

FUTURE MOBILITY IN NEVADA:

Meeting the State's Need for Safe 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 highway transportation issues. TRIP is sponsored by insurance companies, equipment manufacturers, distributors and suppliers; businesses involved in highway engineering, construction and finance; labor unions; and organizations concerned with an efficient and safe highway transportation network.

Executive Summary

Nevada's extensive system of roads, highways, bridges and public transit provides the state's residents, visitors and businesses with a high level of mobility. As the backbone that supports the Silver State's economy, Nevada's surface transportation system provides for travel to work and school, visits to family and friends, and trips to tourist and recreation attractions while simultaneously providing businesses with reliable access for customers, suppliers and employees. As Nevada's population and economy continue to grow, the state must improve its system of roads, highways, bridges and public transit to ensure the safe, reliable mobility needed to improve the quality of life for all Nevadans.

The state currently faces tremendous economic challenges, with unemployment recently reaching 13.2 percent. Making needed improvements to Nevada's roads, highways, bridges and transit could provide a significant boost to the state's economy by creating jobs and stimulating long-term economic growth as a result of enhanced mobility and access. As Nevada looks to rebound from the current economic downturn, the state will need to enhance its surface transportation system by improving the physical condition of its transportation network and enhancing the system's ability to provide efficient and reliable mobility for residents, visitors and businesses.

The federal government is an essential source of funding for the ongoing modernization of Nevada's roads, highways, bridges and transit. But recent declines in federal transportation revenues and significant increases in construction costs are making it more difficult for the state to maintain and improve its surface transportation system.

Approved in February 2009, the American Recovery and Reinvestment Act provides approximately \$201 million in stimulus funding for highway and bridge improvements and \$49 million for public transit improvements in Nevada. This funding can serve as a down payment on needed road, highway, bridge and transit improvements, but it is not sufficient to allow the state to proceed with numerous projects needed to modernize its surface transportation system. Meeting Nevada's need to modernize and maintain its system of roads, highways, bridges and transit will require a significant, long-term boost in transportation funding at the federal, state or local levels.

This year Congress will deliberate over a long-range federal surface transportation program. The current program, the Safe, Accountable, Flexible, and Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU), expires on October 31, 2009. The level of funding and the provisions of a future federal surface transportation program will have a significant impact on future highway and bridge conditions and safety as well as the level of transit service in Nevada, which, in turn, will affect the state's ability to improve its residents' quality of life and enhance economic development opportunities.

The federal surface transportation program is an essential source of funding for the construction, maintenance and improvement of Nevada’s system of roads, highways, bridges and public transit.

- Federal spending levels for highways and public transit are based on the current federal surface transportation program, the Safe, Accountable, Flexible, and Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU), which was approved by Congress in 2005. The SAFETEA-LU program expires on October 31, 2009.
- From 1998 to 2008, Nevada has been able to complete numerous highway, bridge and transit projects that have improved safety and enhanced mobility and economic productivity largely due to federal transportation funds. This report contains lists of projects completed with federal funding statewide and in the Las Vegas metro area, including modernized interchanges at the US-395/I-580/I-80 junction in Reno and at I-15 and 95 in Las Vegas. Also completed was the USA Parkway economic development project in Washoe County and bridge replacements in many northern Nevada counties.
- From 1998 to 2008, Nevada received approximately \$2.77 billion in federal funding for road, highway and bridge improvements, and \$520 million for public transit, a total of approximately \$3.28 billion.
- Federal funds provide 23 percent of revenues used annually by the Nevada Department of Transportation to pay for road, highway and bridge construction, repairs and maintenance.
- Federal funds provide 10 percent of the revenue used annually to pay for the operation of and capital improvements to the state’s public transit systems, which includes the purchase and repair of vehicles and the construction of transit facilities.
- Recent declines in federal surface transportation revenues, as well as significant increases in the cost of transportation construction materials, will make it more difficult for Congress to authorize new federal surface transportation legislation that adequately funds needed improvements to the nation’s roads, highways, bridges and public transit systems.

Without a substantial boost in federal highway funding, Nevada will be unable to complete numerous projects to improve the condition and expand the capacity of roads, bridges, highways and public transit, hampering the state’s ability to improve mobility and to enhance economic development opportunities in the state. The state’s residents incur a significant cost as a result of roads and highways being congested, deteriorated and lacking some desirable safety features.

- Needed projects in Nevada that would require a significant boost in federal funding to proceed include the following: expanding portions of I-580 in Reno to six lanes, widening portions of US-395 in Carson City to six lanes and expanding portions of I-515/US-95 and I-15 in Las Vegas to ten lanes. A full list of needed projects that would require a significant level of federal funding to proceed is included in the report.

- TRIP estimates that Nevada's roadways that lack desirable safety features, have inadequate capacity to meet travel demands or have poor pavement conditions cost the state's drivers approximately \$1.8 billion annually in the form of traffic crashes, additional vehicle operating costs and congestion-related delays.
- TRIP estimates that roadways that lack some desirable safety features, have inadequate capacity to meet travel demands or have poor pavement conditions, cost the average Las Vegas area motorist \$1,481 annually.
- TRIP estimates that roadways that lack some desirable safety features, have inadequate capacity to meet travel demands or have poor pavement conditions, cost the average Reno area motorist \$972 annually.
- To ensure that federal funding for highways and bridges in Nevada and throughout the nation continues beyond the expiration of SAFETEA-LU, Congress needs to approve a new long-term federal surface transportation program by October 31, 2009.
- The American Recovery and Reinvestment Act provides approximately \$201 million in stimulus funding for highway and bridge improvements and \$49 million for public transit improvements in Nevada.

Despite the current economic slump, Nevada leads the nation in the growth of population, vehicle travel and economic output since 1990. Population and economic growth in the Silver State have resulted in increased demands on the state's major roads and highways.

- Nevada is the fastest growing state in the nation. Its population reached 2.6 million in 2008, an increase of 116 percent since 1990. The state's population is expected to grow another 65 percent by 2030.
- Vehicle travel in Nevada increased 106 percent from 1990 to 2008, the largest increase in the nation during that time. Vehicle miles of travel (VMT) increased from 10.2 billion in 1990 to 21 billion VMT in 2008.
- By 2030, vehicle travel in Nevada is projected to increase by another 70 percent.
- From 1990 to 2008, Nevada's gross domestic product (GDP), a measure of the state's economic output, increased by 150 percent, when adjusted for inflation. This is the greatest GDP growth in the nation.
- Despite the current rate of growth in the state, Nevada's unemployment rate reached 13.2 percent in August 2009, which is nearly double the unemployment rate in August, 2008, which was 7 percent.

Traffic congestion levels are rising as a result of population and economic growth.

- In 2007, Nevada was ranked fourth in the nation in the share of congested urban Interstates and other highways or freeways, with 59 percent of the state's urban highways carrying a level of traffic that is likely to result in significant delays during peak travel hours.

- The average rush hour trip in the Las Vegas metropolitan area takes approximately 30 percent longer to complete than during non-rush hour. According to a recent report by the Reason Foundation, by 2030, unless additional highway capacity is added, traffic delays in the Las Vegas area will increase 163 percent over current levels, with the average rush hour trip taking 79 percent longer to complete than during non-rush hour. This level of traffic delay is greater than what is currently experienced in Los Angeles.
- Travel delays in the Reno urban areas will more than quadruple by 2030 unless additional capacity is added to those regions' transportation systems, reaching traffic congestion levels similar to current traffic congestion levels in Las Vegas.
- The statewide cost of traffic congestion in lost time and wasted fuel is approximately \$750 million annually and \$895 for the average driver in the Las Vegas area and \$180 for the average driver in the Reno area.

In 2007, 13 percent of major roads in Nevada were in poor or mediocre condition, providing motorists with a rough ride.

