Keeping Wisconsin Mobile:

Providing a Modern, Sustainable Transportation System in the Badger State

A National Transportation Research Nonprofit

tripnet.org

OCTOBER 2023

Founded in 1971, TRIP ® of Washington, DC, is a nonprofit organization that researches, evaluates and distributes economic and technical data on surface transportation issues. TRIP is sponsored by insurance companies, equipment manufacturers, distributors and suppliers; businesses involved in highway and transit engineering and construction; labor unions; and organizations concerned with efficient and safe surface transportation.

Executive Summary

Mobility, accessibility and connectivity are critical factors in a state's quality of life and economic competitiveness. The growth and development of a state or region hinges on efficient and safe access to employment, customers, commerce, recreation, education and healthcare via multiple transportation modes. The quality of life and the pace of a state's economic growth are directly tied to the condition, efficiency, safety and resiliency of its transportation system.

An adequate and reliable source of transportation funding is critical to providing a system of roads, highways and bridges to support commerce within Wisconsin and connect the state to markets around the globe, while providing the safe, smooth and efficient mobility that residents need to support quality of life.

In recent years, the amount of federal, state and local investment in Wisconsin's transportation network has increased. While this additional transportation funding will allow Wisconsin to make significant progress in improving road and bridge conditions, enhancing roadway safety and easing congestion, sustained future funding increases would allow additional system needs to be addressed in a more timely manner.

TRIP's "Keeping Wisconsin Mobile" report examines the condition, use, safety and efficiency of Wisconsin's surface transportation system and the impact of additional transportation funding. The report also looks at the challenges Wisconsin faces to accommodate future transportation growth and sustain adequate state funding despite the potential of increasing fuel efficiency standards and the adoption of electric vehicles. Sources of information for this report include the Wisconsin Department of Transportation (WisDOT), the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), the Bureau of Transportation Statistics (BTS), the U.S. Census Bureau, the Texas Transportation Institute (TTI), the American Road & Transportation Builders Association (ARTBA), and the National Highway Traffic Safety Administration (NHTSA).

WISCONSIN'S TRANSPORTATION SYSTEM AND FUNDING

Investment in Wisconsin's roads, highways and bridges is funded by local, state and federal governments. While there has been increased investment at the local, state and federal levels in recent years, additional, sustained transportation funding is needed in the future to maintain and improve the state's transportation network.

Governor Evers' 2019-2021 Wisconsin Biennial Budget included an increase of 20 percent (a total of $318 million) in funding for the State Highway Rehabilitation Program and provided structural enhancements to continuing sources of state transportation revenues. To further strengthen the program, the state's 2021-2023 Biennial Budget provided a 6.8 percent increase to maintain "real dollar" purchasing power in transportation. Wisconsin transportation funding was boosted in 2021 by the passage of the Infrastructure Investment and Jobs Act (IIJA), which was signed into law by President Biden in November 2021. The IIJA will provide $5.5 billion for road, highway and bridge repairs in Wisconsin over the five years of the bill, including a 25 percent increase in highway and bridge funding provided to Wisconsin in FY 2022. The state has also increased funding for local road and bridge rehabilitation and reconstruction in recent years, allocating 70 percent of the additional federal funding to needed improvements to local roads and bridges and committing an additional $190 million in state funding to local road and bridge projects through a new supplemental grant allocation in the Local Road Improvement Program in the Wisconsin State Budget. These additional funds will allow the Wisconsin DOT (WisDOT) and local governments to make needed improvements to the state's surface transportation network in the coming years.

Inflation in the cost of providing highway and bridge repairs is hindering the ability of increased funds to address the state's transportation needs. The Federal Highway Administration's national highway construction cost index, which measures labor and materials cost, increased by 27 percent during 2022.

THE HIDDEN COSTS OF DEFICIENT ROADS

Driving on Wisconsin roads that are deteriorated, congested and that lack some desirable safety features costs the state's drivers a total of $7.6 billion each year. TRIP has calculated the cost to the average motorist in the state's largest urban areas in the form of additional vehicle operating costs (VOC) as a result of driving on rough roads, the cost of lost time and wasted fuel due to congestion, and the financial cost of traffic crashes. The chart below shows the cost of deficient roads statewide and for the average driver in the state's largest urban areas.

Location	VOC	Safety	Congestion	TOTAL
Eau Claire	$501	$267	$354	$1,122
Green Bay-Appleton-Oshkosh	$909	$298	$389	$1,596
Kenosha	$989	$469	$639	$2,097
Madison	$976	$265	$860	$2,101
Milwaukee	$1,010	$385	$1,078	$2,473
Wausau	$506	$368	$369	$1,243
WISCONSIN STATEWIDE	**$3.1 Billion**	**$2.6 Billion**	**$1.9 Billion**	**$7.6 Billion**

ROAD CONDITIONS IN WISCONSIN

Based on their International Roughness Index (IRI) score, which evaluates pavement smoothness to determine ride quality, nearly half of Wisconsin's major locally and state-maintained roads and highways are in poor or mediocre condition. Twenty-five percent of Wisconsin's major locally and state-maintained roads are in poor condition and 20 percent are in mediocre condition. Sixteen percent of Wisconsin's major roads are in fair condition and the remaining 39 percent are in good condition. Major locally and state-maintained roads carry 85 percent of all vehicle travel in the state and include all roads in the state except rural and urban local roads and rural minor collectors.

Location	Poor	Mediocre	Fair	Good
Eau Claire	8%	35%	34%	22%
Green Bay-Appleton-Oshkosh	43%	24%	12%	22%
Kenosha	47%	27%	11%	15%
Madison	45%	29%	15%	11%
Milwaukee	50%	24%	11%	15%
Wausau	16%	25%	17%	42%
Wisconsin Statewide	**25%**	**20%**	**16%**	**39%**

WisDOT monitors the condition of its 11,747 miles of roadway using a Pavement Condition Index (PCI), which measures the roadway's structural health based on an evaluation of pavement distress. In 2022, 15 percent of state-maintained roadways in Wisconsin had pavements rated in poor condition, 14 percent were rated in fair condition and 61 percent were rated in good to excellent condition, based on PCI ratings.

WisDOT uses asset management principles to maintain conditions by prioritizing its most heavily traveled highways including its Interstate highways and other regionally significant roadways to ensure that state's roadways seeing the most travel demand are kept in good conditions.

TRIP has calculated the additional cost to Wisconsin motorists of driving on roads in poor, mediocre or fair condition. When roads are in poor, mediocre or fair condition – which may include potholes, rutting or rough surfaces – the cost to operate and maintain a vehicle increases. These additional vehicle operating costs (VOC) include accelerated vehicle depreciation, additional vehicle repair costs, increased fuel consumption and increased tire wear. TRIP estimates that additional VOC borne by Wisconsin motorists as a result of deteriorated road conditions is $3.1 billion annually, an average of $733 per driver statewide. The chart below details additional VOC per motorist in the state's largest urban areas and statewide.

Location	VOC
Eau Claire	$501
Green Bay-Appleton-Oshkosh	$909
Kenosha	$989
Madison	$976
Milwaukee	$1,010
Wausau	$506
WISCONSIN STATEWIDE	**$3.1 Billion**

BRIDGE CONDITIONS IN WISCONSIN

Seven percent (943 of 14,412) of Wisconsin's bridges are rated in poor/structurally deficient condition. Bridges that are rated poor/structurally deficient have significant deterioration of the bridge deck, supports or other major components. Forty-two percent of the state's bridges are rated in fair condition and the remaining 51 percent are in good condition. Most bridges are designed to last 50 years before major overhaul or replacement, although many newer bridges are being designed to last 75 years or longer. In Wisconsin, 29 percent of the state's bridges are 50 years or older.

