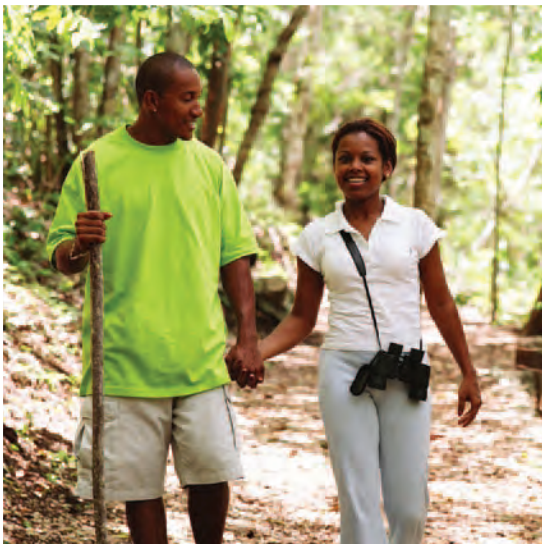
August 2010

Transportation Reboot:

Restarting America's Most Essential Operating System

The Case for Capacity: To Unlock Gridlock, Generate Jobs, Deliver Freight, and Connect Communities



Connecting Rural and Urban America

http://ExpandingCapacity.transportation.org

PART 3 OF A SERIES

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

AASHTO The Voice of Transportation

Acknowledgements

Much of the material cited in this report, including the estimates of capacity increases required, is drawn from research published in May 2007 by the Transportation Research Board's National Cooperative Highway Research Program (NCHRP). The report, *Future Options for the Interstate and Defense Highway System*, can be accessed at http://onlinepubs.trb.org/onlinepubs/trbnet/acl/NCHRP_20-24_52Task10_NCHRPFinal.pdf.

The objective of the research project was to develop a potential vision for the future of the U.S. Interstate Highway System. The report was prepared by a study team led by David Gehr and Steve Lockwood of PB Consult, Gary Maring of Cambridge Systematics, Inc., Kevin E. Heanue and Alan E. Pisarski.

The research was sponsored by AASHTO and the Federal Highway Administration, and was guided by a panel chaired by Harold E. Linnenkohl, Georgia DOT (retired); and included Allen D. Biehler, P.E., Secretary, Pennsylvania DOT; John F. Conrad, P.E., Washington State DOT; Dr. David J. Forkenbrock, University of Iowa; Dr. Clay McShane, Northeastern University; Debra L. Miller, Secretary, Kansas DOT; Thomas E. Norton, Colorado DOT (formerly); Kenneth Orski, Urban Mobility Corporation; Dr. Bruce E. Seely, Michigan Technological University; MG David A. Sprynczynatyk, North Dakota Army National Guard; and LTG Kenneth R. Wykle, National Defense Transportation Association.

The analysis period considered in the *Future Options* report was the 30 years from 2005 to 2035. The National Surface Transportation Policy and Revenue Study Commission, in its 2008 report, *Transportation for Tomorrow*, looked at what the country's surface transportation needs would be by 2050. In order for this report to be comparable to that of the National Commission's, AASHTO based its findings on the research conducted by PB, Cambridge Systematics, Pisarski and Heanue, but presented its recommendations using the 2050 time horizon. We have also updated the travel demand forecasts using more recent data from *AASHTO's 2009 Bottom Line Report*.

Additional information in the report was gleaned from *Commuting in America III*, authored by Alan E. Pisarski under a joint project of the National Cooperative Highway Research Program (NCHRP) and the Transit Cooperative Research Program (TCRP) and published in October 2006.

Foreword

AASHTO Executive Director
John Horsley

John Horsley
Executive Director

Providing Access and Connections for All of America

The United States is a big country. Sprawling metropolises, rural farmland, and small towns dot the landscape. They are all connected by the country's highway system, providing a lifeline of support for workers, farmers, freight carriers, and tourists.

Improving connectivity for the 60 million Americans who live in rural areas is just as important as improving mobility for those who live in metropolitan areas. Twenty percent of the overall U.S. population lives in rural areas—a population equal to that of the 100 largest cities in America, from New York with 8.3 million residents, to Boise, Idaho with 205,000. Every American is important to the national economy, whether they raise cattle, harvest wheat, deliver wind turbines, maintain ski slopes, manufacture cars, or manage a computer network.

Yet in policy discussions, the need to improve connectivity outside metropolitan areas is too often overlooked. Rural states are essential to the nation's success, not only to meet the needs of their own citizens, but also to maintain their part of the national network on which the U.S. economy depends. Highways across rural states are a "bridge" for traffic between population centers for people and freight. Simply put, they connect all Americans; urban and suburban, as well as rural.

So How Can We Achieve the Connectivity We Need?

The answer is clear: by addressing the capacity needs of rural America; providing connections to new and emerging centers of population and commerce; improving access for travel, recreation, and tourism industries; and for homeland security, by assuring reliable access to defense installations and critical industries. This is how we will create a transportation system that will serve our needs well into the 21st century.

This report outlines the many reasons good transportation to connect rural and urban America must be a national priority.

"Roads and bridges are probably the most fundamental form of infrastructure for any community, providing transportation to both commodities and people, connecting businesses to suppliers and consumers, and connecting residents to critical public services, such as health, education, and emergency services."

—U.S. Department of Agriculture

Connecting Rural and Urban America:

Key Findings

Riders on the City of Houston, MO, Transit Bus

Photo courtesy of Transit Marketing LLC.

American highways are the thread connecting life in the cities, towns, and farmlands; the connections that ensure the safety and security of our country. Yet in policy discussions, the need to improve connectivity outside metropolitan areas is too often overlooked.

Rural states are essential to the nation's success, not only to meet the needs of their own citizens, but also to maintain their part of the national network on which the U.S. economy depends. Highways across rural states are also a "bridge" for traffic between population centers for people and freight. Simply put, they connect all Americans, urban and suburban as well as rural.

Additional transportation capacity is needed to connect rural and urban America.

- Most Interstates were planned 60 years ago, yet little new capacity has been added.
- America needs to add new capacity to:
  - ✓ Improve connectivity and mobility for rural America;
  - ✓ Improve access for the travel, recreation, and tourism industries;
  - ✓ Enhance and expand rural transit opportunities;
  - ✓ Provide connections to new and emerging centers of population and commerce; and
  - ✓ For homeland security, assure reliable access to defense installations and critical industries.

Meeting the needs of a changing and growing rural economy will require the United States to expand its highways and transportation options.

- Narrow, two-lane, rural roads, many built in the 1960s and 1970s, cannot safely carry the kinds of trucks and commercial vehicles now moving across America's heartland.
- The nation's 2.2 million farms produced $365 billion in 2008, including crops, livestock and forestry products. As the U.S. and world populations grow, this will only increase, accelerating the need for better access to markets.

- The renewable fuels industry and wind farm electric energy production are essential if our nation is to reduce its dependence on foreign oil. An excellent highway transportation network in rural areas is essential to support agriculture and the development of energy resources.
- Trade between the United States and Canada and Mexico is expected to increase from $637 billion in 2009 to $760 billion by the end of 2010. In 2009, approximately 70 percent of this trade by value was moved by truck, much of it on rural highways.
- Since the Interstate was launched in 1956, the nation has grown from a population of 165 million to 308 million—and is expected to reach 420 million by 2050.

Markets such as this one in Charleston, WV, help support local farmers.

Photo courtesy of Leah Appel

Rising demand in rural areas, particularly from the growing elderly population, is creating an increasing need for more transit service in rural America.

- In 2008, almost one out of eight people aged 65 and older lived in rural areas. This elderly population exceeds 9.6 million people.
- Congress recognized this need by nearly doubling the size of the rural transit program from the $1.18 billion provided between 1998 and 2003 to $2.18 billion between 2004 and 2009.
- Nearly 57,000 vans and buses criss-cross America's rural highways, providing service to rural populations, including 1,700 over-the-road buses providing rural intercity service.

New and emerging cities and towns require better transportation connectivity to keep competitive and support jobs.

- Sixty-six cities with populations of 50,000 or more—including one state capital—do not have immediate access to the Interstate system.
- During the next 30 years, 80 percent of the nation's population growth is expected to concentrate in the South and West.

Tourism is one of the strongest economic engines in the country yet many "hotspots" face major congestion and seasonal bottlenecks that deter its growth.

- In three states, the tourism and recreation industries rank as the most important, as measured by employment. Overall, tourism, travel, and recreation are among the top ten industries in all but two states.
- Many of the nation's most popular tourist destinations—including ski slopes, seashores, and National parks—experience significant traffic delays. Many of these destinations are not close to Interstate or National Highway System routes.

Homeland security and defense require a reliable transportation network.

- Movement of military equipment and personnel for overseas deployment has increased during the past 15 years.
- Growing populations in areas along the coast depend upon safe hurricane evacuation options.
- Alternate routes are needed to ensure reliable access to defense facilities.

