



By Dr. Alison Premo Black, Chief Economist

## Highlights:

- 36 percent of U.S. bridges—nearly 224,000 spans—need repair work. 78,800 bridges should be replaced.
- More than 43,500 bridges are rated in poor condition and classified as “structurally deficient.” Motorists cross these structures 167.5 million times a day.
- The number of structurally deficient bridges declined by 1,445 compared to 2020. At current pace, it would take nearly 30 years to repair them all.
- New federal investment under the Infrastructure Investment and Jobs Act will provide additional resources for state highway programs over the next five years, plus two new programs just for bridge repair.
- State-by-state and congressional district details: [artbabridgereport.org](https://artbabridgereport.org).

---

## Los Angeles to Maine & Back Again

The American Road & Transportation Builders Association’s (ARTBA) analysis of the recently released 2021 U.S. Department of Transportation (DOT) National Bridge Inventory (NBI) database finds that 36 percent of all U.S. bridges—nearly 224,000 spans—require major repair work or replacement.

If placed end-to-end, these bridges would stretch over 6,100 miles—long enough to crisscross the country from Los Angeles to Portland, Maine and back again.

Based on average repair and replacement cost data published by the Federal Highway Administration (FHWA) and submitted by bridge owners (typically state DOTs), ARTBA estimates the cost of identified repairs for all 224,000 bridges, including the 43,578 structurally deficient, is \$260 billion.

Structurally deficient bridges represent 7 percent of the 2021 U.S. bridge inventory—compared to 7.3 percent in 2020.

With bridges being repaired and other structures deteriorating, the number of structurally deficient bridges was down by 1,445 compared to 2020.

Nearly 90 percent of the structurally deficient bridges in 2021 had the same rating in 2020.

There were 4,361 bridges newly classified as structurally deficient in 2021. At least 3,044 bridges that were structurally deficient in 2020 were removed from that list in 2021.

Source: Data is from the Federal Highway Administration (FHWA) National Bridge Inventory (NBI), downloaded on Jan. 3, 2022. Note that specific conditions on bridges may have changed as a result of recent work or updated inspections.



## Fair Condition

Nearly half of the 619,588 U.S. bridges—48 percent—are rated in fair condition. This means that the bridge shows some evidence of minor deterioration or minor cracks.

The number of bridges in fair condition grew by 2,916 in 2021, reaching 297,888 structures.

## New Infrastructure Law

The federal Infrastructure Investment and Jobs Act (IIJA), signed into law Nov. 15, 2021, by President Joe Biden, provides states with additional resources to make long overdue infrastructure improvements, including bridge repairs.

Under a new IIJA bridge formula program, the U.S. DOT announced Jan. 14 it would disburse more than \$27.5 billion to states for bridge repairs over the next five years. Another new IIJA created discretionary bridge program, which will be administered by the U.S. DOT, will provide \$12.5 billion for projects that will be awarded through 2026.

State DOTs can also use federal formula highway fund programs, such as the National Highway Performance Program and the Surface Transportation Block Grant Program, for bridge improvements. The total for all state-focused formula programs is expected to increase from \$45 billion in FY 2021 to \$59 billion in FY 2022.

U.S. Bridge Inventory, by Rating				
	2020	2021	Change 20 to 21	% Change 20 to 21
Good	278,427	278,122	-305	-0.1%
Fair	294,972	297,888	2,916	1.0%
Poor (Structurally Deficient)	45,023	43,578	-1,445	-3.2%
Total Number of Bridges	618,422	619,588	1,166	0.2%
Does not include Guam and U.S. Virgin Islands				

## Ratings & Inspections

Bridge ratings are updated as inspections are completed—each year some bridges are classified as poor or structurally deficient and others are removed from that category as they undergo repair, rehabilitation, or replacement.