- In 2007, five percent of Nevada's roads were rated in poor condition and eight percent were rated in mediocre condition. This includes Interstates, highways, connecting urban arterials and key urban streets that are maintained by state, county or municipal governments.
- 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. Roads rated in mediocre condition may show signs of significant wear and may also have some visible pavement distress. Most pavements in mediocre condition can be repaired by resurfacing, but some may need more extensive reconstruction to return them to good condition.
- Roads in need of repair cost each Nevada motorist an average of \$227 annually in extra vehicle operating costs – \$362 million statewide. Costs include accelerated vehicle depreciation, additional repair costs and increased fuel consumption and tire wear.
- In the Las Vegas metropolitan area, where 10 percent of major roads are rated in poor condition and 26 percent of major roads are rated in mediocre condition, driving on roads in need of repair costs motorists \$246 each year in extra vehicle operating costs.
- In the Reno metropolitan area, where 40 percent of major roads are rated in poor condition and 17 percent of major roads are rated in mediocre condition, driving on roads in need of repair costs motorists \$497 each year in extra vehicle operating costs.
- The functional life of Nevada's roads is greatly affected by the state's ability to perform timely maintenance and upgrades to ensure that structures last as long as possible. It is critical that roads are fixed before they require major repairs because reconstructing roads costs approximately four times more than resurfacing them.

- This report contains a list of needed roadway preservation projects in Nevada that would require significant federal funding to be completed, including nearly 100 miles of roadway resurfacing along I-80 plus Las Vegas-area reconstruction projects to preserve heavily congested roadways such as I-15, SR 574, SR-160, and Lake Mead Blvd.

Twelve percent of bridges in Nevada show significant deterioration or do not meet current design standards. This includes all bridges that are 20 feet or more in length and are maintained by state, local and federal agencies.

- In 2008, nearly three percent of Nevada’s bridges were 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, school buses and emergency services vehicles.
- In 2008, nearly ten percent of Nevada’s bridges were functionally obsolete. Bridges that are functionally obsolete no longer meet current highway design standards, often because of narrow lanes, inadequate clearances or poor alignment.
- This report contains a list of needed bridge rehabilitation and replacement projects across the state that would require significant federal funding to be completed.

Nevada’s rural traffic fatality rate is significantly greater than the fatality rate on all other roads in the state. Improving safety features on Nevada’s roads and highways would likely result in a decrease in traffic fatalities in the state. Roadway design is an important factor in approximately one-third of all fatal and serious traffic accidents.

- Between 2004 and 2008, 1,950 people were killed in traffic accidents in Nevada, an average of 390 fatalities per year.
- Nevada’s traffic fatality rate was 1.54 fatalities per 100 million vehicle miles of travel in 2008, higher than the national average of 1.27 fatalities per 100 million vehicle miles of travel.
- The traffic fatality rate in 2008 on Nevada’s non-Interstate rural roads was 2.85 traffic fatalities per 100 million vehicle miles of travel, which is more than twice the traffic fatality rate on all other roads and highways in the state (1.29).
- Several factors are associated with vehicle accidents that result in fatalities, including driver behavior, vehicle characteristics and roadway design. It is estimated that roadway design is an important factor in one-third of fatal traffic accidents.
- Where appropriate, highway improvements can reduce traffic fatalities and accidents while improving traffic flow to help relieve congestion. Such improvements include removing or shielding obstacles; adding or improving medians; adding rumble strips, wider lanes, wider and paved shoulders; upgrading roads from two lanes to four lanes; and better road markings and traffic signals.

- The cost of serious traffic crashes in Nevada in 2008, in which roadway design was a contributing factor, was approximately \$661 million or \$339 per driver in the Las Vegas area or \$295 per driver in the Reno area. The costs of serious crashes include lost productivity, lost earnings, medical costs and emergency services.
- The Federal Highway Administration has found that every \$100 million spent on needed highway safety improvements will result in 145 fewer traffic fatalities over a 10-year period.

Two congressionally appointed commissions and a national organization representing state transportation departments have recommended a broad overhaul of the Federal Surface Transportation Program to improve mobility, safety and the physical condition of the nation's surface transportation system by significantly boosting funding, consolidating the program into fewer categories, speeding up project delivery and requiring greater accountability in project selection.

- The National Surface Transportation Policy and Revenue Study Commission (NSTPRSC) and the National Surface Transportation Infrastructure Financing Commission (NSTIFC) were created by Congress to examine the current condition and future funding needs of the nation's surface transportation program, develop a plan to insure the nation's surface transportation system meets America's future mobility needs, and to recommend future funding mechanisms to pay for the preservation and improvement of the nation's roads, highways, bridges and public transit systems.
- The NSTPRSC concluded that it is critical to the future quality of life of Americans that the nation create and sustain the preeminent surface transportation system in the world, one that is well-maintained, safe and reliable.
- The NSTIFC found that the U.S. faces a \$2.3 trillion funding shortfall over the next 25 years in maintaining and making needed improvements to the nation's surface transportation system.
- The NSTIFC found that the use of motor fuel fees is not sustainable as a primary source of funding for the nation's surface transportation system because of the shift to a variety of fuel sources and more fuel efficient vehicles.

Key recommendations of the Commissions and the American Association of State Highway Transportation Officials (AASHTO) include:

Program format:

- Allocate funding through outcome-based, performance-driven programs supported by cost/benefit evaluations rather than political earmarking (NSTPRSC).

- Consolidate the more than 100 current transportation funding programs into 10 programs focused on key areas of national interest, including congestion relief, preservation of roads and bridges, improved freight transportation, improved roadway safety, improved rural access, improved environmental stewardship, and the development of environmentally-friendly energy sources (NSTPRSC).
- Speed up project development processes to reduce the excessive time required to move projects from initiation to completion by better coordinating the development and review process for transportation projects (NSTPRSC).
- Develop a future federal surface transportation program that would be accountable for results, would make investments based on community needs and would deliver projects on time and on budget (AASHTO).
- Provide a federal surface transportation program that is based on state-driven performance measures and is focused on six objectives of national interest: preservation and renewal, interstate commerce, safety, congestion reduction and connectivity for urban and rural areas, system operations, and environmental protection (AASHTO).

Funding:

- Shift the collection of federal surface transportation revenues from fuel taxes to mileage-based fees, which would charge motorists a fee based on the number of miles driven, with full deployment of a comprehensive system in place by 2020 (NSTIFC).
- Ensure that once implemented, mileage-based fees were indexed to inflation and that they and any other federal transportation charges were set at a rate that would provide enough revenue to provide adequate federal funding to ensure that the nation achieve an integrated national transportation system that is less congested and safer and that promotes increased productivity, stronger national competitiveness, and improved environmental outcomes (NSTIFC).
- Failure to address the immediate funding shortfall and provide adequate long-term funding for surface transportation will lead to unimaginable levels of congestion, reduced safety, costlier goods and services, eroded quality of life and diminished economic competitiveness (NSTIFC).
- In the short term, significantly boost the current federal motor fuel tax and index it to inflation to support increased federal surface transportation investment (NSTIFC).
- Expand the ability to use additional surface transportation funding sources including tolling, state investment banks and public-private partnerships as a supplement to primary sources of funding such as motor fuel fees and eventually a mileage-based fee (NSTIFC).

The efficiency of Nevada’s transportation system, particularly its highways, is critical to the health of the state’s economy. Businesses are increasingly reliant on an efficient and reliable transportation system to move products and services. Expenditures on highway repairs create a significant number of jobs. Significant increases in the cost of highway construction materials over the last five years have boosted the cost of road, highway and bridge repairs.

- Annually, \$41 billion in goods are shipped from sites in Nevada and another \$69 billion in goods are shipped to sites in Nevada, mostly by trucks.
- Sixty-eight percent of the goods shipped annually from sites in Nevada are carried by trucks and another 24 percent are carried by courier services, which use trucks for part of the deliveries. Similarly, 82 percent of the goods shipped to sites in Nevada are carried by trucks and another 10 percent are carried by courier services,
- Commercial trucking in Nevada is projected to increase 42 percent by 2020.
- A 2007 analysis by the Federal Highway Administration found that every \$1 billion invested in highway construction would support approximately 27,800 jobs, including approximately 9,500 in the construction sector, approximately 4,300 jobs in industries supporting the construction sector, and approximately 14,000 other jobs induced in non-construction related sectors of the economy.
- Over the five-year period from August 2004 to August 2009, the average cost of materials used for highway construction – including asphalt, concrete, steel, lumber and diesel – increased by 39 percent.

