

New York Transportation by the Numbers

MEETING THE STATE'S NEED FOR
SAFE, SMOOTH AND EFFICIENT MOBILITY



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TRIP

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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.

NEW YORK KEY TRANSPORTATION FACTS

THE HIDDEN COSTS OF DEFICIENT ROADS

Driving on New York roads that are deteriorated, congested and that lack some desirable safety features costs New York drivers a total of \$36.7 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 in which the lack of adequate safety features, while not the primary factor, were likely a contributing factor. The chart below details the cost of deficient roads statewide and for the average driver in the state’s largest urban areas.

Location	VOC	Safety	Congestion	TOTAL
Albany-Schenectady-Troy	\$462	\$542	\$890	\$1,894
Binghamton	\$262	\$655	\$526	\$1,443
Buffalo-Niagara Falls	\$463	\$483	\$1,203	\$2,149
New York-Newark-Jersey City	\$880	\$358	\$2,459	\$3,697
Poughkeepsie-Newburgh-Middletown	\$587	\$734	\$716	\$2,037
Rochester	\$465	\$632	\$960	\$2,057
Syracuse	\$604	\$699	\$468	\$1,771
Utica	\$353	\$666	\$449	\$1,468
New York Statewide	\$8.7 Billion	\$11.2 Billion	\$16.8 Billion	\$36.7 Billion

NEW YORK ROADS PROVIDE A ROUGH RIDE

Due to inadequate state and local funding, forty-three percent of major locally and state-maintained roads and highways in New York are in poor or mediocre condition. Driving on rough roads costs the average New York driver \$715 annually in additional vehicle operating costs – a total of \$8.7 billion statewide. The chart below details pavement conditions on major roads in the state’s largest urban areas and statewide.

Location	Poor	Mediocre	Fair	Good
Albany-Schenectady-Troy	15%	21%	20%	44%
Binghamton	7%	9%	21%	63%
Buffalo-Niagara Falls	14%	25%	22%	40%
New York-Newark-Jersey City	44%	24%	10%	22%
Poughkeepsie-Newburgh-Middletown	17%	38%	18%	27%
Rochester	13%	22%	31%	34%
Syracuse	29%	15%	8%	48%
Utica	7%	20%	29%	43%
New York Statewide	25%	18%	18%	38%

A [2022 General Accounting Office report](#) found that in 2019 six percent of New York’s National Highway System (NHS) was rated in poor condition, the fifth highest share among states. The NHS includes the nation’s most critical highways, including the Interstate Highway System.

NEW YORK BRIDGE CONDITIONS

Nine percent of New York’s bridges are rated in poor/structurally deficient condition, the 12th highest share in the nation and higher than the national average of seven percent. Bridges that are rated poor/structurally deficient have significant deterioration of the bridge deck, supports or other major components. Fifty-five percent of the state’s bridges are rated in fair condition and the

remaining 36 percent are in good condition. The chart below details bridge conditions statewide and in the state’s largest urban areas.

	POOR/STRUCTURALLY DEFICIENT		FAIR		GOOD		TOTAL BRIDGES
	Number	Share	Number	Share	Number	Share	
Albany-Schenectady-Troy	67	8%	487	58%	284	34%	838
Binghamton	27	4%	384	56%	274	40%	685
Buffalo - Niagara Falls	94	8%	591	51%	470	41%	1,155
New York -Newark-Jersey City	416	6%	4,504	68%	1,740	26%	6,660
Poughkeepsie-Newburgh-Middletown	115	14%	495	61%	196	24%	806
Rochester	114	9%	618	50%	507	41%	1,239
Syracuse	85	10%	533	61%	262	30%	880
Utica	59	12%	212	43%	223	45%	494
NEW YORK STATEWIDE	1,578	9%	9,701	55%	6,294	36%	17,573

When measured by the total surface area of bridges in New York (rather than the number of bridges), 10 percent of the state’s bridges by area are in poor/structurally deficient condition, the fifth highest share in the U.S. and double the national average of five percent. Sixty-two percent of bridge surface area in New York is in fair condition and the remaining 28 percent is 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 New York, 49 percent of the state’s bridges were built in 1969 or earlier.

