American Road & Transportation Builders Association

# National Bridge Inventory: North Carolina

- The state has identified needed repairs on 5,247 bridges.
- This compares to 5,680 bridges that needed work in 2020.
- Over the life of the IIJA, North Carolina will receive a total of $493.5 million in bridge formula funds, which will help make needed repairs.
- North Carolina currently has access to $296.1 million of that total, and has committed $134.2 million towards 43 projects as of June 2024.
- Of the 19,210 bridges in the state, 1,298, or 6.8 percent, are classified as structurally deficient. This means one of the key elements is in poor or worse condition.
- This is down from 1,460 bridges classified as structurally deficient in 2020.
- The deck area of structurally deficient bridges accounts for 5.6 percent of total deck area on all structures.

**21**

Compared to 19 in 2023

in the nation in % of structurally deficient bridges

| | |
|---|---|
| 1. Iowa | 19.0% |
| 20. Montana | 7.0% |
| 21. North Carolina | 7.0% |
| 22. Hawaii | 7.0% |

**11**

Compared to 10 in 2023

in the nation in # of structurally deficient bridges

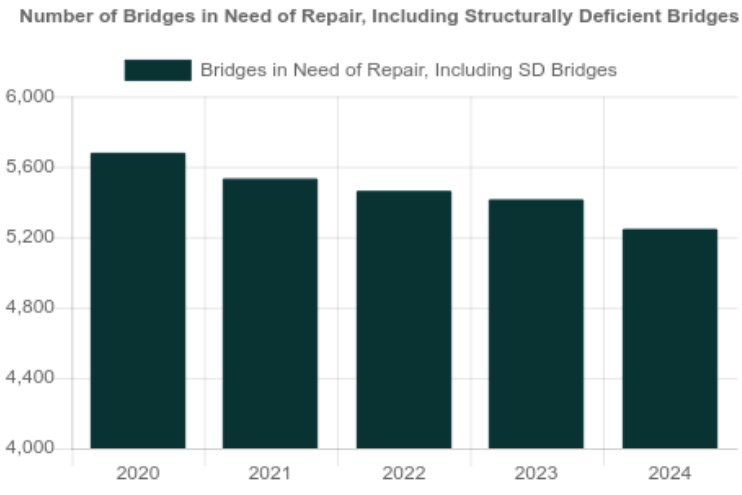
| | |
|---|---|
| 1. Iowa | 4,544 |
| 10. Kansas | 1,310 |
| 11. North Carolina | 1,298 |
| 12. Michigan | 1,281 |

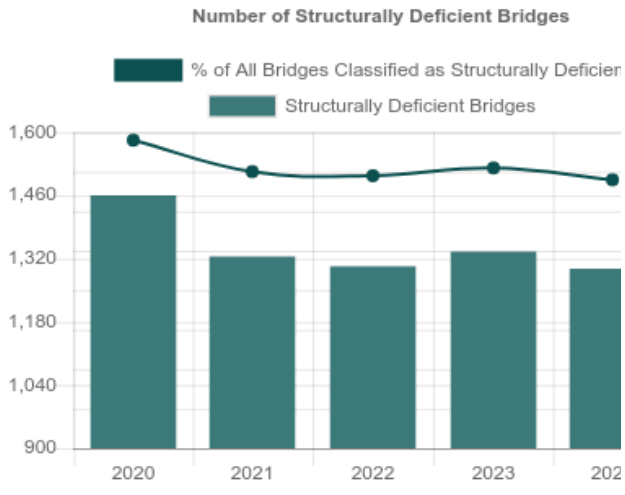
**23**

Compared to 22 in 2023

in the nation in % of structurally deficient bridge deck area

| | |
|---|---|
| 1. Rhode Island | 14.0% |
| 22. Montana | 6.0% |
| 23. North Carolina | 6.0% |
| 24. North Dakota | 5.0% |



## Top Most Traveled Structurally Deficient Bridges in North Carolina

| County | Year Built | Daily Crossings | Type of Bridge | Location |
|---|---|---|---|---|
| Mecklenburg | 1971 | 115,000 | Urban Interstate | I277 & NC16 over US29/Nc49 (Graham St.) |
| Mecklenburg | 1967 | 94,500 | Urban Interstate | I277 & NC16 over Brevard Street |
| Mecklenburg | 1967 | 94,500 | Urban Interstate | I277 & NC16 over North College Street |
| Gaston | 1962 | 80,000 | Rural Interstate | I85 over Abernathy Creek |
| Forsyth | 1964 | 79,000 | Urban freeway/expressway | US52 over 28th Street |
| Forsyth | 1964 | 79,000 | Urban freeway/expressway | US52 over 25th Street |
| Forsyth | 1958 | 74,500 | Urban freeway/expressway | I40 Bus over Brushy Fork Creek |
| Forsyth | 1959 | 66,000 | Urban freeway/expressway | Nc67 over US421 |
| Forsyth | 1960 | 62,000 | Urban freeway/expressway | US421 over Little Creek |
| Guilford | 1968 | 52,000 | Urban freeway/expressway | Sr2254 over Southern Railroad |
| New Hanover | 1985 | 51,000 | Urban Interstate | I40,US117,Nc132 over Smith Creek |
| Durham | 1956 | 51,000 | Urban freeway/expressway | US15/US501NBL over SR1308 |
| Buncombe | 1968 | 48,000 | Urban other principal arterial | US19,23 over I-240,Off Ramps |
| Forsyth | 1953 | 48,000 | Urban freeway/expressway | I40 Bus over Salem Creek |
| Mecklenburg | 1970 | 47,500 | Urban Interstate | I277 NBl, US74 EBL over I77, US21 |
| Mecklenburg | 1970 | 47,500 | Urban Interstate | I277 SBL, US74 WBL over I77, US21 |
| Wake | 1941 | 45,500 | Urban other principal arterial | US1NBL over Seaboard RR |
| Guilford | 1968 | 44,000 | Urban other principal arterial | US220 over Yanceyville Street |
| Wake | 1959 | 43,750 | Urban Interstate | I440,US1 over SR1012 |
| Haywood | 1969 | 39,000 | Urban freeway/expressway | US19,23,74 over SR1527 |
| Forsyth | 1981 | 33,500 | Urban Interstate | I74, US311 over Fiddlers Creek |
| Guilford | 1981 | 33,250 | Urban Interstate | I85N over Richland Creek |
| Guilford | 1953 | 33,000 | Urban freeway/expressway | I85Bus,US29,US70 over SR19 |
| Brunswick | 1968 | 33,000 | Urban freeway/expressway | US17 over US76 |
| Orange | 1958 | 32,750 | Urban Interstate | I85S over SR1713 |