Sources of information for this report include the Nevada Department of Transportation (NDOT), the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), the National Surface Transportation Policy and Revenue Study Commission (NSTPRSC), the National Surface Transportation Infrastructure Financing Commission (NSTIFC), the U.S. Census, The Bureau of Transportation Statistics (BTS), the American Association of State Highway and Transportation Officials (AASHTO), the National Highway Traffic Safety Administration (NHTSA), the Reason Foundation and the Texas Transportation Institute (TTI). All data used in the report is the latest available.

Introduction

Nevada's roads, highways and bridges form vital transportation links for the state's residents, visitors and businesses, providing daily access to homes, jobs, shopping and recreation.

Nevada is struggling to accommodate a rapidly growing population and the increased demands put on the state's transportation systems. Keeping up with this growth is crucial to providing safe and efficient mobility, while improving the economic livelihood of the state and also accommodating future growth.

As the nation looks to rebound from the current economic downturn, the improvement of Nevada's transportation system could play an important role in improving the state's economic well being by providing critically needed jobs in the short term and by improving the productivity and competitiveness of the state's businesses in the long term.

While state and local governments are responsible for maintaining most of Nevada's roadways, bridges and public transit systems, the federal government plays a significant role in funding the repairs and improvements to many of the state's most heavily used roads, highways, bridges and public transit systems. As Nevada faces the challenge of preserving and improving its surface transportation system, the future level of federal highway funding will be a critical factor in whether the state's residents, businesses and visitors continue to enjoy access to a safe and efficient transportation network.

This report examines the condition, use and safety of Nevada's roads, highways, bridges and public transit systems, the role of federal funding in the maintenance and improvement of the state's surface transportation system and the future mobility needs of the state. Included in the report are lists of highway, bridge and transit projects that have been completed with the help of

federal funding, and needed transportation projects that will require significant federal funding to proceed.

Sources of information for this report include the Nevada Department of Transportation (NDOT), the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), the National Surface Transportation Policy and Revenue Study Commission (NSTPRSC), the National Surface Transportation Infrastructure Financing Commission (NSTIFC), the U.S. Census, The Bureau of Transportation Statistics (BTS), the American Association of State Highway and Transportation Officials (AASHTO), the National Highway Traffic Safety Administration (NHTSA), the Reason Foundation and the Texas Transportation Institute (TTI). All data used in the report is the latest available.

Population, Travel and Economic Trends in Nevada

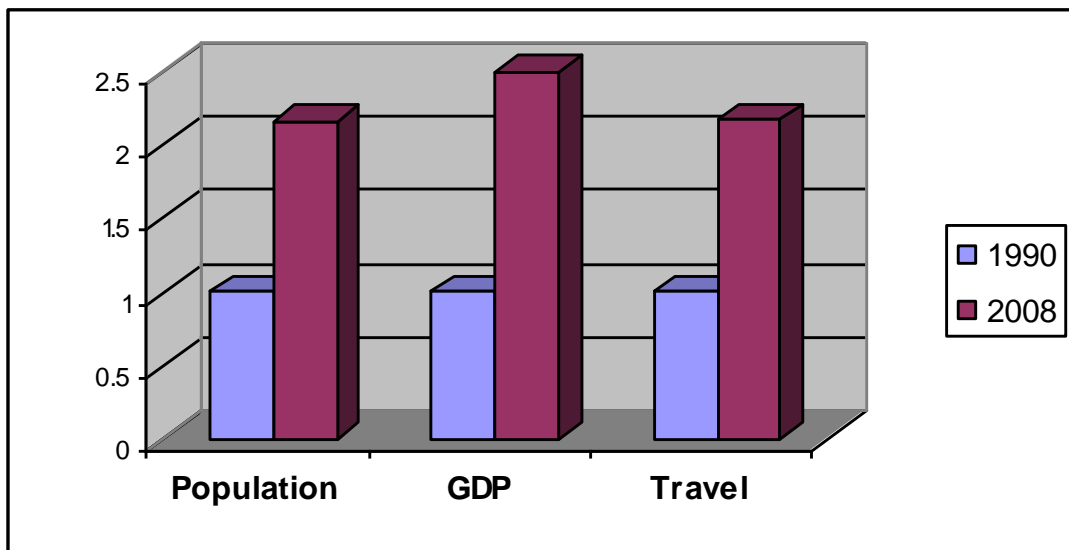
Nevada residents and businesses require a high level of personal and commercial mobility. Continued population and economic growth in the Silver State has resulted in a significant increase in the demand for mobility as well as an increase in vehicle miles of travel (VMT). To foster a high quality of life in Nevada, it will be critical that the state provide and preserve a safe and modern transportation system that can accommodate future growth in population, vehicle travel and economic development.

Nevada is the fastest-growing state in the nation: the population grew 116 percent between 1990 and 2008, increasing from 1.2 million in 1990 to 2.6 million residents in 2008.¹ Between 2008 and 2030, the population of Nevada is projected to increase another 65 percent to approximately 4.28 million residents, an increase of approximately 1.68 million people.

Nevada also has experienced significant economic growth since 1990. From 1990 to 2008, Nevada's gross domestic product (GDP), a measure of the state's economic output, increased by 150 percent, when adjusted for inflation. This is the greatest GDP growth in the nation.

Burgeoning population and economic growth in Nevada have resulted in a significant increase in vehicle travel in the state – the greatest increase in the country. From 1990 to 2008, annual vehicle miles of travel in Nevada increased 106 percent, from 10.2 billion miles traveled annually to 21 billion miles traveled annually.² Based on population and other lifestyle trends, TRIP estimates that travel on Nevada's roads and highways will increase 70 percent by 2030, to approximately 35.7 billion miles of travel.³

Chart 1: Nevada's population, GDP and Vehicle Travel increase 1990-2008 (1 = 1990 level).



Source: TRIP analysis of federal data

Condition of Nevada's Roads

The life cycle of Nevada's roads is greatly affected by the state's ability to perform timely maintenance and upgrades to ensure that road and highway surfaces last as long as possible. The pavement condition of the state's major roads is evaluated and classified as being in poor, mediocre, fair or good condition.

In 2007, 13 percent of Nevada's major roads were rated in poor or mediocre condition, providing motorists with a rough ride.⁴ Five percent of Nevada's major roads were rated in poor condition and eight percent were rated in mediocre condition.⁵ Roads rated poor 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. Roads rated in mediocre condition may show signs of significant wear and may also have some visible pavement distress. Most pavements in mediocre condition can be repaired by resurfacing, but some may need more extensive reconstruction to return them to good condition.

Chart 2. Pavement conditions in Nevada.

<i>Pavement Rating</i>	<i>Percentages</i>
Poor	5%
Mediocre	8%
Fair	6%
Good	81%

Source: TRIP analysis of Federal Highway Administration Data

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.⁶

As Nevada’s roads and highways continue to age, they will reach a point 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.

Many critical projects needed to improve the condition of the state’s major roads and highways will not proceed without substantial federal funding. The following chart lists sections of Nevada’s roadways that have regional or statewide importance that would require significant federal funding for studies and completion.

Chart 3. Needed Nevada road and highway reconstruction projects, located outside the Las Vegas metropolitan area, that are of regional or statewide importance that would require significant federal funding to be completed.

Route Name	County or Closest City	From (Milepost)	To (Milepost)	Length in Miles	Average Daily Traffic	Project description	Estimated Total Project Cost (millions)
I-80	Elko	102.79	117.68	14.89	5,200	Resurface Roadway	29.1
I-80	Reno	26.75	41.49	14.74	35,000	Resurface Roadway	20.5
I-80	Elko	43.95	62.1	18.15	7,000	Resurface Roadway	18.7
I-80	Churchill	12.83	27.71	14.88	7,300	Resurface Roadway	21.0
I-80	Elko	31.98	43.96	11.98	7,000	Resurface Roadway	16.5
I-15	Clark	0	17	17.00	46,000	Resurface Roadway	19.8
I-80	Sparks	McCarran	Vista	2.42	58,000	Crack and Seat PCCP	10.3

Source: NDOT response to TRIP survey

In addition to the priority projects listed above, the following reconstruction projects in the Las Vegas metro area would require significant federal funding to proceed. Most projects would widen existing roadways, improve safety and provide congestion relief.

