projects let in Tarrant County during 2010. Of that, \$29.9 million was for new bridges, \$10.5 million for bridge replacement, \$2.8 million for rehab, \$787,000 for maintenance and \$141,000 for widening, according to the Transportation Department.

For advocates of better bridge upkeep in Texas and across the U.S., things are moving far too slowly. The Minneapolis tragedy, they said, hasn't served as much of a wake-up call at all.

"We're still moving at the same snail's pace," said Andrew Herrmann, president of the American Society of Civil Engineers, a Reston, Va.-based group that advocates for better upkeep of bridges. Often, he said, the structures are built to last 50 years, but the average age of bridges in the U.S. is now 43 years and climbing.

### Building new bridges

While aging bridges are crumbling, growing communities in Dallas-Fort Worth are spending tens of millions of dollars on new bridges, often a short distance from those that most need the repairs.

In downtown Fort Worth, just about a mile northeast of the aging West Seventh Street bridge, local and federal officials have set aside about \$62.8 million to build two new bridges as part of the massive Trinity Uptown redevelopment. That project includes rechanneling the Trinity River and overhauling the near north side into what supporters say will be a modern, mixed-use neighborhood.

Meanwhile, the budget to improve the historical North Main Street bridge near the Tarrant County Courthouse is more austere. About \$2.8 million has been budgeted, mostly to improve its deck -- and that yearlong work is nearly complete. The bridge, built in 1914, scored a 33.8 on its most recent inspection. The bridge will be a major gateway to the Trinity Uptown area.

In Northeast Tarrant County, a \$2.5 billion expansion of Loop 820 and Texas 121/183 has been turned over to a private developer, North Tarrant Express Mobility Partners. That project includes a makeover of at least 15 underpasses and overpasses.

But for now, the project doesn't include reconstruction of the Main Street bridge in Euless, which is about a mile to the east and carries 14,800 vehicles per day.

That bridge, built in 1970, is functionally obsolete and has only a 42.2 sufficiency rating. During a 2010 visit, inspectors found longitudinal cracking on the bottom side of the bridge slab and leaching -- or intrusion of water into the bridge material.

State transportation officials say they hope the Euless bridge can be replaced as part of a future phase of the North Tarrant Express project, although it is not funded.

They also hope to someday include replacement of the Baker Boulevard/Hurst Boulevard bridge over Northeast Loop 820 in the North Tarrant Express project -- but it, too, is unfunded. That bridge often shakes as truck traffic rumbles by.

In Arlington, the state recently completed \$166 million worth of repairs to three bridges near Cowboys Stadium and Rangers Ballpark. Two of the bridges -- Center Street and Legends Way/Baird Farm Road -- are new, and the Collins Street bridge was rebuilt.

But just two miles west of the Three Bridges Project, the Fielder Road overpass over Interstate 30 dropped to a score of 63.6 on its most recent inspection in the 2010 National Bridge Inventory, down from 81.2 in 2007. The lower score was due in part to a substandard rating of its deck.

"You can't get a politician excited about cutting a ribbon on an old bridge," Herrmann said. "But build a new one and everyone wants to be in the picture."

He said the nation's lack of adequate transportation, including bridges, cost businesses and residents \$130 billion last year.

Many bridge repair projects missed out on a chance for stimulus funding in recent years because they didn't meet the federal requirement that they be "shovel ready" -- in other words, the paperwork wasn't in order that would have allowed work to begin immediately.

So instead, the Recovery Act work went to newer bridges that were ready to be built.

### Texas' record

Despite Texas' problems, the state's bridges are third best in the nation in terms of safety, according to a national report released in March, "The Fix We're in For: The State of Our Nation's Bridges." The report, by Transportation for America, a campaign launched by business, environmental and other groups seeking a cohesive transportation policy, found that Texas had 1,551 structurally deficient bridges out of 51,277 total structures.

The state now has 51,557 bridges, according to updated figures in its 2010 annual bridge report, including 1,553 that are structurally deficient -- still the third-best mark in the U.S.

In 2001, the Texas Transportation Commission set a goal of improving bridge conditions within 10 years. At that time, 70 percent of bridges were in good or better condition, but the goal was to achieve 80 percent by 2011 -- and that goal was met a year ahead of schedule, said Keith Ramsey, director of field operations in the Transportation Department's bridge division.

"Overall, bridge conditions are getting better," Ramsey said. He added that the progress comes as Texas is dealing with explosive population growth and receiving a smaller share of federal dollars.

State officials say they won't hesitate to close a bridge considered unsafe.

In 2009, the West Lancaster Avenue bridge over the Trinity River near downtown Fort Worth was shut down for several months after inspectors found deterioration on bearings that connected the bridge to the support structure. The work cost \$603,000. The bridge, built in 1938-39, was last rehabilitated in 1999.

Last year, a four-lane stretch of Interstate 30 in east Fort Worth was reduced to two lanes at the North Beach Street bridge after a tanker fire explosion melted some of the support structure. The Transportation Department issued an emergency contract and repaired the damage in about two months, at a cost of \$677,000.

But many other substandard bridges remain open, while transportation officials play a waiting game -- constantly monitoring problem areas until funding becomes available to correct them.

Under the West Seventh Street bridge, Buckner and three other bridge inspectors spent about two hours one recent morning poring over the structure's flawed features.

For example, under an arch spanning Forest Park Boulevard, Buckner greeted a giant vertical crack running nearly the length of a bridge column like an old acquaintance.

The crack was about a half-inch wide and several feet long.

"It's wider than some of the others we've seen, although we've seen it for years. It's fairly stable," he said. "It's been at roughly that width for a good number of years."

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Looking for comments?

## By the numbers

U.S. bridges: 577,725

Deficient: 62,936

Texas bridges: 51,557

Deficient: 1,553

Tarrant bridges: 2,047

Deficient: 21

Obsolete: 8

Yrs in typical bridge's useful life: 50

Avg. age U.S. bridges: 43

Needed to fix backlog: \$70.9 B

Annual bridge appropriations (2009): \$5.2 B

Federal funds spent by states on new road capacity: \$18 B

Federal funds spent by states on bridge rehab: \$8.1 B

Sources: Transportation for America, Texas Department of Transportation, Federal Highway Administration A closer look

The Star-Telegram examined Texas highway data from the National Bridge Inventory, which is updated annually and can be downloaded for free on the Federal Highway Administration website. The research focused on bridge data from 2007, the year of the Minnesota tragedy, and 2010, the most recent year available.

The inventory provides a method for states to uniformly report the results of their bridge inspections. Dozens of pieces of information are cataloged, and a mathematical formula is used to provide a sufficiency score. Besides the usual physical examination of a bridge, inspectors also note whether it is on a strategic military highway or how far away the detour would be in the event the bridge had to be closed.

Inspectors usually work in groups of two or three, and depending on the bridge size, an inspection can take an hour or all day. They photograph noteworthy features and take detailed notes and measurements on a clipboard. Often, inspectors start by walking atop the bridge from one end to the other, then go below the deck and check the underbelly.

On the top, special attention is paid to joints and the quality of the driving surface -- potholes can be a sign of a failing bridge deck.

Where the bridge deck meets the superstructure, inspectors look for misfit bearings, missing concrete or signs of cracking.

On the substructure, where the bridge submerges into water or soil, inspectors look for evidence of scouring -- or erosion of earth or other support material often caused by rushing water.

Read more here: <http://www.star-telegram.com/2012/01/15/3660662/tarrant-bridges-how-long-will.html#storylink=cpy>