

## Highlights from FHWA's 2018 National Bridge Inventory Data

- Of the 5,215 bridges in the state, 481, or 9.2 percent, are classified as structurally deficient. This means one of the key elements is in poor or worse condition.
- This is up from 446 bridges classified as structurally deficient in 2014.
- 61 of the structurally deficient bridges are on the Interstate Highway System.
- 612 bridges are posted for load, which may restrict the size and weight of vehicles crossing the structure.
- The state has identified needed repairs on 4,768 bridges at an estimated cost of \$9.5 billion.
- This compares to 4,670 bridges that needed work in 2014.

## Bridge Inventory

Type of Bridge <sup>4</sup>	All Bridges			Structurally Deficient Bridges		
	Total Number	Area (sq. meters)	Daily Crossings	Total Number	Area (sq. meters)	Daily Crossings
<b>Rural Bridges</b>						
Interstate	91	55,241	2,713,042	1	794	16,184
Other principal arterial	66	59,291	1,017,902	2	12,140	52,205
Minor arterial	124	55,454	743,849	17	5,571	124,041
Major collector	218	62,770	599,443	24	8,100	59,643
Minor collector	125	28,742	164,979	11	1,450	10,725
Local	449	64,476	238,967	42	4,095	20,509
<b>Urban Bridges</b>						
Interstate	907	1,415,840	52,064,095	60	111,312	3,489,327
Freeway/expressway	456	464,451	18,212,376	56	96,264	2,461,488
Other principal arterial	702	796,080	17,464,261	90	126,919	2,775,235
Minor arterial	965	613,645	14,190,133	89	69,507	1,287,927
Collector	523	281,147	3,687,571	45	32,155	311,684
Local	589	222,725	2,224,260	44	15,859	114,144
<b>Total</b>	<b>5,215</b>	<b>4,119,863</b>	<b>113,320,872</b>	<b>481</b>	<b>484,164</b>	<b>10,723,112</b>

## Proposed Bridge Work

Type of Work	Number	Cost (millions)	Daily Crossings	Area (sq. meters)
Bridge replacement	465	\$1,529,538	5,238,366	321,533
Widening & rehabilitation	1,628	\$1,870,868	28,885,076	904,161
Rehabilitation	2,390	\$5,336,444	58,950,758	2,229,288
Deck rehabilitation/replacement	32	\$136,749	1,398,863	44,636
Other work	253	\$654,117	8,729,991	233,406
<b>Total</b>	<b>4,768</b>	<b>\$9,527,715</b>	<b>103,203,054</b>	<b>3,733,025</b>



## Top Most Traveled Structurally Deficient Bridges in Massachusetts

County	Year Built	Daily Crossings	Type of Bridge	Location
Norfolk	1958	201,000	Urban Interstate	I 93 NB/US1SB over St 24 NB
Norfolk	1978	172,758	Urban freeway/expressway	St 3 SB over Hwy Ramp C (Q Adams)
Middlesex	1950	172,000	Urban freeway/expressway	I 95 /St128 over RR MBTA/BMRR
Middlesex	1950	169,500	Urban Interstate	I 95 /St128 over RR MBTA/BMRR
Essex	1961	129,383	Urban Interstate	I 495 SB over Hwy Haggetts Pond Rd
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
Norfolk	1978	116,896	Urban freeway/expressway	St 3 NB over Hwy Ramp C (Q Adams)
Middlesex	1954	116,500	Urban other principal arterial	St 16 Rev Bch Pkwy over Water Malden River

**About the data:** Data is from the Federal Highway Administration (FHWA) National Bridge Inventory (NBI), released March 15, 2019. 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 2017 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.