Chart 4. Needed road and highway reconstruction projects in the Las Vegas metro area that would require significant federal funding to be completed.

Route Name	From (Milepost)	To (Milepost)	Length in Miles	Average Daily Traffic	Project description	Project Benefit(s)	Estimated Total Project Cost (millions)
SR-574	21.27	28.15	6.88	33,000	Repave and restripe to 6 lanes	Preservation/ Congestion/Safety	17.7
Lake Mead Blvd.	Boulder Highway	Lake Las Vegas Parkway	5.50	33,000	Widen to 6 lanes	Congestion	14.3
I-15	I-215 Interchange	N/A	N/A	34,000	Reconfigure existing system to system interchange	Congestion	N/A
SR-160	11	22	11.00	8,900	Widen to 4 lanes	Congestion	94.7

Source: NDOT response to TRIP survey

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. Roads in poor condition – which may include potholes, rutting or rough surfaces – increase the cost to operate and maintain a vehicle. These additional vehicle operating costs include accelerated vehicle depreciation, additional vehicle repairs, increased fuel consumption and increased tire wear. TRIP estimates that additional vehicle operating costs borne by Nevada motorists as a result of poor road conditions is \$362 million annually, or \$227 per motorist. Highways and major roadways in the Las Vegas metro area provide some of the roughest rides in the nation. Las Vegas roads, 10 percent of which are rated in poor condition, cost motorists an average \$246 a year. Major roads in the Reno metro area, however, are even rougher with 40 percent rated poor and 17 percent mediocre. Roadways in this area cost motorists an additional \$497 a year.

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.⁷

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 2008 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.⁸ 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 Nevada

Nevada'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.

In 2008, approximately 12 percent of Nevada’s bridges (20 feet or longer) were rated as either structurally deficient or functionally obsolete; 2.8 percent of Nevada’s bridges (20 feet or longer) were rated as structurally deficient and 9.6 percent were rated as structurally deficient.⁹

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.

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.

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.

Nevada’s bridges are aging. Many bridges were built in the 1950s and 1960s, and they are not designed for modern vehicles and trucks, or for the demands placed on them for access.

Nevada has been able to undertake numerous preservation projects but can not initiate other, critically needed projects without substantial levels of federal funding. The following two charts list eleven bridges of regional or statewide importance that need to be replaced to enhance

safety and provide congestion relief in Nevada. These bridge projects would require significant federal funding to be completed by 2017.

Chart 5. Needed bridge replacement projects in the Las Vegas metro area that would require significant federal funding to be completed.

Route Carried	Route or feature intersected	Average Daily Traffic	Existing or New Bridge	Project Description	Benefits	Estimated Total Project Cost (millions)
Horse Drive	US-95	11,000	New	Construct New Interchange	Congestion, Economic Development	64.5
US 95	Summerlin Parkway	186,000	New	construct flyover	Congestion, Economic Development	42.4
I-15	Cactus	46,000	New	Construct New Interchange	Congestion, Economic Development	N/A
I-15	Starr	46,000	New	Construct New Interchange	Congestion, Economic Development	N/A
Warm Springs	I-15	23,000	Existing	Replace with larger structure	Congestion, Economic Development	21.3

Source: NDOT response to TRIP survey

Chart 6. Needed bridge replacement projects, located outside the Las Vegas metropolitan area, that are of regional or statewide importance that would require significant federal funding to be completed.

Route Carried	County or Closest City	Route or feature intersected	Average Daily Traffic	Existing or New Bridge	Project description	Benefits	Estimated Total Project Cost (millions)
I-580	Reno	Various	35,000	New	New 6 Lane Freeway Bridges	Congestion	75.9
N/A	Elko	US-93	3,700 (US 93)	New	Wildlife Over Crossing	Safety	4.6
US-395	Carson City	Various	35,000	New	New 6 Lane Freeway Bridges	Congestion	12.1
New	Laughlin	Colorado River	N/A	New	New river crossing	Safety, congestion, economic development	30
I-15	Mesquite	Mesquite Blvd	21,000	Existing	Reconfigure Interchange	Economic development	20
I-15	Mesquite	Pioneer Blvd	21,000	New	Construct interchange	Economic development	25

Source: NDOT response to TRIP survey

Traffic Congestion in Nevada

Traffic congestion in Nevada is a growing burden in key urban areas and threatens to impede the state's economic development. Congestion on Nevada's urban highways is growing as a result of increases in vehicle travel and population, and of population density: more than three-quarters of the state's population lives in the Las Vegas and Reno metro areas.

In 2007, 59 percent of Nevada's urban highways were congested, carrying traffic volumes that result in significant rush hour delays, the fourth highest share in the nation.¹⁰ Highways that carry high levels of traffic are also more vulnerable to experiencing lengthy traffic delays as a result of traffic accidents or other incidents.

Traffic congestion in the Las Vegas and Reno metro areas is likely to worsen significantly unless the state is able to improve its transportation system. Today the average rush hour trip in the Las Vegas metro area takes approximately 30 percent longer to complete than during non-rush hour.¹¹ According to the Texas Transportation Institute, Las Vegas drivers were delayed in congestion an average 34 hours in 1997. This delay grew to an average 44 hours in 2007.

By 2030, unless additional highway capacity is added, traffic congestion levels will be two and a half times greater than present levels, with the average rush hour trip in the Las Vegas metro area taking 79 percent longer to complete than during non-rush hour.¹² This level of traffic delay is even greater than what drivers currently experience in Los Angeles.

Unless capacity is added to the transportation system, by 2030 travel delays are projected to more than quadruple in the Reno metro area, resembling today's congestion and delays in Las Vegas.¹³

The statewide cost of traffic congestion in lost time and wasted fuel is approximately \$750 million annually and \$895 for the average driver in the Las Vegas area and \$180 for the average driver in the Reno area.¹⁴

Projects needed to increase the capacity of the state’s major roadways to relieve traffic congestion, improve safety and support economic development can not proceed without significant federal funding. The following capacity-enhancing projects are located outside the Las Vegas metro area.

Chart 7. Needed roadway widening projects of regional or statewide importance that are located outside the Las Vegas metropolitan area that would require significant federal funding to proceed.

Route Name	County or Closest City	From (Milepost)	To (Milepost)	Length in Miles	Average Daily Traffic	Project Description	Project Benefits	Estimated Total Project Cost (millions)
I-580	Reno	5.36	15.85	10.49	33,000	New 6-Lane Freeway	Congestion Relief	441.3
I-580	Reno	22.97	25.86	2.89	118,000	Auxiliary Lanes	Congestion Relief	79.5
SR-160	Clark	11.04	22	10.96	8,900	Widen	Congestion Relief	94.7
SR-651	Reno	4.94	5.81	0.87	41,000	Widen	Congestion Relief	9.4
US-93	Clark	To Be Mile-posted	N/A	3.00	11,200	New 4 Lane Bypass Around Boulder City With Interchanges	Congestion Relief	155
US-395	Carson City	1.95	3.42	1.47	35,000	New 6 Lane Freeway	Congestion Relief/Economic Development	100.2
US-50	Lyon	25.91	29.44	3.53	6,400	Widen to 4 lanes	Congestion Relief, Safety	8
US-50	Lyon	14	18.18	4.18	6,400	Widen to 4 lanes	Congestion Relief, Safety	8
US-50	Lyon	18.18	25.91	7.73	6,400	Widen to 4 lanes	Congestion Relief, Safety	14

Source: NDOT response to TRIP survey

The demand for mobility on Las Vegas roadways is mounting. The following 10 capacity-enhancing projects in Las Vegas would help address future mobility needs, but they can not proceed without significant federal funding.

Chart 8. Needed roadway widening projects in the Las Vegas metro area that would require significant federal funding to proceed.