Traffic on Delaware US 113 is headed to resort beach communities.

Photo courtesy of Delaware Department of Transportation

Downtown
Portsmouth, Ohio

Photo courtesy of Ohio Department of Transportation

What we need to reconnect rural and urban America.

- Investments are needed to maintain and preserve existing capacity in rural America for the benefit of the entire community.
- Any new Federal-aid transportation program must continue to help rural states fund the portions of the Interstate Highway System and other Federal-aid highways for which they are responsible.
- According to a 2007 study of *Future Options for the Interstate Highway System*, 30,000 lane-miles[1] should be added to the Interstate system to meet rural needs, including:
  - Expanding the existing rural Interstate Highway System by 16,000 lane-miles;
  - Upgrading rural National Highway System routes to Interstate standards, an addition of 2,000 lane-miles; and
  - Upgrading to Interstate standards National Highway System routes that can connect the existing Interstate network to unconnected urbanized areas with a current or expected population greater than 50,000 in population. This would add 12,000 lane-miles.
- To keep pace with rising demand for rural transit, Federal funding for rural transit service should more than double over the next six years.

[1] One lane-mile is one mile of one lane of road (a one-mile length of four lanes on a highway equals four lane miles).

Start of the Carson City Fun Run

Photo courtesy of Julie Duewel, Nevada Department of Transportation

Connecting Rural and Urban America is the third in a series of reports generated by AASHTO to identify the need to increase capacity in our transportation system to unlock gridlock, generate jobs, deliver freight, and connect rural and urban America. To see state examples of rural capacity needs and for more information, go to http://ExpandingCapacity.transportation.org.

LaMoille Highway and Ruby Mountains, Nevada.

Photo by Julie Duewel, Nevada Department of Transportation

INTRODUCTION

Connecting Rural and Urban America

This report, the third in a series on the nation's transportation capacity needs, focuses on the need to tap the economic might of rural America, be it through access to energy resources, tourism or agriculture. It also identifies underserved cities whose future growth depends on Interstate access. Finally, it underscores the capacity improvements needed to ensure the nation's security.

Better Connections

What do the cities of Owensboro, **Kentucky**, and Bend, **Oregon**, have in common? They are mid-size cities in an otherwise rural area of their state, have populations in excess of 50,000 today, but are 60 to 100 miles from the nearest Interstate.

More Capacity

What do the cities of Augusta, **Georgia**, and Tempe, **Arizona**, have in common? They are Sunbelt cities that had populations of less than 50,000 in 1950 and have populations of more than 175,000 today.

"The bulk of our Interstate system was planned more than 50 years ago with the goal of 'getting farmers out of the mud'. But today, even though rural areas aren't in the mud anymore, they rely on commercial trucks, cell phones, and the Internet just as much as any city. Why do we expect our modern society to run on an archaic transportation system? We need a transportation system that works for the entire country of today—not one that struggles just to keep up with yesterday."

—AASHTO Executive Director John Horsley

Need for New Interstates

The lower Rio Grande Valley in **Texas**, which includes the border towns of McAllen and Brownsville, is one of only a few regions in the country with a population of close to one million with no connection to the Interstate System. Because of increasing trade with Mexico and the expansion of the Panama Canal that will dramatically increase the volume of ships through south Texas ports, the I-69 Corridor Coalition argues that the time has come to connect this area of Texas to points north through construction of a new Interstate.

More Transportation Options

Six rural counties in southeast **Mississippi** continue to cope with the long-term impacts of recent hurricanes and job losses. Without the three vehicles that provide public transit to these areas, many residents would not have access to employment, job training, education, and healthcare. The provider, Community Development Inc., also provides transportation for special needs students to and from their schools. In northeastern Mississippi, another service transports mainly senior citizens in the rural counties of Alcorn, Marshall, Prentiss, and Tishomingo. As a result, access to medical care for this fragile population has been greatly improved.

Better access for rural America, emerging new cities, and stronger trade and tourism illustrate why the country needs to increase capacity to connect all parts of America.

Galena, Illinois.

Photo by Mark Preuschl

Photo courtesy of North Carolina Department of Transportation

What's the problem with roads in rural areas?

For the purposes of this report, the **rural roads** we are discussing are any Interstates, four-lane and two-lane highways, and smaller connector roads linking cities and towns through less-populated areas that are supported and maintained by Federal funding. Many of these highways are now congested with local and through-traffic that was not anticipated when first constructed; nor were they designed for modern-day truck sizes and other larger vehicles.

Many states and communities also offer public transit options in rural areas—buses, vans, and on-call options to assist residents in getting to vital services. This **rural transit** operates on the rural highways crisscrossing the country.

By increasing **capacity**—that is, adding wider shoulders, new interchanges, more lane-miles to existing highways, by-passes, and more transit options, as well as building some new Interstate routes—these highways will remain safe and viable options for residents and travelers well into the next decade.

Inside:

Farmers Mike and Linda Quattrociocchi at their farm stand in Croom, MD.

Photo by Sherry Conway Appel

CHAPTER 1

Tapping into the Economic Might of Rural America

More than 60 million people live and work in rural America, equal to the combined population of the nation's 100 biggest cities. Meeting the transportation needs of rural areas will be essential to serve rural communities, connect them to national markets, and support shifting agricultural and energy production needs.

Keeping U.S. Agriculture Competitive

The nation's 2.2 million farms, which comprise 40 percent of the land in the United States, are a remarkable economic engine of global importance. According to the United States Department of Agriculture, the total output of the U.S. agriculture sector in 2008 topped $365 billion, including crops, livestock and forestry products. That output will have to grow, as the United States and world populations grow. The crops produced by the nation's farms are a key international export. Canada is the leading destination for agricultural exports, followed by Mexico.

Although the United States as a whole runs a sizeable trade deficit with other nations, the agriculture sector regularly produces a trade surplus. FY 2009 was the 47th consecutive year of a U.S. agriculture trade surplus. With expected growth in United States and world populations, assisting the competitiveness of U.S. agriculture is vitally important.

In 2010, the U.S. Department of Agriculture released a study of rural transportation issues. Here are some key findings from that report:

"Agriculture is the largest user of freight transportation in the United States, claiming 31 percent of all ton miles transported in the United States in 2007. During the past five years, half of American wheat was exported, along with 36 percent of the soybean crop and 19 percent of the corn crop. These exports travel from the inland areas of the United States where they are produced to borders and ports through a network of trucks, trains, and barges.

"An effective transportation system supports rural economies, reducing the prices farmers pay for inputs, such as seed and fertilizer, raising the value of their crops, and greatly increasing their

"Wyoming's Interstates and highways are a bridge and lifeline for agriculture, ports-to-destination commerce, wind energy development, and energy and minerals industry transportation. Their ever-increasing volumes highlight the need for capacity expansion appropriate to necessary commerce for the nation."

—John Cox, Director, Wyoming Department of Transportation

market access. The economies of rural areas are intertwined. As agriculture thrives, so does its supporting community. Providing effective transportation for a rural region stimulates the farms and businesses served, improving the standard of living.

"Trucking is critical for American agriculture. The industry carries 70 percent of the tonnage of agricultural, food, forest products, alcohols, and fertilizers. It links farmers, ranchers, manufacturers and service industries to grain elevators, ethanol plants, processors, feedlots, markets, and ports. More than 80 percent of cities and communities are served exclusively by trucks. The first and last movements in the supply chain from farm to grocery store are by truck."

A case in point is the agriculture-based economy of **Iowa**. While Iowa's population is not expected to grow significantly over the next few decades, the amount of freight tonnage its economy is expected to generate will increase from 540 million tons in 2007 to nearly 850 million tons by 2030. The share of this tonnage moved by truck is expected to increase during that period from 62 percent to 66 percent of the total. Other rural states face similar scenarios.

All rural states will face the enormous cost of preserving their Interstate and other Federal-aid highways for future generations. It will be important for them to succeed, not only to meet the needs of their own citizens, but also to maintain their part of the national network on which the U.S. economy and U.S. citizens depend.

Photo by David Gonzalez, Minnesota Department of Transportation

This network is particularly important for agriculture since crops usually move from the farm to local roads to lower classification Federal-aid roads before reaching a National Highway System (NHS), Interstate highway, or a railhead. These other Federal-aid routes provide an important link between the NHS and local roads and ensure that regions can connect to the NHS system.

Changing Rural Economies

As the nation seeks to reduce its dependence on foreign oil imports, several recent developments are changing highway access needs in rural America—the renewable fuels industry, wind farm electric energy production, and the development of oil and gas industries in new areas within the United States, such as the North Central Plains.