The chart below details bridge conditions statewide and in the state's largest urban areas.

	POOR/STRUCTURALLY DEFICIENT		FAIR		GOOD		TOTAL
	Number	Share	Number	Share	Number	Share	BRIDGES
Eau Claire	19	8%	109	46%	107	46%	235
Green Bay-Appleton-Oshkosh	37	4%	413	41%	558	55%	1008
Kenosha	3	3%	31	28%	75	69%	109
Madison	47	8%	241	41%	299	51%	587
Milwaukee	44	5%	463	52%	384	43%	891
Wausau	48	9%	235	44%	246	47%	529
WISCONSIN STATEWIDE	**943**	**7%**	**6,111**	**42%**	**7,358**	**51%**	**14,412**

TRAFFIC CONGESTION IN WISCONSIN

Congested roads, highways and bottlenecks choke commuting and commerce and cost Wisconsin drivers $1.9 billion each year in the form of lost time and wasted fuel. From 2000 to 2019, vehicle travel in Wisconsin increased by 16 percent. Due to the COVID-19 pandemic, vehicle travel in Wisconsin dropped by as much as 36 percent in April 2020 (as compared to vehicle travel during the same month the previous year). By 2022, vehicle miles of travel (VMT) in Wisconsin had rebounded to three percent below pre-pandemic levels in 2019. During the first six months of 2023, VMT in Wisconsin was two percent higher than during the first six months of 2022 as travel returned to within one percent of pre-COVID levels.

The chart below details the annual hours lost to congestion, congestion costs per driver and the average amount of fuel per driver wasted annually due to congestion in 2022 in the state's largest urban areas.

Urban Area	Hours Lost to Congestion	Annual Cost Per Driver	Gallons of Fuel Wasted Per Driver
Eau Claire	14	$354	5
Green Bay-Appleton-Oshkosh	15	$389	7
Kenosha	22	$639	12
Madison	41	$860	18
Milwaukee	46	$1,078	22
Wausau	14	$369	6

Increasing congestion on Wisconsin's major highways and roads hampers the state's ability to support economic development and quality of life by reducing the reliability and efficiency of personal and commercial travel, including the transport of goods and services. Traffic congestion robs commuters of time and money and imposes increased costs on businesses, shippers and manufacturers, which are often passed along to consumers. Increased levels of congestion can also reduce the attractiveness of a location when a company is considering expansion or deciding where to locate a new facility.

The chart below details the state's most congested highway sections during AM and PM peak travel hours, as measured by Vehicle Hours of Delay (VHD).

Rank	AM Most Congested Highway Sections	VHD	PM Most Congested Highway Sections	VHD
1	I-41 - Zoo IC to US-45	207,666	I-43 - Marquette IC to County Line Rd	522,613
2	I-94 Zoo IC to Marquette IC	182,301	I-94 Zoo IC to Marquette IC	505,435
3	Beltline / US-12-Madison	170,472	I-41 - Zoo IC to US-45	443,980
4	I-43 - Marquette IC to County Line Rd	120,155	Beltline / US-12-Madison	366,060
5	I-41 - Mitchell IC to Zoo IC	112,975	I-41 - Mitchell IC to Zoo IC	353,191
6	I-43/94 - Mitchell IC to Marquette IC	69,876	I-94 - Wis 164 to Zoo IC	186,102
7	I-41 - Fox Cities	66,422	I-43/94 - Mitchell IC to Marquette IC	165,955

To enhance the reliability of the state's roadways, WisDOT continues to make strategic investments in the addition of highway capacity and to support programs to improve the system's reliability. The list below includes projects to expand capacity on key corridors that WisDOT has recently completed, is in the process of completing, or has begun the study/design phase.

Region	Highway	Project Name	Date Open to Traffic
Completed Projects			
NE	10/441	CTH CB - Oneida St	Fall 2019
NE	23	STH 67 - USH 41	Fall 2022
SE	94	I-94 N-S	Summer 2020
SE	50	I-94 - 43rd Avenue	Fall 2022
SW	18/151	Verona Road	Fall 2019
SW	39/90	USH 12 - Illinois State Line	Fall 2021

Projects Underway or Scheduled to Start			
SE	94/894	Zoo Interchange	Fall 2023
SE	43	Silver Spring Drive to STH 60	Fall 2025
NE	15	STH 76 - New London	Fall 2023
NE	41	STH 96 to Scheuring Road	Fall 2029 (Construction to begin 2024)

WisDOT programs to improve the reliability of the state's roadways include: the opening of a Flex Lane on the Madison Beltline (US 12/18), which uses the median shoulder as an extra lane during peak traffic periods, which, as of October 2022, had improved travel time reliability by approximately 30 percent; a RIDESHARE program, a statewide online commuter assistance program that helps commuters and employers explore regional transportation options; and a Freeway Service Team program that in 2021 assisted 4,500 stranded motorists along Wisconsin roadways.

TRAFFIC SAFETY IN WISCONSIN

From 2018 to 2022, 2,967 people were killed in traffic crashes in Wisconsin, an average of 593 fatalities per year. The state's 2022 traffic fatality rate of 0.96 fatalities for every 100 million miles traveled was the fifth lowest in the nation and lower than the national average of 1.35. The fatality rate on Wisconsin's non-Interstate rural roads in 2020 was nearly double that on all other roads in the state (1.49 per 100 million vehicle miles of travel vs. 0.76). From 2017 to 2021, 10 percent of the state's traffic fatalities in crashes involving motorized vehicles were of pedestrians or bicyclists, a total of 266 pedestrian fatalities and 46 bicyclist fatalities over the five-year period.

Year	Total Fatalities	Pedestrian Fatalities	Bicyclist Fatalities	Share Bike and Ped.
2017	613	56	7	10%
2018	588	56	4	10%
2019	566	56	14	12%
2020	614	50	12	10%
2021	597	48	9	10%
TOTAL	**2,978**	**266**	**46**	**10%**
AVERAGE	**596**	**53**	**9**	**10%**

To enhance pedestrian and bicyclist safety WisDOT is developing a performance-based process to evaluate roadway projects for the inclusion of bicycle and pedestrian improvements. The process will evaluate demographics and use potential facilities as well as available funding to determine appropriate bike/pedestrian facilities

Improving safety on Wisconsin's roadways can be achieved through further improvements in vehicle safety; improvements in driver, pedestrian, and bicyclist behavior; and, a variety of improvements in roadway safety features.

Nationwide, traffic fatalities began to increase dramatically in 2020 even as vehicle travel rates plummeted due to the COVID-19 pandemic, and the number of fatalities continued to increase in 2021. The number of fatalities in Wisconsin increased six percent from 2019 to 2022, from 566 to 602, and the state's fatality rate per 100 million VMT increased from 0.85 to 0.96 during that time. This increase in the number of fatalities and the rate of fatalities per 100 million VMT happened while vehicle travel in the state decreased by three percent overall from 2019 to 2022.

