NEW YORK'S TOP TRANSPORTATION ISSUES:

Meeting the State's Need for Safe, Smooth and Efficient Mobility

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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

Executive Summary

Eight years after the nation suffered a significant economic downturn, New York's economy continues to rebound. The rate of economic growth in New York, which will be greatly impacted by the reliability and condition of the state's transportation system, continues to have a significant impact on quality of life in the Empire State.

An efficient, safe and well-maintained transportation system provides economic and social benefits by affording individuals access to employment, housing, healthcare, education, goods and services, recreation, entertainment, family, and social activities. It also provides businesses with access to suppliers, markets and employees, all critical to a business' level of productivity and ability to expand. Conversely, reduced accessibility and mobility - as a result of traffic congestion, a lack of adequate capacity, or deteriorated roads, highways, bridges and transit facilities - diminishes a region's quality of life by reducing economic productivity and limiting opportunities for economic, health or social transactions and activities.

With a wide based economy including finance, manufacturing, technology, communications, printing, entertainment, shipping, publishing, agriculture and tourism, the quality of New York's transportation system will play a vital role in the state's level of economic growth and quality of life.

In this report, TRIP looks at the top transportation issues faced in New York as the state addresses its need to modernize and maintain its roads, highways, bridges and transit systems.

In December 2015, Congress passed and the president signed into law a long-term federal surface transportation program that includes modest funding increases and allows state and local governments to plan and finance projects with greater certainty through 2020. The Fixing America's Surface Transportation Act (FAST Act) provides approximately $305 billion for surface transportation with highway and transit funding slated to increase by approximately 15 and 18 percent, respectively, over the five-year duration of the program. While the modest funding increase and certainty provided by the FAST Act are a step in the right direction, , the funding falls far short of the level of needed to improve conditions and meet the nation's mobility needs and fails to deliver a sustainable, long-term source of revenue for the federal Highway Trust Fund.

COST TO NEW YORK MOTORISTS OF DEFICIENT ROADS

An inadequate transportation system costs New York motorists a total of $24.9 billion every year in the form of additional vehicle operating costs (VOC), congestion-related delays and traffic crashes.

- TRIP estimates that New York roadways that lack some desirable safety features, have inadequate capacity to meet travel demands or have poor pavement conditions cost the state's residents approximately $24.9 billion annually in the form of additional vehicle operating costs (including accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear), the cost of lost time and wasted fuel due to traffic congestion, and the financial cost of traffic crashes.

- TRIP has calculated the average cost to drivers in the state's largest urban areas as a result of driving on roads that are deteriorated, congested and lack some desirable safety features. The chart below details the costs to drivers in the state's largest urban areas.

Urban Area	VOC	Safety	Congestion	TOTAL
Albany	$480	$528	$991	$1,999
Binghamton	$375	$649	$382	$1,406
Buffalo	$390	$565	$918	$1,873
New York City Metro	$791	$268	$1,739	$2,798
Poughkeepsie-Newburgh	$531	$884	$867	$2,282
Rochester	$314	$488	$889	$1,691
Syracuse	$547	$586	$530	$1,663
Utica	$260	$825	$433	$1,518
New York State	**$6.3 Billion**	**$6.2 Billion**	**$12.4 Billion**	**$24.9 Billion**

POPULATION AND ECONOMIC GROWTH IN NEW YORK

Population and economic growth in New York have resulted in increased demands on the state's major roads and highways, leading to increased wear and tear on the transportation system.

- New York's population reached approximately 19.7 million residents in 2014, an 18 percent increase since 1990.

- New York had 11.2 million licensed drivers in 2013.

- Vehicle miles traveled (VMT) in New York increased by 21 percent from 1990 to 2013 – from 106.9 billion VMT in 1990 to 129.7 billion VMT in 2013.

- Vehicle miles of travel in New York for the first ten months of 2015 were 3.3 percent higher than the first ten months of 2014. During the first ten months of 2015, U.S. vehicle miles of travel were 3.4 percent higher than the first ten months of 2014.

