Future Mobility in Alaska:

Meeting the State's Need for Safe and Efficient Mobility

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Executive Summary

Alaska's extensive system of roads and bridges provides the state's residents and visitors with a high level of personal and commercial mobility. As the backbone of Alaska's surface transportation system, roads and bridges play a central role in the state's economy. Alaska's highway transportation system enables the state's residents and visitors to go to work, visit family and friends, move goods to market, and frequent tourist attractions.

However, additional transportation funding will be needed in the future if the state is to expand, maintain and repair its highway transportation system at a level that will be adequate to provide for future demands. This report examines current road and bridge conditions, traffic congestion levels, traffic safety rates and the funding needs of major roads, highways and bridges in Alaska. Included in the report are lists of needed but unfunded transportation projects, the state's most deteriorated sections of roadway, its most structurally deficient bridges, and the segments of urban roadway with the highest levels of traffic congestion.

Sources of information for this study include the U.S. Department of Transportation, the Federal Highway Administration (FHWA), the U.S. Census Bureau, the National Highway Traffic Safety Administration (NHTSA), AAA, the National Bridge Inventory (NBI), and the Alaska Department of Transportation (ADOT).

Alaska faces a significant challenge in maintaining, rehabilitating and rebuilding its aging highway system and providing additional lane capacity to meet growing travel demand. The Alaska Department of Transportation estimates a total funding shortfall of $9 billion from 2007 to 2016, leaving many needed transportation projects unfunded.

- From 2007 to 2016, ADOT estimates that $10.9 billion will be needed to significantly improve road and bridge conditions, relieve traffic congestion, enhance economic development opportunities and make roadway safety improvements.

- However, during that time, ADOT estimates that only $1.9 billion will be available for road and bridge improvements, congestion relief, economic development enhancements and traffic safety improvements.

- ADOT has compiled a list of needed projects in the state that currently lack sufficient funding, at least through 2011, to proceed through construction. These projects include the following: a Glenn Highway / Seward Highway freeway connection in Anchorage, Richardson Highway reconstruction and bridge replacement in Delta Junction, and safety and capacity improvements to Parks Highway and Glenn Highway in Core Matanuska - Susitna Valley.

- The cost of roadway improvements is escalating because the price of key materials needed for highway and bridge construction has increased rapidly. Over the five-year period from August 2003 to August 2008 the average cost of materials used for highway construction, including asphalt, concrete, steel, lumber and diesel has increased by 75 percent.

Nearly half - 48 percent- of major roads in Alaska are in poor or mediocre condition, providing motorists with a rough ride. Roads in need of repair cost the average Alaska motorist approximately $336 each year in extra vehicle operating costs - $162 million statewide.

- In 2006 (the latest year for which data is available), 20 percent of major roads in Alaska were rated in poor condition and 28 percent of major roads were rated in mediocre 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.
- 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.
- A desirable goal for state and local organizations that are responsible for road maintenance is to have 75 percent of major roads in good condition. Only 27 percent of Alaska's major roads are in good condition.
- Driving on roads in need of repair costs the average Alaska motorist approximately $336 per year - $162 million statewide – in additional vehicle operating costs. These costs include accelerated vehicle depreciation, additional repair costs and increased fuel consumption and tire wear.
- Below is a list Alaska roadways that are most in need of repair or rehabilitation.

Route Name	Closest City	From	To	Length (Mi.)	Work needed	Average Daily Traffic
North Tongass Highway	Ketchikan	Refuge Cove	Whipple Creek Bridge	2.0	Reconstruct highway	4,800
South Tongass Highway	Ketchikan	Deermont Street	Mountain Point vicinity	4.7	Limited widening, alignment shifts, rock excavation and repaving	3,400
Kanakanak Spur	Dillingham	MP 2.5	MP 5.2	2.6	Resurfacing, including structural section work and erosion control	2,500
Richardson Highway	Fairbanks	MP 354	MP 357	3.0	Access and safety improvements.	16,700
Parks Highway	Fairbanks	Nenana River	Fish Creek	22.0	Rehabilitate, resurface and construct passing lanes	1,350
Parks Highway	Wasilla	Willow Creek	Kashwitna River	11.6	Rehabilitate pavement, widen shoulders, build passing lanes and bridge improvements, safety improvements.	3,300