TRAFFIC CONGESTION IN NEW YORK CAUSES DELAYS

In 2022, the state’s transportation system carried 109 billion annual vehicle miles of travel (VMT). Due to the Covid-19 pandemic, vehicle travel in New York dropped by as much as 45 percent in April 2020 (as compared to vehicle travel during the same month the previous year). By the close of 2022, vehicle miles of travel in New York had rebounded to nine percent below 2019’s pre-pandemic levels. During the first nine months of 2023, as compared to the first nine months of 2022, New York VMT increased four percent, the third largest increase in the nation during that time.

Congested roads choke commuting and commerce and cost New York drivers \$16.8 billion each year in the form of lost time and wasted fuel. In the most congested urban areas, drivers lose up to \$2,459 and as many as 91 hours per year due to traffic congestion. The chart below shows the annual number of hours and gallons of fuel lost to congestion per driver and the average cost per driver of lost time and wasted fuel due to congestion in the state’s largest urban areas.

Location	Hours Lost to Congestion	Annual Cost Per Driver	Gallons of Fuel Wasted Per Driver
Albany-Schenectady-Troy	46	\$890	21
Binghamton	19	\$526	7
Buffalo-Niagara Falls	46	\$1,203	23
New York-Newark-Jersey City	91	\$2,459	37
Poughkeepsie-Newburgh-Middletown	34	\$716	17
Rochester	39	\$960	20
Syracuse	17	\$468	8
Utica	17	\$449	7

NEW YORK TRAFFIC SAFETY AND FATALITIES

A total of 5,207 people were killed in traffic crashes in New York from 2018 to 2022. In 2022, New York had 1.04 traffic fatalities for every 100 million miles traveled, lower than the national average of 1.35.

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 and remained elevated in 2022. The number of fatalities in New York increased 23 percent from 2019 to 2022, from 931 to 1,148, and the state’s fatality rate per 100 million VMT increased 39 percent during that time, from 0.75 to 1.02. 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 nine percent overall from 2019 to 2022.

NEW YORK TRAFFIC FATALITY AND VEHICLE MILES OF TRAVEL (VMT) DATA					
	2019	2020	2021	2022	2019-2022 Change
Traffic Fatalities	931	1,046	1,157	1,148	23%
Fatalities per 100M VMT	0.75	1.02	1.06	1.04	39%
VMT (Billions)	124.0	102.5	106.9	112.4	-9%

From 2017 to 2021, there were 1,306 pedestrian and 202 bicycle fatalities in New York, 30 percent of the total number of traffic fatalities in the state.

Year	Total Fatalities	Pedestrian Fatalities	Bicycle Fatalities	Share Bike and Ped.
2017	999	246	46	29%
2018	943	268	30	32%
2019	931	268	46	34%
2020	1,046	231	47	27%
2021	1,139	293	33	29%
TOTAL	5,058	1,306	202	30%
AVERAGE	1,012	261	40	30%

Traffic crashes imposed a total of \$34 billion in economic costs in New York in 2022 and traffic crashes in which a lack of adequate roadway safety features, while not the primary factor, were likely a contributing factor imposed \$11.2 billion in economic costs. The chart below details 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.

Location	Average Fatalities 2017-2021	Safety Costs per Driver
Albany-Schenectady-Troy	41	\$542
Binghamton	19	\$655
Buffalo - Niagara Falls	66	\$483
New York -Newark-Jersey City	607	\$358
Poughkeepsie-Newburgh-Middletown	53	\$734
Rochester	78	\$632
Syracuse	53	\$699
Utica	18	\$666

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. The Safe System approach, which is also being adopted by state and local transportation agencies has five objectives: [Safer People](#), [Safer Roads](#), [Safer Vehicles](#), [Safer Speeds](#), and improved [Post-Crash Care](#).

NEW YORK TRANSPORTATION FUNDING

Investment in New York’s roads, highways and bridges is funded by local, state and federal governments. A lack of sufficient funding at all levels will make it difficult to adequately maintain and improve the state’s existing transportation system.

The level of federal highway investment is set to increase as a result of the five-year [Infrastructure Investment and Jobs Act](#) (IIJA), signed into law by President Biden in November 2021, which resulted in a 50 percent increase in annual federal funding for New York.

Highway and bridge spending multiplies through the economy by stimulating additional output. A 2021 macroeconomic [analysis](#) by [IHS Markit](#) found that that every dollar spent on highway and bridge improvements results in \$3.4 dollars in combined direct, indirect and induced output from industries throughout the economy, resulting in a multiplier for highway and bridge investment of 3.4.

The ability of revenue from New York’s motor fuel tax – a critical source of state transportation funds – to keep pace with the state’s future transportation needs is likely to erode as a result of increasing vehicle fuel efficiency, the increasing use of electric vehicles and inflation in highway construction costs.

