



TRIP REPORTS: MARYLAND INTERSTATE SYSTEM'S RATE OF CONGESTION, TRAVEL VOLUME AND PAVEMENT DETERIORATION AMONG HIGHEST IN U.S.

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Maryland interstate system's rate of congestion, travel volume and pavement deterioration among highest in u.s. according to new trip report; most of maryland's busiest highway segments are on state's interstate system

Maryland's 480-mile Interstate Highway System remains the workhorse of the state's surface transportation network: heavily traveled and providing the most important link in the supply chain, and the primary connection between and within urban communities. The importance of the Interstate Highway System and the reliable movement of goods it provides has been heightened during the response to the COVID-19 pandemic. But, many Interstate highways are wearing out and showing signs of their advanced age, often heavily congested, and in need of significant reconstruction, modernization and expansion.



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In 2015, as part of the Fixing America's Surface Transportation (FAST) Act, the U.S. Congress asked the [Transportation Research Board](#) (TRB), a division of the National Academy of Sciences, Engineering and Medicine, to conduct a study to determine actions needed to upgrade and restore the Interstate Highway System to fulfill its role of safely and efficiently meeting the nation's future critical personal, commercial and military travel needs. In 2019, the TRB provided Congress with a [report](#) that found that the nation's Interstates are heavily

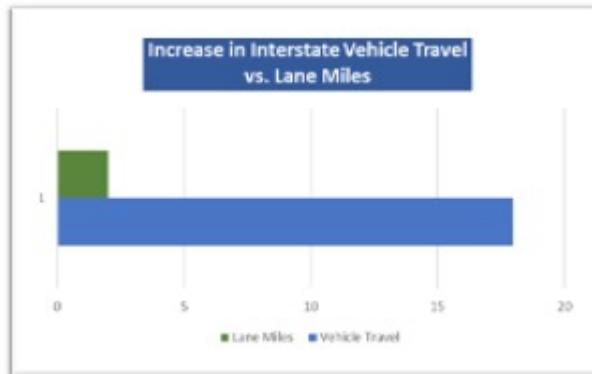
congested and aging, with large portions of the system in need of major reconstruction and modernization. The report found that addressing the needs of the Interstate Highway System will require more than a doubling of current investment to adequately improve the system's condition, reliability and safety, and that the restoration of the nation's Interstate Highway System should be based on strong federal leadership of a collaborative effort with the states.

TRIP's *Restoring Maryland's Interstate Highway System* report provides the latest information on the Interstate system, including pavement conditions, bridge conditions, travel trends, traffic congestion levels, truck use, and traffic safety. It reviews the findings of the TRB Interstate report and concludes with recommended actions – based on the findings of the TRB report – to ensure that the system is able to meet the nation's transportation needs.

MARYLAND INTERSTATE USE AND CONGESTION

Maryland's Interstate Highway System is among the most critical links in the state's transportation system and a vital part of Maryland's transportation network. Traffic congestion is increasing on Maryland's Interstate Highway System as the amount of vehicle travel far outstrips the capacity added to the system. More than 80 percent of the length of Maryland's urban Interstates is congested.

- Since 1956 when funding of the Interstate system was approved, the number of vehicles in Maryland increased more than four-fold, from approximately 993,000 vehicles to 4.2 million vehicles. Maryland's population has more than doubled, from 2.8 million to 6.0 million during this time.
- Travel on Maryland's Interstate highways is increasing at a rate nine times faster than the rate at which new lane capacity is being added. From 2000 to 2018, vehicle travel on Maryland's Interstate highways increased 18 percent. From 2000 to 2018, lane miles of Interstates in Maryland increased just two percent, from 2,761 to 2,823 miles.



- Eighty-two percent of Maryland's urban Interstate highways are considered congested because they carry traffic levels that result in significant delays during peak travel hours. This is the second highest share in the nation. The chart below

shows the states with the greatest share of their urban Interstate highways considered congested.

RANK	STATE	Congested Urban Interstates
1	California	86%
2	Maryland	82%
3	New Jersey	78%
4	Delaware	73%
5	Florida	70%
6	Massachusetts	70%
7	Rhode Island	67%
8	Connecticut	64%
9	Hawaii	62%
10	Washington	58%

The vast majority of the most congested sections of freeways and expressways in Maryland are on the state's Interstate network. The chart below shows the most congested Maryland freeways and expressways during morning and evening peak travel hours.