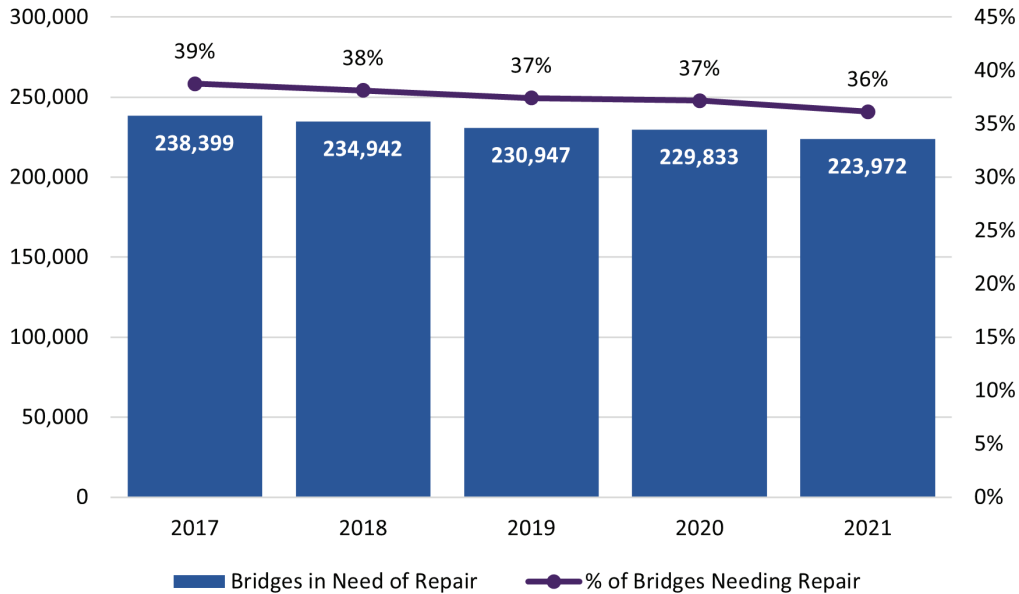
As part of the bridge inspections, key parts of the structure, including the bridge deck, superstructure and substructure are rated on a scale of 0 to 9, with 9 being excellent condition. With a rating of four or below, the bridge is in “poor” condition.



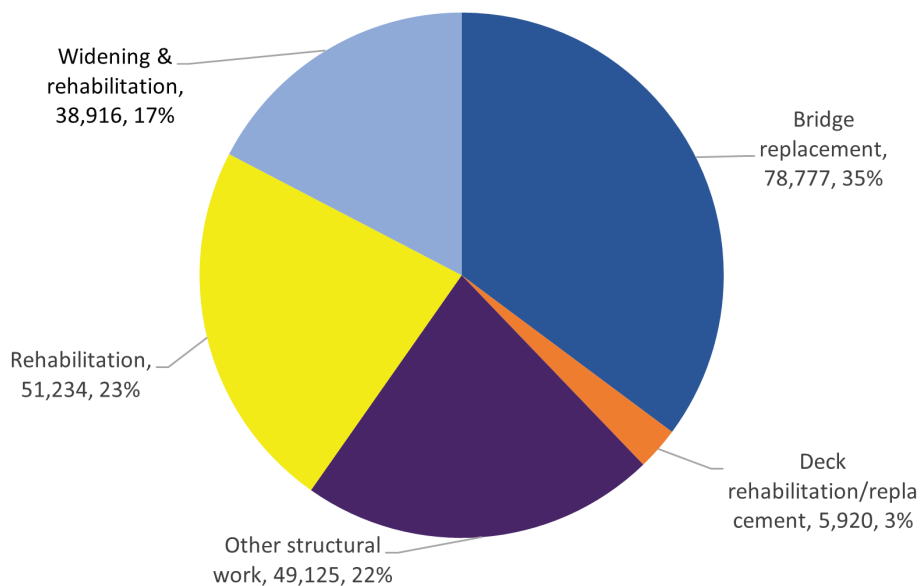
U.S. DOT Definitions and National Bridge Inventory Condition Ratings for Decks, Superstructures, Substructures and Culverts					
Overall Bridge Rating	Condition Rating	U.S. DOT Definition	2020 Bridges Grouped by Lowest Rating Received for One of Key Structural Elements	2021 Bridges Grouped by Lowest Rating Received for One of Key Structural Elements	Change 2020 to 2021
"Good" condition	9	Excellent Condition	10,079	9,490	-589
	8	Very Good Condition	56,812	54,411	-2,401
	7	Good Condition	211,536	214,221	2,685
"Fair" condition	6	Satisfactory Condition - structural elements show some minor deterioration.	182,175	184,501	2,326
	5	Fair Condition - all primary structural elements are sound but may have minor section loss, cracking, spalling or scour.	112,797	113,387	590
"Poor" condition or Structurally Deficient	4	Poor Condition - advanced section loss, deterioration, spalling, or scour.	33,825	32,803	-1,022
	3	Serious Condition - loss of section, deterioration, spalling or scour have seriously affected primary structural components.	8,123	7,894	-229
	2	Critical Condition - advanced deterioration of primary structural elements.	1,668	1,668	0
	1	"Imminent" Failure Condition - major deterioration or section loss present in critical structural components.	440	426	-14
	0	Failed Condition - out of service.	967	898	-69

FHWA's Pavement and Bridge Condition Performance Measures final rule explains that a bridge condition rating is determined by the lowest rating of the National Bridge Inventory condition ratings for the deck, superstructure, substructure or culvert. If the lowest rating is greater or equal to 7, the bridge is classified as Good, a rating of 5 or 6 is Fair and 4 or below is Poor.