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. The share of electric vehicles of total passenger vehicle sales in the U.S. is expected to increase from five percent in 2023 to 60 percent by 2040, by which time electric vehicles will represent approximately 30 percent of the passenger vehicle fleet.

During 2022 and the first half of 2023 the Federal Highway Administration’s national highway construction cost index, which measures labor and materials cost, increased by 36 percent.

TRANSPORTATION AND ECONOMIC DEVELOPMENT

The health and future growth of New York’s economy is riding on its transportation system. Each year, \$1.3 trillion in goods are shipped to and from sites in New York, mostly by truck. Increases in passenger and freight movement will place further burdens on the state’s already deteriorated and congested surface transportation system. The value of freight shipped to and from sites in New York, when adjusted for inflation, is expected to increase by 99 percent by 2050.

A [report](#) by the [American Road & Transportation Builders Association](#) found that the design, construction and maintenance of transportation infrastructure in New York supports approximately 319,000 full-time jobs across all sectors of the state economy. These workers earn \$9.8 billion annually. Approximately 3.5 million full-time jobs in New York in key industries like tourism, manufacturing, retail sales and agriculture are completely dependent on the state’s transportation infrastructure network.

Sources of information for this report include the Federal Highway Administration (FHWA), the New York State Department of Transportation (NYSDOT), 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), HIS Markit and the National Highway Traffic Safety Administration (NHTSA). Cover page photo credit: GoogleEarth.

INTRODUCTION

New York's roads, highways and bridges form vital transportation links for the state's residents, visitors and businesses, providing daily access to homes, jobs, shopping, natural resources and recreation. Modernizing and improving New York's transportation system is critical to quality of life and economic competitiveness in the Empire State. Inadequate transportation investment, which will result in deteriorated transportation facilities and diminished access, will negatively affect New York's economic competitiveness and quality of life.

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 New York and connect the state to markets around the globe, while providing the safe, smooth and efficient mobility that residents require. To foster growth, maintain its level of economic competitiveness and achieve further economic growth, New York will need to maintain and modernize its roads, highways and bridges by improving the physical condition of its transportation network and enhancing the system's ability to provide efficient, reliable and safe mobility for residents, visitors and businesses. Making needed improvements to New York's roads, highways, bridges and transit systems could also provide a significant boost to the state's economy by creating jobs in the short term and stimulating long-term economic growth as a result of enhanced mobility and access.

This report examines the condition, use and safety of New York's roads, highways and bridges, and the state's future mobility needs. Sources of information for this report include the Federal Highway Administration (FHWA), the New York State Department of Transportation (NYSDOT), 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).

In addition to statewide data, the TRIP report includes regional data for the Albany-Schenectady-Troy, Binghamton, Buffalo-Niagara Falls, New York-Newark-Jersey City, Poughkeepsie-Newburgh-Middletown, Rochester, Syracuse and Utica urban areas. An urban area is defined as a region's municipalities and surrounding suburbs for pavement condition and congestion data; bridge and traffic fatality data include a region's major counties.¹

POPULATION, TRAVEL AND ECONOMIC TRENDS IN NEW YORK

New York motorists and businesses require a high level of personal and commercial mobility. To foster quality of life and spur continued economic growth, it is critical that the state provide a safe and modern transportation system that can accommodate future growth in population, tourism, business, recreation and vehicle travel.

New York's population was approximately 19.6 million residents in 2023.² New York had approximately 11.9 million licensed drivers in 2021.³ From 2000 to 2021, New York's gross domestic product (GDP), a measure of the state's economic output, increased by 37 percent, when adjusted for inflation.⁴ U.S. GDP increased 48 percent during the same period.⁵ In 2022, the state's transportation system carried 109 billion annual vehicle miles of travel (VMT).⁶ Due to the Covid-19 pandemic, vehicle travel in New York dropped by as much as 45 percent in April 2020 (as compared to vehicle travel during the same month the previous year). By the close of 2022, vehicle miles of travel in New York

had rebounded to nine percent below 2019’s pre-pandemic levels.⁷ During the first nine months of 2023, VMT in New York was four percent higher than the first nine months of 2022, surpassing pre-Covid travel levels and representing the third largest increase in the nation during that time.⁸

CONDITION OF NEW YORK ROADS

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

The pavement data in this report, which is for all arterial and collector roads and highways, is based on the most recent data available from the Federal Highway Administration (FHWA) and the New York Department of Transportation (NYDOT), on the condition of major state and locally maintained roads and highways. 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.

