How good are Virginia bridges? Stay calm and keep driving.

There are more than 230 million licensed drivers in the U.S. who cross nearly 620,000 bridges on a regular basis. That is a lot of wear and tear.

Data compiled by the Federal Highway Administration and analyzed by a trade association for transportation builders shows that just under 7% of the nation's bridges are considered "structurally deficient."

So it's no surprise that infrastructure is often cited as one of the major areas of concern facing the country. Nearly three-quarters of Americans told the Pew Research Center in 2021 that the condition of America's roads and bridges was a "very big" or "moderately big" problem.

In light of that, President Joe Biden signed the Infrastructure Investment and Jobs Act into law in November 2021, setting aside $110 billion to repair and replace bridges and roadways. The funds included nearly $540 million for Virginia projects over a five-year span, $18 million of which is allocated toward replacing the bridge that carries Arthur Ashe Boulevard over railroad tracks near The Diamond.

Overall, the commonwealth's bridges are in relatively good condition.

Of Virginia's 14,042 bridges, 501 are considered structurally deficient, a 3.6% rate that is one of the 10 lowest among the 50 states and District of Columbia. Moreover, conditions are improving; there were nearly 150 more bridges graded as deficient in 2018 than in 2022.

But that does not mean that every bridge is in brand-new condition. Of the 20 most traveled structurally deficient bridges in Virginia, six are in the Richmond area:

Interstate 95, crossing over Route 608/Reymet Road (Chesterfield County)

Year built: 1958

Crossings per day (2020): 98,000

Interstate 195, crossing over Route 197/Westwood Avenue and CSX rail tracks (Henrico County)

Year built: 1974

Crossings per day (2020): 61,400

Interstate 64, crossing over Stony Run (Henrico)

Year built: 1965

Crossings per day (2020): 56,700

East Broad Street, crossing over I-95 (Richmond)

Year built: 1958

Crossings per day (2020): 28,100

East Broad Street, crossing over abandoned CSX spur line (Richmond)

Year built: 1909

Crossings per day (2020): 28,100

Ramp from I-64 to Fifth Street and I-95 South, crossing over I-95 (Richmond)

Year built: 1958

Crossings per day (2020): 23,600

What does that mean for everyday drivers in the Richmond area?

The Richmond Times-Dispatch spoke to the Virginia Department of Transportation engineer who oversees bridges in the Richmond district to find out.

Inspections every two years

Calling a bridge structurally deficient does not mean that it is unsafe for daily driving, VDOT engineer Craig Ponte said.

VDOT conducts “hands-on inspections” of bridges every 24 months, with a focus on three major components: the deck, which is the surface that cars drive on; the superstructure, made up of the horizontal beams and other elements that bear the weight placed on the deck; and the substructure,

which includes foundational elements like columns and abutments that connect a bridge to the ground below.

Those components are rated on a scale from zero to nine at each inspection. If any of a bridge's major components are rated four or below, the bridge is deemed to be in poor condition, which automatically flags that bridge for inspection every 12 months and places it on a priority list for repair or replacement, according to Ponte.

But only ratings of three or below indicate a risk of component failure, according to VDOT's grading standards, and a component must be rated a two before the guidelines suggest closing a bridge.

The most recent available FHWA data, gathered in 2021, shows that just five of the 14,042 bridges in Virginia were rated two or worse for any of the three key components, and only one of those was in the Richmond area: the St. Andrews Street Bridge in Petersburg, which reopened in November after being closed for 15 years.

That is part of the reason VDOT is phasing out the "structurally deficient" terminology in favor of simply calling bridges poor, Ponte said. The term "structurally deficient" connotes a risk of imminent collapse that, in many cases, just is not there.

Ponte told The Times-Dispatch that, when concerns arise about the amount of weight a bridge can support, VDOT lowers the top allowable weight on that bridge — preventing the heaviest trucks from crossing — before taking measures that could affect everyday drivers.

What is on the docket?

Bridges built under old design standards typically last about 30 years before they start to need repairs, Ponte said. Much of the deterioration in that interval is caused by water and salts used to de-ice roads seeping into bridge components through the joints — gaps where the ends of bridges meet ground level, which exist to accommodate thermal expansion or contraction of bridge materials.

But VDOT is using new jointless design methods for all new construction, and even some current repair projects, that will more than double the lifespan of Virginia's bridges.

"The design life for new bridges is 75 years," Ponte said. "It's pretty cool."

The heavier the traffic on the bridge, the higher priority the bridge is given for repairs. Ponte said VDOT aims for a maximum window of six years before a bridge gets the repairs it needs — a figure that varies based on the level of funding available to the agency — but that, at the top, things "can move pretty quickly, with (as little as) a couple of years before repairs are complete."

Some of the poorly rated bridges in the Richmond area are already being worked on.

The I-95 bridge over Reymet Road, which was built in 1958 and reconstructed in 1990, is currently under construction, according to VDOT. The superstructure is being replaced, and the project will also add a few inches to the vertical clearance under the bridge to account for taller vehicles.

A "megaproject" to rehabilitate several bridges over I-95 in downtown Richmond is underway as well, and Ponte said

plans to rehabilitate the Cary Street and Grove Avenue bridges over I-195 are currently in the design phase.

‘Easier to weather’

The state of bridges impacts more than daily commutes, family drives and road trips. It has a direct impact on the economy and businesses.

Ari Augenbaum, executive chef and co-owner of JewFro, a Jewish-African fusion restaurant in Shockoe Bottom just a few blocks from where Broad Street crosses over I-95, has spent plenty of time thinking about local construction and development projects. But he is not particularly worried about a future bridge construction project having major negative effects on the restaurant.

“We’re more of a destination restaurant,” Augenbaum said. “So people are seeking us out, which makes it easier to weather things like that.”

However, that feeling does not necessarily extend to the other restaurants he co-owns, like the North Second Street location of Soul Taco, which transitioned into Sear Burger in late 2022.

It was “exponentially more difficult” to keep business strong through construction in Jackson Ward, Augenbaum said, and that location also faced significant obstacles from the ongoing saga surrounding the redevelopment of the Richmond Coliseum area.

But Augenbaum said that was a natural risk of committing to a location based on the expectation that one of the city’s signature development plans was going to move forward

quickly — a risk that has impacted JewFro as well. Coffee and happy hour concepts designed around a planned expansion of Richmond-to-Washington commuter rail transit out of Main Street Station have yet to get off the ground at the eatery.

Other organizations near poorly rated bridges say there could be some impact if there were to be significant construction projects in the vicinity, but they also believe that such projects would not cause a major hit to day-to-day operations.

PARK365, an inclusive park off Westwood Avenue near the I-195 crossing, accommodates many patrons with disabilities or sensory issues who might be adversely affected by the commotion of a major construction project. Andrea Siebentritt, communications and public relations manager for the park's nonprofit parent organization, SOAR365, said the group would have to consider creative ways to mitigate noise pollution and other negative effects, but that construction on the bridge would not cut off access to the park.

Ponte said VDOT generally replaces bridges in stages in order to keep traffic patterns as unaffected as possible. But concerns that local business owners have about the impact of construction projects are something that VDOT thinks about on a broader scale, rather than considering the effect on individual businesses.

"That's kind of outside of my area of expertise," he said. "But when we're setting up these design projects, we do want to keep traffic (moving) through the area."