## Number of U.S. Bridges In Need of Replacement or Rehabilitation, Including Structurally Deficient Bridges



## Number of Bridges Needing Work By Type of Repair



## New Bridges Ranked in Poor Condition

Some bridges newly rated in poor condition include:

- Chesapeake Bay Bridge-Tunnel on Route 13, northbound in Northampton, Virginia;
- US 60/62 bridge over the Mississippi River connecting Illinois and Missouri;
- 17th Street Bridge (SR 656) over the Indian River in Vero Beach, Florida;
- US-1 Northbound over the St. Lucie River in Martin County, Florida;
- U.S. 30 Mississippi River Bridge connecting Clinton County, Iowa, with Illinois;
- Both spans of the West Lake Houston Parkway bridge over Lake Houston, Texas;
- I-696 over I-75 just outside of Detroit, Michigan; and
- Multiple highway bridges on I-680 in Contra Costa, California.

The bridge classification is based on the latest inspection, which usually occurs once every 24 months for most bridges. Therefore, state, and local governments may be in the process of working on some of these structures to make needed repairs.

## Rankings

Some state rankings changed this year as improvements have been made. The states with the most bridges in poor condition, as a percent of their total bridge inventory, are:

1. West Virginia (20 percent, #1 in 2020)
2. Iowa (19 percent, #2 in 2020)
3. Rhode Island (17.5 percent, #3 in 2020)
4. South Dakota (17.3 percent, #4 in 2020)
5. Pennsylvania (13.8 percent, #5 in 2020)
6. Louisiana (12.8 percent #7 in 2020)
7. Maine (12.6 percent, #6 in 2020)
8. Puerto Rico (12.1 percent, #8 in 2020)
9. North Dakota (11.2 percent, #10 in 2020)
10. Michigan (11 percent, #9 in 2020)



The states with the largest number of bridges in poor condition, are:

1. Iowa (4,504 bridges, #1 in 2020)
2. Pennsylvania (3,198 bridges, #2 in 2020)
3. Illinois (2,405 bridges, #3 in 2020)
4. Oklahoma (2,296 bridges, #4 in 2020)
5. Missouri (2,218 bridges, #5 in 2020)
6. New York (1,672 bridges, #6 in 2020)
7. Louisiana (1,631 bridges, #7 in 2020)
8. California (1,493 bridges, #9 in 2020)
9. West Virginia (1,490 bridges, #8 in 2020)
10. Ohio (1,334 bridges, #12 in 2020)

The states with the largest deck area in poor condition are:

1. Rhode Island (19.5 percent, #1 in 2020)
2. West Virginia (15 percent, #2 in 2020)
3. Illinois (12 percent, #3 in 2020)
4. Massachusetts (11.3 percent, #4 in 2020)
5. New York (10.5 percent #7 in 2020)
6. South Dakota (9.7 percent, #6 in 2020)
7. Iowa (9.7 percent, #5 in 2020)
8. Maine (8.9 percent, #14 in 2020)
9. Puerto Rico (8.9 percent, #9 in 2020)
10. Wyoming (8.6 percent, #13 in 2020)

## About the Author

Dr. Alison Premo Black, a certified association executive, has led the development of more than 100 studies examining national and state transportation funding and investment patterns, including ARTBA's landmark economic profile of the transportation construction industry, state bridge condition profiles and annual modal forecast. She is regularly featured as an industry expert for national and local print, television and radio, including the: NBC TODAY show, Washington Post, National Public Radio, USA Today, Wall Street Journal, Economist and construction industry publications. She has also testified before legislative committees in Illinois, Tennessee, Kansas, North Carolina and Pennsylvania.

Dr. Black completed her Ph.D. in economics at The George Washington University and has a master's in international economics and Latin American studies from the Johns Hopkins School of Advanced International Studies.

## About ARTBA

ARTBA is a non-partisan federation whose primary goal is to aggressively grow and protect transportation infrastructure investment to meet the public and business demand for safe and efficient travel.