Route Name	From (Milepost)	To (Milepost)	Length in Miles	Average Daily Traffic	Project Description	Project Benefits	Estimated Total Project Cost (millions)
I-15	34.83	40.55	5.72	236,500	Construct Express Lanes	Congestion	25.3
SR-160	2.42	4.41	1.99	26,000	New 8 Lane Road	Congestion	57.0
SR-573	28.88	29.84	0.96	24,000	Widen Roadway	Congestion	18.3
SR-146	1.54	4.27	2.73	26,000	Widen Roadway	Congestion	10.2
I-15	42.88	48.43	5.55	113,500	Widen Roadway	Congestion	257.0
US-95	86.75	92.81	6.00	44,500	Widen to 8 lanes	Congestion/ Econ. Development	86.8
US-95	81.23	87.2	6.00	132,000	Widen to 8 lanes	Congestion/ Econ. Development	158.0
I-515/US-95	57.5	75.66	18.16	256,000	Widen to 10 lanes	Congestion/ Econ. Development	1,300.0
I-15	42.88	58.15	15.27	34,000	Widen to 10 Lanes	Congestion/ Econ. Development	1,300.0
I-15	33.54	37.4	3.86	173,500	Capacity Improvements	Congestion	271.4

Source: NDOT response to TRIP survey

Nevada offers a range of public transit options for residents and visitors – from rail to bus to facilities for non-motorized travel, all of which help the state address traffic congestion.

Progress has been made, but much work remains. The following chart shows priority projects in each major urban center that cannot proceed without a significant boost in federal, state or local funding.

Chart 9. Needed transit projects of regional significance in Nevada that would require a significant boost in federal, state or local funding to proceed.

County or Closest City	Project Type	Description	Project Description	Project Benefits	Estimated Total Project Cost (millions)
Reno	Rail	UPRR Tracks through Downtown Reno	Lower tracks and construct grade separations to eliminate at grade crossings: Improvement to an Existing Facility	Economic Development, Safety, Congestion	185
Las Vegas	Transit	Las Vegas Monorail	Las Vegas Strip to McCarran International Airport	Congestion Relief	200

Source: NDOT response to TRIP survey

Traffic Safety in Nevada

A total of 1,950 people were killed in motor vehicle accidents in Nevada from 2004 through 2008, an average of 390 fatalities per year.¹⁵

Nevada's traffic fatality rate was 1.54 fatalities per 100 million vehicle miles of travel in 2008, higher than the national average of 1.27.¹⁶

Chart 11. Traffic fatalities in Nevada from 2004 – 2008.

<i>Year</i>	<i>Fatalities</i>
2004	395
2005	427
2006	431
2007	373
2008	324
Total	1,950

Source: National Highway Traffic Safety Administration

Nevada's rural, non-Interstate roads have a fatality rate significantly higher than other roads in the state. The traffic fatality rate in 2008 on Nevada's non-Interstate rural roads was 2.85 traffic fatalities per 100 million vehicle miles of travel, which is more than twice the rate of 1.29 traffic fatalities per 100 million vehicle miles of travel on all other roads and highways in the state.¹⁷

A disproportionate share of highway fatalities occur on Nevada's rural, non-Interstate roads. In 2008, 27 percent of traffic fatalities in Nevada occurred on rural, non-Interstate routes, while only 16 percent of vehicle travel in the state occurred on these roads.¹⁸

The cost of serious traffic crashes in Nevada in 2008, in which roadway design was a contributing factor, was approximately \$661 million or \$339 per driver in the Las Vegas area or

\$295 per driver in the Reno area. The costs of serious crashes include lost productivity, lost earnings, medical costs and emergency services.¹⁹

Three major factors are associated with fatal vehicle accidents: driver behavior, vehicle characteristics and roadway design. It is estimated that roadway design is an important factor in one-third of all fatal and serious traffic accidents. Improving safety on Nevada'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 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 where appropriate.

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

The following chart shows the correlation between specific needed road improvements and the reduction of fatal accident rates nationally.²⁰

Chart 12. Reduction in fatal accident rates after roadway improvements.

Type of Improvement	Reduction in Fatal Accident Rates after Improvements
New Traffic Signals	53%
Turning Lanes and Traffic Signalization	47%
Widen or Modify Bridge	49%
Construct Median for Traffic Separation	73%
Realign Roadway	66%
Remove Roadside Obstacles	66%
Widen or Improve Shoulder	22%

Source: TRIP analysis of U.S. Department of Transportation data

Importance of Transportation to Economic Growth

Many different industries have boosted the Silver State’s gross domestic product by 150 percent since 1990, when adjusted for inflation.²¹ Travel and tourism are an enormous part of Nevada’s economy. Visitors to the state spent \$57.7 billion in 2007.²² While Nevada’s entertainment and resort industries are the most visible, mining and cattle ranching are dominant industries outside the urban areas. The state also has a strong industrial base of machinery, printing and publishing, and food processing. All the state’s businesses are dependent on an efficient, safe, and modern transportation system.

The new culture of business demands that an area have well-maintained and efficient roads, highways and bridges if it is to remain economically competitive. The advent of modern national and global communications and the impact of free trade in North America and

elsewhere have resulted in a significant increase in freight movement. Consequently, the quality of a region's transportation system has become 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 by accepting customer orders through the Internet. 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 Nevada. 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, \$41 billion in goods are shipped from sites in Nevada and another \$69 billion in goods are shipped to sites in Nevada, mostly by trucks.²³ Sixty-eight percent of the goods shipped annually from sites in Nevada are carried by trucks and another 24 percent are carried by courier services, which use trucks for part of their deliveries. Similarly, 82 percent of the goods shipped to sites in Nevada are carried by trucks and another 10 percent are carried by courier services.²⁴

Trucking is a crucial part of Nevada's economy, as commercial trucks move goods from sites across the state to markets inside and outside the state. Commercial truck travel in the

Silver State is expected to increase significantly over the next decade. Based on federal projections, TRIP estimates that commercial trucking in Nevada will increase by 42 percent between 2009 and 2020.²⁵

A 2007 analysis by the Federal Highway Administration found that every \$1 billion invested in highway construction would support approximately 27,800 jobs, including approximately 9,500 in the construction sector, approximately 4,300 jobs in industries supporting the construction sector, and approximately 14,000 other jobs induced in non-construction related sectors of the economy.²⁶

The Funding of Nevada's Surface Transportation System

The construction, repair and upkeep of Nevada's roads, bridges, highways and public transit systems are paid for by local, state and federal governments. Roads and highways are maintained largely by state and local governments, and transit systems are operated largely by local transit agencies. Nevada's primary surface transportation funding sources are the 24-cent-per-gallon motor fuel tax and registration fees, last increased in 1992.²⁷ All Nevada counties impose a \$0.0635 gas tax, and individual counties have the option of imposing additional gas taxes, up to 9-cents a gallon.

In addition, significant federal funding for highways and transit is provided to both state and local governments. Federal funding for Nevada's highways and bridges comes from the Federal Highway Trust Fund, under funding levels and formulas determined by Congress. Federal spending levels for highways and public transit are based on the current federal surface transportation program, the Safe, Accountable, Flexible, and Efficient Transportation Equity Act

– A Legacy for Users (SAFETEA-LU), which was approved by Congress in 2005. The SAFETEA-LU program expires on October 31, 2009.

From 1998 to 2008, Nevada received approximately \$2.77 billion in federal funding for road, highway and bridge improvements, and \$520 million in funding for public transit, a total of approximately \$3.28 billion in federal surface transportation funding during the 10-year period.²⁸

This federal funding is a critical source of revenue for Nevada’s roadways and bridges. Federal funds provide 23 percent of all revenues used by NDOT to pay for road, highway and bridge construction, repairs and maintenance.²⁹

Federal funds also provide 10 percent of the revenue used annually to pay for the operation of and capital improvements to the state’s public transit systems, including the purchase and repair of vehicles and the construction of transit facilities.

As a result of this level of federal support, since 1998 Nevada has been able to complete numerous projects on the state’s highway system, rehabilitate deteriorated roadways and bridges, and expand transit systems and access to improve traffic safety, relieve traffic congestion and enhance economic development opportunities.

The following chart shows major highway rehabilitation projects completed in Nevada since 1998 for which the federal government was a significant source of funding. These system preservation projects include a variety of reconstruction and modernization elements as well as significant resurfacing to enhance safety and extend the life span of the roadway.