- By 2030, vehicle travel in New York is projected to increase by another 15 percent.
- From 1990 to 2013, New York's gross domestic product, a measure of the state's economic output, increased by 46 percent, when adjusted for inflation. U.S. GDP increased 65 percent during this time.

NEW YORK ROAD CONDITIONS

A lack of adequate state and local funding has resulted in more than one third of major urban roads and highways in New York having pavement surfaces in poor condition, providing a rough ride and costing motorist in the form of additional vehicle operating costs.

- Thirty-eight percent of New York's major locally and state-maintained urban roads and highways have pavements in poor condition, while an additional 42 percent of the state's major state and locally maintained urban roads are rated in mediocre or fair condition and the remaining 21 percent are rated in good condition.

- Roads rated in poor condition may show signs of deterioration, including rutting, cracks and potholes. In some cases, poor roads can be resurfaced, but often are too deteriorated and must be reconstructed.

- Driving on rough roads costs New York motorists a total of $6.3 billion annually in extra vehicle operating costs. Costs include accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear.

- The chart below details pavement conditions on major urban roads in the state's largest urban areas:

Urban Area	Poor	Mediocre	Fair	Good
Albany	21%	30%	24%	25%
Binghamton	11%	36%	23%	29%
Buffalo	14%	33%	16%	37%
New York City Metro	51%	31%	5%	13%
Poughkeepsie-Newburgh	26%	30%	23%	22%
Rochester	11%	18%	31%	40%
Syracuse	30%	23%	17%	29%
Utica	7%	20%	27%	46%

NEW YORK BRIDGE CONDITIONS

Nearly two-fifths of locally and state-maintained bridges in New York show significant deterioration or do not meet current design standards often because of narrow lanes, inadequate clearances or poor alignment. This includes all bridges that are 20 feet or more in length.

- Twelve percent of New York's bridges are structurally deficient. A bridge is structurally deficient if there is significant deterioration of the bridge deck, supports or other major components. Structurally deficient bridges are often posted for lower weight or closed to traffic, restricting or redirecting large vehicles, including commercial trucks and emergency services vehicles.
- Twenty-seven percent of New York's bridges are functionally obsolete. Bridges that are functionally obsolete no longer meet current highway design standards, often because of narrow lanes, inadequate clearances or poor alignment.

- The chart below details bridge conditions in the state's largest urban areas as well as statewide:

	Number Structurally Deficient	Percent Structurally Deficient	Number Functionally Obsolete	Percent Functionally Obsolete	Total Bridges
Albany	63	10%	180	30%	607
Binghamton	29	6%	103	22%	461
Buffalo	77	9%	244	27%	891
New York City Metro	531	9%	2,776	48%	5,797
Poughkeepsie-Newburgh	116	14%	229	28%	806
Rochester	57	9%	199	33%	609
Syracuse	68	14%	116	25%	471
Utica	66	14%	105	22%	480
NEW YORK STATE	2,012	12%	4,733	27%	17,456

HIGHWAY SAFETY AND FATALITY RATES IN NEW YORK

New York's rural traffic fatality rate is approximately three-and-a-half times the fatality rate on all other roads in the state. Improving safety features on New York's roads and highways would likely result in a decrease in the state's traffic fatalities and serious crashes. It is estimated that roadway features are likely a contributing factor in approximately one-third of all fatal and serious traffic crashes.

- Between 2010 and 2014 a total of 5,775 people were killed in traffic crashes in New York, an average of 1,155 fatalities per year.

- New York's overall traffic fatality rate of 0.92 fatalities per 100 million vehicle miles of travel in 2013 is lower than the national average of 1.09.

- The chart below details the average number of fatalities in each of the state's largest urban areas from 2011-2013 as well as the annual cost of traffic crashes for the average driver in each area.