Lucas Road	Wasilla	Parks Highway	Spruce Avenue	1.1	Make two lane facility with shoulders, turning lanes, pedestrian facilities, landscaping and drainage improvements.	2,300
Wasilla Fishhook Road	Wasilla	Schrock Road	Palmer Fishhook Road	7.8	Resurface, widen, provide shoulders and turning pockets and pedestrian amenities	2,200

More than a quarter – 28 percent – of bridges in Alaska are structurally deficient or functionally obsolete.

- In 2007, the latest year for which data is available, 13 percent of Alaska's bridges (20 feet or longer) were rated structurally deficient, the seventh highest percentage in the nation. 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.
- Fifteen percent of Alaska's bridges (20 feet or longer) were functionally obsolete in 2007. Bridges that are functionally obsolete no longer meet current highway design standards, often because of narrow lanes, inadequate clearances or poor alignment.
- Bridge deficiencies have an impact on mobility and safety. Restrictions on vehicle weight may cause many vehicles – especially emergency vehicles, commercial trucks, school buses and farm equipment – to use alternate routes to avoid these bridges.
- Narrow bridge lanes, inadequate clearances and poorly aligned bridge approaches reduce traffic safety. Redirected trips lengthen travel time, waste fuel and reduce the efficiency of the local economy.
- Below is a list of the ten most structurally deficient, heavily traveled bridges (20 feet or longer) in Alaska with an average daily traffic (ADT) of at least 500 vehicles. A list of the 30 bridges in the state with the lowest sufficiency score is included in the body of the report.

	FACILITY	Feature Intersected	YEAR BUILT	ADT	Sufficiency Rating
1	HARBOR DRIVE	SITKA HARBOR	1971	4,114	9
2	SEWARD HIGHWAY	FALLS CREEK	1951	1,980	10
3	SEWARD HIGHWAY	TRAIL RIVER	1951	1,980	10
4	SEWARD HIGHWAY	PTARMIGAN CREEK	1952	1,980	15.5
5	WATER STREET	WATER ST NO 1 TRESTLE	1920	598	18.6
6	MILLAR STREET	MILLAR ST VIADUCT	1960	647	25.4
7	RICHARDSON HIGHWAY	PHELAN CREEK	1958	558	27.5
8	STERLING HIGHWAY	SOUTH FORK ANCHOR RIVER	1959	3,400	28.2
9	WARREN STREET	WARREN ST VIADUCT	1979	647	30.7
10	DOWLING ROAD	CAMPBELL CREEK, DOWLING	1980	9,258	32

Traffic congestion levels in Alaska are rising, as vehicle travel on the state's roadways has increased more than three times faster than additional roadway capacity has been added.

- Alaska's population reached 670,000 in 2006, an increase of approximately 22 percent since 1990. Alaska's population is projected to increase by approximately 23 percent by 2025, an increase of approximately 150,000 residents.

- From 1990 to 2006, vehicle miles of travel (VMT) on Alaska's major highways increased 25 percent– rising from approximately 4 billion VMT in 1990 to 5 billion VMT in 2006.

- From 1990 to 2006, overall lane miles in Alaska increased by approximately 11 percent. Thus, vehicle travel in the state increased at a rate more than twice as fast as new capacity was added to the system.

- Vehicle travel in Alaska is expected to increase by 21 percent by 2025, to 6.1 billion VMT.

- Below is a list of the ten sections of roadway in Alaska that have the highest level of traffic congestion based on ADT per through lane. It is estimated that the total annual hours of delay for the 10 road segments in the following list is in excess of ten million hours with a cost to the public greater than $150 million annually (assuming 15$/hr value of lost time).