With the enactment of the Federal renewable fuels standard mandating increasing levels of production, the ethanol industry is growing dramatically. Between 2000 and 2010, the number of biorefineries in the nation increased from 89 to nearly 500, and ethanol production increased from 1.7 billion gallons per year to 10.6 billion gallons per year in 2009. Federal mandates require that production of renewable fuels, including biofuels and cellulosic fuels, reach 36 billion gallons per year by 2022.

"North Carolina is two states in one—urban and rural. We're the nation's 10th most populous state, but 40 percent of our people live in rural areas. For our rural residents, adequate roads are not just infrastructure—they're a lifeline to jobs, education, and health care."

—Gene Conti, Secretary, North Carolina Department of Transportation

US 85 Upgrade Needed to Keep North Dakota Oil Moving

US 85 in **North Dakota** is a heavily traveled route of national significance. Significant portions are two-lane and have narrow shoulders. According to Watford City Mayor Kent Pelton, "The existing highway system that was built to support small farms moving grain in single-axle trucks is being asked to support an industry using tankers and semi-trailers with multiple wheels."

At a recent congressional hearing on the need to upgrade rural transportation systems, Senator Kent Conrad (D-ND) said the recent boom in North Dakota's oil patch will potentially make the state "a major player" in fueling the nation. "In order to make that a reality—and to ensure the safety of the local community—Highway 85 needs upgrading," Conrad said. "The information gathered from this hearing will help me make the case to my Senate colleagues that improvements to this critical roadway are in the best interest of North Dakota and the nation."

Disputing the Urban/Rural Stereotypes

Photo courtesy Pennsylvania Department of Transportation

"Most people have a mental image of what constitutes 'rural' America. And most would be wrong," according to Charles Fluharty, President and CEO of the Rural Policy Research Institute.

What most people think of as "rural" states, such as Vermont and Maine, actually account for much less of the rural population than you would expect, he says.

The "most rural" states only account for less than seven percent of the rural population, according to the Policy Institute.

- Vermont—62 percent rural or 376,277 people living in rural areas
- Maine – 60 percent rural or 762,331
- West Virginia—54 percent rural or 974,967
- Mississippi—51.2 percent rural or 1,456,098
- South Dakota—49 percent rural or 362,908

Some of the most populous states in the United States have substantial numbers of people who live in rural areas. Five states account for 25 percent of all "rural" people:

- Texas—15 percent or 3,647,755 people living in rural areas
- North Carolina—34 percent or 3,202,234
- Pennsylvania—22 percent or 2,819,963
- Ohio—22 percent or 2,572,905
- Michigan—25 percent or 2,518,919

Distinct rural areas can be found in metropolitan counties as well. Overall, 90 million people can be said to live in "rural" areas across the country, including those who live in so-called "micropolitan" areas, which have a regional center for 10,000 to 49,999 people.[2]

Fluharty discounts the urban vs. rural mindset of today's planners. He maintains that "rural" residents can enjoy the job, cultural, and economic benefits provided by their regional centers, and still live in areas that they believe afford them a good quality of life.

Such a new way of viewing where and how Americans live can have significant impacts on transportation investment for the benefit of all citizens and their quality of life.

[2]For the purposes of this report, AASHTO cites 60 million people living in rural areas. This does not include the numbers of people who live in rural areas located in metropolitan areas—e.g., Fluharty's "micropolitan" areas.

The renewable fuels industry is also working to bring cellulosic and other biofuels to market, with 28 facilities now under development to produce 170 million gallons of fuel annually from products such as sugar cane, switchgrass, wood waste products, and even municipal waste. Massive amounts of corn, soybeans, and other materials will have to be moved by truck and rail to ethanol and biofuel plants. Tanker trucks and tanker trains then need to move the liquid fuels to distribution points throughout the region.

"Ensuring connectivity through the state's rural areas allows the thousands of farmers who live and work there to efficiently deliver fresh foods for people across New York and throughout the Northeast."

—Stanley Gee, Acting Commissioner, New York State Department of Transportation

The emergence of wind energy to produce electric power is also expanding rural economies and transportation needs. Industry experts estimate that wind energy could provide up to 20 percent of the nation's electricity needs, and also maintain that there are potential wind energy resources in every state.

The Federal government has provided a variety of tax incentives, loan guarantees, and other programs to encourage wind energy development, and the National Governors' Association has called for the establishment of a National Renewable Electricity Standard, much like the renewable fuels standard.

Top 10 Wind Energy-Producing States

State Total Power Capacities (MW)			
State	Existing	Under Construction	Rank (Existing)
Texas	9,506	352	1
Iowa	3,670	200	2
California	2,723	271	3
Oregon	1,920	413	4
Washington	1,908	170	5
Illinois	1,848	437	6
Minnesota	1,796	262	7
New York	1,274	21	8
Colorado	1,246	51	9
North Dakota	1,203	76	10

Note: (MW) = megawatt

Source: American Wind Energy Association, www.awea.org/projects.

Photo courtesy of Martifer Group ©

In **Texas**, a new bridge across the Colorado River is helping the city of San Angelo keep its commitments to the largest new manufacturing plant it has seen in decades. In 2008, Martifer-Hirshfield Energy Systems had agreed to locate a wind tower construction plant in San Angelo, on the condition that an early 1900s rail bridge across the Colorado River would be replaced. It was too low and too narrow to carry Martifer's wind towers north to markets throughout the rest of the country. Only when funds from the American Recovery and Reinvestment Act came into play was the city able to replace the bridge.

In the case of wind farms, windmill towers, blades, and generators need to be moved over significant distances to their point of installation. This requires trucks capable of moving long, wide, and heavy pieces of equipment that often require special permits to be moved over state highway systems. The size of assembled wind turbines makes remote rural areas particularly attractive for wind farm development. Along with these turbines, electrical transmission lines must be built, often over new alignments. Both of these industries are placing new loads on highway facilities that often need to be updated to handle the volumes of traffic involved.

An oversized and overweight wind tower section from the Broadwind Energy Company, Manitowoc, WI, is loaded and ready for departure to a wind farm in Iowa.

Photo courtesy of Wisconsin Department of Transportation

"Last year North Dakota was the fastest-growing export state in the nation. We are a major contributor of energy production and our state is currently ranked fourth in the nation in oil production and contains large coal reserves. Good roads throughout the state—particularly those below the National Highway System, are important to our nation becoming energy independent and providing agricultural products to feed a hungry world."

—Francis Ziegler, Director, North Dakota Department of Transportation

In addition, oil and gas exploration continues in the United States, with major new production—and associated freight traffic—in places such as **North Dakota**, which has become the fourth largest-oil producing state.

In recent decades, tens of thousands of rural rail branch lines have been abandoned. Class One railroads have shed more than 100,000 route miles, mainly in rural areas. Therefore, the location of wind turbines, ethanol plants, and other energy facilities in rural states and areas will depend heavily on support from the highway system.

This young woman uses the bus in Houston, Missouri, to go to the local pool.

Photo courtesy Transit Marketing LLC

CHAPTER 2

Improving Mobility Options in Rural America

Rising demand in rural areas, particularly from the growing elderly population, is creating an increasing need for more transit service in rural America. In 2008, almost one out of eight people aged 65 and older lived in rural areas. This elderly population exceeds 9.6 million people.

In many rural communities, the senior population is choosing to "age in place"; therefore the need for providing access to healthcare, community centers, grocery stores, shopping, and recreation activities is going to grow as well. As our senior population booms during the next 10 years, providing transportation for those in this age group who are unable to drive will be daunting. For many of these citizens, mobility will mean relying on public or so-called rural transit—vans, buses, and carpools.

AASHTO's 2009 *Bottom Line Report* for highways and transit put the number of transit vehicles serving rural populations at nearly 57,000: 22,000 vans and buses funded by the Section 5311 rural program; 19,000 vans and buses funded by the Section 5310 special needs program for the elderly and persons with disabilities; and 1,700 over-the-road buses providing rural intercity service. In 2007, the Section 5311 program provided 130 million public transportation trips to rural residents. The Section 5310 program provides 20 to 28 million trips in paratransit vans and buses annually. Rural transit service is being provided in approximately 2,400 counties, or three out of four counties in the United States. In 2007, intercity bus service funded with Federal assistance provided three million trips to rural residents. The capacity of each of these fleets will need to be expanded to meet future needs.

Rural Transit Demand on the Rise

Two counties illustrate the growth in ridership demand taking place:

In rural Grant County, **New Mexico**, the rural transit system handled 19,000 passengers in 2001. In 2008, it carried 38,000 and is on track to serve more than 50,000 riders this year.

Senior couple on an OATS rural transit vehicle in Missouri.

Photo courtesy of Transit Marketing LLC

Corre Caminos Transit, which operates the system throughout Grant County, serves a large elderly and disabled population that would have no other means of travel to doctor's appointments, the grocery store, or other essential errands without the buses provided by the transit system.