WISCONSIN TRAFFIC FATALITY AND VEHICLE MILES OF TRAVEL (VMT) DATA					
	2019	2020	2021	2022	2019-2022 Change
Traffic Fatalities	566	614	620	602	6%
Fatalities per 100M VMT	0.85	1.07	0.99	0.96	13%
VMT (Billions)	66.3	57.6	65.0	64.2	-3%

Traffic crashes in Wisconsin imposed a total of $7.8 billion in economic costs in 2022. TRIP estimates that roadway features, while not the primary factor, were likely a contributing factor in approximately one-third of all fatal traffic crashes, resulting in $2.6 billion in economic costs in Wisconsin in 2022. These costs include work and household productivity losses, property damage, medical costs, rehabilitation costs, legal and court costs, congestion costs, and emergency services.

The chart below shows the average number of people killed in traffic crashes in the state's largest urban areas between 2017 and 2021 and the annual cost per driver of traffic crashes.

Location	Average Fatalities 2017-2021	Crash Costs per Driver
Eau Claire	6	$267
Green Bay-Appleton-Oshkosh	40	$298
Kenosha	17	$469
Madison	35	$265
Milwaukee	83	$385
Wausau	13	$368

FREIGHT TRANSPORTATION IN WISCONSIN

The health and future growth of Wisconsin's economy is riding on its surface transportation system. Annually, $603 billion worth of freight are shipped to or from sites in Wisconsin, an amount that is anticipated to grow by 57 percent in inflation-adjusted dollars by 2045. Eighty percent of the goods shipped annually to and from sites in Wisconsin are carried by truck and another 14 percent are carried by courier services or multiple-mode deliveries, which include trucking. The amount of freight transported in Wisconsin and the rest of the U.S. is expected to increase significantly as a result of economic growth, changing business and retail models, increasing international trade, and rapidly changing consumer expectations that place an emphasis on faster deliveries, often of smaller packages or payloads.

Accommodating the significant increase expected in the movement of truck freight in Wisconsin will be further challenged by the significant number of freight routes in the state that are constrained because they have inadequate load carrying capacity to accommodate large trucks.

To increase the safety and efficiency of freight movement in the state, WisDOT has made numerous improvements in recent years, including updating its Safety and Weight Enforcement Facilities (SWEF) and adding additional parking stalls including an increase from 44 to 76 stalls in Janesville and 30 to 60 stalls in Beloit; installing Weigh-in-Motion technology for trucks on I-39/90, I-94 and I-90; and adding automated truck parking availability signs in key corridors including Interstates 39, 90 and 94.

The chart below lists Wisconsin's least reliable routes for commercial trucks.

Rank	County	Route	Direction	Intersection	Length (Mi.)
1	Milwaukee	I-41/US-45	Southbound	Hamptpn Ave./Exit 45	0.5
2	Milwaukee	I-41/US-45	Southbound	WI-190/Capitol Dr./Exit 44	0.5
3	Milwaukee	I-41/US-45	Southbound	Burleigh St./Exit 43	0.6
4	Milwaukee	I-41/US-45	Southbound	WI-90/Capitol Dr./Exit 44	0.6
5	Dane	US-51	Southbound	US-18/US-12/Beltline Hwy.	0.2
6	Milwaukee	I-94	Eastbound	68th St./Exit 307	0.1
7	Milwaukee	I-41/US-45	Southbound	Burleigh St./Exit 43	0.5
8	Milwaukee	I-94	Eastbound	70th St./Exit 307	0.3
9	Milwaukee	I-94	Eastbound	68th St./Exit 307	0.2
10	Kenosha	WI-50	Westbound	I-94/US-41	0.1

THE IMPACT OF TRANSPORTATION INVESTMENT ON ECONOMIC GROWTH IN WISCONSIN

According to a report by the American Road & Transportation Builders Association, the design, construction and maintenance of transportation infrastructure in Wisconsin supports approximately 64,000 full-time jobs across all sectors of the economy. These workers earn $2.8 billion annually. Approximately 1.4 million full-time jobs in Wisconsin in key industries like tourism, retail sales, agriculture and manufacturing are completely dependent on the state's transportation network.

Sources of information for this report include the Federal Highway Administration (FHWA), the Wisconsin Department of Transportation (WisDOT), the American Association of State Highway and Transportation Official (AASHTO), the American Road and Transportation Builders Association (ARTBA), the Bureau of Transportation Statistics (BTS), the U.S. Census Bureau, the Center for Transportation Studies, the Texas Transportation Institute (TTI) and the National Highway Traffic Safety Administration (NHTSA). Cover photo credit: StateTrunkTour.com. All data used in the report are the most recent available.

Introduction

Wisconsin's surface transportation system provides a vital link for the state's residents, visitors and businesses, providing daily access to homes, jobs, shopping, natural resources and recreation. Supporting quality of life and a robust economy in Wisconsin requires that the state provide an efficient, safe and well-maintained transportation system that allows for a high level of accessibility, connectivity and safety.

Wisconsin relies on a diverse economy including manufacturing, agriculture, tourism and healthcare. A safe, well-maintained and reliable network of roads and bridges is critical to each of these sectors and to the economic health of the state and the nation.

Adequate investment in Wisconsin's transportation network will help enhance economic development opportunities, improve business productivity, and make it easier and more reliable for the public to get to and from destinations including work, home, school, shopping and social events.

Population, Travel and Economic Trends in Wisconsin

Wisconsin residents and businesses require a high level of personal and commercial mobility. To foster quality of life and spur economic growth, it will be critical that Wisconsin provide an efficient, safe and modern transportation system that can accommodate future growth in population, tourism, business, recreation and vehicle travel.

Wisconsin's population reached approximately 5.9 million residents in 2022, an increase of 10 percent since 2000.[1] Wisconsin had approximately 4.3 million licensed drivers in 2020.[2] From 2000 to 2021, Wisconsin's gross domestic product (GDP), a measure of the state's economic output, increased by 30 percent when adjusted for inflation.[3] U.S. GDP, adjusted for inflation, increased 48 percent during this period.[4]

From 2000 to 2019, annual VMT in Wisconsin increased by 16 percent, from approximately 57.3 billion miles traveled annually to approximately 66.3 billion miles traveled annually.[5] Due to the COVID-19 pandemic, vehicle travel in Wisconsin dropped by as much as 36 percent in April 2020 (as compared to vehicle travel during the same month the previous year).[6] By 2022, Wisconsin's overall VMT levels had rebounded to three percent below 2019's pre-pandemic levels.[7] During the first six months of 2023, VMT in Wisconsin was two percent higher than during the first six months of 2022 as travel returned to within one percent of pre-COVID levels.[8]

Road Conditions in Wisconsin

The life cycle of Wisconsin's roads is greatly affected by state and local governments' ability to perform timely maintenance and upgrades to ensure that road and highway surfaces last as long as possible.

Pavement data in this report, unless otherwise noted, is for all arterial and collector roads and highways, is provided by the Federal Highway Administration (FHWA), and is based on International Roughness Index (IRI) data submitted annually by WisDOT on the condition of major state and locally-maintained roads and highways. IRI data measures pavement smoothness which is an indicator of ride quality.[9] The data reflects Major locally and state-maintained roads which carry 85 percent of all vehicle travel in the state and include all roads in the state except rural and urban local roads and rural minor collectors. Pavement data for Interstate highways and other principal arterials is collected for all system mileage, whereas pavement data for minor arterial and all collector roads and highways is based on sampling portions of roadways as prescribed by FHWA to ensure the data collected is adequate to provide an accurate assessment of pavement conditions on these roads and highways.