	Route	From	To	Length in Miles	Average Daily Traffic
1	Glenn/Seward Hwy	Boniface Parkway	36th Ave	5	60,000
2	Tudor Road	Minnesota	Muldoon	5.5	53,000
3	Parks Highway	Wasilla	Big Lake	8.8	17,000
4	Seward Highway	Anchorage	Girdwood	27.5	17,000
5	Sterling Highway	Sterling	Soldotna	10.5	17,000
6	Palmer-Wasilla Highway	Palmer	Wasilla	9.9	16,500
7	O'Malley Road	Elmore Road	Seward Highway	2	16,000
8	Jewell Lake Road	International	Diamond	2.9	16,000
9	Seward Highway	36th Ave	O'Malley	4.5	60,000
10	Minnesota Drive	Hillcrest Drive	Tudor	3	45,000

Improving safety features on Alaska'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 2003 and 2007, 425 people were killed in traffic crashes in Alaska, an average of 85 fatalities per year.

- Alaska's traffic fatality rate was 1.49 fatalities per 100 million vehicle miles of travel in 2006 (the latest year for which data is available), higher than the national average of 1.41.
- There are several factors 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 crashes.
- Where appropriate, highway improvements such as removing or shielding obstacles, adding or improving medians, adding rumble strips, widening lanes, widening and paving shoulders, upgrading roads from two lanes to four lanes and adding better road markings and traffic signals can reduce traffic fatalities and accidents while improving traffic flow to help relieve congestion.

- 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.

The efficiency of Alaska'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. A key component in business efficiency and success is the level and ease of access to customers, markets, materials and workers.

- Approximately $8 billion in goods are shipped annually from sites in Alaska and another $13.6 billion in goods are shipped annually to sites in Alaska, mostly by commercial trucks on the state's highways.
- Commercial truck travel in the state is expected to increase significantly over the next two decades. Based on federal projections, TRIP estimates that commercial trucking will increase by 68 percent in Alaska by the year 2020.
- 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 transportation system.
- 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.

Introduction

Alaska's system of roads and bridges provides the state's residents and visitors with a high level of mobility. As the backbone of Alaska's surface transportation system, roads and bridges play a central role in the state's economy and enable residents and visitors to go to work, visit family and friends, move goods to market, and frequent tourist attractions.

The modernization of Alaska's roads and bridges is crucial to providing a safer, more efficient transportation system, while improving the economic livelihood of the state and accommodating future growth. If travel on Alaska's surface transportation system becomes more efficient and the physical condition of the state's roads, highways and bridges improves, personal and commercial productivity will increase, boosting economic development statewide.

In addition to evaluating the current condition of Alaska's highway transportation system, this report evaluates the state's ability to meet future mobility and traffic safety needs. Included in the report are lists of the state's needed but unfunded transportation projects, its most deteriorated sections of roadway, the most structurally deficient bridges, and the segments of urban roadway with the highest levels of traffic congestion.

Sources of information for this study include the U.S. Department of Transportation, the Federal Highway Administration (FHWA), the U.S. Census Bureau, the National Highway Traffic Safety Administration (NHTSA), the Bureau of Transportation Statistics (BTS), AAA, the National Bridge Inventory (NBI), and the Alaska Department of Transportation (ADOT).

Population and Travel Trends in Alaska

Alaska residents enjoy modern lifestyles that rely on a high level of personal and commercial mobility. Increases in Alaska's population and the rate of travel of its residents have created additional demand on the state's transportation system, particularly on key highways and roads. It is critical that Alaska develop and maintain a modern transportation system that can accommodate future growth in population, vehicle travel and economic development.

Alaska's population reached approximately 670,000 in 2006, an increase of 22 percent since 1990. Alaska's population is expected to increase another 23 percent by 2025, an increase of approximately 150,000 people.[1]

From 1990 to 2006, vehicle miles of travel (VMT) in the state increased by 25 percent, from approximately 4 billion annual VMT to 5 billion VMT. [2] Based on travel and population trends, TRIP estimates that vehicle travel in Alaska will increase by another 21 percent by 2025, reaching approximately 6.1 billion VMT.[3]

Condition of Alaska's Roads

In 2006 (the latest year for which data is available), nearly half – 48 percent- of Alaska's major roads were rated in poor or mediocre condition, providing motorists with a rough ride.[4] Twenty percent of Alaska's major roads were rated in poor condition and 28 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.