Statewide, TRIP estimates that 43 percent of New York’s major roads are in poor or mediocre condition. Twenty-five percent of New York’s major locally and state-maintained roads are in poor condition and 18 percent are in mediocre condition.⁹ Eighteen percent of New York’s major roads are in fair condition and the remaining 38 percent are in good condition.¹⁰

Pavements in poor condition provide a noticeable reduction in ride quality and often have visible signs of deterioration including potholes, cracking or rutting, and frequently have deterioration in the pavement’s subbase, which will often require costly reconstruction to address. Pavements in mediocre condition provide intermittent reductions in ride quality and often show signs of pavement deterioration, yet may still be able to avoid the need for reconstruction with immediate preservation work. Roads in fair condition may have some intermittent reduction in ride quality and signs of deterioration, and can be improved with cost-effective roadway preservation treatments. Roads in good condition provide a smooth ride and can be maintained in good condition with ongoing pavement preservation treatments.

The chart below details pavement conditions on major urban roads in the state’s largest urban areas and statewide.¹¹

Chart 1. Pavement conditions on major roads in New York’s largest urban areas and statewide (2022).

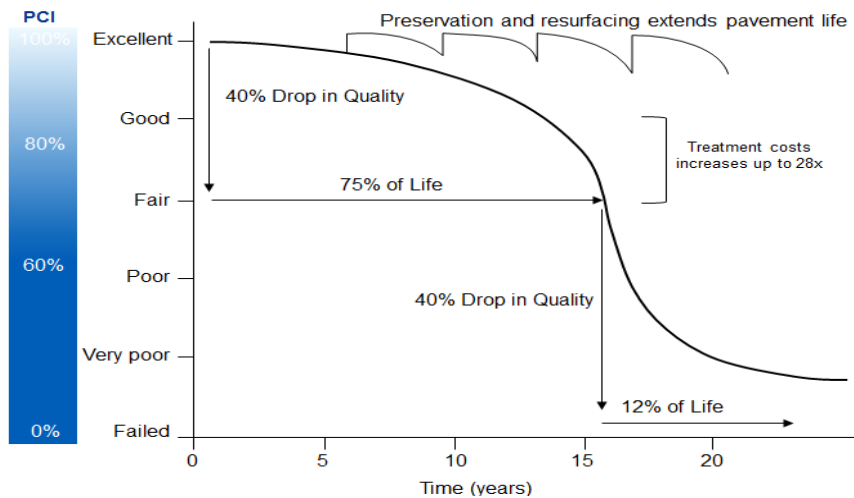
Location	Poor	Mediocre	Fair	Good
Albany-Schenectady-Troy	15%	21%	20%	44%
Binghamton	7%	9%	21%	63%
Buffalo-Niagara Falls	14%	25%	22%	40%
New York-Newark-Jersey City	44%	24%	10%	22%
Poughkeepsie-Newburgh-Middletown	17%	38%	18%	27%
Rochester	13%	22%	31%	34%
Syracuse	29%	15%	8%	48%
Utica	7%	20%	29%	43%
New York Statewide	25%	18%	18%	38%

Source: TRIP analysis of NYSDOT and Federal Highway Administration data.

A [2022 General Accounting Office report](#) found that in 2019 six percent of New York’s National Highway System (NHS) was ranked in poor condition, the fifth highest share among states.¹² The NHS includes the nation’s most critical highways, including the Interstate Highway System.

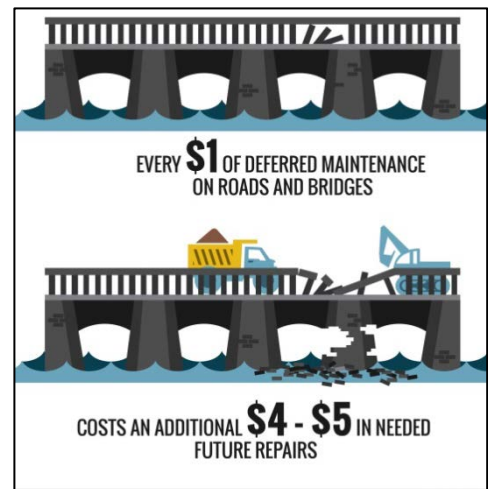
Pavement failure is caused by a combination of traffic, moisture and climate. Moisture often works its way into road surfaces and the materials that form the road’s foundation. Road surfaces at intersections are more prone to deterioration because the slow-moving or standing loads occurring at these 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.¹³ 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.