Similarly, the state of **Nebraska** has a growing rural population and an increasingly large number of people 65 years or older, outpacing national trends. The challenge for rural transit is to be able to provide the transportation needed to allow elderly residents to remain in their homes. Without these services, many older residents would have to move, becoming residents of assisted living facilities and nursing homes. To solve this problem, one of the programs implemented by the Nebraska Department of Roads is a "24/7" rural transit service that enables individuals to get to early-morning dialysis and other necessary medical treatments.

In its 2007 publication, *Future Needs of the U.S. Surface Transportation System*, AASHTO provided anecdotal evidence gathered by states of how much more rural transit service was needed: "The Greater **Minnesota** Transit Improvement Plan identified the need for an 81 percent increase in total rural fleet size. **North Carolina** recommended a 124 percent increase in its rural public transportation system. **Vermont** estimated a 100 percent increase in its rural fleet size. And **Montana** saw the requirement for a 242 percent increase in annual capital expenditures. Our

Rural Transit Provides Commuting Alternatives in Pennsylvania

Photo courtesy of CamTran

When Ann Smith got a new job in Altoona, **Pennsylvania**, 25 miles from her home in Ebensburg, the idea of driving that far to work made her look for alternative solutions. Taking the Ebensburg/Altoona fixed-route service in CamTran's rural division became her cost-effective, low-stress solution.

"I think I've only driven to work twice in since August 2007," Smith said. "And it was only because I had to leave work early or stop somewhere on my way home." Smith pays a little more than $70 a month for her monthly pass, "which was pretty much what I used to pay monthly just to park my car downtown when I worked there," she said. When she factored in car maintenance, gas money, and time, using public transit to commute made sense.

Employees in coastal North Carolina riding in a vanpool to work.

Photo courtesy of the North Carolina Department of Transportation

study showed that satisfying this demand would require annual capital investment in rural transit to increase from $700 million to $1.2 billion."

Congress recognized this growing need by nearly doubling the size of the Section 5311 Nonurbanized Area Formula Program from the $1.18 billion provided between 1998 and 2003 under TEA-21, to the $2.18 billion provided between 2004 and 2009 under SAFETEA-LU. As a result, from 2005 to 2008, the number of rural passenger trips taken on transit rose by 13 percent.

This expansion in service has meant that **South Dakota** could create a new service on the Standing Rock Reservation that reduced the travel time from Rapid City, South Dakota, to Bismarck, North Dakota, from 33 to 8 hours, and **Montana** could increase the number of rural transit providers from 9 to 33.

For the next authorization cycle, AASHTO has recommended that Federal funding for rural transit service should more than double over the next six years to keep pace with rising demand.

Two generations of farmers load grain for export.

CHAPTER 3

Meeting the Growing Transportation Demands of Trade

One of the dynamics creating the need to expand highway capacity in rural areas is the growth in international and domestic trade moving through the heartland of America.

The North America Free Trade Agreement opened the nation's north and south borders to greatly expanded trade with Canada and Mexico. Although the recent economic downturn has slowed freight flows, the most recent statistics show the beginning of a turn-around. The Bureau of Transportation Statistics reports that annual surface transportation trade between the United States and its NAFTA partners was $637 billion in 2009. Early indications for 2010, however, demonstrate a nearly 20 percent growth rate, putting trade on a pace that could reach $760 billion by the end of 2010. Compared to the experience of 2008, when NAFTA trade peaked at $830 billion, a considerable recovery in trade is underway. It is significant to note that 71 percent of NAFTA trade by value in 2009 moved by truck.

Top 10 States Trading with Canada by Surface Transportation

Month of May 2010 Statistics		
Rank	State	Billions $
1	Michigan	5.614
2	Illinois	3.634
3	California	3.357
4	Ohio	2.852
5	Texas	2.754
6	New York	2.694
7	Pennsylvania	1.841
8	Washington	1.593
9	Indiana	1.489
10	Minnesota	1.299

Source: BTS TransBorder Freight Data, http://www.bts.gov/transborder/.

Top 10 States Trading with Mexico by Surface Transportation

Month of May 2010 Statistics		
Rank	State	Billions $
1	Texas	12.235
2	California	4.478
3	Michigan	2.909
4	Illinois	1.100
5	Arizona	1.009
6	Ohio	.773
7	Louisiana	.728
8	Florida	.538
9	Mississippi	.535
10	Tennessee	.529

Source: BTS TransBorder Freight Data, http://www.bts.gov/transborder/.

International trade is expected to continue to grow. In 1997, the combined value of U.S. imports and exports was equivalent to 23 percent of the GDP. This increased to 28 percent in 2005, and is projected to reach 40 percent by 2025.

Exports of agricultural products that originate in rural areas of the United States will remain a significant portion of overall trade and should continue to have a positive effect on the nation's balance of trade. Federal-aid highways, both Interstates and others, are critical to handling increased freight demands.

Missouri's Main NAFTA Highway Needs a Serious Face-Lift

Rural Interstates keep America's goods and services moving.

Photo by Cathy Morrison, Missouri Department of Transportation

The southern area of I-29 in **Missouri** is part of the NAFTA corridor running from Texas to Minnesota, providing key connections to northwestern Missouri, Kansas, Iowa, Nebraska, North and South Dakota, and Canada. But this section of Interstate is 53 years old and has easily surpassed its design life. Currently, 11 percent of the 75,000 vehicles that use the highway each day are trucks. Proposed improvements to meet estimated growth in traffic would increase capacity from four to six lanes.

"I-69 Texas is the critical north–south freight corridor connecting existing ports of entry—seaports and those along the Texas-Mexico border. Like a string of pearls, I-69 Texas connects population centers and optimizes capacity through rural areas. I-69 will greatly enhance mobility in both directions—for tourists heading to popular destinations along the coast as well as those evacuating hurricanes. And finally, just as with the original Interstate system, I-69 will play a key role in our national security when it improves connectivity to the strategic military deployment port of Corpus Christi."

—The Honorable Judy Hawley, Commissioner for the Port of Corpus Christi, Texas

Trucks Need to Cross Rural America to Connect the United States

This increase in trade will have substantial consequences not only on port and border states, but throughout America, and particularly on the Interstates that cross the nation. Many rural states are facing the pressures of population growth inside their borders and growth in travel demand from traffic moving from coast to coast. Of the 20 states expected to grow the fastest over the next 30 years, several are rural, including Nevada, New Mexico, Idaho, Utah, Wyoming, Alaska, and Montana. What these states have in common is large geographic size and, as a consequence, highway systems that have to span great distances.

These workers in rural Nevada ensure that their state's portion of the CANAMEX corridor stays functional.

Photo courtesy of Nevada Department of Transportation

Arkansas Growth Corridor Key to Economy

Interstate 540, the only freeway in this **Arkansas** region, is the primary link to many businesses and centers of higher education, including the home of Walmart Stores, Tyson Foods, J.B. Hunt Transport Services, and the University of Arkansas.

Due to traffic growth, the Interstate 540 Improvement Study, completed in 2006, recommended widening 10 miles to six lanes, 16 miles to eight lanes, and improvements to 14 interchanges to adequately accommodate future growth. Projected cost of these improvements: $350 million.

The **Arkansas** example of a beneficial new investment underscores the importance of the Federal-aid highway network, a majority of which is located in rural areas. In most cases, people and goods simply cannot move between major metro areas without crossing rural states and areas and using rural highways. Rural highways, among other things, serve as a bridge for the movement of people and freight between major population states, benefiting the entire country.

Located in about 120 communities such as Cleburne, Arkansas, these highly efficient hubs keep Walmart stores and Sam's Club shelves well stocked.

Photo Courtesy Walmart Stores, Inc.

Extending I-49 North from Shreveport

"It is imperative that Louisiana's Interstate system be maintained at a level of service that will support efficient truck travel, not only through urban areas, but in rural areas as well."

—Sherri Lebas, Louisiana Transportation and Development Secretary

Louisiana communities along the I-49 corridor are connected to the Shreveport metropolitan area via two-lane highways. Completion of the I-49 extension north of Shreveport to the Arkansas border will improve traffic in support of international and domestic commerce; increase the transportation efficiency for industries dependent upon trucking; facilitate the shipment of raw materials and finished products; and improve intermodal connectivity.

Utah is the crossroads of the west for major Interstate freight traffic traveling to and from the East and West coasts. I-15 is a major route in this area.

Photo courtesy of Utah Department of Transportation

A bicycling mecca with bucolic byways, Fayetteville, Texas, hosts a bike race every spring.

Photo courtesy of J. Griffis Smith, Texas Department of Transportation

CHAPTER 4

Supporting a Growing Tourism and Recreation Industry

As the Baby Boom generation reaches retirement age, the nation will see a new wave of highly mobile citizens who want to pursue tourism and recreation, traveling on the nation's highways. Highway system capacity will be required to meet the growing needs of tourism, travel, and recreation. In three states, these industries rank as the most important, as measured by employment. Overall, tourism, travel, and recreation are among the top 10 industries in all but two states.