WisDOT uses asset management principles to maintain conditions by prioritizing its most heavily traveled highways including its Interstate highways and other regionally significant roadways to ensure that

state's roadways seeing the most travel demand are kept in good conditions.[10]

Based on IRI measurements, nearly half of Wisconsin's major locally and state-maintained roads are in deficient condition, with 25 percent rated in poor condition and 20 percent are in mediocre condition.[11] Sixteen percent of Wisconsin's major roads are rated in fair condition and the remaining 39 percent are rated in good condition.[12]

Forty-seven percent of Wisconsin's major locally and state-maintained urban roads and highways have pavements rated in poor condition and 24 percent are in mediocre condition.[13] Thirteen percent of Wisconsin's major urban roads are rated in fair condition and the remaining 15 percent are rated in good condition.[14]

Seventeen percent of Wisconsin's major locally and state-maintained rural roads and highways have pavements rated in poor condition and 18 percent are in mediocre condition.[15] Seventeen percent of Wisconsin's major rural roads are rated in fair condition and the remaining 48 percent are rated in good condition.[16]

The chart below details pavement conditions on major roads in the state's largest urban areas and statewide.[17]

Chart 1. Pavement conditions (IRI) on major roads in Wisconsin's largest urban areas and statewide.

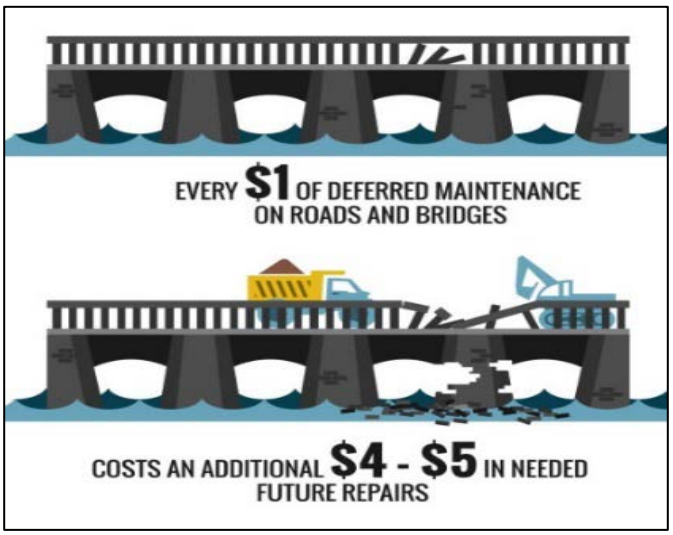
Location	Poor	Mediocre	Fair	Good
Eau Claire	8%	35%	34%	22%
Green Bay-Appleton-Oshkosh	43%	24%	12%	22%
Kenosha	47%	27%	11%	15%
Madison	45%	29%	15%	11%
Milwaukee	50%	24%	11%	15%
Wausau	16%	25%	17%	42%
Wisconsin Statewide	**25%**	**20%**	**16%**	**39%**

Source: TRIP analysis of Federal Highway Administration data.

WisDOT monitors the condition of its 11,747 miles of roadway, which carries approximately 60 percent of the state's vehicle miles of travel, using a Pavement Condition Index (PCI) that measures the roadway's structural health based on an evaluation of pavement distress.[18] In 2022, 15 percent of state-maintained roadways in Wisconsin had pavements rated in poor condition, 14 percent were rated in fair condition and 61 percent were rated in good to excellent condition, based on PCI ratings.[19]

Pavement failure is caused by a combination of traffic, moisture and climate. Moisture often works its way into road surfaces and the materials that form the road's foundation. Road surfaces at intersections are more prone to deterioration because the slow-moving or standing loads occurring at these sites subject the pavement to higher levels of stress. It is critical that roads are fixed before they require major repairs because reconstructing roads costs approximately four times more than resurfacing them.[20]

As roads and highways continue to age, they will reach a point of deterioration where routine paving and maintenance will not be adequate to keep pavement surfaces in good condition and costly reconstruction of the roadway and its underlying surfaces will become necessary.



Long-term repair costs increase significantly when road and bridge maintenance is deferred, as road and bridge deterioration accelerates later in the service life of a transportation facility and requires more costly repairs. A report on maintaining pavements found that every $1 of deferred maintenance on roads and bridges costs an additional $4 to $5 in needed future repairs.[21]

The Cost of Inadequate Road Conditions in Wisconsin

TRIP has calculated the additional cost to motorists of driving on roads in poor, mediocre or fair condition. When roads are in poor, mediocre or fair condition – which may include potholes, rutting or rough surfaces – the cost to operate and maintain a vehicle increases. These additional vehicle operating costs (VOC) include accelerated vehicle depreciation, additional vehicle repair costs, increased fuel consumption and increased tire wear. TRIP estimates that additional VOC borne by Wisconsin motorists as a result of deteriorated road conditions is $3.1 billion annually, an average of $733 per driver statewide.[22] The chart below details additional VOC per motorist in the state's largest urban areas.

Chart 3. Annual vehicle operating costs per motorist and statewide as a result of driving on deteriorated roads.

Location	VOC
Eau Claire	$501
Green Bay-Appleton-Oshkosh	$909
Kenosha	$989
Madison	$976
Milwaukee	$1,010
Wausau	$506
WISCONSIN STATEWIDE	**$3.1 Billion**

Source: TRIP estimates.

Additional vehicle operating costs have been calculated in the Highway Development and Management Model (HDM), which is recognized by the U.S. Department of Transportation and more than 100 other countries as the definitive analysis of the impact of road conditions on vehicle operating costs. The HDM report is based on numerous studies that have measured the impact of various factors, including road conditions, on vehicle operating costs.[23] The HDM study found that road deterioration increases ownership, repair, fuel and tire costs. The report found that deteriorated roads accelerate the pace of depreciation of vehicles and the need for repairs because the stress on the vehicle increases in proportion to the level of roughness of the pavement surface. Similarly, tire wear and fuel consumption increase as roads deteriorate since there is less efficient transfer of power to the drive train and additional friction between the road and the tires.

TRIP's additional VOC estimate is based on taking the average number of miles driven annually by a motorist, calculating current VOC based on AAA's driving cost estimates and then using the HDM model to estimate the additional VOC paid by drivers as a result of substandard roads.[24] Additional research on the impact of road conditions on fuel consumption by the Texas Transportation Institute (TTI) is also factored into TRIP's vehicle operating cost methodology.

Bridge Conditions in Wisconsin

Wisconsin's bridges form key links in the state's highway system, providing communities and individuals access to employment, schools, shopping and medical facilities, and facilitating commerce and access for emergency vehicles.

Seven percent (943 of 14,412) of Wisconsin's locally and state-maintained bridges are rated in poor/structurally deficient condition.[25] This includes all bridges that are 20 feet or more in length. A bridge is deemed poor/structurally deficient if there is significant deterioration of the bridge deck, supports or other major components.

