

Highlights from FHWA's 2019 National Bridge Inventory Data

- Of the 5,233 bridges in the state, 469, or 9.0 percent, are classified as structurally deficient. This means one of the key elements is in poor or worse condition.
- This is up from 450 bridges classified as structurally deficient in 2015.
- The deck area of structurally deficient bridges accounts for 11.6 percent of total deck area on all structures.
- 61 of the structurally deficient bridges are on the Interstate Highway System.
- 615 bridges are posted for load, which may restrict the size and weight of vehicles crossing the structure.
- The state has identified needed repairs on 4,798 bridges at an estimated cost of \$13.1 billion.
- This compares to 4,690 bridges that needed work in 2015.

Bridge Inventory

Type of Bridge	All Bridges			Structurally Deficient Bridges		
	Total Number	Area (sq. meters)	Daily Crossings	Total Number	Area (sq. meters)	Daily Crossings
Rural Bridges						
Interstate	89	51,837	2,609,417	0	0	0
Other principal arterial	60	55,360	902,031	2	12,140	52,205
Minor arterial	116	44,956	621,437	14	3,610	84,116
Major collector	218	56,533	534,578	24	5,528	55,204
Minor collector	121	28,007	166,352	11	1,516	11,232
Local	442	63,163	248,164	37	3,075	18,951
Urban Bridges						
Interstate	923	1,455,530	52,510,140	61	113,969	3,369,057
Freeway/expressway	458	459,944	18,298,065	51	93,222	1,870,995
Other principal arterial	716	808,810	18,045,472	91	126,378	2,624,192
Minor arterial	969	623,314	14,235,890	93	73,111	1,361,470
Collector	523	254,693	3,568,011	38	29,685	291,851
Local	598	221,079	2,007,136	47	15,804	107,474
Total	5,233	4,123,224	113,746,696	469	478,039	9,846,747

Proposed Bridge Work

Type of Work	Number	Cost (millions)	Daily Crossings	Area (sq. meters)
Bridge replacement	456	\$1,596	4,981,385	318,839
Widening & rehabilitation	1,654	\$3,071	28,323,692	902,275
Rehabilitation	2,401	\$7,451	59,303,285	2,195,506
Deck rehabilitation/replacement	34	\$157	1,361,916	46,583
Other work	253	\$791	8,874,817	234,054
Total	4,798	\$13,067	102,845,095	3,697,257

Top Most Traveled Structurally Deficient Bridges in Massachusetts

County	Year Built	Daily Crossings	Type of Bridge	Location
Norfolk	1958	193,356	Urban Interstate	I 93 NB/US1SB over St 24 NB
Middlesex	1950	169,500	Urban Interstate	I 95 /St128 over RR MBTA/BMRR
Essex	1963	122,264	Urban other principal arterial	US 1 Newbrprt Tpk over I 95 /St128
Middlesex	1961	122,000	Urban Interstate	I 495 SB over St133 Andover St
Middlesex	1961	122,000	Urban Interstate	I 495 NB over St133 Andover St
Essex	1962	106,800	Urban Interstate	I 495 NB & On-Ramp over RR MBTA/BMRR
Essex	1940	100,805	Urban freeway/expressway	St128 over Water Waters River
Essex	1961	98,000	Urban Interstate	I 495 SB over Comb BMRR & Little Riv
Plymouth	1954	96,400	Urban freeway/expressway	St 24 over Hwy W Chestnut St
Middlesex	1905	96,206	Urban other principal arterial	St 9 Boylston St over Tr Green Line D

About the data: Data is from the Federal Highway Administration (FHWA) National Bridge Inventory (NBI), released April 2, 2020. 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 surface transportation law 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 2018 and 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.