Travel and tourism generated over $700 billion in revenues in 2009, more than $93 billion from international visitors alone. Fourteen million people used overnight camping and lodging facilities in the National Park System in 2009. The number of visitors to the National Parks is approaching 300 million. The Forest Service was equally busy. In FY 2008, the U.S. Forest Service had 176 million visitors; and 1.7 million vehicles used Forest Service roads each day.

Day-Trippers Adding to Delays on I-70 Mountain Corridor

Photo courtesy of Colorado Department of Transportation

Colorado's I-70 Mountain Corridor is a frustrating drive of bumper-to-bumper traffic on summer and winter weekends, during holidays, and often in-between. The primary route west of Denver, traffic on I-70 is so heavy that it adds an hour to a normal trip down from the mountains on a Sunday afternoon. By 2035, it is expected to take an extra three hours, impacting not just the communities that rely on I-70, but freight haulers and anyone else traveling across the state.

Top 10 Tourist Destinations Hampered by Traffic Bottlenecks

The 10 summer tourist destinations with the worst summer traffic delays resulting from traffic bottlenecks are:
1. The Oregon Coast
2. Tidewater region of Virginia
3. Maryland/Delaware shore
4. Branson, MO
5. Outer Banks of North Carolina
6. Cape Cod, MA
7. New Jersey shore
8. Napa Valley, CA
9. Pennsylvania Dutch and Amish Country
10. Catskill Mountains region in New York

Source: *Are We There Yet? A Report on Summer Traffic Bottlenecks and Steps Needed to Ensure That Our Favorite Vacation Destinations Remain Accessible.* AAA, the American Highway Users Alliance, and TRIP.

Many of the largest and most frequently visited national parks and forests are located in large, rural states and access to them is often via long two-lane rural highways, some of which will need capacity improvements as well as important preservation investments.

Unfortunately, many of the nation's most popular tourist destinations—including ski slopes, seashores, and National parks—each year experience significant traffic delays on roads that serve as primary access routes for visitors.

A 2005 study by AAA, the American Highway Users Alliance, and TRIP identified the top 10 most congested tourism destinations, warning that "Like the urban congestion that frustrates commuters daily, seasonal bottlenecks are slowing down vacationers and making trips to our country's beautiful recreation areas more of a hassle. In our fast-paced society, vacation time is increasingly valuable and families deserve better than spending hours in traffic on the drive to their vacation spots."

Downtown Chico, CA, is becoming a weekend tourism mecca.

Photo courtesy of Alpine Photography and Yunker Photography

The Morrisville Route 100 Bypass in Vermont

Photo courtesy of Dan Lindley, Morrisville Town Manager

Unclogging traffic through Morrisville, **Vermont**, by providing a bypass has been an agency priority for 30 years. Morrisville is located in northern Vermont, just eight miles northeast of Stowe, Vermont's signature ski destination. During Vermont's fall foliage season, Route 100 is one of the state's busiest thoroughfares. Narrow and winding, the road was laid out more than a century ago and was never intended to carry the kind of auto and truck traffic it experiences today.

Mid-Currituck Sound Bridge Would Help Unclog the Roads to North Carolina's Beaches

Photo courtesy of North Carolina Department of Transportation

North Carolina's Outer Banks attract visitors from all across the Eastern seaboard; unfortunately the accompanying traffic congestion is maddening for tourists and residents alike. The queue of traffic begins at Kitty Hawk and extends several miles back into Currituck County. To help alleviate congestion in the northern end of the Outer Banks and to improve emergency evacuations from this hurricane-prone area, planning is underway for the Mid-Currituck Sound Bridge. This should significantly reduce congestion at the northern end of the Outer Banks.

"It's been hard to evolve our economic structure when the traffic is so congested. People want to build new businesses, but it's tough because the roads are unreliable. We need this bypass to ease congestion so that tourists can get to the local vineyards and don't choose to stay in Washington County instead."

—Dave Haugeberg, Parkway Committee chairman, on Oregon's proposed 99W Newberg-Dundee Bypass in the wine country

Chico, CA

Photo courtesy of Alpine Photography and Yunker Photography

CHAPTER 5

Following the New Geography

The Interstate Highway System, conceived in the 1940s and built in the '50s and '60s, is the workhorse of the nation's transportation system. But changes in population, trade, and commerce have new transportation demands.

Sunbelt growth, suburbs, and edge cities are all "post-Interstate" developments. Some cities, such as Phoenix, Las Vegas, and Orlando were never envisioned in the 1950s as the metropolitan centers they have become. They were not anticipated by the pre-World War II planners of the original Interstate. As a result, significant regions in the South and West and some metropolitan regions are substantially underserved by the existing highway system.

Since the Interstate was launched in 1956, the nation has grown from a population of 165 million to 308 million—and is expected to reach 420 million by 2050.

During the next 30 years, 80 percent of the nation's population growth is expected to concentrate in the South and West.

A new American geography has taken shape since World War II. The shift from agriculture to a more industrialized economy has prompted the growth of metropolitan areas and suburbs. After years of decline, the population in the Frost Belt stabilized, as growth in the Sunbelt exploded. These patterns will persist into the future, and require transportation systems to serve population needs.

Alabama's I-65 Connector

Photo courtesy of www.abc3340.com

I-65 is a critical connector between suburban Shelby County and the city of Birmingham to the north and Montgomery to the south. In 1970, the population was 38,000; by 2009, it had grown to 188,000. Travel delays due to traffic congestion hamper commuting time on a daily basis. Capacity improvements will be critical to ensuring continued job growth, as well as access to health care and tourism.

America's New Cities

In 2007, a research report on *Future Options for the Interstate and Defense Highway System* identified 66 cities that have grown to more than 50,000 people, yet do not have adequate access to the Interstate Highway System.

From Chico, California…

Ann Schwab, Mayor, Chico, California

Chico, **California**, is one such city. With a total population of 107,000, Chico is 20 miles from Interstate 5. Mayor Ann Schwab sees this as a serious disadvantage for her city. "Even though Chico is ideally located in the middle of the West Coast market, these 20 miles of separation from the Interstate can make it challenging for Chico to retain and attract businesses that have a significant distribution component."

…To Danville, Virginia

Laurie Moran, Danville Pittsylvania County Chamber of Commerce, VA

Once supported by tobacco and textile manufacturing, Danville, **Virginia**, has since sought to diversify its economy and employment for its now 50,000 residents. Laurie Moran, president of the Danville Pittsylvania County Chamber of Commerce in Virginia, commented, "The lack of an Interstate Highway System definitely impairs the Danville region's ability to be competitive in the attraction and recruitment of new businesses. While we have a good primary highway system serving our region, we know that we often are eliminated from consideration by businesses that require Interstate access."

Cities with Populations Over 50,000 with No Direct Access to Interstates

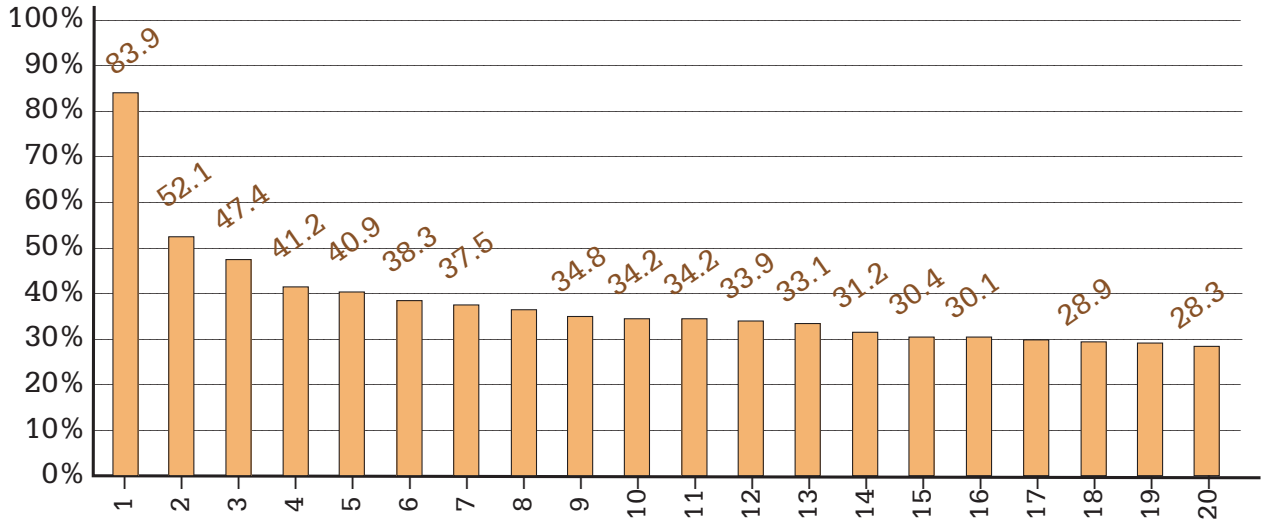
State	Urbanized Area*
AL	Dothan, AL
AL	Florence, AL
AR	Jonesboro, AR
AR	Hot Springs, AR
AZ	Prescott, AZ
CA	Atascadero–El Paso de Robles (Paso Robles), CA
CA	Chico, CA
CA	Fresno, CA
CA	Lompoc, CA
CA	Madera, CA
CA	Merced, CA
CA	Modesto, CA
CA	Petaluma, CA
CA	Porterville, CA
CA	Salinas, CA
CA	San Luis Obispo, CA
CA	Santa Barbara, CA
CA	Santa Maria, CA
CA	Santa Rosa, CA
CA	Seaside–Monterey–Marina, CA
CA	Turlock, CA
CA	Visalia, CA
CA	Watsonville, CA
CA	Yuba City, CA
CT	Hamden, CT
CT	Bristol, CT
CO	Greeley, CO
DE	Dover, DE
FL	Fort Walton Beach, FL
FL	Panama City, FL
GA	Albany, GA
GA	Athens-Clarke County, GA
GA	Hinesville, GA