The life cycle of Alaska'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. The pavement condition of the state's major roads are evaluated and typically classified as being in poor, mediocre, fair or good condition. A desirable goal for state and local organizations that are responsible for road maintenance is to keep 75 percent of major roads in good condition.[6] In Alaska, 27 percent of the state's major roads were in good condition in 2006.[7]

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. Because reconstructing roads costs approximately four times more than resurfacing them, it is critical that roads are fixed before they require major repairs.[8]

Below is a list of sections of roadway in Alaska (carrying at least 2,000 average daily traffic) with that are most in need of repair or reconstruction.

Chart 1. Sections of Alaska roadway most in need of repair or reconstruction.

Route Name	Closest City	From	To	Length (Mi.)	Work needed	Ave. Daily Traffic
North Tongass Highway	Ketchikan	Refuge Cove	Whipple Creek Bridge	2.0	Reconstruct highway	4,800
South Tongass Highway	Ketchikan	Deermont Street	Mountain Point vicinity	4.7	Limited widening, alignment shifts, rock excavation and repaving	3,400
Kanakanak Spur	Dillingham	MP 2.5	MP 5.2	2.6	Resurfacing, including structural section work and erosion control	2,500
Richardson Highway	Fairbanks	MP 354	MP 357	3.0	Access and safety improvements.	16,700
Parks Highway	Fairbanks	Ester	Chena Pump/Geist Road	5.0	Rehabilitate, strengthen embankments and construct pedestrian/bicycle paths.	5,000
Parks Highway	Wasilla	Willow Creek	Kashwitna River	11.6	Rehabilitate pavement, widen shoulders, build passing lanes and bridge improvements, safety improvements.	3,300
Lucas Road	Wasilla	Parks Highway	Spruce Avenue	1.1	Make two lane facility with shoulders, turning lanes, pedestrian facilities, landscaping and drainage improvements.	2,300
Wasilla Fishhook Road	Wasilla	Schrock Road	Palmer Fishhook Road	7.8	Resurface, widen, provide shoulders and turning pockets and pedestrian amenities	2,200

Source: Alaska Department of Transportation

The Cost 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 borne by Alaska motorists as a result of poor road conditions is $162 million annually, or $336 per motorist.

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.[9]

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 region's driver, calculating current vehicle operating costs based on AAA's 2007 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.[10] 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 Alaska

Alaska's bridges form key links in the state's highway system, providing communities and individuals access to employment, schools, shopping and medical facilities, as well as facilitating commerce and access for emergency vehicles. More than a quarter – 28 percent – of bridges in Alaska are structurally deficient or functionally obsolete.

In 2007, the latest year for which data is available, 13 percent of Alaska's bridges (20 feet or longer) were rated structurally deficient.[11]

Chart 2. Bridge Conditions in Alaska, 2007.

BRIDGE CONDITION	NUMBER OF BRIDGES	PERCENT DEFICIENT
Structurally Deficient	155	13
Functionally Obsolete	179	15
Total Bridges	1,229	

Source: Federal Highway Administration, National Bridge Inventory

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.

Fifteen percent of Alaska's bridges (20 feet or longer) were functionally obsolete in 2007.[12] Bridges that are functionally obsolete no longer meet current highway design standards, often because of narrow lanes, inadequate clearances or poor alignment.

The following is a list of bridges in the state with the lowest sufficiency rating, carrying at least 500 vehicles per day.

Chart 3: Alaska bridges with the lowest sufficiency rating.

FACILITY	Feature Intersected	YEAR BUILT	ADT	Sufficiency Rating
HARBOR DRIVE	SITKA HARBOR	1971	4,114	9
SEWARD HIGHWAY	FALLS CREEK	1951	1,980	10
SEWARD HIGHWAY	TRAIL RIVER	1951	1980	10
SEWARD HIGHWAY	PTARMIGAN CREEK	1952	1980	15.5
WATER STREET	WATER ST NO 1 TRESTLE	1920	598	18.6
MILLAR STREET	MILLAR ST VIADUCT	1960	647	25.4
RICHARDSON HIGHWAY	PHELAN CREEK	1958	558	27.5
STERLING HIGHWAY	SOUTH FORK ANCHOR RIVER	1959	3400	28.2
WARREN STREET	WARREN ST VIADUCT	1979	647	30.7
DOWLING ROAD	CAMPBELL CREEK, DOWLING	1980	9258	32
ALASKA HIGHWAY	TANANA RIVER	1944	905	33.8
OLD STERLING HWY	ANCHOR RIVER	1949	1670	35.5
SEWARD HIGHWAY	TWENTY MILE RIVER	1967	5498	35.8
UNIVERSITY AVE	CHENA RIVER (UNIV AVE)	1963	18209	35.9
GLACIER HIGHWAY	MENDENHALL RIVER	1965	11621	40
OLD GLENN, EAGLE R	PETERS CREEK	1950	2338	42
SOUTH TONGASS HWY	HOADLEY CREEK	1957	19070	43.9