Chart 13. Nevada highway rehabilitation/preservation projects, located outside the Las Vegas metropolitan area, completed since 1998, largely due to federal surface transportation funds.

Route Name	County or Closest City	From (Milepost)	To (Milepost)	Length in Miles	Year Work Complete	Average Daily Traffic	Improvements Made	Total Project Cost (millions)
I-15	Clark	77	95.53	18.53	2004	22,000	Resurfaced Roadway	6.9
I-15	Clark	118.5	123.77	5.27	2007	24,000	Resurfaced Roadway	5.2
I-80	Elko	68.98	74.9	5.92	2001	5,500	Reconstruct Roadway	7.4
I-80	Pershing	37.68	51.33	13.65	2007	7,500	Resurfaced Roadway	5.0
I-80	Elko	26.71	31.88	5.17	1999	10,000	Reconstruct Roadway	5.1
I-80	Elko	1.12	7.5	6.38	1999	7,700	Reconstruct Roadway	8.8
SR-338	Lyon	0	26.4	26.40	1999	490	Resurfaced Roadway	4.7
I-80	Lyon	5.83	15.91	10.08	1999	20,000	Resurfaced Roadway	6.4
US-395/I-580/I-80	Reno	15.58	16.12	0.54	2006	102,000	Reconfigure System to System Ramps	59.6
I-80	Humboldt	12.3	17.95	5.65	1999	7,300	Reconstruct Roadway	8.5

Source: NDOT response to TRIP survey

Several major rehabilitation and preservation projects were undertaken in the Las Vegas area as well, as the examples in Chart 14 show.

Chart 14. Las Vegas metro area highway rehabilitation/preservation projects completed since 1998, largely due to federal surface transportation funds.

Route Name	From (Milepost)	To (Milepost)	Length in Miles	Year Work Completed	Average Daily Traffic	Improvements Made	Total Project Cost (millions)
SR-159	0.00	17.02	17.02	2002	20,000	Resurfaced Roadway	2.6
I-515	0.00	0.00	0.00	2005	22,000	Resurfaced Roadway	2.8
I-15	50.12	66.73	16.61	2003	23,000	Resurfaced Roadway	4.4
I-15	26.12	32.50	6.38	2003	46,000	Resurfaced Roadway	3.0
US-95	85.15	93.10	7.95	2004	54,400	Resurfaced Roadway	5.8
Desert Inn Rd.	Mojave	Boulder	1.207	1998	40,000	Reconstruct Roadway with capacity improvements	4.0
I-15	US-95	N/A	N/A	1998	179,000	Congestion Relief: Reconstruct System to System Interchange, phase 1	17.5
I-15	US-95	N/A	N/A	2000	179,000	Congestion Relief: Reconstruct System to System Interchange, phase 2	105.2

Source: NDOT response to TRIP survey

Similarly, numerous major bridges have been rehabilitated throughout the state, outside of Las Vegas, due largely to federal transportation funding since 1998.

Chart 15. Major bridge projects, located outside the Las Vegas metropolitan area, completed in Nevada since 1998 in which federal funds were a significant source of revenue.

Route Carried	County or Closest City	Route or feature intersected	Average Daily Traffic	Describe Improvements Made	Project Benefit	Year Completed	Total Project Cost (millions)
US 395 (Contract 3154)	Carson City	US 50; Carmine St; US395 Ramp	8,000 max per bridge	US 395 Carson City Freeway Project	Increased access and congestion reduction	2005/2006	\$78.5
I-80 Ramps (Contract 3090)	Reno	I-80; 4th St.	28,500 max per bridge	I-580 Interchange Reconstruction Project	Increased access and congestion reduction	2004	\$51.9
I-580 (Contract 3148)	Reno	Various	Not yet open	I-580 Extension Project	Safety and congestion reduction	Ongoing	\$48.5
SR 651 McCarran Blvd. (WA RTC Contract)	Reno	US 395	25,000	North McCarran Interchange Project	Safety and congestion reduction	2006	\$37.6
US 50A (Contract 3323)	Churchill Co.	UPRR	6,000	US 50A Widening Project	Safety and congestion Reduction	2008	\$33.3
US 395 (Contract 2995)	Carson City	College Pkwy; Arrowhead Dr, etc.	8,000 max per bridge	US 395 Carson City Freeway Project	Increased access and congestion reduction	2001	\$14.0
USA Parkway (Contract 3320)	Washoe Co.	I-80	3,200	USA Parkway Project	Economic Development	2007	\$13.1
UPRR (Contract 3237)	Fernley	US 95A	23,400 (under)	Bridge Replacement	Safety and increased functionality	2006	\$11.1
US 50 (Contract 2998)	Ely	UPRR	3,000	Bridge Replacement	Safety and increased functionality	2001	\$9.5
SR 651 McCarran Blvd. (Contract 2957)	Sparks	UPRR	38,000	Major Bridge Reconstruction	Safety and increased functionality	2000	\$8.4

Source: NDOT response to TRIP survey

Bridge rehabilitation in the Las Vegas area completed largely due to federal transportation funding since 1998 includes the following projects that focused largely on safety. All projects in Chart 16 were designed to increase access and reduce congestion.

Chart 16. Major bridge projects completed in the Las Vegas metro area since 1998 in which federal funds were a significant source of revenue. Except where indicated, these were new structures.

Route Carried	County or Closest City	Route or Feature Intersected	Average Daily Traffic	Improvements Made	Year Completed	Total Project Cost (millions)
I-15/US 95 (Contract 2830)	Las Vegas	I-15N/S; US 95; MLK Blvd	56,550 max per bridge	I-15/I-515/US 95 Interchange Reconstruction	1999/2000	\$91.8
US 95 * (Contract 3260)	Las Vegas	SR 596 Jones Blvd	95,000	US 95 widening Project; Phase 4B/5	2007	\$87.0
I-215; I-215/I- 515 ramps* (Contract 3150)	Henderson	I-515/I-215; UPRR; Gibson Rd.	89,400 max per bridge	I-215/I-515 Interchange Project	2005	\$86.2
US 95 On and Off Ramps* (Contract 3215)	Las Vegas	Rancho/US 95 ramps	12,500	US 95 widening Project; Phase 3C	2007	\$57.5
I-15Ramps; Spring Mountain (Contract 2779)	Las Vegas	Industrial Rd.; UPRR; Highland	23,600	Add On and Off Ramp Bridges	1999	\$55.3
SR 146 St. Rose Pkwy (Contract 3290)	Las Vegas	I-15N/S	31,000	St. Rose Parkway Interchange Project	2008	\$50.6
SR 595 Rainbow; US 95 Ramps (Contract 3161)	Las Vegas	US-95 and Sumerlin Pkwy ramp	10,600	US 95/Rainbow Interchange Project	2006/2007	\$41.8
SR 160 Blue Diamond (Contract 3247)	Las Vegas	I-15N/S	33,000	Blue Diamond Interchange Project	2007	\$32.4
I-15 and I-15 Ramp (Contract 3003)	Las Vegas	SR 590 Sahara Ave.	214,700 both dir. I-15	I-15/Sahara Ave. Bridge and Flyover	2001	\$32.0
Auto Show Dr. and Ramps (Contract 3214)	Las Vegas	I-515	13,300	Auto Show Drive Interchange Project	2005/2006	\$21.7

* New and Existing structures

Source: NDOT response to TRIP survey

Accommodating population growth and providing opportunities for economic development require transportation enhancements. The following chart shows nine major projects undertaken to provide additional capacity on Nevada’s roadway system that were completed since 1998 and for which federal funds were a significant source of funding. These projects focused on safety and congestion relief.

Chart 17. Nevada highway capacity projects, located outside the Las Vegas metropolitan area, completed since 1998, largely due to federal surface transportation funds.