	Crash Cost Per Driver	Average Fatalities 2011-2013
Albany	$ 528	27
Binghamton	$ 649	14
Buffalo	$ 565	55
New York City	$ 268	663
Poughkeepsie/Newburgh	$ 884	60
Rochester	$ 488	40
Syracuse	$ 586	28
Utica	$ 825	16

- The fatality rate on New York's rural non-Interstate roads was 2.15 fatalities per 100 million vehicle miles of travel in 2013, approximately three-and-a-half times the 0.61 fatality rate on all other roads and highways in the state.

- 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. The cost of serious crashes includes lost productivity, lost earnings, medical costs and emergency services.

- Several factors are associated with vehicle crashes that result in fatalities, including driver behavior, vehicle characteristics and roadway features. TRIP estimates that roadway features are likely a contributing factor in approximately one-third of fatal traffic crashes.

- Where appropriate, highway improvements can reduce traffic fatalities and crashes while improving traffic flow to help relieve congestion. Such improvements include removing or shielding obstacles; adding or improving medians; improved lighting; adding rumble strips, wider lanes, wider and paved shoulders; upgrading roads from two lanes to four lanes; and better road markings and traffic signals.

- Investments in rural traffic safety have been found to result in significant reductions in serious traffic crashes. A 2012 report by the Texas Transportation Institute (TTI) found that improvements completed recently by the Texas Department of Transportation that widened lanes, improved shoulders and made other safety improvements on 1,159 miles of rural state roadways resulted in 133 fewer fatalities on these roads in the first three years after the improvements were completed (as compared to the three years prior). TTI estimates that the improvements on these roads are likely to save 880 lives over the next 20 years.

NEW YORK TRAFFIC CONGESTION

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.

- Based on Texas Transportation Institute (TTI) estimates, the value of lost time and wasted fuel in New York is approximately $12.4 billion per year.

- The chart below details the annual cost to the average motorist of lost time and wasted fuel as a result of congestion, as well as the number of hours lost annually to congestion by the average driver in the state's largest urban areas.

Urban Area	Congestion Cost	Hours Lost
Albany	$991	42 hours
Binghamton	$382	16 hours
Buffalo	$918	40 hours
New York City Metro	$1,739	74 hours
Poughkeepsie-Newburgh	$867	37 hours
Rochester	$889	39 hours
Syracuse	$530	22 hours
Utica	$433	19 hours

- Increasing levels of congestion add significant costs to consumers, transportation companies, manufacturers, distributors and wholesalers and can reduce the attractiveness of a location to a company when considering expansion or where to locate a new facility. Congestion costs can also increase overall operating costs for trucking and shipping companies, leading to revenue losses, lower pay for drivers and employees, and higher consumer costs.

TRANSPORTATION FUNDING IN NEW YORK

Investment in New York's roads, highways and bridges is funded by local, state and federal governments. The recently approved five-year federal surface transportation program includes modest funding increases and provides states with greater funding certainty, but falls far short of providing the level of funding needed to meet the nation's highway and transit needs. The bill does not include a long-term and sustainable revenue source.

- From 2009 to 2013, the federal government provided $1.45 for road improvements in New York for every dollar the state paid in federal motor fuel fees.

- Signed into law in December 2015, the Fixing America's Surface Transportation (FAST) Act, provides modest increases in federal highway and transit spending, allows states

greater long-term funding certainty and streamlines the federal project approval process. But the FAST Act does not provide adequate funding to meet the nation's need for highway and transit improvements and does not include a long-term and sustainable funding source.

- The five-year, $305 billion FAST Act will provide approximately a 15 percent boost in highway funding and an 18 percent boost in transit funding over the duration of the program, which expires in 2020.

- In addition to federal motor fuel tax revenues, the FAST Act will also be funded by $70 billion in U.S. general funds, which will rely on offsets from several unrelated federal programs including the Strategic Petroleum Reserve, the Federal Reserve and U.S. Customs.

- According to the 2015 AASHTO Transportation Bottom Line Report, a significant boost in investment in the nation's roads, highways, bridges and public transit systems is needed to improve their condition and to meet the nation's transportation needs.