RANK	MARYLAND MOST CONGESTED FREEWAY/EXPRESSWAY SECTIONS	
	AM PEAK	PM PEAK
1	I-495 Outer Loop from I-95 to MD 97	I-495 Inner Loop from VA State Line to I-270 West Spur
2	I-695 Outer Loop from US 1 to Cromwell Bridge Rd	I-695 Inner Loop from MD 139 to Cromwell Bridge Rd
3	US 50 WB from MD 410 to DC Line	I-95/I-495 Inner Loop from I-95 to MD 201
4	I-695 Outer Loop from MD 129 to US 40	I-495 Inner Loop from I-270 East Spur to MD 97
5	I-695 Inner Loop from MD 140 to I-83	I-695 Inner Loop from I-95 to I-70
6	MD 295 SB from MD 198 to MD 197	I-95/I-495 Outer Loop from MD 450 to MD 201
7	I-95/I-495 Inner Loop from MD 414 to I-295	MD 295 NB from MD 410 to Powder Mill Road
8	I-270 SB from I-370 to Montrose Road	I-270 West Spur from NB I-270 split to I-495
9	I-270 Local from SB I-370 to Montrose Road	I-270 NB from I-370 to MD 124
10	I-270 SB from Father Hurley Blvd. to MD 124	I-495 Outer Loop from I-270 West Spur to VA State Line
11	I-270 Spur SB from I-270 Split to I-495 (West)	I-270 Local NB from Shady Grove Road to MD 124
12	I-97 SB from Benfield Boulevard to MD 178	I-95 NB from MD 32 to MD 100
13	I-95 SB from South of MD 200 to I-495	I-95/I-495 Inner Loop from US 50 to MD 214
14	I-495 Outer Loop from MD 187 to Cabin John Pkwy	MD 32 EB from MD 295 to MD 175
15	US 29 SB from I-70 to MD 100	I-95/I-495 Outer Loop from MD 202 to MD 450

- Maryland's urban interstates are the second busiest in the nation, as measured by average daily traffic per lane mile.

RANK	STATE	Daily Interstate Travel Per Lane Mile
1	California	20,861
2	Maryland	20,055
3	Colorado	17,497
4	Rhode Island	17,082
5	Florida	16,815
6	Texas	16,787
7	Hawaii	16,689
8	Massachusetts	16,322
9	Washington	16,244
10	Delaware	15,889

- The chart below shows Maryland's busiest urban Interstate portions, as measured by average daily traffic per lane mile

Freeway Section	Daily Travel per Lane Mile
I-270 N of I-270 Split	266,000
I-270 N of Montrose Rd.	254,000
I-495 E of MD 650	252,000
I-495 N of VA State Line	251,000
I-95/I-495 W of US 1	251,000

MARYLAND'S INTERSTATE ROAD AND BRIDGE CONDITIONS

Pavements and bridges on Maryland's Interstate system are showing deterioration and signs of their advancing age. As the aging Interstate system's foundations continue to deteriorate, most Interstate highways, bridges and interchanges will need to be rebuilt or replaced.

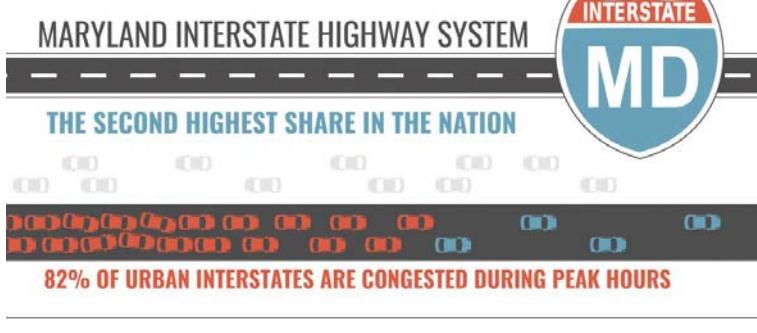
- Five percent of Maryland's Interstates have pavement in poor condition, the eleventh highest rate in the nation in 2018. Six percent of Maryland's Interstate pavements are rated in

mediocre condition, eight percent are in fair condition and the remaining 80 percent are in good condition.

The chart below shows the top 15 states with the greatest share of their Interstate highways with pavements in poor condition.

RANK	STATE	INTERSTATE PAVEMENT IN POOR CONDITION
1	Hawaii	19%
2	Delaware	11%
3	Wyoming	9%
4	New Jersey	8%
5	Louisiana	7%
6	Michigan	7%
7	Washington	6%
8	Colorado	6%
9	California	6%
10	Indiana	6%
11	Maryland	5%
12	New York	5%
13	Wisconsin	4%
14	Pennsylvania	4%
15	Oklahoma	3%

- An analysis of U.S. Department of Transportation's [National Bridge Inventory](#) data indicates that 22 percent of Maryland's Interstate bridges are in need of repair or replacement.
- Two percent of Maryland's Interstate bridges are rated in poor/structurally deficient condition. A bridge is rated in poor/structurally deficient condition if there is significant deterioration of the bridge deck, supports or other major components. Seventy-two percent of the state's Interstate bridges are rated in fair condition and the remaining 26 percent are in good condition.