Chart 2. Pavement Condition Cycle Time with Treatment and Cost.



Source: North Carolina DOT (2016). [2016 Maintenance Operations and Performance Analysis Report](#)

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.¹⁴



THE COST TO MOTORISTS OF ROADS IN INADEQUATE CONDITION

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 New York motorists as a result of deteriorated road conditions is \$8.7 billion annually, an average of \$715 per driver statewide.¹⁵ The chart below details additional VOC per motorist in the state’s largest urban areas as a result of driving on roads in poor, mediocre or fair condition.

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

Location	VOC
Albany-Schenectady-Troy	\$462
Binghamton	\$262
Buffalo-Niagara Falls	\$463
New York-Newark-Jersey City	\$880
Poughkeepsie-Newburgh-Middletown	\$587
Rochester	\$465
Syracuse	\$604
Utica	\$353
New York Statewide	\$8.7 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.¹⁶ 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.¹⁷ 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 NEW YORK

New York’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.

Nine percent (1,578 of 17,573) of New York’s locally and state-maintained bridges are rated in poor/structurally deficient condition, the 12th highest share in the U.S..¹⁸ 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.

Fifty-five percent (9,701 of 17,573) of New York’s locally and state-maintained bridges are rated in fair condition.¹⁹ 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 36 percent (6,294 of 17,555) of the state’s bridges are rated in good condition.²⁰

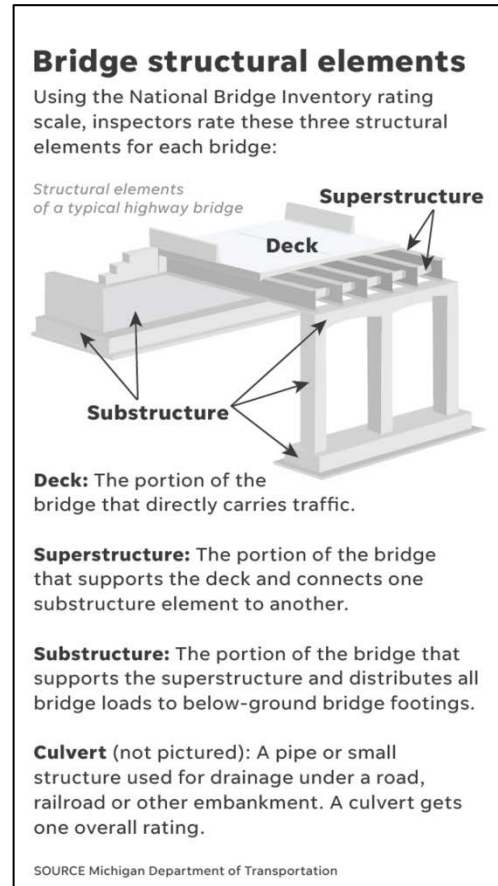
The chart below shows the condition of bridges statewide and in New York’s largest urban areas.

Chart 4. Bridge conditions statewide and in New York’s largest urban areas.

	POOR/STRUCTURALLY DEFICIENT		FAIR		GOOD		TOTAL BRIDGES
	Number	Share	Number	Share	Number	Share	
Albany-Schenectady-Troy	67	8%	487	58%	284	34%	838
Binghamton	27	4%	384	56%	274	40%	685
Buffalo - Niagara Falls	94	8%	591	51%	470	41%	1,155
New York -Newark-Jersey City	416	6%	4,504	68%	1,740	26%	6,660
Poughkeepsie-Newburgh-Middletown	115	14%	495	61%	196	24%	806
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Syracuse	85	10%	533	61%	262	30%	880
Utica	59	12%	212	43%	223	45%	494
NEW YORK STATEWIDE	1,578	9%	9,701	55%	6,294	36%	17,573

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

When measured by the total surface area of bridges in New York (rather than the number of bridges), 10 percent of the state’s bridges by area are in poor/structurally deficient condition, the fifth



highest share in the U.S. and double the national average of five percent.²¹ Sixty-two percent of bridge surface area in New York is in fair condition and the remaining 28 percent is in good condition.²²

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 New York, 49 percent of the state’s bridges were built in 1969 or earlier.²³

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 NEW YORK

Increasing levels of traffic congestion cause significant delays in New York, particularly in its larger urban areas, choking commuting and commerce. Traffic congestion robs commuters of time and money and imposes increased costs on businesses, shippers and manufacturers, which are often passed along to the consumer. Increased levels of congestion can also reduce the attractiveness of a location to a company when considering expansion or where to locate a new facility.

