# MICHIGAN

American Road & Transportation Builders Association

# 2020 Bridge Profile

## Highlights from FHWA's 2019 National Bridge Inventory Data

- Of the 11,244 bridges in the state, 1,217, or 10.8 percent, are classified as structurally deficient. This means one of the key elements is in poor or worse condition.
- This is down from 1,264 bridges classified as structurally deficient in 2015.
- The deck area of structurally deficient bridges accounts for 7.7 percent of total deck area on all structures.
- 62 of the structurally deficient bridges are on the Interstate Highway System.
- 1,224 bridges are posted for load, which may restrict the size and weight of vehicles crossing the structure.
- The state has identified needed repairs on 2,650 bridges at an estimated cost of $2.5 billion.
- This compares to 2,726 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 | 402 | 366,307 | 7,938,511 | 12 | 7,530 | 265,994 |
| Other principal arterial | 639 | 409,968 | 5,686,312 | 24 | 10,679 | 121,304 |
| Minor arterial | 618 | 296,576 | 3,153,643 | 46 | 21,222 | 183,813 |
| Major collector | 2,093 | 681,878 | 4,411,973 | 257 | 60,094 | 518,001 |
| Minor collector | 543 | 137,819 | 1,091,016 | 57 | 9,150 | 29,269 |
| Local | 3,167 | 569,289 | 1,543,509 | 473 | 56,481 | 131,178 |
| **Urban Bridges** | | | | | | |
| Interstate | 835 | 1,396,499 | 30,250,987 | 50 | 99,722 | 2,083,628 |
| Freeway/expressway | 320 | 334,946 | 8,377,680 | 17 | 15,212 | 447,358 |
| Other principal arterial | 710 | 876,424 | 15,538,160 | 60 | 76,720 | 1,230,712 |
| Minor arterial | 824 | 746,904 | 9,610,215 | 110 | 82,558 | 1,206,775 |
| Collector | 480 | 289,768 | 3,353,991 | 45 | 28,853 | 200,045 |
| Local | 613 | 329,436 | 2,940,813 | 66 | 25,461 | 197,728 |
| **Total** | **11,244** | **6,435,814** | **93,896,816** | **1,217** | **493,683** | **6,615,805** |

## Proposed Bridge Work

| Type of Work | Number | Cost (millions) | Daily Crossings | Area (sq. meters) |
|---|---|---|---|---|
| Bridge replacement | 664 | $352 | 1,983,814 | 145,240 |
| Widening & rehabilitation | 77 | $72 | 1,307,584 | 44,042 |
| Rehabilitation | 974 | $671 | 5,294,491 | 408,933 |
| Deck rehabilitation/replacement | 771 | $1,227 | 9,642,736 | 752,860 |
| Other work | 164 | $139 | 641,923 | 84,450 |
| **Total** | **2,650** | **$2,460** | **18,870,548** | **1,435,526** |

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## Top Most Traveled Structurally Deficient Bridges in Michigan

| County | Year Built | Daily Crossings | Type of Bridge | Location |
|---|---|---|---|---|
| Wayne | 1967 | 103,925 | Urban Interstate | I-75 over Fort St |
| Wayne | 1971 | 98,506 | Urban Interstate | I-94 over Ent to Ford Plant |
| Macomb | 1955 | 82,735 | Urban other principal arterial | Mound Rd over Sharkey Drain |
| Wayne | 1970 | 78,863 | Urban Interstate | I-96 WB Main Rdwy over M-39 (Southfield Expr) |
| Genesee | 1957 | 70,414 | Urban Interstate | I-75 over Court St |
| Kalamazoo | 1956 | 69,260 | Urban Interstate | I-94 over Portage Road |
| Oakland | 1964 | 67,700 | Urban freeway/expressway | M-39 (Ramp H) over M-10 WB (Ramp G) |
| Oakland | 1964 | 65,985 | Urban Interstate | I-75 SB over M-150 (Rochester Rd.) |
| Wayne | 1993 | 65,737 | Urban Interstate | I-94 EB over Middlebelt Rd |
| Wayne | 1962 | 65,737 | Urban Interstate | I-94 WB over Ecorse Rd |

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**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.