Bridges that are poor/structurally deficient may be posted for lower weight limits or closed if their condition warrants such action. Deteriorated bridges can have a significant impact on daily life. Restrictions on vehicle weight may cause many vehicles – especially emergency vehicles, commercial trucks, school buses and farm equipment – to use alternate routes to avoid posted bridges. Redirected trips also lengthen travel time, waste fuel and reduce the efficiency of the local economy. Forty-two percent of Wisconsin's locally and state-maintained bridges have been rated in fair condition.[26] A fair rating indicates that a bridge's structural elements are sound but minor deterioration has occurred to the bridge's deck, substructure or superstructure. The remaining 51 percent of the state's bridges are rated in good condition.[27]

The chart below shows the condition of bridges statewide and in Wisconsin's largest urban areas.[28]

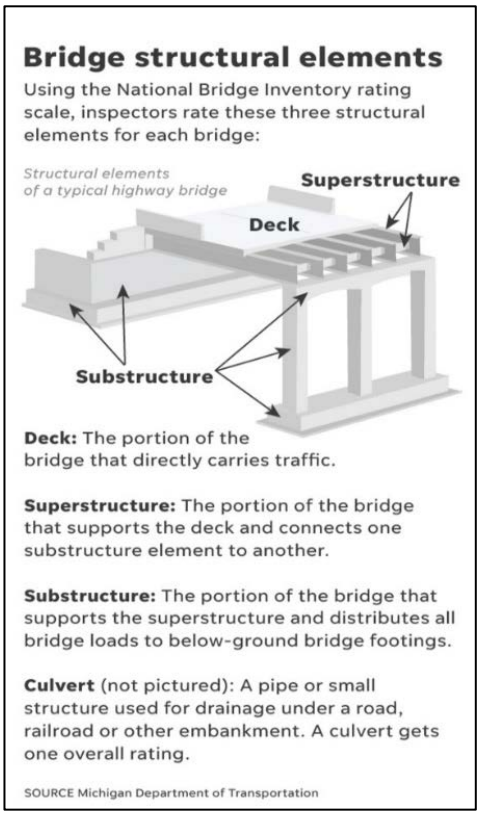


Chart 4. Bridge conditions statewide and in Wisconsin's largest urban areas.

	POOR/STRUCTURALLY DEFICIENT		FAIR		GOOD		TOTAL
	Number	Share	Number	Share	Number	Share	BRIDGES
Eau Claire	19	8%	109	46%	107	46%	235
Green Bay-Appleton-Oshkosh	37	4%	413	41%	558	55%	1008
Kenosha	3	3%	31	28%	75	69%	109
Madison	47	8%	241	41%	299	51%	587
Milwaukee	44	5%	463	52%	384	43%	891
Wausau	48	9%	235	44%	246	47%	529
WISCONSIN STATEWIDE	**943**	**7%**	**6,111**	**42%**	**7,358**	**51%**	**14,412**

Source: TRIP analysis of Federal Highway Administration National Bridge Inventory (2023).

Most bridges are designed to last 50 years before major overhaul or replacement, although many newer bridges are being designed to last 75 years or longer. In Wisconsin, 29 percent of the state's bridges are 50 years or older.[29] The service life of bridges can be extended by performing routine maintenance such as resurfacing decks, painting surfaces, ensuring that a facility has good drainage and replacing deteriorating components. But most bridges will eventually require more costly reconstruction or major rehabilitation to remain operable.

Traffic Congestion in Wisconsin

While traffic congestion is largely constrained to the state's urban areas, increasing congestion on Wisconsin's major highways and roads hampers the state's ability to support economic development and quality of life by reducing the reliability and efficiency of personal and commercial travel, including the transport of goods and services. Traffic congestion robs commuters of time and money and imposes increased costs on businesses, shippers and manufacturers, which are often passed along to consumers. Increased levels of congestion can also reduce the attractiveness of a location when a company is considering expansion or deciding where to locate a new facility.

Based on analysis by the Texas Transportation Institute of traffic congestion levels and the amount of time and the value of lost time and wasted fuel as a result of traffic congestion, TRIP has estimated in the following chart the average number of hours lost annually for each driver, the per-driver cost of lost time and wasted fuel due to congestion, and the average amount of fuel per driver wasted annually in 2022 due to congestion in each of Wisconsin's largest urban areas.

Chart 5. 2022 Annual hours and fuel lost to congestion and congestion costs per driver.

Urban Area	Hours Lost to Congestion	Annual Cost Per Driver	Gallons of Fuel Wasted Per Driver
Eau Claire	14	$354	5
Green Bay-Appleton-Oshkosh	15	$389	7
Kenosha	22	$639	12
Madison	41	$860	18
Milwaukee	46	$1,078	22
Wausau	14	$369	6

Source: TRIP estimate based on Texas Transportation Institute Analysis.

Based on the TTI report, TRIP estimates that the total cost of traffic congestion in Wisconsin in 2022, in the form of lost time and wasted fuel, is $1.9 billion annually.[30]

Increasing congestion on Wisconsin's major highways and roads hampers the state's ability to support economic development and quality of life by reducing the reliability and efficiency of personal and commercial travel, including the transport of goods and services.

The chart below details the state's most congested highway sections during AM and PM peak travel hours, as measured by vehicle hours of delay (VHD).

Chart 6. Most congested Wisconsin highway sections during AM and PM peak travel hours, as measured by vehicle hours of delay (VHD).

Rank	AM Most Congested Highway Sections	VHD	PM Most Congested Highway Sections	VHD
1	I-41 - Zoo IC to US-45	207,666	I-43 - Marquette IC to County Line Rd	522,613
2	I-94 Zoo IC to Marquette IC	182,301	I-94 Zoo IC to Marquette IC	505,435
3	Beltline / US-12-Madison	170,472	I-41 - Zoo IC to US-45	443,980
4	I-43 - Marquette IC to County Line Rd	120,155	Beltline / US-12-Madison	366,060
5	I-41 - Mitchell IC to Zoo IC	112,975	I-41 - Mitchell IC to Zoo IC	353,191
6	I-43/94 - Mitchell IC to Marquette IC	69,876	I-94 - Wis 164 to Zoo IC	186,102
7	I-41 - Fox Cities	66,422	I-43/94 - Mitchell IC to Marquette IC	165,955

Source: Wisconsin Department of Transportation response to TRIP survey.

To enhance the reliability of the state's roadways, WisDOT continues to make strategic investments in the addition of highway capacity and to support programs to improve the system's reliability. The list below includes projects to expand capacity on key corridors that WisDOT has recently completed, is in the process of completing, or has begun the study/design phase.

Chart 7. Completed, underway or planned capacity expansion projects.

Region	Highway	Project Name	Date Open to Traffic
Completed Projects			
NE	10/441	CTH CB - Oneida St	Fall 2019
NE	23	STH 67 - USH 41	Fall 2022
SE	94	I-94 N-S	Summer 2020
SE	50	I-94 - 43rd Avenue	Fall 2022
SW	18/151	Verona Road	Fall 2019
SW	39/90	USH 12 - Illinois State Line	Fall 2021
Projects Underway or Scheduled to Start			
SE	94/894	Zoo Interchange	Fall 2023
SE	43	Silver Spring Drive to STH 60	Fall 2025
NE	15	STH 76 - New London	Fall 2023
NE	41	STH 96 to Scheuring Road	Fall 2029 (Construction to begin 2024)

Source: Wisconsin Department of Transportation response to TRIP survey.

WisDOT programs to improve the reliability of the state's roadways include: the opening of a Flex Lane on the Madison Beltline (US 12/18), which uses the median shoulder as an extra lane during peak traffic periods, which, as of October 2022, had improved travel time reliability by approximately 30 percent; a RIDESHARE program, a statewide online commuter assistance program that helps commuters and employers explore regional transportation options; and a Freeway Service Team program that in 2021 assisted 4,500 stranded motorists along Wisconsin roadways.[31]

Traffic Safety in Wisconsin

A total of 2,967 people were killed in Wisconsin traffic crashes from 2018 to 2022, an average of 593 fatalities per year.[32] Wisconsin's 2022 traffic fatality rate of 0.96 fatalities per 100 million vehicle miles of travel is lower than the national average of 1.35 and the fifth lowest in the U.S..[33] The fatality rate in 2020 on Wisconsin's non-interstate rural roads is nearly double that on all other roads in the state (1.49 fatalities per 100 million vehicle miles of travel vs. 0.76).[34]

Chart 8. Traffic Fatalities in Wisconsin 2018-2022.