Route Name	County or Closest City	From (Milepost)	To (Milepost)	Length in Miles	Average Daily Traffic	Improvements Made	Year Completed	Total Project Cost (millions)
US-50A	Lyon/Churchill	0.04	0.71	8.30	8,500	Widen to 4 lanes	2006	29.8
I-15	Clark	2	26.12	24.12	46,000	Widening	2007	32.7
I-15	Clark	0.47	2	1.53	46,000	Widening	2003	15.1
US-95	Clark	17.08	20.62	3.54	9,300	Construct 4 lane divided Highway	2008	12.7
SR-160	Clark	21.78	43.16	21.38	10,000	Widening	2006	27.5
SR-650	Reno	7.15	6.34	0.81	27,500	Widening	2001	19.3
Sparks Blvd	Sparks	Shadow	Disc	1.50	19,000	Widen to 4 lanes	2007	8.4
US-50	Lyon	8	14	4	22,000	Widen to 4 lanes	2006	13.1
I-80	WA	8.81	12.46	3.65	62,500	Add truck climbing lane	2006	9.4

Source: NDOT response to TRIP survey

Capacity-enhancing projects in the Las Vegas area in many ways mirrored projects in other areas of the state: accommodate growth in population, travel, and commerce. Ten Las Vegas capacity-enhancing projects completed since 1998 where federal funds were a significant source of funding are listed in Chart 18.

Chart 18: Las Vegas metro area highway capacity projects completed since 1998, largely due to federal surface transportation funds.

Route Name	From (Milepost)	To (Milepost)	Length in Miles	Average Daily Traffic	Improvements Made	Year Completed	Total Project Cost (millions)
SR-146	0.00	6.67	6.67	26,000	Widen from 2-4 to 4-6 lanes and reconstruct interchange	2004	25.4
I-15	34.84	39.16	4.32	233,500	Construct North and South Auxiliary Lanes	2007	7.3
US-95	76.00	77.79	1.79	189,000	Widen from 6 to 10 lanes and reconstruct interchanges	2007	68.2
US-95	77.79	80.73	2.94	187,500	Widen from 6 to 10 lanes	2008	106.0
I-215	0.00	1.97	1.97	116,500	Construct 6 lane freeway and system to system interchange	2006	129.1
SR-146	0.00	1.54	1.54	26,000	Widen from 4 to 8 lanes	2006	91.0
SR-160	0.00	1.14	1.14	27,000	Construct new 8 lane Roadway with new interchange	2007	34.0
I-15	26.12	34.85	8.73	113,000	Widen from 2 to 3 lanes	1999	10.6
I-15	40.6	41.72	1.12	264,000	Widen from 3 to 5 lanes	2002	48.0
US-95	80.50	81.05	0.55	186,000	Widen and construct SPUI	2005	47.8

Source: NDOT response to TRIP survey

Federal funding provided for public transit in Nevada since 1998 was put to use for congestion relief as well as economic development. The following chart shows major projects completed between 1998 and 2008 for which federal funds were a significant source of funding.

Chart 19. Pedestrian, Transit and Rail Improvements with regional or statewide significance, located in Nevada outside the Las Vegas metropolitan area, that were completed since 1998 and for which federal funds were a significant source of funding.

Route(s)	County or Closest City	Type of Project	Project Description	Benefit	Year Completed	Total Project Cost (millions)
Various	Washoe	Transit	Transit Center Downtown Reno (improvement)	Preservation	2008	20
Various	Clark	Transit	Transit Center Laughlin (improvement)	Preservation	2009	2
US 395	Carson City	Ped./Bike	Shared Use Path (new facility)	Congestion Relief	N/A	1
US 50	Lyon County/ Storey County	Rail	V&T Railroad Tourist Train (new facility)	Economic Development	Phased 2008, 2009	15

Source: NDOT response to TRIP survey

Chart 20 lists Las Vegas-area transit projects that included improvements to transit routes and terminals, a bike/pedestrian shared-use path, and the four-mile Las Vegas monorail.

Chart 20. Pedestrian, Transit and Rail Improvements in the Las Vegas metro area that were completed since 1998 and for which federal funds were a significant source of funding.

Project Type	Route Description	Project Description	Year Completed	Project Benefit	Total Project Cost (millions)
Transit	Various	Bus Rapid Transit (improvement)	2005	Congestion Reduction	20
Transit	Las Vegas Strip	Las Vegas Monorail (new facility)	2005	Congestion Reduction	200
Transit	Various	Transit Terminal Downtown (improvement)	2006	Preservation	20
Transit	Various	N LV Transit Center (improvement)	2006	Preservation	10
Transit	Various	Henderson Transit Center (improvement)	2008	Preservation	10
Bike/Ped	I 215 Pecos to Maryland	Shared Use Path (new facility)	N/A	Congestion Reduction	1

Source: NDOT response to TRIP survey

Future Federal Surface Transportation Program

To ensure that federal funding for highways and public transit in Nevada and throughout the nation continues beyond the expiration of the current federal surface transportation program (SAFETEA-LU), Congress will need to approve new long-term federal surface transportation legislation by October 31, 2009.

The American Recovery and Reinvestment Act provides approximately \$201 million in stimulus funding for highway and bridge improvements and \$49 million for public transit improvements in Nevada, a total of \$250 million. This funding can serve as a down payment on needed road, highway, bridge and transit improvements, but it is still not sufficient to allow the

state to proceed with numerous projects needed to improve and enhance its surface transportation system.

The crafting of a new federal highway and transit program will occur during a time when the nation's surface transportation program faces numerous challenges, including significant levels of deterioration, increasing traffic congestion, a high number of traffic deaths, increasing construction costs and a decline in revenues going into the Federal Highway Trust Fund.

In addition to declines in federal surface transportation revenues, significant increases in the cost of transportation construction materials will likely make it more difficult for Congress to authorize a new federal surface transportation program that adequately funds needed improvements to the nation's roads, highways, bridges and public transit systems.

Over the five-year period from August 2004 to August 2009, the average cost of materials used for highway construction – including asphalt, concrete, steel, lumber and diesel – increased by 39 percent.

Recommendations for the Nation's Surface Transportation System

When Congress approved SAFETEA-LU in 2005, it recognized the tremendous challenge the nation would continue to face in maintaining and improving its highway and transit systems in order to meet the country's future mobility needs. The 2005 legislation stipulated that two national commissions be created to examine the condition of the nation's surface transportation system and its future needs, and to make recommendations about the future of the nation's surface transportation program.

The National Surface Transportation Policy and Revenue Study Commission (NSTPRSC) was created by Congress to examine the current condition and future funding needs of America's surface transportation program, develop a plan to ensure the nation's surface transportation system meets the nation's future mobility needs and examine funding alternatives for adequately funding the nation's future highway and transit needs.

Comprised of transportation officials, business leaders and members of academia, the Commission held numerous field hearings, was advised by a panel of transportation experts, commissioned numerous reports and held 12 executive sessions in preparing its report.

In January, 2008 the NSTPRSC released its findings. The Commission found that at the current level of investment in surface transportation in the U.S., the nation's highways and bridges would further deteriorate, traffic casualties would increase and traffic congestion would increase, jeopardizing the nation's economic leadership due to an erosion of transportation reliability.³⁰ The Commission concluded that it is critical to the future quality of life of Americans that the nation create and sustain the preeminent surface transportation system in the world, one that is well-maintained, safe and reliable.³¹

The Commission recommended a broad overhaul of the Federal Surface Transportation Program that would significantly boost funding, consolidate the program into fewer funding categories, speed up the project delivery process, require greater accountability in project selection and expand the use of alternate funding sources.

Key recommendations by the Commission include:

- ✓ Allocate funding through outcome-based, performance-driven programs supported by cost/benefit evaluations rather than political earmarking.

- ✓ Consolidate the more than 100 current transportation funding programs into 10 programs focused on key areas of national interest, including congestion relief, preservation of roads and bridges, improved freight transportation, improved roadway safety, improved rural access, improved environmental stewardship and the development of environmentally-friendly energy sources.
- ✓ Speed up the project development process to reduce the excessive time required to move projects from initiation to completion by better coordinating the development and review process for transportation projects.
- ✓ Significantly boost federal funding for surface transportation. Options for increasing federal surface transportation revenues include reduced evasion of federal motor fuel taxes, moving costs of exemptions from motor fuel fees to the general fund, indexing the motor fuel tax, increasing the motor fuel tax, additional tolling, congestion pricing, increased use of public-private partnerships and freight fees.