- AASHTO's report found that annual investment in the nation's roads, highways and bridges needs to increase 36 percent, from $88 billion to $120 billion, to improve conditions and meet the nation's mobility needs, based on an annual one percent rate of vehicle travel growth. Investment in the nation's public transit system needs to increase from $17 billion to $43 billion.

- The 2015 AASHTO Transportation Bottom Line Report found that if the national rate of vehicle travel increased by 1.4 percent per year, the needed annual investment in the nation's roads, highways and bridges would need to increase by 64 percent to $144 billion. If vehicle travel grows by 1.6 percent annually the needed annual investment in the nation's roads, highways and bridges would need to increase by 77 percent to $156 billion.

- Vehicle miles of travel in New York were 3.6 percent higher during the first nine months of 2015, compared to the first nine months of 2014. U.S. vehicle miles of travel were 3.5 percent higher during the first nine months of 2015, compared to the first nine months of 2014.

TRANSPORTATION AND ECONOMIC GROWTH IN NEW YORK

The efficiency of New York's transportation system, particularly its highways, is critical to the health of the state's economy. Businesses rely on an efficient and dependable transportation system to move products and services. A key component in business efficiency and success is the level and ease of access to customers, markets, materials and workers.

- Annually, $550 billion in goods are shipped from sites in New York and another $597 billion in goods are shipped to sites in New York, mostly by truck.

- Seventy-two percent of the goods shipped annually from sites in New York are carried by trucks and another 23 percent are carried by courier services or multiple mode deliveries, which include trucking.

- Businesses have responded to improved communications and greater competition by moving from a push-style distribution system, which relies on low-cost movement of bulk commodities and large-scale warehousing, to a pull-style distribution system, which relies on smaller, more strategic and time-sensitive movement of goods.

- 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 accessibility was ranked the number two site selection factor behind only the availability of skilled labor in a 2013 survey of corporate executives by Area Development Magazine.

- The Federal Highway Administration estimates that each dollar spent on road, highway and bridge improvements results in an average benefit of $5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs and reduced emissions as a result of improved traffic flow.

Sources of information for this report include the New York State Department of Transportation (NYSDOT), the Federal Highway Administration (FHWA), the Bureau of Transportation Statistics (BTS), the U.S. Census Bureau, the Texas Transportation Institute (TTI, the American Association of State Highway and Transportation Officials (AASHTO) and the National Highway Traffic Safety Administration (NHTSA).

Introduction

New York's roads, highways, bridges and transit systems form vital transportation links for the state's residents, visitors and businesses, providing daily access to homes, jobs, shopping, natural resources and recreation. Modernizing New York's transportation system is critical to fostering quality of life improvements and economic competitiveness in the Empire State.

Supporting quality of life and a robust economy in New York requires that the state provide a safe, efficient and well-maintained transportation system. Inadequate transportation investment in New York, which will result in deteriorated transportation facilities and diminished access, will negatively affect economic competitiveness and quality of life in the state.

To accommodate population and economic growth, maintain its level of economic competitiveness and achieve further economic growth, New York will need to maintain and modernize its roads, highways, bridges and transit systems 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 transportation system 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, funding needs, and the future mobility needs of the state. Sources of information for this report include the New York State Department of Transportation (NYSDOT), the Federal Highway Administration (FHWA), the Bureau of Transportation Statistics (BTS), the U.S. Census Bureau, the Texas Transportation Institute (TTI), the American Association of State

Highway and Transportation Officials and the National Highway Traffic Safety Administration (NHTSA).

Population, Travel and Economic Trends in New York

New York residents and businesses require a high level of personal and commercial mobility. Population increases and economic growth in the state have resulted in an increase in the demand for mobility as well as an increase in vehicle miles of travel (VMT). To foster quality of life and spur economic growth in New York, it will be 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 grew to approximately 19.7 million residents in 2014, an 18 percent increase since 1990.[1] New York had 11.2 million licensed drivers in 2013.[2]

From 1990 to 2013, annual VMT in New York increased by 21 percent, from 106.9 billion miles traveled annually to 129.7 billion miles traveled annually.[3] During the first ten months of 2015, vehicle miles of travel in New York were 3.3 percent higher than the first ten months of 2014.[4] Similarly, U.S. vehicle miles of travel were 3.4 percent higher during the first ten months of 2015than the first ten months of 2014.[5]

Based on population and other lifestyle trends, TRIP estimates that travel on New York's roads and highways will increase by another 15 percent by 2030.[6]

From 1990 to 2013, New York's gross domestic product (GDP), a measure of the state's economic output, increased by 46 percent, when adjusted for inflation.[7] U.S. GDP increased 65 percent during this time.[8]

Condition of New York's 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.

