

National Bridge Inventory: Massachusetts



2021 Bridge Profile

Highlights from FHWA's 2020 National Bridge Inventory Data

- Of the 5,229 bridges in the state, 472, 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 468 bridges classified as structurally deficient in 2016.
- The deck area of structurally deficient bridges accounts for 12.0 percent of total deck area on all structures.
- 67 of the structurally deficient bridges are on the Interstate Highway System. A total of 54.4 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.
- 643 bridges are posted for load, which may restrict the size and weight of vehicles crossing the structure.
- The state has identified needed repairs on 4,843 bridges at an estimated cost of \$15.4 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	88	53,993	2,551,763	2	1,369	19,644
Other principal arterial	53	50,183	705,014	2	12,140	52,205
Minor arterial	114	43,972	589,527	12	3,378	68,927
Major collector	219	55,968	536,305	24	5,529	54,289
Minor collector	121	27,889	167,364	9	1,301	10,343
Local	438	60,811	203,810	35	2,893	13,884
Urban Bridges						
Interstate	924	1,464,554	52,521,859	65	122,043	3,510,969
Freeway/expressway	459	469,963	18,215,800	54	99,535	2,068,253
Other principal arterial	724	814,557	18,320,532	95	128,291	2,590,782
Minor arterial	964	617,760	14,039,057	96	72,631	1,339,298
Collector	526	257,295	3,615,951	39	29,887	289,955
Local	599	223,928	1,944,188	39	15,021	91,644
Total	5,229	4,140,875	113,411,168	472	494,018	10,110,193

Proposed Bridge Work

Type of Work	Number	Cost (millions)	Daily Crossings	Area (sq. meters)
Bridge replacement	455	\$1,960,280.4	4,937,769	332,072
Widening & rehabilitation	1,692	\$3,730,558.2	29,257,665	929,157
Rehabilitation	2,399	\$8,459,842.5	59,415,020	2,108,625
Deck rehabilitation/replacement	30	\$173,623.6	1,219,785	43,330
Other work	267	\$1,026,455.5	10,132,653	256,135
Total	4,843	\$15,350,760.2	104,962,892	3,669,318

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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
Suffolk	1956	137,500	Urban freeway/expressway	US 1 NE Xway over Hwy Orange & Carter St
Essex	1959	129,908	Urban Interstate	I 93 over Water Merrimack River
Essex	1963	128,520	Urban other principal arterial	US 1 Newbrprt Tpk over I 95 /St128
Plymouth	1954	112,606	Urban freeway/expressway	St 24 over Hwy Torrey St
Essex	1962	106,800	Urban Interstate	I 495 NB & On-Ramp over RR MBTA/BMRR
Plymouth	1954	103,900	Urban freeway/expressway	St 24 over Hwy W Chestnut St
Essex	1940	100,805	Urban freeway/expressway	St128 over Water Waters River
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), 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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