Year	Fatalities
2018	588
2019	566
2020	614
2021	597
2022	602
TOTAL	2,967
AVERAGE	593

Source: National Highway Traffic Safety Administration.

The chart below shows the average number of people killed in traffic crashes in the state's largest urban areas between 2017 and 2021, and the cost of traffic crashes per driver. According to a 2015 National Highway Traffic Safety Administration (NHTSA) report, the economic costs of traffic crashes includes work and household productivity losses, property damage, medical costs, rehabilitation costs, legal and court costs, congestion costs, and emergency services.[35]

Chart 9. Average fatalities between 2017 and 2021. and the annual cost of crashes per driver.

Location	Average Fatalities 2017-2021	Crash Costs per Driver
Eau Claire	6	$267
Green Bay-Appleton-Oshkosh	40	$298
Kenosha	17	$469
Madison	35	$265
Milwaukee	83	$385
Wausau	13	$368

Source: TRIP analysis of NHTSA data.

Three major factors are associated with fatal vehicle crashes: driver behavior, vehicle characteristics and roadway features. Roadway features that impact safety include the number of lanes, lane widths, lighting, lane markings, rumble strips, shoulders, guard rails, other shielding devices, median barriers and intersection design.

Traffic crashes in Wisconsin imposed a total of $7.8 billion in economic costs in 2022.[36] TRIP estimates that roadway features, while not the primary cause of a crash, were likely a contributing factor in approximately one-third of all fatal traffic crashes, resulting in $2.6 billion in economic costs in Wisconsin in 2022.[37] According to a 2015 National Highway Traffic Safety Administration (NHTSA) report, the economic costs of traffic crashes includes work and household productivity losses, property damage, medical costs, rehabilitation costs, legal and court costs, congestion costs, and emergency services.[38]

From 2017 to 2021, 10 percent of the state's traffic fatalities in crashes involving motorized vehicles were of pedestrians or bicyclists, a total of 266 pedestrian fatalities and 46 bicyclist fatalities over the five-year period.[39]

Chart 10. Wisconsin total traffic fatalities and bicyclist/pedestrian fatalities 2017 – 2021.

Year	Total Fatalities	Pedestrian Fatalities	Bicyclist Fatalities	Share Bike and Ped.
2017	613	56	7	10%
2018	588	56	4	10%
2019	566	56	14	12%
2020	614	50	12	10%
2021	597	48	9	10%
TOTAL	**2,978**	**266**	**46**	**10%**
AVERAGE	**596**	**53**	**9**	**10%**

Source: National Highway Traffic Safety Administration.

To enhance pedestrian and bicyclist safety WisDOT is developing a performance-based process to evaluate roadway projects for the inclusion of bicycle and pedestrian improvements. The process will evaluate demographics and use potential facilities as well as available funding to determine appropriate bike/pedestrian facilities.[40]

The number of fatalities in Wisconsin increased six percent from 2019 to 2022, from 566 to 602, and the state's fatality rate per 100 million VMT increased 13 percent during that time, from 0.85 to 0.96.[41] Traffic fatalities began to increase in 2020 even as vehicle travel rates plummeted due to the COVID-19 pandemic. This dramatic increase in the number of fatalities and the rate of fatalities per 100 million VMT happened while vehicle travel in the state decreased by three percent overall from 2019 to 2022.

Chart 11. Wisconsin traffic fatality and VMT data, 2019-2022.

WISCONSIN TRAFFIC FATALITY AND VEHICLE MILES OF TRAVEL (VMT) DATA					
	2019	2020	2021	2022	2019-2022 Change
Traffic Fatalities	566	614	620	602	**6%**
Fatalities per 100M VMT	0.85	1.07	0.99	0.96	**13%**
VMT (Billions)	66.3	57.6	65.0	64.2	**-3%**

Source: TRIP analysis of NHTSA and FHWA data.

The significant increase in traffic fatalities since the onset of the pandemic appears largely related to increased risks being taken by drivers. In an October 2021 report, the National Highway Traffic Safety Administration found that "after the declaration of the public health emergency in March 2020, driving patterns and behaviors in the United States changed significantly. Of the drivers who remained on the roads, some engaged in riskier behavior, including speeding, failure to wear seat belts, and driving under the influence of alcohol or drugs."[42]

The AAA Foundation for Traffic Safety (AAAFTS) drew similar conclusions about the role of increased risks being taken by drivers during the pandemic. A survey taken of drivers in October and November 2020 by the AAAFTS asked whether their level of driving had decreased, remained the same or increased since the beginning of COVID-19 related restrictions, and whether the motorist had engaged in a variety of risky driving behaviors in the previous 30 days.[43] In a February 2022 brief about the survey, the AAAFTS noted that drivers who maintained or increased their pre-COVID travel levels indicated that they were more likely to engage in risky driving behavior, including speeding, not wearing a seat belt, being impaired and driving aggressively. "It is possible that many of the individuals who were willing to travel—and even increase their travel—despite the health risks associated with the pandemic were already more willing than average to take other risks," the AAAFTS report found.[44]

In early 2022 the U.S. Department of Transportation adopted a comprehensive National Roadway Safety Strategy, a roadmap for addressing the nation's roadway safety crisis based on a Safe System approach that acknowledges the following: humans make mistakes and are physically vulnerable; traffic deaths and serious injuries are unacceptable; traffic deaths and serious injuries need to be reduced by the

provision of a redundant transportation system that reduces or minimizes crashes and ensures that, if crashes do occur, they do not result in serious injury or death.[45]

Chart 12. The Safe System Approach

Source: Federal Highway Administration

The Safe System approach, which is also being adopted by state and local transportation agencies has five objectives:

- Safer People: Encourage safe, responsible behavior by people who use our roads, and create conditions that prioritize their ability to reach their destination unharmed.
- Safer Roads: Design roadway environments to mitigate human mistakes and account for injury tolerances, to encourage safer behaviors, and to facilitate safe travel by the most vulnerable users.
- Safer Vehicles: Expand the availability of vehicle systems and features that help to prevent crashes and minimize the impact of crashes on both occupants and non-occupants.
- Safer Speeds: Promote safer speeds in all roadway environments through a combination of thoughtful, context-appropriate roadway design, targeted education and outreach campaigns, and enforcement.
- Post-Crash Care: Enhance the survivability of crashes through expedient access to emergency medical care, while creating a safe working environment for vital first responders and preventing secondary crashes through robust traffic incident management practices.

Improving safety on the nation's roadways will require that additional steps are taken to make further progress in achieving the Safe System's objectives. NHTSA, which provides states with roadway safety grants, requires states to submit annually a state highway safety plan. The state plans outline numerous steps states are taking to improve traffic safety. Elements of these state roadway safety plans aimed at addressing the Safe System objectives include:

- Safer People: education on speeding, impaired or disadvantaged driving; education on safe pedestrian and bicycling behavior; education on driving safely around large commercial vehicles; enforcement of commercial driver license and vehicle weight requirements; extension of safety belt laws and their enforcement to include all passenger vehicle occupants; enhancing enforcement action of speeding, impaired, aggressive and distracted

driving, particularly at high-risk locations; increase penalties, particularly for repeat offender drivers; and increased enforcement at work zones.