Thirty-eight percent of New York's major, locally and state-maintained urban roads and highways have pavements rated in poor condition.[9] Another 42 percent of New York's major urban roads are rated in mediocre or fair condition and the remaining 21 percent are rated in good condition.[10]

The chart below details pavement conditions on major roads in the state's largest urban areas.[11]

Chart 1. Pavement conditions on major roads.

Urban Area	Poor	Mediocre	Fair	Good
Albany	21%	30%	24%	25%
Binghamton	11%	36%	23%	29%
Buffalo	14%	33%	16%	37%
New York City Metro	51%	31%	5%	13%
Poughkeepsie-Newburgh	26%	30%	23%	22%
Rochester	11%	18%	31%	40%
Syracuse	30%	23%	17%	29%
Utica	7%	20%	27%	46%

Source: Federal Highway Administration.

The pavement data in this report for all arterial roads and highways is provided by the Federal Highway Administration, based on data submitted annually by the New York State

Department of Transportation on the condition of major state and locally maintained roads and highways in the state.

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 even 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.[12] 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.

The Costs to Motorists of Roads in Inadequate Condition

TRIP has calculated the additional cost to motorists of driving on roads in poor or unacceptable condition. When roads are in poor condition – which may include potholes, rutting or rough surfaces – the cost to operate and maintain a vehicle increases. These additional vehicle operating costs include accelerated vehicle depreciation, additional vehicle repair costs, increased fuel consumption and increased tire wear. TRIP estimates that additional vehicle operating costs (VOC) borne by New York motorists as a result of poor road conditions is $6.3 billion annually.[13]

The chart below details per-driver vehicle operating costs in the New York's largest urban areas and statewide.

Chart 2. Vehicle operating costs due to rough roads.

Urban Area	VOC
Albany	$480
Binghamton	$375
Buffalo	$390
New York City Metro	$791
Poughkeepsie-Newburgh	$531
Rochester	$314
Syracuse	$547
Utica	$260
New York State	$6.3 Billion

Source: TRIP estimate.

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.[14]

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 vehicle operating cost estimate is based on taking the average number of miles driven annually by a motorist, calculating current vehicle operating costs based on AAA's 2014 vehicle operating costs and then using the HDM model to estimate the additional vehicle operating costs paid by drivers as a result of substandard roads.[15] Additional research on

the impact of road conditions on fuel consumption by the New York 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.

A total of 39 percent of New York's locally and state- maintained bridges (20 feet or longer) are currently rated as structurally deficient or functionally obsolete.

Twelve percent of New York's locally and state maintained bridges are rated as structurally deficient.[16] A bridge is structurally deficient if there is significant deterioration of the bridge deck, supports or other major components. Bridges that are 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.

Twenty-seven percent of New York's locally and state maintained bridges are rated functionally obsolete.[17] Bridges that are functionally obsolete no longer meet current highway design standards, often because of narrow lanes, inadequate clearances or poor alignment with the approaching roadway.

Chart 3. Bridge Conditions in New York's Largest Urban Areas.

	Number Structurally Deficient	Percent Structurally Deficient	Number Functionally Obsolete	Percent Functionally Obsolete	Total Bridges
Albany	63	10%	180	30%	607
Binghamton	29	6%	103	22%	461
Buffalo	77	9%	244	27%	891
New York City Metro	531	9%	2,776	48%	5,797
Poughkeepsie-Newburgh	116	14%	229	28%	806
Rochester	57	9%	199	33%	609
Syracuse	68	14%	116	25%	471
Utica	66	14%	105	22%	480
NEW YORK STATE	2,012	12%	4,733	27%	17,456

Source: National Bridge Inventory, Federal Highway Administration, 2014.