Based on TTI methodology, TRIP estimates the total value of lost time and wasted fuel in New York is approximately \$16.8 billion a year. The chart below shows the number of hours lost annually for each driver in the state’s largest urban areas, the per-driver cost of lost time and wasted fuel due to congestion, and the average amount of fuel per driver wasted annually due to congestion.

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

Location	Hours Lost to Congestion	Annual Cost Per Driver	Gallons of Fuel Wasted Per Driver
Albany-Schenectady-Troy	46	\$890	21
Binghamton	19	\$526	7
Buffalo-Niagara Falls	46	\$1,203	23
New York-Newark-Jersey City	91	\$2,459	37
Poughkeepsie-Newburgh-Middletown	34	\$716	17
Rochester	39	\$960	20
Syracuse	17	\$468	8
Utica	17	\$449	7

Source: TRIP analysis of Texas Transportation Institute Urban Mobility Report, 2019.

TRAFFIC SAFETY IN NEW YORK

A total of 5,207 people were killed in New York traffic crashes from 2018 to 2022, an average of 1,041 fatalities per year.²⁴ New York’s overall traffic fatality rate of 1.04 fatalities per 100 million vehicle miles of travel in 2022 is lower than the national average of 1.35.²⁵

From 2017 to 2021, there were 1,306 pedestrian and 202 bicycle fatalities in New York, 30 percent of the total number of traffic fatalities in the state.²⁶

Chart 6. New York Traffic Fatalities, 2017-2021.

Year	Total Fatalities	Pedestrian Fatalities	Bicycle Fatalities	Share Bike and Ped.
2017	999	246	46	29%
2018	943	268	30	32%
2019	931	268	46	34%
2020	1,046	231	47	27%
2021	1,139	293	33	29%
TOTAL	5,058	1,306	202	30%
AVERAGE	1,012	261	40	30%

Source: National Highway Traffic Safety Administration.

Three major factors are associated with fatal vehicle crashes: driver behavior, vehicle characteristics and roadway features. It is estimated that roadway features, while not the primary factor, are likely a contributing factor in approximately one-third of fatal traffic crashes. 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 New York imposed a total of \$34 billion in economic costs in 2022.²⁷ 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 \$11.2 billion in economic costs in New York in 2022.²⁸ According to a [2023 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.²⁹

The chart below details the 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.

Chart 7. Average fatalities between 2017 and 2021 and crash cost per driver.

Location	Average Fatalities 2017-2021	Safety Costs per Driver
Albany-Schenectady-Troy	41	\$542
Binghamton	19	\$655
Buffalo - Niagara Falls	66	\$483
New York -Newark-Jersey City	607	\$358
Poughkeepsie-Newburgh-Middletown	53	\$734
Rochester	78	\$632
Syracuse	53	\$699
Utica	18	\$666

Source: TRIP analysis.

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 New York increased 23 percent from 2019 to 2022, from 931 to 1,148, and the state’s fatality rate per 100 million VMT increased 39 percent during that time, from 0.75 to 1.02.³⁰

Chart 8. New York traffic fatality and VMT data, 2019-2022.

NEW YORK TRAFFIC FATALITY AND VEHICLE MILES OF TRAVEL (VMT) DATA					
	2019	2020	2021	2022	2019-2022 Change
Traffic Fatalities	931	1,046	1,157	1,148	23%
Fatalities per 100M VMT	0.75	1.02	1.06	1.04	39%
VMT (Billions)	124.0	102.5	106.9	112.4	-9%

Source: National Highway Traffic Safety Administration and Federal Highway Administration.

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.”³¹

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.³² 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.³³

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.³⁴

Chart 9. The Safe System Approach



Source: US Department of Transportation.

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.

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 NEW YORK

Improvements to New York's roads, highways and bridges is funded by local, state and federal governments. The level of highway investment is likely to increase further as a result of the five-year federal [Infrastructure Investment and Jobs Act](#) (IIJA), signed into law by President Biden in November 2021, which resulted in a 50 percent increase in annual federal funding for New York in 2022 and 2023.³⁵

Most federal funds for highway and transit improvements in New York 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).