State	Urbanized Area*
GA	Rome, GA
IA-IL	Dubuque, IA–IL
ID-WA	Lewiston, ID–WA
IN	Bloomington, IN
IN	Kokomo, IN
KY	Owensboro, KY
LA	Houma, LA
MD-DE	Salisbury, MD–DE
MO	Jefferson City, MO
NC	Greenville, NC
NC	Jacksonville, NC
NM	Farmington, NM
NV	Carson City, NV
NY	Ithaca, NY
OR	Bend, OR
OR	Corvallis, OR
PA	Johnstown, PA
SC	Myrtle Beach, SC
TX	Brownsville, TX
TX	College Station–Bryan, TX
TX	Harlingen, TX
TX	McAllen, TX
TX	San Angelo, TX
TX	Sherman, TX
TX	Victoria, TX
UT	Logan, UT
VA	Danville, VA
VA	Lynchburg, VA
WA	Wenatchee, WA
WA	Clarkston, WA
WI	Appleton, WI
WI	Fond du Lac, WI
WI	Oshkosh, WI

* An "Urbanized Area" is a statistical geographic entity designated by the Census Bureau, consisting of a central core and adjacent densely settled territory that together contain at least 50,000 people, generally with an overall population density of at least 1,000 people per square mile. Within the transportation planning community Urbanized Areas are typically referred to as the UZAs.

20 Fastest Growing Metropolitan Areas 2000–2009

Represents urban population growth of 5,301,772



1 Palm Coast, FL; **2** St. George, UT; **3** Provo–Orem, UT; **4** Raleigh, Cary, NC; **5** Greeley, CO; **6** Las Vegas–Paradise, NV; **7** Bend, OR; **8** Austin–Round Rock, TX; **9** Gainesville, GA; **10** Phoenix–Mesa-Scottsdale, AZ; **11** Myrtle Beach, SC; **12** Fayetteville–Springdale–Rogers, AR-MO; **13** Cape Coral–Fort Myers, FL; **14** Charlotte–Gastonia-Concord, NC–SC; **15** Boise City–Nampa, ID; **16** McAllen–Edinburg–Mission, TX; **17** Wilmington, NC; **18** Atlanta–Sandy Springs–Marietta, GA; **19** Prescott, AZ; **20** Coeur d'Alene, ID

Growing Communities Cope with Transportation Demands

Just as Census estimates show dramatic growth in southern and western states, Census estimates show urban areas in the South and West also experienced the most dramatic growth. Of the 20 fastest-growing Metropolitan Statistical Areas from 2000 to 2009, four are in North and South Carolina, three in Texas, two each in Utah, Florida, Georgia, Arizona, and Idaho, and one each in Colorado, Oregon, and Arkansas. These 20 metropolitan areas are all sizes, ranging from Palm Coast, Florida, the smallest and fastest growing area that is expected to nearly double in size by adding over 40,000 people—to the largest, Atlanta, adding 1.2 million or nearly 30 percent of its current population. All told, the 20-fastest-growing urban areas will expand by 30 to 80 percent, adding a total of five million people. The highways and transit systems that serve these communities will need to expand to keep pace with this growth.

The new post-industrial economy has also dispersed the location of employment into exurban areas. Most job creation today is taking place in the suburbs. *Commuting in America III*, which was based on the Year 2000 Census, tells us that from 1990 to 2000, 64 percent of the growth

Arizona's Sun Corridor

Photo courtesy of Tom Boone, Arizona Department of Transportation

Phoenix and Tucson are at the core of the **Arizona** Sun Corridor Megapolitan area, one of 11 emerging megaregions in the U.S. Interstate 10 is the only high-capacity corridor connecting these cities and recent studies have shown the need to widen the freeway to 10 lanes, adding parallel capacity to accommodate the freight and traffic movements projected for the area. Service to the rural communities along the corridor, including Casa Grande, Eloy, and Marana will enhance employment and economic development opportunities.

in metropolitan commuting was in-flows from suburb to suburb, representing 46 percent of commuting trips. Many of these new suburb-to-suburb highways are just not equipped to handle these growing volumes of traffic. The next largest growth area was the "reverse commute" from central city to suburb, which represented 9 percent of commutes. The "traditional commute"—from suburbs to central city—dropped in share to 19 percent during the 1990s.

Tourism and Trade Spur Nevada Capacity Needs

Photo courtesy of Nevada Department of Transportation

No **Nevada** corridor needs more congestion relief than Interstate 15 in Las Vegas. An economic and tourist lifeline, I-15 travels alongside the Las Vegas Strip, bringing commerce and over 40 million visitors a year to the famed vacation getaway. In addition to supplying more than 75 percent of southern Nevada goods movements, I-15 is also part of the CANAMEX transportation corridor connecting United States, Mexican, and Canadian trade. As a vital trade route, the U.S. Department of Transportation has designated I-15 through California, Nevada, and Utah as a "Corridor of the Future."

Designed to carry approximately 130,000 vehicles per day, I-15 currently sees over 270,000 vehicles daily through central Las Vegas. That number is expected to balloon to over 500,000 by 2030.