The service life of bridges can be extended by performing routine maintenance such as resurfacing decks, painting surfaces, insuring 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 Safety in New York

A total of 5,775 people were killed in motor vehicle crashes in New York from 2010 through 2014, an average of 1,155 fatalities per year.[18]

Chart 4. Traffic Fatalities in New York from 2010 – 2014.

Year	*Fatalities*
2010	1,200
2011	1,169
2012	1,168
2013	1,199
2014	1,039
Total	**5,775**

Source: National Highway Traffic Safety Administration.

The chart below details the average number of traffic fatalities in each of the state's largest urban areas from 2011-2013, as well as the average annual per-driver cost of traffic crashes in each area.

Chart 5. Average fatalities from 2011-2013 and average crash cost per driver.

	Crash Cost Per Driver	Average Fatalities 2011-2013
Albany	$ 528	27
Binghamton	$ 649	14
Buffalo	$ 565	55
New York City	$ 268	663
Poughkeepsie/Newburgh	$ 884	60
Rochester	$ 488	40
Syracuse	$ 586	28
Utica	$ 825	16

Source: TRIP analysis of National Highway Traffic Safety Administration Data.

Three major factors are associated with fatal vehicle crashes: driver behavior, vehicle characteristics and roadway features. It is estimated that roadway features 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.

New York's overall traffic fatality rate of 0.92 fatalities per 100 million vehicle miles of travel in 2013 is lower than the national average of 1.09.[19] The fatality rate on New York's non-Interstate rural roads was 2.15 fatalities per 100 million vehicle miles of travel in 2013, approximately three-and-a-half times higher than the fatality rate of 0.61 on all other roads and highways in the state.[20]

Improving safety on New York'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.

The severity of serious traffic crashes could be reduced through roadway improvements, where appropriate, such as adding turn lanes, removing or shielding obstacles, adding or improving medians, widening lanes, widening and paving shoulders, improving intersection layout, and providing better road markings and upgrading or installing traffic signals.

Roads with poor geometry, with insufficient clear distances, without turn lanes, having inadequate shoulders for the posted speed limits, or poorly laid out intersections or interchanges, pose greater risks to motorists, pedestrians and bicyclists.

Investments in rural traffic safety have been found to result in significant reductions in serious traffic crashes. A 2012 report by TTI found that improvements completed recently by the Texas Department of Transportation that widened lanes, improved shoulders and made other safety improvements on 1,159 miles of rural state roadways resulted in 133 fewer fatalities on these roads in the first three years after the improvements were completed (as compared to the three years prior).[21] TTI estimates that the improvements on these roads are likely to save 880 lives over the next 20 years.[22]

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.

According to TTI estimates, the value of lost time and wasted fuel in New York is approximately $12.4 billion per year.

The chart below details the cost of congestion in the form of lost time and wasted fuel, and the number of hours lost to congestion by the average commuter in the state's largest urban areas.

Chart 6. Annual cost of congestion and hours lost annually for average motorists.

Urban Area	Congestion Cost	Hours Lost
Albany	$991	42 hours
Binghamton	$382	16 hours
Buffalo	$918	40 hours
New York City Metro	$1,739	74 hours
Poughkeepsie-Newburgh	$867	37 hours
Rochester	$889	39 hours
Syracuse	$530	22 hours
Utica	$433	19 hours

Source: Texas Transportation Institute Urban Mobility Report, 2015.

Increasing levels of congestion add significant costs to consumers, transportation companies, manufacturers, distributors and wholesalers. Increased levels of congestion can reduce the attractiveness of a location to a company when considering expansion or where to locate a new facility. Congestion costs can also increase overall operating costs for trucking and shipping companies, leading to revenue losses, lower pay for employees, and higher consumer costs.

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 existing transportation system.