Revenue from New York's motor fuel tax – a critical source of state 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.³⁶ The share of electric vehicles of total passenger vehicle sales in the U.S. is expected to increase to five percent by

2023 and 60 percent by 2040, by which time they will represent approximately 30 percent of the passenger vehicle fleet.³⁷

During 2022 and the first half of 2023 the Federal Highway Administration's national highway construction cost index, which measures labor and materials cost, increased by 36 percent.³⁸

TRANSPORTATION AND ECONOMIC GROWTH

Today's culture of business demands that an area have 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 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 New York. 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 New York 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.

Every year, \$1.3 trillion in goods are shipped to and from sites in New York, mostly by truck.³⁹ Seventy-five percent of the goods shipped annually to and from sites in New York are carried by truck and another 17 percent are carried by courier services or multiple-mode deliveries, which include trucking.⁴⁰ The amount of freight shipped annually to and from sites in New York is anticipated to increase by 99 percent by value 61 percent by weight by 2050.⁴¹

The ability of the nation's freight transportation system to efficiently and safely accommodate the growing demand for freight movement 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.

Investments in transportation improvements in New York 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 in New York play a critical role in the state's economy, supporting the equivalent of 318,604 full-time jobs across all sectors of the state economy, earning these workers approximately \$9.8 billion annually.⁴² These jobs include 158,718

full-time jobs directly involved in transportation infrastructure construction and related activities and 159,886 full-time jobs as a result of spending by employees and companies in the transportation design and construction industry.⁴³

Transportation construction in New York annually contributes an estimated \$1.8 billion in state and local income, corporate and unemployment insurance taxes and the federal payroll tax. Approximately 3.5 million full-time jobs in New York 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 \$145 billion in wages and contribute an estimated \$26.4 billion in state and local income, corporate and unemployment insurance taxes and the federal payroll tax.⁴⁴

Highway and bridge spending multiplies through the economy by stimulating additional output. A 2021 macroeconomic [analysis](#) by [IHS Markit](#) found that every dollar spent on highway and bridge improvements results in \$3.4 dollars in combined direct, indirect and induced output from industries throughout the economy, resulting in a multiplier for highway and bridge investment of 3.4.⁴⁵

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 2023 [survey of corporate executives by Area Development Magazine](#), 78 percent of corporate executives said that highway accessibility was an important or very important factor in making decisions about expansion or investment.⁴⁶

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.⁴⁷

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.⁴⁸ The benefits of TSMO can include reduced traffic congestion, reduced fuel consumption and reduced emissions.

CONCLUSION

New York must work to provide a 21st century network of roads, highways, bridges and transit that can accommodate the mobility demands of a modern society.

The state will need to modernize its surface transportation system by improving the physical condition of its transportation network and enhancing the system's ability to provide efficient, safe and reliable mobility for residents, visitors and businesses. Making needed improvements to New York's roads, highways, bridges and transit systems would provide a significant boost to the economy by creating jobs in the short term and stimulating long-term economic growth as a result of enhanced mobility and access. If New York is unable to complete needed transportation projects it will hamper the state's ability to improve the condition and efficiency of its transportation system or enhance economic development opportunities and quality of life.

