American Road & Transportation Builders Association

Massachusetts
State Bridge Profile

Highlights from FHWA's 2023 National Bridge Inventory Data

- The state has identified needed repairs on 4,934 bridges.
- Over the life of the IIJA, Massachusetts will receive a total of $1.2 billion in bridge formula funds, which will help make needed repairs.
- Massachusetts currently has access to $487.1 million of that total, and has committed $14.2 million towards 2 projects as of June 2023.
- Of the 5,281 bridges in the state, 450, or 8.5 percent, are classified as structurally deficient. This means one of the key elements is in poor or worse condition.
- This is down from 469 bridges classified as structurally deficient in 2019.

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	53,909	2,365,773	2	1,780	49,181
Other principal arterial	50	46,833	568,792	4	12,843	58,290
Minor arterial	110	41,526	540,308	9	1,733	50,824
Major collector	226	58,955	566,719	24	7,260	66,534
Minor collector	122	28,062	162,642	6	903	7,658
Local	451	61,606	188,568	26	2,390	14,936
Urban Bridges						
Interstate	930	1,477,957	51,168,194	74	130,279	4,399,522
Freeway/expressway	467	478,003	18,523,016	44	73,275	1,390,716
Other principal arterial	723	809,973	17,328,245	85	103,634	2,417,484
Minor arterial	971	621,425	14,013,353	92	72,324	1,171,088
Collector	530	261,828	3,447,563	39	21,266	309,299
Local	612	227,321	1,987,303	45	19,577	105,668
Total	**5,281**	**4,167,399**	**110,860,480**	**450**	**447,264**	**10,041,200**

Proposed Bridge Work

Type of Work	Number	Cost (millions)	Daily Crossings	Area (sq. meters)
Bridge replacement	450	$1,952.5	5,167,995	315,143
Widening & rehabilitation	1,808	$4,367.0	30,270,795	1,043,975
Rehabilitation	2,360	$8,565.8	56,151,968	2,077,413
Deck rehabilitation/replacement	28	$150.9	1,201,347	37,897
Other work	288	$1,126.3	10,354,851	281,512
Total	**4,934**	**$16,162.6**	**103,146,956**	**3,755,940**

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Top Most Traveled Structurally Deficient Bridges in Massachusetts

County	Year Built	Daily Crossings	Type of Bridge	Location
Norfolk	1958	199,278	Urban Interstate	I 93 NB/US1SB over St 24 NB
Suffolk	1955	183,369	Urban Interstate	I 93 /US1/St3 over Hwy Conley St
Middlesex	1950	160,815	Urban Interstate	I 95 /St128 over RR MBTA/BMRR
Suffolk	1970	159,624	Urban Interstate	I 93 Bt SB4-N Abt over Hwy Connectors D & K
Middlesex	1962	132,500	Urban other principal arterial	St 3 A/Gorham St over I 495
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
Essex	1963	113,400	Urban Interstate	I 495 over Hwy Massachusetts Ave
Essex	1962	106,800	Urban Interstate	I 495 NB & On-Ramp over RR MBTA/BMRR
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 February 1, 2023. Note that specific conditions on bridges may have changed because 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 2020 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.