The federal government is an important source of funding for New York's roads, highways, bridges and transit systems and provides a significant return to New York in road and bridge funding based on the revenue generated in the state by the federal motor fuel tax. From 2009 to 2013, the federal government provided $1.45 for road improvements in New York for every dollar that motorists in the state paid in federal motor fuel fees.[23]

Federal funds for highway and transit improvements in New York are provided through the federal Highway Trust Fund (HTF), which raises revenue through federal user fees, including an 18.4 cents-per-gallon tax on gasoline and a 24.4 cents-per-gallon tax on diesel fuel. Since 2008, revenue into the federal Highway Trust Fund has been inadequate to support legislatively set funding levels. As a result, Congress has transferred approximately $53 billion in general funds and an additional $2 billion from a related trust fund into the federal Highway Trust Fund.[24]

Signed into law in December 2015, the Fixing America's Surface Transportation (FAST) Act, provides modest increases in federal highway and transit spending. The five-year bill also provides states with greater funding certainty and streamlines the federal project approval process. But the FAST Act does not provide adequate funding to meet the nation's need for highway and transit improvements and does not include a long-term and sustainable funding source.

The five-year, $305 billion FAST Act will provide approximately a 15 percent boost in highway funding and an 18 percent boost in transit funding over the duration of the program, which expires in 2020.[25]

In addition to federal motor fuel tax revenues, the FAST Act will also be funded by $70 billion in U.S. general funds, which will rely on offsets from several unrelated federal programs including the Strategic Petroleum Reserve, the Federal Reserve and U.S. Customs.

According to the 2015 AASHTO Transportation Bottom Line Report, a significant boost in investment in the nation's roads, highways, bridges and public transit systems is needed to improve their condition and to meet the nation's transportation needs..The AASHTO report found that annual investment in the nation's roads, highways and bridges needs to increase by 36 percent, from $88 billion to $120 billion to improve conditions and meet the nation's mobility needs.[26]. Investment in the nation's public transit system needs to increase from $17 billion to $43 billion.[27] .

The 2015 AASHTO Transportation Bottom Line Report found that if the rate of vehicle travel increased by 1.4 percent per year, the needed annual investment in the nation's roads, highways and bridges would need to increase by 64 percent, to $144 billion. If vehicle travel grows by 1.6 percent annually the needed annual investment in the nation's roads, highways and bridges would need to increase by 77 percent, to $156 billion.[28]

Vehicle miles of travel in New York were 3.6 percent higher during the first nine months of 2015, compared to the first nine months of 2014.[29] U.S. vehicle miles of travel were 3.5 percent higher during the first nine months of 2015, compared to the first nine months of 2014.[30]

Importance of Transportation to 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.

Every year, $550 billion in goods are shipped from sites in New York and another $597 billion in goods are shipped to sites in New York, mostly by trucks.[31] Seventy-two percent of the goods shipped annually from sites in New York are carried by trucks and another 23 percent are carried by courier services or multiple-mode deliveries, which include trucking.[32]

The cost of road and bridge improvements are more than offset by the reduction of user costs associated with driving on rough roads, the improvement in business productivity, the reduction in delays and the improvement in traffic safety. The Federal Highway Administration estimates that each dollar spent on road, highway and bridge improvements results in an average benefit of $5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs and reduced emissions as a result of improved traffic flow.[33]

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. In fact, highway accessibility was ranked the number two site selection factor behind only the availability of skilled labor in a 2013 survey of corporate executives by Area Development Magazine.[34]

Conclusion

As New York works to build and enhance a thriving, growing and dynamic state, it will be critical that it is able to address the state's most significant transportation issues by providing

a 21st century network of roads, highways, bridges and transit facilities 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 motorists and businesses. Making needed improvements to New York's roads, highways, bridges and transit systems could 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.

Without a substantial boost in transportation funding, numerous projects to improve the condition and expand the capacity of New York's roads, highways, bridges and transit systems will not be able to proceed, hampering the state's ability to improve the condition of its transportation system and to enhance quality of life and economic development opportunities in the state.

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