## Bridge Inventory: North Carolina

| Type of Bridge | Number of Bridges | Area of All Bridges (sq. meters) | Daily Crossings on All Bridges | Number of Structurally Deficient Bridges | Area of Structurally Deficient Bridges (sq. meters) | Daily Crossings on Structurally Deficient Bridges |
|---|---|---|---|---|---|---|
| Rural Interstate | 357 | 363,529 | 7,532,025 | 11 | 14,938 | 285,500 |
| Rural arterial | 934 | 1,085,846 | 9,201,626 | 22 | 53,895 | 223,575 |
| Rural minor arterial | 686 | 418,678 | 4,055,510 | 33 | 18,725 | 184,550 |
| Rural major collector | 1,777 | 1,000,004 | 5,030,679 | 117 | 126,823 | 300,390 |
| Rural minor collector | 1,425 | 478,829 | 2,045,121 | 107 | 29,622 | 111,344 |
| Rural local road | 7,137 | 1,492,230 | 3,965,079 | 626 | 84,160 | 253,820 |
| Urban Interstate | 1,092 | 1,773,016 | 41,768,816 | 22 | 20,093 | 882,800 |
| Urban freeway/expressway | 691 | 1,011,961 | 16,080,134 | 29 | 25,393 | 935,900 |
| Urban other principal arterial | 934 | 979,260 | 17,623,252 | 48 | 49,354 | 823,300 |
| Urban minor arterial | 1,133 | 1,120,874 | 13,928,520 | 73 | 119,077 | 795,400 |
| Urban collector | 1,112 | 668,778 | 7,059,780 | 69 | 36,966 | 453,300 |
| Urban local road | 1,932 | 684,399 | 5,660,111 | 141 | 36,660 | 305,909 |
| Total | 19,210 | 11,077,403 | 133,950,653 | 1,298 | 615,709 | 5,555,788 |

## Proposed Bridge Work

| Type of Work | Number of Bridges | Cost to Repair (in millions) | Daily Crossings | Area of Bridges (sq. meters) |
|---|---|---|---|---|
| Bridge replacement | 748 | $880 | 2,941,640 | 405,114 |
| Widening & rehabilitation | 0 | $0 | 0 | 0 |
| Rehabilitation | 4,292 | $4,329 | 31,576,418 | 2,740,897 |
| Deck rehabilitation/replacement | 0 | $0 | 0 | 0 |
| Other structural work | 207 | $71 | 279,226 | 53,203 |
| Total | 5,247 | $5,281 | 34,797,284 | 3,199,215 |

**About the data:**

Data and cost estimates are from the Federal Highway Administration (FHWA) National Bridge Inventory (NBI), downloaded on August 20, 2024. Note that specific conditions on bridges may have changed as a result of recent work or updated inspections.

Effective January 1, 2018, FHWA changed the definition of structurally deficient as part of the final rule on highway and bridge performance measures, published May 20, 2017 pursuant to the 2012 federal aid highway bill Moving Ahead for Progress in the 21st Century Act (MAP-21). Two measures that were previously used to classify bridges as structurally deficient are no longer used. This includes bridges where the overall structural evaluation was rated in poor or worse condition, or where the adequacy of waterway openings was insufficient.

The new definition limits the classification to bridges where one of the key structural elements—the deck, superstructure, substructure or culverts, are rated in poor or worse condition. During inspection, the conditions of a variety of bridge elements are rated on a scale of 0 (failed condition) to 9 (excellent condition). A rating of 4 is considered "poor" condition.

Cost estimates have been derived by ARTBA, based on 2023 average bridge replacement costs for structures on and off the National Highway System, published by FHWA. Bridge rehabilitation costs are estimated to be 68 percent of replacement costs. A bridge is considered to need repair if the structure has identified repairs as part of the NBI, a repair cost estimate is supplied by the bridge owner or the bridge is classified as structurally deficient. Please note that for a few states, the number of bridges needing to be repaired can vary significantly from year to year, and reflects the data entered by the state.

Bridges are classified by FHWA into types based on the functional classification of the roadway on the bridge. Interstates comprise routes officially designated by the Secretary of Transportation. Other principal arterials serve major centers of urban areas or provide mobility through rural areas. Freeways and expressways have directional lanes generally separated by a physical barrier, and access/egress points generally limited to on- and off-ramps. Minor arterials serve smaller areas and are used for trips of moderate length. Collectors funnel traffic from local roads to the arterial network; major collectors have higher speed limits and traffic volumes and are longer in length and spaced at greater intervals, while minor collectors are shorter and provide service to smaller communities. Local roads do not carry through traffic and are intended for short distance travel.