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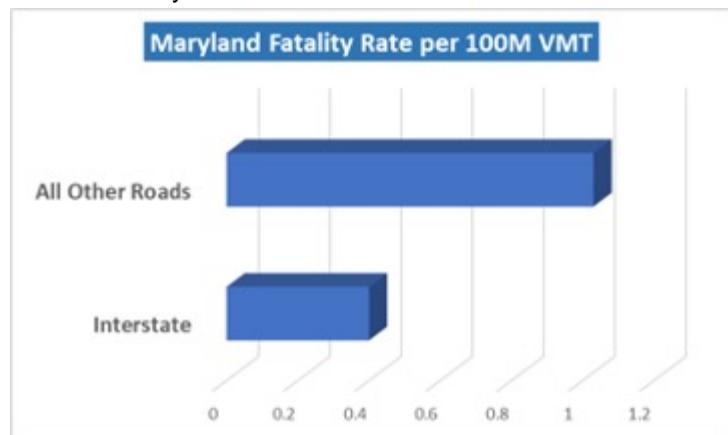


- The intended lifespan of many of the nation's Interstate bridges at the time of their construction is 50 years, though newer bridges are often built with longer-lasting materials and techniques that allow for a longer intended lifespan. Older bridges often need significant repairs or rehabilitation or may need to be replaced to continue to provide adequate service.
- The average age of Maryland's Interstate bridges is 46 years. Fifty-two percent of the state's Interstate bridges are at least 50 years old.

INTERSTATE FATALITY RATES AND SAFETY

Maryland's Interstate Highway System provides a network of highways with a variety of safety designs that greatly reduce the likelihood of serious crashes. Travel on the state's Interstate highways is more than twice as safe as travel on all other roadways in the state.

- Maryland's Interstate Highway System, which carried 30 percent of the state's travel in 2018, accounted for only 14 percent of the state's traffic fatalities as a result of superior safety features.
- The features that make Interstates safer than other roads include a separation from other roads and rail lines, a minimum of four-lanes, gentler curves, paved shoulders, median barriers, and rumble strips to warn drivers when they are leaving the roadway.
- Travel on Maryland's Interstate highways is more than twice as safe as travel on all other roadways in the state. The fatality rate per 100 million vehicle miles of travel on Maryland's Interstate system in 2018 was 0.40, compared to 1.03 on Maryland's non-Interstate routes.



- TRIP estimates that Maryland's Interstate Highway System saved 108 lives in 2018, based on an estimate of the number of additional fatalities that would have occurred had Interstate traffic been carried by other major roadways, which often have higher traffic fatality rates and may lack the safety features common to Interstate routes.

INTERSTATE TRAVEL AND ECONOMIC GROWTH

Maryland's Interstate Highway System is the backbone of the state's economy and has played a critical role in improving business productivity.

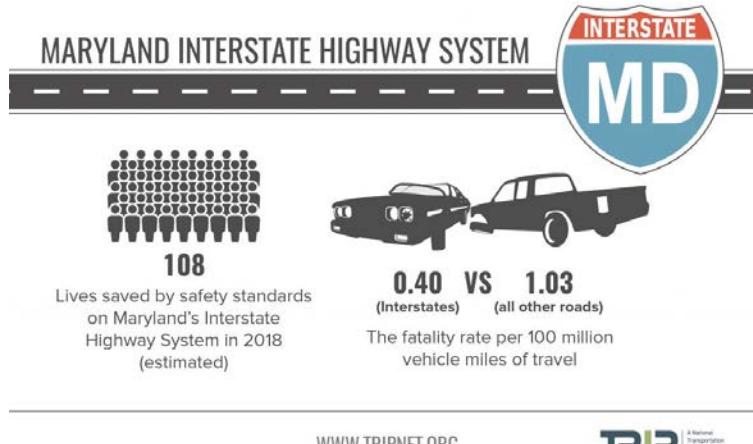
- Travel by combination trucks, which are the large trucks that carry the majority of freight shipped in the U.S., accounted for six percent of all vehicle miles of travel on Maryland's Interstate Highway System in 2018.
- The chart below details the Maryland Interstate locations with the highest truck volumes.

Rank	Location	Average Daily Truck Volume
1	I-95 North of I-695	31,300
2	I-95 North of MD 32	25,100
3	I-95/I-495 North of US 50	24,600
4	I-95 North of MD 100	24,500
5	I-95 North of MD 24	24,300

- Every year, \$369 billion in goods are shipped to and from sites in Maryland, primarily by truck. Seventy-seven percent of the goods shipped annually from sites in Maryland are carried by trucks and another 16 percent are carried by courier services, which use trucks for part of the deliveries.
- The completion of the vast majority of the Interstate system by the 1980s, and the deregulation of the U.S. trucking industry, resulted in a significant improvement in the competitiveness of U.S. business. The cost of moving freight, as measured by U.S. business logistics costs, dropped from

16 percent of U.S. Gross Domestic Product (GDP) in 1980 to eight percent in 2018.