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ENDNOTES

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- ¹ Bridge condition data and safety data for each urban area includes the counties noted: Albany-Schenectady-Troy: Albany, Saratoga and Rensselaer Counties; Binghamton: Broome and Tioga Counties; Buffalo: Erie and Niagara Counties; New York: Kings, Queens, New York, Bronx, Richmond, Westchester, Rockland, Fairfield (CT), New Haven (CT), Bergen (NJ), Hudson (NJ), Middlesex (NJ), Monmouth (NJ), Ocean (NJ) and Passaic (NJ) Counties; Poughkeepsie-Newburg: Dutchess and Orange Counties; Rochester: Livingston, Monroe, Ontario, Orleans, Wayne and Yates Counties; Syracuse: Onondaga, Oswego and Madison Counties; Utica: Oneida County.
- ² U.S. Census Bureau QuickFacts. New York population estimate, July 1, 2023.
- ³ Highway Statistics (2021). Federal Highway Administration. DL-1C.
- ⁴ TRIP analysis of Bureau of Economic Analysis data.
- ⁵ Ibid.
- ⁶ U.S. Department of Transportation - Federal Highway Administration: Highway Statistics 2020. <https://www.fhwa.dot.gov/policyinformation/statistics/2020/>
- ⁷ Federal Highway Administration – Traffic Volume Trends. https://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm
- ⁸ Ibid.
- ⁹ Statewide and regional 2022 pavement condition data is based on an analysis of NYDOT’s annual condition report and FHWA’s annual highway statistics reports. <https://www.fhwa.dot.gov/policyinformation/statistics.cfm>
- ¹⁰ Ibid.
- ¹¹ Ibid.
- ¹² United States Government Accountability Office Report to Congressional Committees. National Highways: Analysis of Available Data Could Better Ensure Equitable Pavement Condition. July 2022. <https://www.gao.gov/assets/gao-22-104578.pdf>
- ¹³ Selecting a Preventative Maintenance Treatment for Flexible Pavements. R. Hicks, J. Moulthrop. Transportation Research Board. 1999. Figure 1.
- ¹⁴ Pavement Maintenance, by David P. Orr, PE Senior Engineer, Cornell Local Roads Program, March 2006.
- ¹⁵ TRIP calculation.
- ¹⁶ Highway Development and Management: Volume Seven. Modeling Road User and Environmental Effects in HDM-4. Bennett, C. and Greenwood, I. 2000.
- ¹⁷ Your Driving Costs. American Automobile Association. 2022. <https://newsroom.aaa.com/wp-content/uploads/2022/08/2022-YourDrivingCosts-FactSheet-7-1.pdf>
- ¹⁸ Federal Highway Administration National Bridge Inventory. 2023.
- ¹⁹ Ibid.
- ²⁰ Ibid.
- ²¹ Ibid.
- ²² Ibid.
- ²³ Ibid.
- ²⁴ Federal Highway Administration National Highway Traffic Safety Administration, 2014-2018.
- ²⁵ TRIP analysis of National Highway Traffic Safety Administration and Federal Highway Administration data (2022). .
- ²⁶ Ibid.
- ²⁷ TRIP estimate based on NHTSA report “The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (Revised), 2016. P. 1.46.
- ²⁸ Ibid.
- ²⁹ The Economic and Societal Impact of Motor Vehicle Crashes, 2019 (2023). National Highway Traffic Safety Administration.
- ³⁰ Addressing America’s Traffic Safety Crisis. June 2-23. TRIP. <https://tripnet.org/reports/addressing-americas-traffic-safety-crisis-june-2023/>
- ³¹ Continuation of Research on Traffic Safety During the COVID-19 Public Health Emergency: January-June 2021. U.S. Department of Transportation National Highway Traffic Safety Administration.
- ³² Self-Reported Risky Driving in Relation to Changes in Amount of Driving During the COVID-19 Pandemic. February 2022. AAA Foundation for Traffic Safety.
- ³³ Ibid.
- ³⁴ U.S. Department of Transportation National Roadway Safety Strategy, 2022. <https://www.transportation.gov/NRSS>

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- ³⁵ American Road and Transportation Builders Association (2024). Federal Highway Program Impact: New York Infrastructure Investment & Jobs Act (IIJA). <https://www.artba.org/economics/highway-dashboard-iija/federal-highway-program-impact-iija/?state=New%20York>
- ³⁶ KPMG. (2019). Evaluating Sustainable Transportation Funding Options.
- ³⁷ BloombergNEF (2019) New Energy Outlook 2019. <https://about.bnef.com/new-energy-outlook/>
- ³⁸ Federal Highway Administration (2024). National Highway Construction Cost Index. <https://www.fhwa.dot.gov/policy/otps/nhcci/>
- ³⁹ TRIP analysis of the Federal Highway Administration's Freight Analysis Framework. (2022). Data is for 2022. <https://faf.ornl.gov/fafweb/>
- ⁴⁰ *Ibid.*
- ⁴¹ *Ibid.*
- ⁴² American Road & Transportation Builders Association (2015). The 2015 U.S. Transportation Construction Industry Profile. https://www.transportationcreatesjobs.org/pdf/Economic_Profile.pdf
- ⁴³ *Ibid.*
- ⁴⁴ *Ibid.*
- ⁴⁵ IHS Markit (2021). Economic Impacts of Transportation Infrastructure. [ARTBA EIA IIJA Report Sept2021.pdf](#)
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- ⁴⁷ Federal Highway Administration (2019). Resilience. <https://www.fhwa.dot.gov/environment/sustainability/resilience/>
- ⁴⁸ Federal Highway Administration (2019). What is TSMO? <https://ops.fhwa.dot.gov/tsmo/index.htm#q1>