Source: Alaska Department of Transportation

The sufficiency rating formula is a method of evaluating factors that indicate a bridge's sufficiency to remain in service. The result of the formula is a percentage in which 100 percent represents an entirely sufficient bridge and zero percent represents an entirely insufficient or deficient bridge. The sufficiency rating is never less than 0 or more than 100.[13]

Traffic Congestion in Alaska

Traffic congestion in Alaska is a growing burden in key urban areas and threatens to impede the state's economic development. Congestion on Alaska's urban highways is growing, in part, as a result of increases in vehicle travel and population.

From 1990 to 2006, vehicle travel on Alaska's roadways increased by 25 percent. During the same period, both overall lane miles and lane miles of major freeways in Alaska increased by

11 percent. Thus, vehicle travel in the state increased at a rate more than twice as fast as new roadway capacity was added to the system.

The following is a list of the 10 segments (two miles or longer) of Alaska's urban highways or major roads that have the highest levels of traffic congestion based on ADT per through lane. It is estimated that the total annual hours of delay for the 10 road segments in the following list is in excess of ten million hours with a cost to the public greater than $150 million annually (assumes 15$/hr value of lost time).

Chart 4. Roadway segments with the highest levels of congestion.

Route	From	To	Length in Miles	Average Daily Traffic
Glenn/Seward Hwy	Boniface Parkway	36th Ave	5	60,000
Tudor Road	Minnesota	Muldoon	5.5	53,000
Parks Highway	Wasilla	Big Lake	8.8	17,000
Seward Highway	Anchorage	Girdwood	27.5	17,000
Sterling Highway	Sterling	Soldotna	10.5	17,000
Palmer-Wasilla Highway	Palmer	Wasilla	9.9	16,500
O'Malley Road	Elmore Road	Seward Highway	2	16,000
Jewell Lake Road	International	Diamond	2.9	16,000
Seward Highway	36th Ave	O'Malley	4.5	60,000
Minnesota Drive	Hillcrest Drive	Tudor	3	45,000

Source: Alaska Department of Transportation

Traffic Safety in Alaska

A total of 425 people were killed in motor vehicle crashes in Alaska from 2003 through 2007, an average of 85 fatalities per year.[14] Alaska's traffic fatality rate of 1.49 fatalities per 100 million vehicle miles of travel in 2006 (the latest year for which data is available) is higher than the national average of 1.41.

Chart 5. Traffic fatalities in Alaska from 2003 – 2007.

Year	Fatalities
2003	95
2004	101
2005	72
2006	74
2007	83

Source: National Highway Traffic Safety Administration.

Three major factors are associated with fatal vehicle crashes: driver behavior, vehicle characteristics and roadway design. Roadway design is an important factor in many fatal and serious traffic accidents. Improving safety on Alaska's roads and highway system 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.

Where appropriate, roadway improvements such as adding turn lanes, removing or shielding obstacles, adding or improving medians, widening lanes, widening and paving shoulders, improving intersection layout, providing better road markings, and upgrading or installing traffic signals could reduce the severity of serious traffic crashes. 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.[15] The state has recently adopted a new Strategic Highway Safety Plan, which uses an evidence-based approach to identify the most beneficial improvement, that will result in measureable improvements to roadway safety.

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. [16]

Chart 6. 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

The new culture of business demands that a region have well-maintained and efficient roads, highways and bridges if it wants 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 greater necessity 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 away 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 Alaska. 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.