- U.S. counties either on an Interstate highway or within 20 miles of an Interstate are anticipated to grow in population through 2060 at a rate approximately seven times greater than counties that are at least 20 miles from an Interstate highway (36 percent versus five percent).
- The Interstate Highway System has reduced travel times between destinations throughout the U.S. The improved mobility provided by the Interstate Highway System has given Americans greater choices about where they live, work, shop and spend their leisure time.



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INTERSTATE FUNDING CHALLENGES

The U.S. Department of Transportation (USDOT) has determined that the nation faces a significant backlog in needed Interstate highway repairs and improvements.

- The current backlog of needed improvements on the nation's Interstate Highway System is estimated by the USDOT to be \$123 billion.
- The backlog on the nation's Interstate Highway System includes \$54 billion needed to improve pavement conditions, \$37 billion to improve bridges and \$33 billion for needed system expansion and enhancement.
- The ability of states to invest in Interstate highway repairs and improvements may be hampered by the tremendous decrease in vehicle travel that has occurred due to the COVID-19 pandemic, which the [American Association of State Highway and Transportation Officials](#) estimates will reduce state transportation revenues by approximately \$16 billion in 2020 and by \$37 billion over a five year period.

The primary source of revenue for the Interstate Highway System is the federal surface transportation program, which expires on September 30, 2020. The program does not have a long-term and sustainable revenue source.

- Signed into law in December 2015, the [Fixing America's Surface Transportation \(FAST Act\)](#), provides modest increases in federal highway and transit spending, allows states greater long-term funding certainty and streamlines the federal project approval process.
- Revenue collected from the 18.4 cents-per-gallon federal motor fuel tax and the 24.4 cents-per-gallon federal diesel fuel tax are the primary sources of funding for the federal Highway Trust Fund, which distributes funds to state and local governments for highway and bridge repairs and other surface transportation improvements, including public transit, pedestrian and bicycling facilities.

TRB INTERSTATE HIGHWAY SYSTEM REPORT

REQUESTED BY CONGRESS

In 2015, as part of the Fixing America's Surface Transportation (FAST) Act, the U.S. Congress requested a report evaluating the condition of the Interstate Highway System and providing recommendations on actions required to restore and upgrade the System to meet the growing and shifting transportation demands of the 21st Century. The report was conducted by the [Transportation Research Board \(TRB\)](#), a division of the National Academies of Sciences, Engineering and Medicine. The findings of the TRB report, released in 2019, include:

- The Interstate Highway System has a persistent and growing backlog of physical and operational deficiencies as a result of age, heavy use and deferred reinvestment, and is in need of major reconstruction and modernization.
- Most roadway segments of the Interstate Highway System retain their original underlying foundations and need to be completely rebuilt from the subbase up.
- the modification of some urban segments to maintain connectivity while remediating economic and social disruption; and, further improvement of highway safety features.
- To address the physical and operational deficiencies identified in the TRB report, annual investment in the Interstate Highway System should be increased by approximately two-and-a-half times, from its level of \$23 billion in 2018 to \$57 billion annually over the next 20 years.
- The restoration of the nation's Interstate Highway System will require strong federal leadership and a robust federal-state partnership.

RECOMMENDATIONS FOR RESTORING THE INTERSTATE HIGHWAY SYSTEM

The restoration and upgrading of the Interstate Highway System to meet 21st Century transportation needs will require strong federal leadership and a robust federal-state partnership to reestablish the Interstate Highway System as the nation's premier transportation network. The TRB Interstate report notes that "the scale and scope of the Interstate reinvestment imperative is daunting."

- The following recommendations, based on the findings and recommendations of the TRB Interstate report, provide a roadmap for the restoration of the Interstate Highway System:
- Reconstruct the nation's Interstate Highway System, including pavements, bridges and interchanges
- Improve safety features on Interstate highways
- Right-size the Interstate Highway System by:
- upgrading some existing roadways to Interstate standard
- adding needed additional highway capacity on existing routes to maintain and improve mobility
- adding additional corridors to accommodate demographic and economic growth
- modifying some urban segments to maintain connectivity while remediating economic and social disruption

All data used in this report is the most current available. Sources of information for this report include: The Federal Highway Administration (FHWA), Maryland Department of Transportation State Highway Administration, the National Highway Traffic Safety Administration (NHTSA), the Transportation Research Board (TRB), and the U.S. Census Bureau. Cover photo credit: FA Martin.