

Highlights from FHWA's 2020 National Bridge Inventory Data

- Of the 20,235 bridges in the state, 881, or 4.4 percent, are classified as structurally deficient. This means one of the key elements is in poor or worse condition.
- This is down from 924 bridges classified as structurally deficient in 2016.
- The deck area of structurally deficient bridges accounts for 4.7 percent of total deck area on all structures.
- 40 of the structurally deficient bridges are on the Interstate Highway System. A total of 85.7 percent of the structurally deficient bridges are not on the National Highway System, which includes the Interstate and other key roads linking major airports, ports, rail and truck terminals.
- 1,726 bridges are posted for load, which may restrict the size and weight of vehicles crossing the structure.
- The state has identified needed repairs on 7,428 bridges at an estimated cost of \$3.7 billion.

Bridge Inventory

Type of Bridge ⁴	All Bridges			Structurally Deficient Bridges		
	Total Number	Area (sq. meters)	Daily Crossings	Total Number	Area (sq. meters)	Daily Crossings
Rural Bridges						
Interstate	830	949,070	29,743,061	22	41,350	917,910
Other principal arterial	1,115	1,046,946	11,173,395	21	40,942	173,480
Minor arterial	1,599	996,358	7,930,583	51	35,583	291,280
Major collector	1,942	735,795	3,712,308	70	35,567	115,720
Minor collector	3,212	814,405	2,686,582	156	38,019	105,380
Local	6,901	1,097,052	2,034,721	357	49,530	87,657
Urban Bridges						
Interstate	791	1,434,686	60,251,960	18	17,968	1,357,040
Freeway/expressway	272	474,376	10,524,340	8	16,205	372,830
Other principal arterial	1,091	1,393,945	22,571,330	57	103,682	1,346,260
Minor arterial	910	842,493	11,884,948	53	68,660	624,270
Collector	580	258,826	2,886,955	25	10,283	125,990
Local	992	303,870	2,013,500	43	15,014	104,200
Total	20,235	10,347,821	167,413,680	881	472,803	5,622,017

Proposed Bridge Work

Type of Work	Number	Cost (millions)	Daily Crossings	Area (sq. meters)
Bridge replacement	952	\$474,682.7	3,959,348	345,654
Widening & rehabilitation	3,487	\$1,296,739.9	19,859,676	1,385,334
Rehabilitation	2,546	\$1,542,355.6	40,737,900	1,569,043
Deck rehabilitation/replacement	117	\$202,271.6	901,010	203,281
Other work	326	\$155,180.2	1,701,113	166,699
Total	7,428	\$3,671,230.0	67,159,047	3,670,011

Top Most Traveled Structurally Deficient Bridges in Tennessee

County	Year Built	Daily Crossings	Type of Bridge	Location
Davidson	1958	178,050	Urban Interstate	I24 over Mill Creek
Knox	1965	157,490	Urban Interstate	I40 RI over I40-RI / 17th. Street
Hamilton	1960	129,060	Urban Interstate	I24 EBL & WBL over Branch
Hamilton	1990	119,090	Urban Interstate	I24 WB over I24 WB / A660 & CSX RR
Davidson	1962	103,010	Urban Interstate	I40 over I40 / Westboro Road
Williamson	1963	91,590	Rural Interstate	I65 over Branch
Hamilton	1964	83,120	Urban Interstate	I24 over Brown S Ferry (FAU 3622)
Davidson	1972	69,790	Urban Interstate	I24 over I24 RI / Old Hickory Blv
Davidson	1972	69,790	Urban Interstate	I24 over I24 LI / Old Hickory Blv
Shelby	1968	68,590	Urban freeway/expressway	Fau 4032 over Waring Rd

About the data: Data is from the Federal Highway Administration (FHWA) National Bridge Inventory (NBI), downloaded on March 11, 2021. 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 2019 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.

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