- Safer Roads: converting intersections to roundabouts; removing or shielding roadside objects; the addition of left-turn lanes at intersections; improved signalization and lighting at intersections; adding or improving median barriers; improved roadway lighting; adding centerline or shoulder rumble strips; improving pedestrian and bicycle facilities, including sidewalks and bike lanes and providing pedestrian crossing islands; improved work zone safety measures; wider lanes and paved shoulders; upgrading roads from two lanes to four lanes; providing or improving lane markings; updating rail crossings; eliminating vertical pavement drop-offs; and providing large truck parking spaces.
- Safer Vehicles: Support the development, testing and deployment of connected and autonomous vehicle technology such as collision avoidance, lane departure avoidance systems and turning detection systems.
- Safer Speeds: Where appropriate, provide roadway features to encourage safer speeds, including traffic roundabouts and curb extensions; improved signage and dynamic speed signing at high-risk locations; education on the consequences of speeding; and increased speeding enforcement, particularly at high-risk locations.
- Post-Crash Care: Reduce crash response time including the use of emergency vehicle preemption technology; improve emergency response to multi-vehicle or hazardous material crashes; and increase access to level one or two trauma centers for seriously-injured crash victims.

Traffic crashes in Wisconsin imposed a total of $6.1 billion in economic costs in 2021.[46] TRIP estimates that roadway features, while not the primary factor, were likely a contributing factor in approximately one-third of all fatal traffic crashes, resulting in $2 billion in economic costs in Wisconsin in 2021.[47] According to a 2015 National Highway Traffic Safety Administration (NHTSA) report, the economic costs of traffic crashes includes work and household productivity losses, property damage, medical costs, rehabilitation costs, legal and court costs, congestion costs and emergency services.[48]

The U.S. has a $146 billion backlog in needed roadway safety improvements, according to a 2017 report from the AAA Foundation for Traffic Safety. The report found implementing these cost-effective and needed roadway safety improvements on U.S. roadways would save approximately 63,700 lives and reduce the number of serious injuries as a result of traffic crashes by approximately 350,000 over 20 years.

Transportation Funding in Wisconsin

Investment in Wisconsin's roads, highways and bridges is funded by local, state and federal governments. While the state has been able to increase investment at the local, state and federal levels in recent years, additional, sustained transportation funding is needed in the future to maintain and improve the state's transportation network. A lack of sufficient funding at all levels will make it difficult to adequately maintain and improve the state's existing transportation system.

Governor Evers' 2019-2021 Wisconsin Biennial Budget included an increase of 20 percent (a total of $318 million) in funding for the State Highway Rehabilitation Program and provided structural enhancements to continuing sources of state transportation revenues.[49] To further strengthen the program, the state's 2021-2023 Biennial Budget provided a 6.8 percent increase to maintain "real dollar" purchasing power in transportation.[50] Wisconsin transportation funding was boosted in 2021 by the passage of the Infrastructure Investment and Jobs Act (IIJA), which was signed into law by President Biden in November 2021 and will provide $5.5 billion for road, highway and bridge repairs in Wisconsin over the five years of the bill, including a 25 percent increase in highway and bridge funding provided to Wisconsin in FY 2022.[51]

The state has also increased funding for local road and bridge rehabilitation and reconstruction in recent years, allocating 70 percent of the additional federal funding to needed improvements to local roads and bridges and committing an additional $190 million in state funding to local road and bridge projects through a new supplemental grant allocation in the Local Road Improvement Program in the Wisconsin State Budget.[52] These additional funds will allow WisDOT and local governments to make needed improvements to the state's surface transportation network in the coming years.

The Federal Highway Administration's national highway construction cost index, which measures labor and materials cost, increased by 27 percent during 2022.[53]

Most federal funds for highway and transit improvements in Wisconsin are provided by federal highway user fees, largely an 18.4 cents-per-gallon tax on gasoline and a 24.4 cents-per-gallon tax on diesel fuel (additional revenue is generated by fees on the sale of large trucks, a highway use tax levied on vehicles in excess of 55,000 pounds and a tax on the sale of large truck tires).

According to the Status of the Nation's Highways, Bridges, and Transit, 24th Edition, submitted to Congress by the United States Department of Transportation (USDOT) in 2021, the nation faces a $1 trillion backlog in needed repairs and improvements to the nation's roads, highways and bridges.[54] The USDOT report found that the nation's annual investment in roads, highways and bridges by all levels of government should be increased by 55 percent annually to improve the conditions of roads, highways and bridges, relieve traffic congestion and improve traffic safety.[55]

The USDOT report also found that the nation faces a $105 billion backlog in needed repairs and improvements to the its transit systems.[56] The USDOT report found that the nation's annual investment in transit repairs and improvements by all levels of government should be increased by 30 percent to improve the condition and expand the service of the nation's transit systems.[57]

Revenue from the motor fuel tax – a critical source of transportation funding -- is likely to erode as a result of increasing vehicle fuel efficiency and the increasing use of electric vehicles. The average fuel efficiency of U.S. passenger vehicles increased from 20 miles per gallon in 2010 to 24.5 miles per gallon in 2020. Average fuel efficiency is expected to increase another 31 percent by 2030, to 32 miles per gallon, and increase 51 percent by 2040, to 37 miles per gallon.[58]

Freight Transportation in Wisconsin

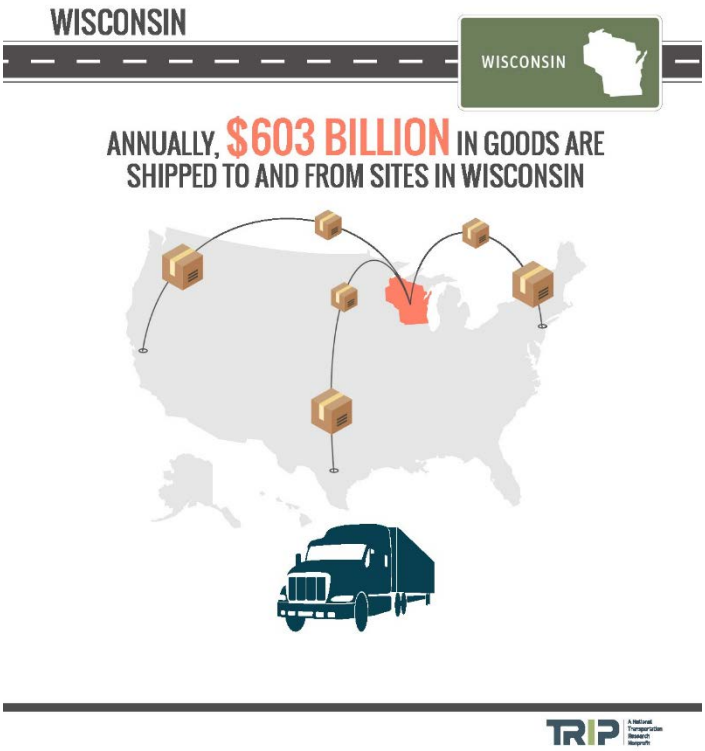
Today's culture of business demands that an area has well-maintained and efficient roads, highways and bridges if it is to remain economically competitive. Global communications and the impact of free trade in North America and elsewhere have resulted in a significant increase in freight movement, making the quality of a region's transportation system, including its highways, railroads, air and maritime ports, a key component in a business's ability to compete locally, nationally and internationally.