An analysis of commodity transport by the U.S. Bureau of Transportation Statistics (BTS) and U.S. Census Bureau underscored the economic importance of Alaska's road system. The BTS report found $8 billion in goods are shipped annually from sites in Alaska and another $13.6 billion in goods are shipped to sites in Alaska, mostly by commercial trucks on the state's highways.[17]

Trucking is a crucial part of Alaska's economy, as commercial trucks move goods from sites across the state to markets inside and outside the state. Commercial truck travel in the state is expected to increase significantly over the next two decades. Based on federal projections, TRIP estimates that commercial trucking will increase by 68 percent in Alaska by the year 2020.[18]

Transportation Funding and Future Needs in Alaska

Alaska faces a significant challenge in maintaining, rehabilitating or rebuilding its aging highway system and providing additional routes and added lane capacity to meet growing travel demand.

The Alaska Department of Transportation (ADOT) estimates a funding shortfall of $9 billion from 2007 to 2016. During that time, ADOT estimates that $10.9 billion will be needed to significantly improve road and bridge conditions, relieve traffic congestion, enhance economic development opportunities and make roadway safety improvements.[19] However, with the present level of Federal funding, ADOT estimates that only $1.9 billion will be available from 2007 to 2016 for road and bridge improvements, congestion relief, economic development enhancements and traffic safety improvement.[20]

ADOT has identified needed projects throughout the state that can not move forward through construction because sufficient funding is lacking. Through the year 2011, the following needed projects currently lack adequate funding to proceed through construction:

Facility	From	To	Facility crossed (if bridge)	County or nearest city	Project scope	Cost (millions)
Glenn Highway/Seward Highway Connection	Glenn Highway @ Airport Heights Road	Seward Highway @ 36th Avenue		Anchorage	Freeway connection	$715
Richardson Highway	Richardson Highway MP 148 MP 240 -	MP 159 MP 262	Chicken Creek One Mile Creek	Gulkana Delta Junction	Widening, reconstruction and bridge replacement	$425
Gas Line Construction Highway Preparation	Alaska Highway, Richardson Highway, Steese Highway, Dalton Highway				Reconstruct and rehabilitate to bring routes to condition needed for gas line construction.	$400
Seward Highway	Anchorage	Girdwood		Municipality of Anchorage	Roadway improvements	$380
Seward Highway	Snow River	Trail River		Kenai Peninsula Borough	Roadway improvements	
Juneau Access	Route 7 current terminus	North side of Katzehin River		City and Borough of Juneau	Extension of the existing highway and construction of a ferry terminal at the Katzehin River terminus of State Route 7	$350
Gravina Island Access Improvements	Ketchikan	Gravina Island		Ketchikan	Improve access from Ketchikan (Revillagigedo Island) to the Gravina Island for Ketchikan Airport access	
Core Matanuska & Susitna Valley safety and capacity improvements Seward Meridan Road Palmer-Wasilla Highway Trunk Road Wasilla/Fishhook-Main Street Knik-Goose Bay Road	 Parks Highway Glenn Highway Parks Highway Parks Highway Parks Highway	 Seldon Road Parks Highway Palmer/Fishhook Road Schrock Road Settlers Bay		Wasilla	Upgrade Seward Meridian Road to four lanes. Widen Palmer-Wasilla Highway from two lanes to four. Reconstruct Trunk Road to 4 lanes from Parks Hwy to Bogard Road, 2 lanes from Bogard to Palmer-Fishhook Road. Upgrade Wasilla Fishhook-Main Street to include four lanes and an improvement to the intersection with the Parks Highway. Upgrade Knik-Goose Bay Road from two lanes to four from Parks Highway to Settlers Bay Area.	$300