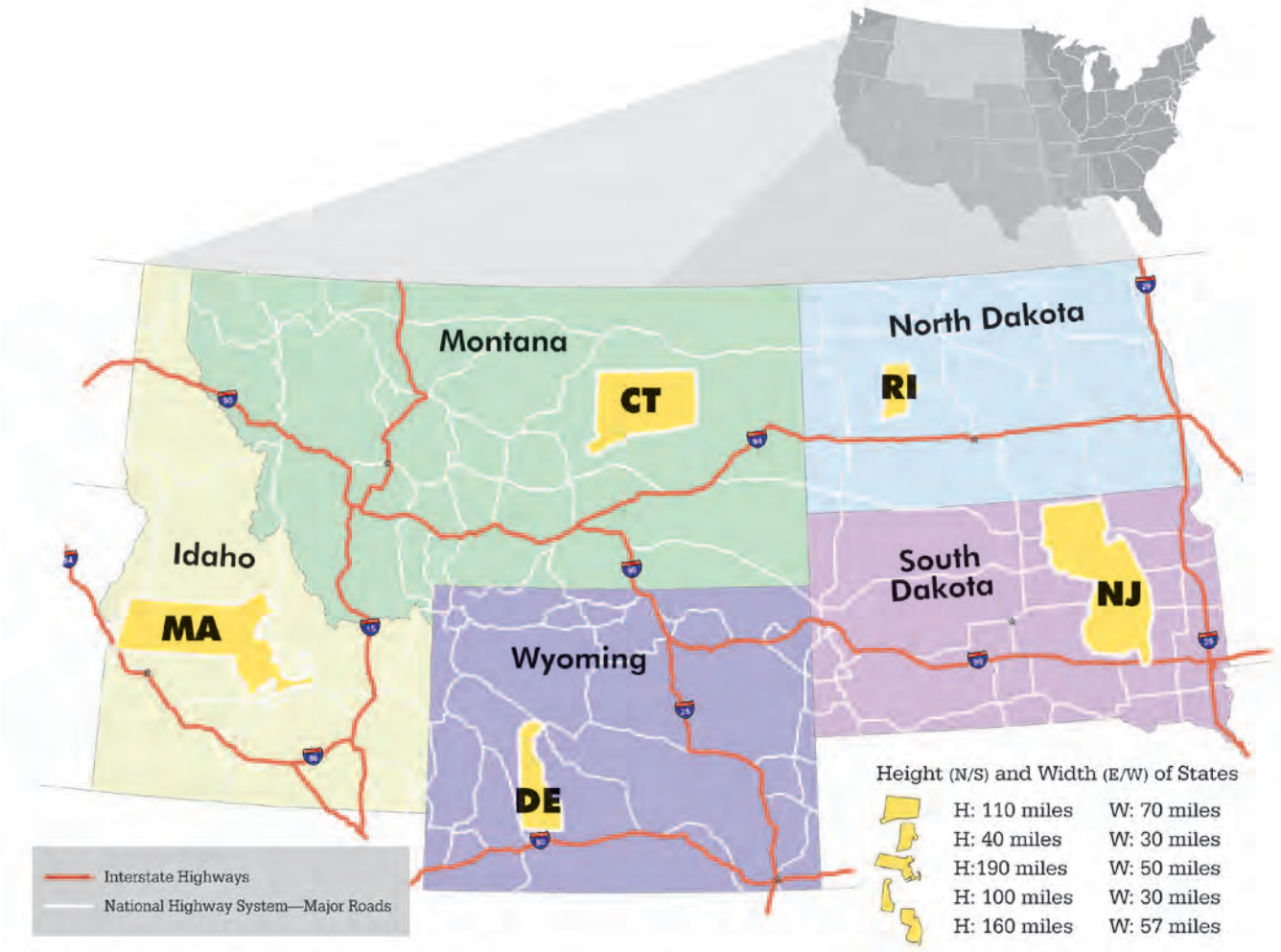
Additional Improvements Needed

In many states and rural areas, critical improvements are needed, but may not require converting roads to the Interstate standards requiring four lanes with a divided median. Two-lane, Federal-aid highways, often on the National Highway System, need passing lanes, pullouts, shoulders, and turn lanes to address capacity and safety needs, better enabling passenger cars and oversize trucks moving wind turbines or oil service equipment to share the road safely and efficiently. Access to popular national parks and recreational destinations is often provided on non-Interstate routes that would benefit from selective capacity enhancements as well as preservation.

A construction worker installs reinforced steel on the Des Moines River bridge, connecting Boone and Madrid, IA.

Photo courtesy of Keven Arrowsmith, Iowa Department of Transportation

Connectivity Is Critically Important to Western States



Note: Within several large Western states, the areas between Interstates and major highways on the National Highway System are so vast that their ability to efficiently carry agriculture products and other freight to market, rural residents to jobs, and cross-border travelers is significantly diminished. To illustrate the scale of these distances, as shown above, entire Northeast states would fit between these highways, and even within a single county. As an example, for a farmer to move his grain harvest from one major highway to another, it would be like crossing the width of the entire commonwealth of Massachusetts. What's needed are additional arterial roadways to make easier and faster connections—which would be eligible to be funded, in part, by the Federal Highway program.

Hoover Dam Bypass

Photo courtesy of Federal Highway Administration

CHAPTER 6

Ensuring Reliable Access to Defense Installations and Critical Industries

During the period immediately following the destruction of the World Trade Center towers in New York City on September 11, 2001, state DOTs were called upon to analyze how best to assure that the national transportation system could continue to perform its critical functions should there be future terrorist attacks.

Although it was determined that parts of the solution included hardening of transportation infrastructure, increased surveillance, and better communications, the most important strategy identified was the assurance of "system resilience." If a bridge or highway were taken out of service by a terrorist attack, transportation access to a defense installation or a critical industry could still be provided by an alternate route. Where such resilience does not exist, it was determined that states, cities, and counties should make it a priority to fund the construction of routes that would allow alternate access.

National security also includes providing for public safety in the face of natural disasters. Creating the needed capacity to permit widespread evacuation of coastal areas in hurricanes, flooding, or other emergencies is also a priority.

Hurricane Evacuation Route Expanded in Alabama

Figure courtesy of www.dot.state.al.us/

The **Alabama** Department of Transportation led a successful effort to improve a major hurricane evacuation route from coastal Florida to inland Alabama. The completed widening of 13.5 miles of State Highway 113 from two lanes to four eliminated a major chokepoint along this vital evacuation route.

"This project is a great example of communities working together across borders to get something positive done for their citizens. During hurricanes, people will have an easier time getting out of harm's way."

—Alabama Governor Bob Riley

Hoover Dam Bypass Project Could Avert Tragedy

The Colorado River Bridge is the centerpiece of the Hoover Dam Bypass Project. When completed, the bridge will span the Black Canyon (about 1,500 feet south of the Hoover Dam), connecting the **Arizona** and **Nevada** approach highways nearly 900 feet above the Colorado River.

Unless the traffic across the top of the Dam is diverted to the new bridge, increased traffic volumes combined with the sharp curves on US 93 in the vicinity of Hoover Dam create a potentially dangerous situation. If a man-made or natural disaster should occur in the area, significant numbers of people could be at risk. The contamination of Lake Mead, and interruption of the power and water supply for people in the Southwest are also possible.

Photo courtesy of Federal Highway Administration

Nimitz Highway in Hawaii is Critical Link

On the island of Oahu, the Nimitz Highway is the sole access to the Honolulu Harbor, the primary **Hawaiian** port where more than 90 percent of goods enter or leave the state. The route also serves as an essential connection to two military bases, the Hickam Air Force Base and the Pearl Harbor Naval Base. Although the highway has been widened twice, it must be improved to meet current and forecasted travel demands. The cost for this project is estimated at $600 million.

Upgrading the K-18 Corridor in Kansas

The 16-mile, K-18 corridor between Fort Riley and the city of Manhattan links a rapidly expanding military installation and Kansas State University. Combined with the activity generated by regional agriculture, the number of vehicles using this corridor will expand more than 40 percent in the next 20 years.

The region already has experienced explosive growth as the 1st Infantry Division returns to Fort Riley, expanding the post by 19,000 soldiers plus an additional 10,000 employees. Capacity pressures on K-18 will be accelerated by the Department of Defense's decision to locate the $450 million National Bio and Agro-defense Facility, which will provide 500 jobs and attract 50 additional research firms to Manhattan.

Photo courtesy of Kansas Department of Transportation

Ensuring Vital Military Transport Through Georgia

Georgia 133 is a 66-mile, two-lane roadway in rural Southwest Georgia. It is also home to a Marine Corps logistics supply base, which ships equipment via truck to Jacksonville, Florida, for deployment overseas. Widening this roadway is a priority for the Georgia Department of Transportation.

"This is a vital military route, freight and commodities corridor, and source of connectivity for Southwest Georgia. It also is an expensive project—one we're unable to do right now—but precisely the sort of project we hope to be able to pursue with our Federal and local partners once Congress adopts a new surface transportation reauthorization bill."

—Vance Smith, Jr., Georgia Transportation Commissioner

Workers on the "Wellington Crew."

Photo by Julie Duewel, Nevada Department of Transportation

CHAPTER 7

What We Need: Interstate and Other Highway Capacity for Rural and Urban America

To meet the highway and Interstate capacity needs for both rural America and urban areas underserved by today's Interstate system, a range of improvements will be needed. Here are four solutions:

1. Improving rural access.

In **Iowa**: Improving service to rural areas of the state is critical to address growing traffic demands generated by new wind farms that are producing sustainable electricity and biofuels, freeing the United States from some of its dependence on foreign oil.

2. Increasing mobility options for rural residents.

In **West Virginia**: In Randolph County, West Virginia, County Roads Transit transports a senior three times a week to a part-time job. As a result, this disabled individual is able to continue to work and remain in her home because of the transit service, leading a fulfilling, independent life in her local hometown. This would not be possible without the aid of rural public transit.

3. Supporting the tourism economy.

In **Oregon**: Bend, Oregon, in Deschutes County, has a population of more than 100,000 but is miles from Interstate 5 to the west or Interstate 84 to the north. Bend is the gateway to Central Oregon recreational opportunities, including Crater Lake National Park, skiing at Mount Bachelor, and golf at the Sun River resort. Improving connectivity will help support the growing tourism economy in the region.

"The bulk of our Interstate system was planned more than 50 years ago—before SUVs and commercial trucks, before the widespread use of computers, before cell phones, before microwave ovens and fast food. Why do we expect our modern society to run on such an archaic transportation system? We need a transportation system that works for today—not one that struggles to keep up with yesterday."

—John Horsley, Executive Director, AASHTO

4. Extending the Interstate to connect new and emerging centers of population and commerce, such as rapidly growing urbanized areas and recreation centers.

Linking **Arizona** and **Nevada**: Two of the fastest-growing areas in the country would benefit from a new Interstate linking Phoenix and Las Vegas. The distance between the two cities—295 miles—now takes seven hours to span via existing highways. Improving connections would enhance travel, business competitiveness, tourism, and freight movement between the two areas.

Such improvements are needed in addition to the critically important investments that must be made to maintain and preserve existing highway capacity in rural America, which together will ensure a connected, accessible highway and transportation network for the benefit of the entire country.

Interstate 50th Anniversary Celebration, Des Moines, IA

Photo courtesy of Iowa Department of Transportation

How Much New Capacity Will Be Needed?