Similarly, the National Surface Transportation Infrastructure Financing Commission (NSTIFC) was created by Congress to re-envision the way the federal government funds and finances the nation's surface transportation infrastructure. Comprised of individuals from diverse backgrounds, including economics, finance, government, industry, law and public policy, the NSTIFC sought out the best ideas, the latest data and the strongest research before deliberating over a variety of potential financing options.

In February, 2009, the NSTIFC released its findings. The NSTIFC found that the U.S. faces a \$2.3 trillion funding shortfall through 2035 in maintaining and making needed improvements to the nation's surface transportation system.³² The Commission found that failure to address the immediate funding shortfall and provide adequate long-term funding for

the nation's surface transportation system will lead to unimaginable levels of congestion, reduced safety, costlier goods and services, and eroded quality of life and diminished economic competitiveness.³³

The Commission found that the current federal surface transportation funding structure, which relies primarily on taxes imposed on petroleum-derived vehicle use, is not sustainable. Instead, the Commission recommended that the nation's future surface transportation investment be funded largely by a charge on motorists based on the number of miles driven. The NSTIFC recommended that a full deployment of a mileage-based federal transportation fee be completed by 2020 and that the federal motor fuel tax eventually be phased out as revenue from a federal motor fuel fee was replaced by a mileage fee.³⁴ Once implemented, the NSTIFC recommended that mileage charges be set at a rate that would provide enough revenue to provide adequate federal funding to ensure that the nation achieve an integrated national transportation system that is less congested and safer and that promotes increased productivity, stronger national competitiveness, and improved environmental outcomes.³⁵ The NSTIFC also recommended that in the short term, the nation's federal motor fuel tax be boosted significantly and indexed to inflation to allow the federal surface transportation program to be funded at an adequate level until the transition to a mileage-based federal transportation fee.

Another organization that has presented a vision for the nation's future surface transportation program is the American Association of State Highway and Transportation Officials (AASHTO), which represents the nation's state transportation departments.

AASHTO has recommended that a future federal surface transportation program be developed that would be accountable for results, would make investments based on community needs and would deliver projects on time and on budget. AASHTO has also called for a federal

surface transportation program that is based on state-driven performance measures and focused on six objectives of national interest: preservation and renewal, interstate commerce, safety, congestion reduction and connectivity for urban and rural areas, system operations and environmental protection.

Conclusion

Roads and bridges are the backbone of the Silver State's transportation system. Today, Nevada's surface transportation system is under multiple pressures from aging roads and bridges, increasing traffic congestion and the rising cost of construction.

As it looks to enhance and build a thriving, growing and dynamic state, it will be essential that Nevada is able to provide a 21st century network of roads, highways, bridges and public transit that can accommodate the mobility demands of a modern society.

Without the federal surface transportation program, Nevada would not have been able to fund key projects on major components of the state's surface transportation network. These projects have supported the state's economic development and created new opportunities for its residents. This progress may slow without a strong transportation program to take the place of SAFETEA-LU when it expires October 31, 2009.

The state has an immediate need to move forward with numerous bridge, rehabilitation, expansion and transit projects, but without a substantial level of federal funding, Nevada will be unable to fund dozens of vital projects.

Enhanced federal transportation funding would permit Nevada to upgrade important sections of its Interstate highways, improve traffic safety, replace obsolete bridges and expand

transit services statewide. Preservation work, such as rehabilitation and maintenance, performed on Nevada's network of roads and bridges will pay off in future years by protecting the state's past investment in transportation and extending the life of its aging infrastructure.

A modernized highway system in Nevada will help the state accommodate continuing population growth and offer congestion relief. Completing critical, unfunded projects would increase mobility, better support commerce and tourism, enhance economic development and improve traffic safety statewide, boosting the quality of life for residents, visitors and businesses.

As the nation looks to rebound from the current economic downturn, the U.S. will need to modernize its surface transportation system, improve the physical condition of its transportation network and enhance the system's ability to provide efficient and reliable mobility for motorists and businesses. Making needed improvements to Nevada's roads, highways, bridges and transit 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.

The federal stimulus package has provided a helpful down payment on an improved transportation system. However, without a substantial boost in federal or state surface transportation funding, numerous needed projects to expand capacity and upgrade the condition of Nevada's roads, bridges, highways and transit will not move forward, hampering the state's ability to enhance not only mobility, but also economic development statewide. The future provisions and funding levels of the next federal surface transportation program will be a critical factor in whether Nevada is able to reap the benefits of a modern surface transportation system.

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Endnotes

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- ¹ U.S. Census Bureau annual population estimate.
- ² U.S. Department of Transportation - Federal Highway Administration: Highway Statistics 1990 and Federal Highway Administration preliminary 2008 VMT estimates.
- ³ TRIP calculation based on U.S. Census and Federal Highway Administration data.
- ⁴ Ibid.
- ⁵ Ibid.
- ⁶ Selecting a Preventative Maintenance Treatment for Flexible Pavements. R. Hicks, J. Moulthrop. Transportation Research Board. 1999. Figure 1.
- ⁷ Highway Development and Management: Volume Seven. Modeling Road User and Environmental Effects in HDM-4. Bennett, C. and Greenwood, I. 2000.
- ⁸ Your Driving Costs. American Automobile Association. 2008.
- ⁹ U.S. Department of Transportation - Federal Highway Administration: National Bridge Inventory 2008.
- ¹⁰ TRIP analysis of Federal Highway Administration data. Highway Statistics 2007, Table HM-61. Interstate and Other Freeways and Expressways will a volume-service flow ratio above .70, which is the standard for mild congestion, are considered congested.
- ¹¹ Texas Transportation Institute. 2009 Annual Urban Mobility Report.
- ¹² *Building Roads to Reduce Traffic Congestion in America's Cities: How Much and at What Cost?* Detailed State-by-State Analysis of Future Congestion and Capacity Needs. The Reason Foundation, 2006.
- ¹³ TRIP analysis of Texas Transportation Institute and Reason Foundation data.
- ¹⁴ Texas Transportation Institute (2009), 2009 Urban Mobility Report; TRIP analysis of Federal Highway Administration and Texas Transportation Institute data.
- ¹⁵ U.S. Department of Transportation - Federal Highway Administration: Highway Statistics 2004-2008 www.fhwa.dot.gov and www-fars.nhtsa.dot.gov.
- ¹⁶ U.S. Department of Transportation - Federal Highway Administration: Highway Statistics 2004-2008 www.fhwa.dot.gov and www-fars.nhtsa.dot.gov.
- ¹⁷ TRIP analysis of 2008 NHTSA and FHWA data; .
- ¹⁸ Ibid.
- ¹⁹ TRIP estimate based on analysis of National Highway Traffic Safety Administration data.
- ²⁰ Highway Safety Evaluation System; 1996 Annual Report on Highway Safety Improvement Programs; U.S. Department of Transportation
- ²¹ Source: TRIP analysis of Bureau of Economic Analysis data
- ²² Nevada Commission on Tourism:
http://travelnevada.biz/documents/statistics/Nevada_Spending_Fact_Sheet_2007.pdf
- ²³ Bureau of Transportation Statistics, U.S. Department of Transportation. 2002 Commodity Flow Survey, State Summaries.
- ²⁴ Ibid.
- ²⁵ U.S. Department of Transportation: Office of Freight Management and Operations. www.fhwa.dot.gov.
- ²⁶ Federal Highway Administration, 2008. Employment Impacts of Highway Infrastructure Investment.
- ²⁷ NDOT: Blue Ribbon Task Force
- ²⁸ TRIP analysis based on data obtained from the Federal Highway Administration and the Federal Transit Administration.
- ²⁹ TRIP analysis of Highway Statistics 2007, Table SF-1. Federal Highway Administration.
- ³⁰ National Surface Transportation Policy and Revenue Study Commission. Transportation for Tomorrow, December 2007. P. 3.
- ³¹ Ibid. *P. 7.
- ³² Paying Our Way. February, 2009. The National Transportation Infrastructure Financing Commission. P3. Summary Findings.
- ³³ Ibid. P. 12.
- ³⁴ Paying Our Way. February, 2009. The National Transportation Infrastructure Financing Commission.
- ³⁵ Ibid. P. 12.