Businesses have responded to improved communications and the need to cut costs with a variety of innovations including just-in-time delivery, increased small package delivery, demand-side inventory management and e-commerce. The result of these changes has been a significant improvement in logistics efficiency as firms move from a push-style distribution system, which relies on large-scale warehousing of materials, to a pull-style distribution system, which relies on smaller, more strategic movement of goods. These improvements have made mobile inventories the norm, resulting in the nation's trucks literally becoming rolling warehouses.

Highways are vitally important to continued economic development in Wisconsin. As the economy expands, creating more jobs and increasing consumer confidence, the demand for consumer and business products grows. In turn, manufacturers ship greater quantities of goods to market to meet this demand, a process that adds to truck traffic on the state's highways and major arterial roads.

The amount of freight transported in Wisconsin and the rest of the U.S. is expected to increase significantly as a result of further economic growth, changing business and retail models, increasing international trade, and rapidly changing consumer expectations that place an emphasis on faster deliveries, often of smaller packages or payloads.

Annually, $603 billion worth of freight is shipped to or from sites in Wisconsin, an amount that is anticipated to grow by 57 percent in inflation-adjusted dollars by 2045. [59] Eighty percent of the goods shipped annually to and from sites in Wisconsin are carried by truck and another 14 percent are carried by courier services or multiple-mode deliveries, which include trucking.[60]



Accommodating the significant increase expected in the movement of truck freight in Wisconsin will be further challenged by the significant number of freight routes in the state that are constrained because they have inadequate load carrying capacity to accommodate large trucks. The chart below lists Wisconsin's least reliable routes for commercial trucks.

Chart 13. Wisconsin's least reliable routes for commercial trucks.

Rank	County	Route	Direction	Intersection	Length (Mi.)
1	Milwaukee	I-41/US-45	Southbound	Hamptpn Ave./Exit 45	0.5
2	Milwaukee	I-41/US-45	Southbound	WI-190/Capitol Dr./Exit 44	0.5
3	Milwaukee	I-41/US-45	Southbound	Burleigh St./Exit 43	0.6
4	Milwaukee	I-41/US-45	Southbound	WI-90/Capitol Dr./Exit 44	0.6
5	Dane	US-51	Southbound	US-18/US-12/Beltline Hwy.	0.2
6	Milwaukee	I-94	Eastbound	68th St./Exit 307	0.1
7	Milwaukee	I-41/US-45	Southbound	Burleigh St./Exit 43	0.5
8	Milwaukee	I-94	Eastbound	70th St./Exit 307	0.3
9	Milwaukee	I-94	Eastbound	68th St./Exit 307	0.2
10	Kenosha	WI-50	Westbound	I-94/US-41	0.1

Source: WisDOT response to TRIP survey.

To increase the safety and efficiency of freight movement in the state, WisDOT has made numerous improvements in recent years, including updating its Safety and Weight Enforcement Facilities (SWEF) and adding additional parking stalls including an increase 44 to 76 stalls in Janesville and 30 to 60 stalls in Beloit; installing Weigh-in-Motion technology for trucks on I-39/90, I-94 and I-90; and adding automated truck parking availability signs in key corridors including Interstates 39, 90 and 94.[61]

The ability of Wisconsin's and the nation's freight transportation system to accommodate the growing demand for freight movement efficiently and safely could be hampered by inadequate transportation capacity, a lack of adequate safety features on some transportation facilities, institutional

barriers to enhancing the nation's freight facilities, a lack of adequate funding for needed improvements to the freight network, and a shortage of drivers.

The need to improve the U.S. freight network is occurring at a time when the nation's freight delivery system is being transformed by advances in vehicle autonomy, manufacturing, warehousing and supply chain automation, increasing e-commerce, and the growing logistic networks being developed by Amazon and other retail organizations in response to the demand for a faster and more responsive delivery and logistics cycle.

The Importance of Transportation to Economic Growth in Wisconsin

Investments in transportation improvements in Wisconsin play a critical role in the state's economy. A report by the American Road & Transportation Builders Association found that the design, construction and maintenance of transportation infrastructure supports the equivalent of approximately 64,000 full-time jobs across all sectors of the state economy, earning these workers approximately $2.8 billion annually.[62] These jobs include approximately 32,000 full-time jobs directly involved in transportation infrastructure construction and related activities. Spending by employees and companies in the transportation design and construction industry supports an additional 32,000 full-time jobs in Wisconsin.[63] Transportation construction in Wisconsin contributes an estimated $506 million annually in state and local income, corporate and unemployment insurance taxes and the federal payroll tax.[64]

Approximately 1.4 million full-time jobs in Wisconsin in key industries like tourism, retail sales, agriculture and manufacturing are dependent on the quality, safety and reliability of the state's transportation infrastructure network. These workers earn approximately $54.8 billion in wages and contribute an estimated $10 billion in state and local income, corporate and unemployment insurance taxes and the federal payroll tax.[65]

Local, regional and state economic performance is improved when a region's surface transportation system is expanded or repaired. This improvement comes as a result of the initial job creation and increased employment created over the long-term because of improved access, reduced transport costs and improved safety.

Increasingly, companies are looking at the quality of a region's transportation system when deciding where to re-locate or expand. Regions with congested or poorly maintained roads may see businesses relocate to areas with a smoother, more efficient and more modern transportation system. Highway access has a significant impact on the competitiveness of a region's economy. In a 2022 survey of corporate executives by Area Development Magazine, highway accessibility was ranked fifth out of 28 selection factors in choosing a location.[66]

Improving Transportation Safety, Resiliency and Efficiency

Recognizing that extreme weather, sea level change, and changes in environmental conditions may threaten the condition and longevity of the nation's transportation infrastructure, transportation agencies have begun to assess vulnerabilities and consider the resilience of their transportation assets during the transportation planning process. Transportation agencies across the country have begun to incorporate resilience in asset management plans, addressing resilience in project development and design and optimizing operations and maintenance practices.[67]

Based on the importance of maximizing the level and safety of mobility provided by its transportation system, transportation agencies are adopting Transportation Systems Management and Operations (TSMO) practices and incorporating improved resiliency into their transportation network. While a TSMO program does not eliminate the need for capacity expansions along some routes, it helps enhance the mobility of an existing corridor as much as possible.

A TSMO program adopts an integrated set of strategies to improve traffic flow and safety on a portion of a roadway, including work zone management, traffic incident management, freight management, traveler information, traffic signal coordination, ramp management, transit management and improved bicycle and pedestrian crossings.[68] The benefits of TSMO can include reduced traffic congestion, reduced fuel consumption and reduced emissions.

Conclusion

As Wisconsin strives to support ongoing population and economic growth, it is critical that the state can provide a well-maintained, safe, and efficient 21st-century network of roads, highways, bridges, and transit to accommodate the mobility demands of modern society.

The combination of additional local, state and federal transportation funding has allowed Wisconsin to move forward with numerous projects to improve the condition, use and efficiency of the surface transportation network. While this has allowed the state to undertake needed transportation projects, Wisconsin will need to continue to provide an adequate and sustainable source of transportation funding in order to make needed improvements.

A safe and reliable transportation system that is maintained in good condition and offers improved mobility and accessibility to meet the needs of Wisconsin residents, businesses, and tourists alike, is critical to moving Wisconsin forward.

# # #

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