State transportation officials have placed preservation of our highway and transit systems among their top priorities. But preservation includes ensuring that the highway system that carries more than 90 percent of travel continues to function to meet the needs of commuters, truckers, ambulance drivers, and school bus operators.

As America grows in population and in economic opportunity, increases in highway capacity are among the ways the nation can meet the need to relieve congestion, serve areas that are underserved by the transportation grid, accommodate freight growth and economic expansion, and provide access, mobility, and connectivity.

To this end, AASHTO has recommended that:

- Funding for the highway program, to include maintenance, preservation and new projects to address capacity issues, be increased to $375 billion over six years; and
- Federal funding for rural transit service should more than double over the next six years to keep pace with rising demand.

In 2007, a study of future options for the Interstate Highway System identified the capacity increases that are necessary to serve the needs of rural America, tourism, new urban centers, and homeland defense. That study called for a 30,000 lane-mile Interstate system expansion in rural America, including:

- Expanding the existing rural Interstate Highway System by 16,000 lane-miles[3];
- Upgrading rural National Highway System routes to Interstate standards, an addition of 2,000 lane-miles; and
- Upgrading to Interstate standards those National Highway System routes that can connect the existing Interstate network to unconnected urbanized areas with a current or expected population greater than 50,000 in population. This would add 12,000 lane-miles.

Many additional needed improvements may not warrant upgrades of routes to Interstate status or standards. Federal-aid highways that are not on the National Highway System, for example, provide an important link between the NHS and local roads, while ensuring that regions can connect to the NHS system. They also provide important services to support agriculture, energy, and tourism industries.

[3] One lane-mile is one mile of one lane of road (a one-mile length of four lanes on a highway equals four lane miles).

Potential Interstates of the Future?

From Chambers of Commerce to Members of Congress, support is solid for proposed expansions of the Interstate Highway System to meet the needs of America.

Several Congressional High-Priority Corridors have been designated in Federal legislation as future parts of the Interstate System. The following is a sampling of potential Interstate routes that have captured public support.

Interstate 22

Interstate 22 is the new number for current US 78 between Memphis, Tennessee, and Birmingham, Alabama. Most of the freeway has been built. Signage has been installed designating it as a future Interstate, and completion is expected by 2011, with the final interchange being built at the intersections of highways I-65 and US 31 in Birmingham by 2012.

Interstate 41

A yet-to-be determined Interstate designation is being planned for portions of the present U.S. Route 41, I-894, and a portion of U.S. Route 45 between Milwaukee and Green Bay, Wisconsin. The new Interstate route would roughly parallel Interstate 43, which runs north–south along Lake Michigan from Milwaukee to Green Bay, where the two Interstates would meet.

Interstate 9

Interstate 9 has been proposed for State Route 99 in central California. It would go from the split with I-5 at Wheeler Ridge north through Fresno to Stockton.

Other proposed routes:

- Extension of Interstate 20 by upgrading US 76 to Wilmington, North Carolina.
- Extension of Interstate 45 by upgrading US 75 and US 69 from Dallas, Texas, to Tulsa, Oklahoma, or Waverly, Kansas, or an alternative proposed route (Interstate 29) from Joplin, Missouri, to Kansas City.
- Extensions of Interstate 49 from Shreveport, Louisiana, to Kansas City, Missouri, and from Lafayette to New Orleans, Louisiana.
- Extension of Interstate 66 through southern Kentucky, through West Virginia and connecting with I-81 in Staunton, Virginia, and Lynchburg, Virginia.
- Interstate 99 from Bedford, Pennsylvania, to Corning, New York, and from Bedford to Cumberland, Maryland (partially complete).
- Interstate 422, a northern beltline of Birmingham, Alabama.
- Interstate 785 from Greensboro, North Carolina, to Danville, Virginia.

Some proposed conversions of existing highways into Interstate highways:

- Conversion of New York State Route 17 into Interstate 86 from just east of Erie, Pennsylvania, to Harriman, New York (partially complete).
- Conversion of US 101 in California from Los Angeles to San Francisco to the Interstate freeway system.
- Conversion of California State Route 58 to an extension of Interstate 40 from Barstow to Interstate 5 near Bakersfield.
- Conversion of U.S. Highway 71 from Fort Smith, Arkansas, to Texarkana, to be marked as an extension of Interstate 540, and ultimately, Interstate 49.

Interstate 3

The 3rd Infantry Division Highway was proposed in the 2005 highway funding bill (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users or SAFETEA-LU) to run from Savannah, Georgia, north via Augusta, to Knoxville, Tennessee.

Interstate 11

Interstate 11 is the proposed route number for an Interstate connecting Phoenix to Las Vegas. The corridor would be approximately 285 miles in length.

Interstate 14

The 14th Amendment Highway was proposed in SAFETEA-LU to run from Augusta, Georgia, through Macon, Columbus, Montgomery, Meridian, and Jackson to end in Natchez, Mississippi, or Baton Rouge, Louisiana.

Interstate 67

Interstate 67 would be an upgrade of US 31 in Indiana between Indianapolis and South Bend, continuing northward via the US 31 freeway north to Benton Harbor, Michigan, and going northward from there along existing Interstate 196.

Congestion on Oklahoma State Highway 74.

Photo courtesy of Oklahoma Department of Transportation

Urgent Capacity Needs to Connect Rural America—State-by-State

In response to a request by AASHTO, state departments of transportation have provided just a few illustrative examples of their vital capacity improvement needs. In some cases, they have focused on key projects, and in others broad highway improvement plans. These examples are available at www.ExpandingCapacity.transportation.org. What these examples show is that as America grows, so must its highway system.

Connecting Rural and Urban America—State Projects List

ALABAMA: Interstate 65 in Shelby County

ALASKA: Knik Arm Bridge

ARIZONA: Rail Improvements: Phoenix to Tucson

ARKANSAS: Four-Lane Grid System
Highway 167

CALIFORNIA: Rural/Urban Connections Strategy Project

COLORADO: Interstate 70 Mountain Corridor

DELAWARE: US 113 Improvements
Sussex County East/West Improvements

FLORIDA: Florida 79 in Bay, Holmes, and Washington Counties

GEORGIA: Georgia 133 Corridor between Albany and Valdosta

IDAHO: US 95 Expansion, Garwood to Sagle
Expansion of Port of Lewistown Dock and Idaho 128
US 95 Expansion, Thorncreek Road to Moscow
Meridian Interchange Replacement
Interstate 84 Central Treasure Valley Gap Closure Project
Idaho 75, Timmerman to Ketchum Expansion
Interstate 84/US 93 Interchange, Stage 2 Expansion to the Magic Valley
US 30, Lava Hot Springs to Fish Creek Expansions
US 20 at I-15 Reconstruction, Idaho Falls

IOWA: US 61 Fort Madison

KANSAS: Kansas 18 Corridor, Fort Riley-Manhattan

LOUISIANA: Interstate 49 North Segment

MARYLAND: Eastern Shore Rail Rehabilitation
Maryland 404 Expansion
Branch Avenue Metro Station Access Improvements
Military Base Access Improvements

MASSACHUSETTS: South Coast Rail
Middleborough Rotary

MICHIGAN: Detroit River International Crossing

MINNESOTA: Prairie Line Track Improvement

MISSOURI: U.S. Highway 63
Daniel Boone Bridge
Interstate 29 from 210 to US 169
Missouri 210 from Eldon Road to Missouri 291
Missouri Highway 5

NEBRASKA: NE 370 Gretna East Project

NEVADA: Interstate 15 in Las Vegas
Pyramid Highway Expansion

NEW HAMPSHIRE: New Hampshire 16, Conway

NEW JERSEY: New Jersey 47/347 and New Jersey 49/50 Corridor Enhancements

NEW YORK: Adirondack Park Mobility

NORTH CAROLINA: US 158 Corridor

OHIO: Hamilton County: Ohio 32 Eastern Corridor
Lawrence County: Chesapeake Bypass
Scioto County: Ohio 823 Portsmouth Bypass
Stark County: US 30 Widening
Wood County: Interstate 75 Widening from Findlay to Toledo

OKLAHOMA: US-77 in Cleveland County from Lexington north to Noble
US-70 corridor from I-35 east to the Arkansas state line
SH-20 in Tulsa and Rogers Counties from US-169 east to Claremore
SH-74 in Oklahoma County from Kilpatrick Turnpike north to Covell Rd.

OREGON: Newberg/Dundee Bypass
Interstate 5 Southern Oregon Truck Climbing Lanes

SOUTH DAKOTA: Interstate 90 Corridor Preservation Project

TENNESSEE: Tennessee 109 Corridor

TEXAS: Interstate 69

VERMONT: Morrisville Bypass

VIRGINIA: Virginia Passenger Rail Initiative

WISCONSIN: Interstate 39/90 Corridor
Door County Corridor: Green Bay to Sturgeon Bay

WYOMING: Interstate 80 Truck Climbing Lanes

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