Dalton Highway	Elliott Highway	MP 363	Yukon River	Fairbanks	Reconstruction of sections 0-9, 9-11, 11-18, 22-37, 274-289, 362-414, and pavement overlay for sections 90-175 and 335-362. Replace culverts in section 260-321, including rrepairs to six bridges. Upgrade Yukon River Bridge.	$300
Wasilla Multimodal	Parks Highway	Parks Highway/Glenn Highway Interchange			Construct a by-pass for the Parks Highway around Wasilla,possibly combined with a rerouting of the Alaska Railroad.	$250
Parks Highway Rehabilitation	Houston	Fairbanks		Fairbanks	Rehabilitation and resurfacing.	$200
Southwest Alaska Transportation Plan Road Improvements Pls make sure the from-to in the next column align to avoid confusion	Williamsport to Illiamna to Chignik to King Cove to	Pile Bay Nondalton Chignik Lake Cold Bay			Improvements to the Williamsport-Pile Bay Road, completion of the road between Illiamna and Nondalton, the Naknek River Bridge, a road connecting Chignik, Chignik Lagoon and Chignik Lake, and completion of a road connecting King Cove and Cold Bay.	>$180
Glenn Highway Rehabilitation	Parks Highway	Richardson Highway	Moose Creek, Tolsina River	Palmer	Reconstruct to four lanes from Parks Highway to Palmer Fishhook Road. Reconstruct and realign substandard segments of highway to current standards including bridge replacement and passing lanes.	$165
Parks Highway Reconstruction	Wasilla	Big Lake Cutoff	Alaska Railroad crossing #1922	Wasilla	Widen to four lanes with attendant traffic and safety improvements. Project expanded to include expansion to 6 lanes in Wasilla.	$150
Sterling Highway Cooper Landing Reconstruction	**MP 45**	**MP 60**	Kenai River		Major realignment of Sterling Highway bypass Cooper Landing	$125
Alaska Highway Rehabilitation and Bridge Replacement	MP 1222 MP 1412	MP 1235 MP 1422	Scottie Creek		Leveling and resurfacing; bridge replacement, and elimination of frost heaves. Includes weigh in Motion, and weigh station.	$90
Elliott Highway Rehabilitation & Reconstruction	Steese Highway	Dalton Highway		Fairbanks	Reconstruct Elliott Hwy MP 4-28 and rehabilitate MP 28-72 Steese Highway Junction to Dalton Highway Junction	$75

Knik Arm Crossing	Anchorage	Matanuska - Susitna Borough, west side Cook Inlet	Knik Arm,Cook Inlet	Anchorage	Design and construct a crossing of Knik Arm and approximately 2.5 miles of roadway. Realignment and paving of Point MacKenzie Road from the intersection of Knik Goose Bay Road to Port MacKenzie.	$700
New Seward Highway Widening	Rabbit Creek	36th Avenue	International Airport Rd, 68th Ave, 76th Ave, 92nd Ave	Anchorage	Improvement to include widening from four to six lanes; modifying existing interchanges; adding grade separation at 36th Ave, extending the western frontage road between Dimond Blvd and O'Malley Rd; and adding overcrossings, pedestrian and bike facilities.	$55.70
Taylor Highway Reconstruction	MP 64	Alaska-Canada Border	Chicken Creek, 40 Mile River	none	Reconstruct, rehabilitate, upgrade, and replace bridges.	$50

Source: Alaska Department of Transportation

The challenge faced by the state in funding needed projects could be made more difficult by the rising cost of highway construction materials. The cost of roadway improvements is escalating because the price of key materials needed for highway and bridge construction has increased rapidly. Over the five-year period from August 2003 to August 2008 the average cost of materials used for highway construction, including asphalt, concrete, steel, lumber and diesel has increased by 75 percent. In Alaska, the measured increase in the price of pavement materials is more than 80 percent and the price increase of embankment type work is greater than 60 percent.

Conclusion

Meeting the state's future needs for a safe and efficient roadway system will be critical in providing residents, businesses and visitors with the benefits of a road and highway network that is well-maintained, safe and reliable. Alaska will have to consider future increases in funding to offset escalating highway construction costs and also to allow the state to both maintain its existing system of roads and bridges, to modernize its existing road, highway and bridge system, and to accommodate anticipated travel growth in the state.

Endnotes

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[8] Selecting a Preventative Maintenance Treatment for Flexible Pavements. R. Hicks, J. Moulthrop. Transportation Research Board. 1999. Figure 1.

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[19] Alaska Department of Transportation response to TRIP survey.
[20] Ibid.